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CONTENTS

The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENT SECTION), issued weekly.

THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly.

GENERAL INFORMATION concerning PATENTS.

GENERAL INFORMATION concerning TRADEMARKS.

PRINTED COPIES OF PATENTS are furnished by the Patent and Trademark Office at $1.00 each; PLANT PATENTS in color, $8.00 each; copies of TRADEMARKS at $1.00 each. Address orders to the Commissioner of Patents and Trademarks, Washington, D.C., 20231.

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries see the notice appearing in the Official Gazette at 1017 O.G. 10 on Apr. 13, 1982. For use of the European Patent Office as a Searching Authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the domestic PCT fees have been increased as of Oct. 1, 1982 by a rule change to 37 CFR 1.445 that was published at 1021 O.G. 11 on Aug. 10, 1982. Also note that the international PCT fees have changed as of Jan. 1, 1983 and the Search Fee for the European Patent Office as Searching Authority changed as of Jan. 22, 1983. The notice regarding the change in international fees and the Search Fee for the European Patent Office appeared at 1025 O.G. 27, on 28 Dec. 1982. The current schedule of fees is as follows:

Transmittal fee	$ 125.00
Search fee	
U.S. Patent and Trademark Office as Searching Authority	
· No corresponding prior U.S. national application filed	500.00
· Corresponding prior U.S. national application filed	250.00
European Patent Office as Searching Authority	
· All cases	670.00
International Fees	
Basic Fees (first 30 pages)	265.00
Basic Supplemental Fee (for each page over 30)	5.00
Designation fee (for each national or regional office)	65.00

GERALD J. MOSSINGHOFF,
Dec. 3, 1982. *Commissioner of Patents and Trademarks.*

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,220,164, Re. S.N. 355,173, Filed Mar. 5, 1982, Cl. 131/84R, TOBACCO DISTRIBUTOR FOR CIGARETTE ROD MAKING MACHINES OR THE LIKE, Heinz-Christen Lorenzen, Owner of Record: *Hauni-Werke Korber & Co. KG, Hamburg, Germany,* Attorney or Agent: Peter K. Kontler, Ex. Gp.: 335

4,275,277, Re. S.N. 463,750, Filed Feb. 4, 1983, Cl. 179/170 NC, SUBSCRIBER LINE INTERFACE CIRCUIT FOR A TELEPHONE LINE, Gilbert M. M. Ferrieu, Owner of Record: *Telecommunications Radioelectriques et Telephoniques, Paris, France,* Attorney or Agent: Thomas A. Briody, Ex. Gp.: 214

4,285,240, Re. S.N. 464,094, Filed Jan. 26, 1983, Cl. 73/462, WHEEL UNBALANCE MEASUREMENT SYSTEM AND METHOD, Kenneth S. Gold, Owner of Record: *IMC Corp., San Jose, Calif.,* Attorney or Agent: Henry M. Stanley, et al., Ex. Gp.: 244

4,290,238, Re. S.N. 438,901, Filed Jan. 13, 1983, Cl. 51/58, UNIVERSAL CRANKSHAFT FINISHING MACHINE, Edward E. Judge, Jr., Owner of Record: *Industrial Metal Products Corp., Lansing, Mich.,* Attorney or Agent: Lloyd M. Forster, Ex. Gp.: 323

4,333,495, Re. S.N. 464,124, Filed Feb. 4, 1983, Cl. 137/484.2, CHECK VALVE ASSEMBLY, David E. Griswold, et al., Owner of Record: *Griswold Controls, Irvine, Calif.,* Attorney or Agent: John B. Young, et al., Ex. Gp.: 341

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,903,127, Reexam. No. 90/000,333, Requested: Mar. 1, 1983, Cl. 260/453AB, PROCESS FOR THE PRODUCTION OF POLYISOCYANATES WITH A BIURET STRUCTURE, Kuno Wayner, et al., Owner of Record: *Bayer Aktiengesellschaft, Leverkusen, Germany,* Attorney or Agent: Joseph C. Gil, Ex. Gp.: 120, Requester: Asahi Kasei Kogyo Kabushiki Kaisha, Washington, D.C.

4,053,845, Reexam. No. 90/000,336, Requested: Mar. 4, 1983, Cl. 330/4.3, OPTICALLY PUMPED LASER AMPLIFIERS, Gordon Gould, Owner of Record: *Refac Technology Development Corp., New York, N.Y.,* Attorney or Agent: Lerner, David, et al., Ex. Gp.: 222, Requester: General Motors Corp., Detroit, Mich.

4,260,840, Reexam. No. 90/000,335, Requested: Feb. 28, 1983, Cl. 585/259, BUTENE-1 CONTAINING FEED PURIFICATION PROCESS (CS-165), Friedrich H. Puls, et al., Owner of Record: *Exxon Research and Engineering Co., Florham Park, N.J.,* Attorney or Agent: Rebecca Yablonsky, Ex. Gp.: 110, Requester: Bayer Aktiengesellschaft, Leverkusen, Germany

4,272,435, Reexam. No. 90/000,337, Requested: Mar. 7, 1983, Cl. 260/192, PROCESS FOR THE PREPARATION OF AZO COMPOUNDS FROM AMINO COMPOUNDS IN THE PRESENCE OF A PHASE TRANSFER CATALYST, Teruo Matsuda, et al., Owner of Record: *Sumitomo Chemical Co., Ltd., Osaka, Japan,* Attorney or Agent: Stevens, Davis, et al., Ex. Gp.: 110, Requester: E. I. du Pont de Nemours & Co., Wilmington, Del.

4,276,329,Reexam. No. 90/000,338, Requested: Mar. 7, 1983, Cl. 427/393, WOOD TREATMENT PROCESS AND PRODUCT THEREOF, Ramesh C. Vasishth, et al., Owner of Record: *Envirosol Systems International, Ltd., Orinda, Calif.,* Attorney or Agent: Townsend & Townsend, Ex. Gp.: 162, Requester: Spencer Kellogg, Buffalo, N.Y.

Errata

The following registration numbers were inadvertently canceled in the "Trademarks Registrations Canceled, Section 8" section of the Official Gazettes listed below:

865,746	TM76	May 6, 1975
947,978	TM132	May 8, 1979
962,009	TM67	Jan. 1, 1980
963,115	TM142	Jan. 8, 1980
902,442	TM283	Jan. 22, 1980
971,057	TM149	May 13, 1980
973,817	TM146	June 24, 1980
977,404	TM105	Aug. 19, 1980
981,929	TM145	Oct. 28, 1980
982,320	TM39	Nov. 4, 1980
982,599	TM86	Nov. 11, 1980
984,093	TM185	Nov. 25, 1980
986,174	TM91	Dec. 9, 1980
986,182	TM91	Dec. 9, 1980
986,211	TM91	Dec. 9, 1980
986,448	TM92	Dec. 9, 1980
986,571	TM93	Dec. 9, 1980
986,645	TM93	Dec. 9, 1980
986,786	TM127	Dec. 16, 1980
988,272	TM207	Dec. 30, 1980
992,080	TM216	Feb. 10, 1981
994,834	TM250	Mar. 10, 1981
1,003,967	TM763	June 30, 1981
1,010,776	TM157	Oct. 6, 1981
1,011,622	TM396	Nov. 17, 1981
1,013,002	TM519	Nov. 24, 1981
1,025,542	TM141	May 4, 1982
1,026,808	TM142	May 4, 1982
1,031,812	TM602	June 22, 1982
1,032,840	TM140	July 6, 1982
1,038,668	TM620	Sept. 28, 1982
1,040,139	TM450	Oct. 19, 1982
1,045,350	TM604	Dec. 28, 1982
1,046,293	TM301	Jan. 11, 1983
1,047,791	TM452	Feb. 15, 1983
1,049,654	TM150	Mar. 1, 1983

Consequently, the above identified registrations are still active.

MARK NEWMAN,
Director Trademark
Examining Operation.

Mar. 11, 1983.

The following registration number, listed in the "Trademarks Registrations Issued" section of the Official Gazette of Jan. 25, 1983, was inadvertently issued:

1,224,976	TMOG	Jan. 25, 1983

Consequently, the certificate of registration bearing the above-identified number was not issued on the date indicated, and this registration number has been vacated.

MARK NEWMAN,
Director Trademark
Examining Operation.

Mar. 2, 1983.

Certificates of Correction for the Week of Apr. 5, 1983

Re. 30,861	4,344,329	4,358,847	4,367,156
D. 263,977	4,345,372	4,359,025	4,367,465
D. 266,091	4,345,395	4,359,181	4,367,467
D. 267,066	4,345,901	4,359,204	4,367,490
4,038,533	4,347,227	4,359,214	4,367,639
4,097,679	4,347,584	4,359,663	4,367,713
4,133,247	4,348,190	4,360,339	4,367,809
4,158,285	4,350,724	4,360,524	4,367,874
4,174,125	4,350,776	4,360,755	4,368,117
4,179,574	4,351,827	4,360,919	4,368,148
4,224,470	4,352,116	4,361,370	4,368,202
4,236,050	4,352,425	4,361,554	4,368,383
4,246,409	4,352,714	4,361,563	4,368,439
4,247,302	4,352,760	4,361,736	4,368,504
4,267,935	4,352,869	4,361,754	4,368,643
4,281,726	4,352,995	4,362,036	4,368,705
4,283,437	4,353,620	4,362,185	4,368,716
4,292,075	4,353,820	4,362,369	4,368,739
4,311,700	4,354,108	4,362,471	4,368,765
4,311,789	4,354,256	4,362,707	4,368,790
4,312,993	4,354,442	4,362,738	4,368,986
4,316,551	4,355,117	4,362,955	4,369,190
4,319,177	4,355,201	4,363,052	4,369,244
4,319,719	4,355,518	4,363,058	4,369,883
4,320,293	4,355,678	4,363,194	4,370,027
4,320,568	4,356,014	4,363,312	4,370,034
4,321,933	4,356,411	4,364,251	4,370,044
4,325,938	4,356,505	4,364,688	4,370,805
4,326,996	4,357,194	4,364,909	4,371,020
4,329,405	4,357,328	4,364,928	4,371,462
4,330,026	4,357,458	4,365,284	4,371,473
4,332,620	4,357,530	4,365,444	4,371,583
4,332,761	4,358,181	4,365,513	4,371,931
4,333,176	4,358,217	4,365,754	4,372,005
4,334,089	4,358,471	4,365,896	4,372,286
4,342,183	4,358,554	4,367,114	

Disclaimers

3,226,552.—*Monroe H. Sweet,* deceased, late of Hillcrest, N.Y., by *Russell P. Easton,* executor. PHOTOMULTIPLIER ZERO LEVEL CONTROL CIRCUIT. Patent dated Dec. 28, 1965. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,244,519.—*Andre K. Schwerin,* Binghamton, N.Y. PHOTOPOLYMERIZATION IN STRATUM TRANSFER EFFECTED WITH COLORLESS WATER INSOLUBLE COLLOIDAL ORGANIC COMPOUND. Patent dated Apr. 5, 1966. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,316,094.—*Aaron Ben-Ezra,* Binghamton, N.Y. METHOD OF INCORPORATING COLOR COUPLERS IN HYDROPHILIC COLLOIDS. Patent dated Apr. 25, 1967. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,316,118.—*Peter A. Landskroener,* Binghamton, N.Y. MIXED RESIN ADHESIVE COMPOSITION FOR SECURING HYDROPHOBIC CALCIUM TUNGSTATE SALT LAYER TO HYDROPHILIC BASE. Patent dated Apr. 25, 1967. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,406,067.—*Edward Cerwonka,* Binghamton, N.Y. COLORED PHOTORESIST AND METHOD OF PREPARATION. Patent dated Oct. 15, 1968. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,490,904.—*Carl E. Johnson* and *Dewey M. Dumers,* Binghamton, N.Y. COLOR OSCILLOGRAPH RECORDING PAPER. Patent dated Jan. 20, 1970. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,513,738.—*Bernard C. Sheffer,* Binghamton, N.Y. AUTOMATIC SENSITOMETRIC FILM STRIP CUTTER. Patent dated May 26, 1970. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,518,746.—*James E. Hoover,* Binghamton, N.Y. FILM WINDING AND STAKING METHOD. Patent dated July 7, 1970. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,549,460.—*Rudolph C. Stobb,* Endwell, N.Y. ULTRASONIC SEALING OF FILM CARTRIDGES. Patent dated Dec. 22, 1970. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,556,792.—*Leon Katz,* Springfield, N.J. NOVEL SUBSTITUTED ALLYL POLYMER DERIVATIVES USEFUL AS PHOTORESISTS. Patent dated Jan. 19, 1971. Disclaimer filed Sept. 30, 1982., by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,585,034.—*Steven Levinos,* Vestal, N.Y. MANUFACTURE OF PHOSPHOR SCREENS. Patent dated June 15, 1971. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,653,772.—*Ralph I. Berge,* Binghamton, N.Y. TWO LAMP LIGHT COMPARISON TYPE DENSITOMETER. Patent dated Apr. 4, 1972. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,744,904.—*Frank J. Loprest,* Binghamton, N.Y TRANSPARENT PHOTOGRAPHIC MASKS. Patent dat-

ed July 10, 1973. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,872,762.—*William R. McKillip*, Portland, Oreg.; and *Donald L. Mason*, Fair Oaks, Calif. BAND SAW SYSTEM. Patent dated Mar. 25, 1975. Disclaimer filed Feb. 7, 1983, by the assignee, *R. Hoe & Co., Inc.*

Hereby enters this disclaimer to all claims of said patent.

Disclaimers and Dedications

3,356,389.—*John V. Fredd*, Dallas, Tex. LOCKING DEVICES FOR WELL TOOLS. Patent dated Dec. 5, 1967. Disclaimer and Dedication filed Jan. 6, 1983, by the assignee, *Otis Engineering Corp.*

Hereby disclaims and dedicates to the Public the remaining term of said patent.

3,378,080.—*John V. Fredd*, Dallas, Tex. FLUID PRESSURE OPERATED ACTUATED OPERATOR TOOL FOR WELL TOOLS. Patent dated Apr. 16, 1968. Disclaimer and Dedication filed Jan. 6, 1983, by the assignee, *Otis Engineering Corp.*

Hereby disclaims and dedicates to the Public the remaining term of said patent.

3,381,753.—*John V. Fredd*, Dallas, Tex. FLUID FLOW CONTROL SYSTEM FOR WELLS. Patent dated May 7, 1968. Disclaimer and Dedication filed Jan. 6, 1983, by the assignee, *Otis Engineering Corp.*

Hereby disclaims and dedicates to the Public the remaining term of said patent.

3,494,420.—*Phillip S. Sizer*, Dallas, Tex. METHOD OF OPERATING A WELL INSTALLATION. Patent dated Feb. 10, 1970. Disclaimer and Dedication filed Jan. 6, 1983, by the assignee, *Otis Engineering Corp.*

Hereby disclaims and dedicates to the Public the remaining term of said patent.

3,506,068.—*Norman F. Brown* and *John V. Fredd*, Dallas, Tex. PUMPABLE IMPELLER PISTONS FOR FLOW CONDUCTORS. Patent dated Apr. 14, 1970. Disclaimer and Dedication filed Jan. 6, 1983, by the assignee, *Otis Engineering Corp.*

Hereby disclaims and dedicates to the Public the remaining term of said patent.

4,324,681.—*David W. House*, Arlington Heights, Ill. CHIRAL SUPPORTS FOR RESOLUTION OF RACEMATES. Patent dated Apr. 13, 1982. Disclaimer and Dedication filed Jan. 19, 1983, by the assignee, *UOP, Inc.*

Hereby enters this disclaimer to claims 1-9 and dedicates said patent to the Public.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

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Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

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California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 571-2122
Delaware	Newark: University of Delaware	(302) 738-2238
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	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
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	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
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*Collection organized by subject matter.

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PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF February 19, 1983

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director .... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-16-81
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director .... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	11-20-81
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	7-14-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director .... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	1-20-82
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170— R. F. WHITE, Director .... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	11-12-81
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	4-7-81
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director .... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	3-12-81
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-24-80
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240— G. M. FORLENZA, Director .... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	1-07-81
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director .... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	8-25-80
DESIGN, GROUP 290—KENNETH L. CAGE, Director .... Industrial Arts; Household, Personal and Fine Arts.	1-13-81
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director .... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	5-18-81
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	5-18-81
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330— R. E. AEGERTER, Director .... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	2-13-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director .... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	11-17-80
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350— A. L. SMITH, Director .... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	9-12-80

Expiration of patents: The patents within the range of numbers indicated below expire during February 1983, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents .... Numbers 3,231,896 to 3,237,200, inclusive

Plant Patents .... Numbers 2,591 to 2,605 inclusive

REEXAMINATIONS

APRIL 5, 1983

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 3,621,243 (68th)

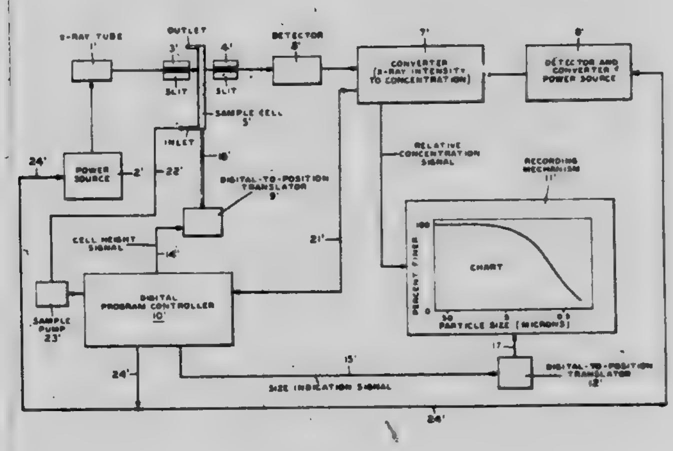
APPARATUS AND PROCESS FOR DETERMINING PARTICLE SIZE BY X-RAY ABSORPTION ANALYSIS

James Peter Olivier; George Keller Hickin, both of Macon, Ga., assignors to Freeport Minerals Company, New York, N.Y.

Reexamination Request No. 90/000,064, Sep. 8, 1981.

Reexamination Certificate for Patent No. 3,621,243, issued Nov. 16, 1971, Ser. No. 816,649, Apr. 16, 1969.

U.S. Cl. 378/51 Int. Cl.³ G01N 23/12, 9/24



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1** and **2** is confirmed.

Claims **3** and **5-11** are determined to be patentable as amended:

Claim **4**, dependent on amended claims, is determined to be patentable.

3. An automatic particle size analyzer comprising a sample chamber for holding a dilute fluid suspension of finely divided material, means for *continuously* generating an X-ray beam, means for *continuously* directing *the* [an] X-ray beam horizontally through the suspension, means for *continuously* measuring the intensity of the X-ray beam horizontally transmitted through the suspension, electronic or electromechanical means for *continuously* converting this intensity measurement of X-ray beam transmittance to a quantity proportional to the logarithm of the intensity measurement, means for *continuously* indicating said quantity as concentration, a digitally programmed means for *continuously* changing the vertical distance between the point of intersection of the X-ray beam with the suspension and *the* upper or lower surface of the suspension according to whether the particles are more or less dense than the suspending fluid, and a digitally programmed means for simultaneously providing *a continuous* [an] indication of the particle size corresponding to the elapsed sedimentation time and *the* [an] instantaneous value of vertical distance according to Stokes' Law*; said two digitally programmed* means comprising a single digitally programmed means.

B1 3,956,540 (69th)

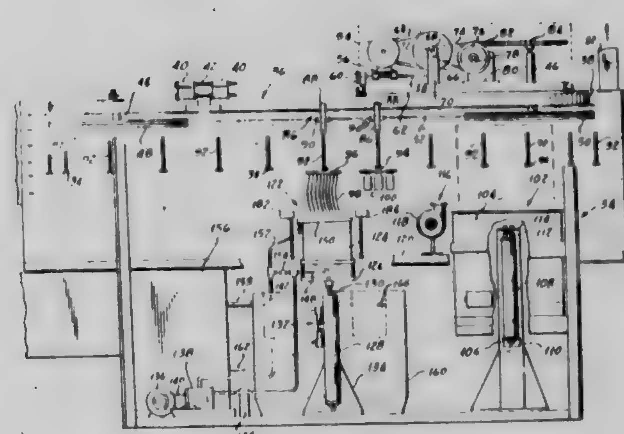
METHOD OF COATING ARTICLES

Albert J. Laliberte, South Woodstock, Conn.; Armand DeAngelis, Southbridge, Mass., assignors to Omnitech Inc., Southbridge, Mass.

Reexamination Request No. 90/000,051, Aug. 10, 1981.

Reexamination Certificate for Patent No. 3,956,540, issued May 11, 1976, Ser. No. 395,779, Sep. 10, 1973.

U.S. Cl. 427/164 Int.³ B05D 5/06



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1** and **2** were previously disclaimed.

Claims **3-8** having been finally determined to be unpatentable, are cancelled.

Claims **9, 13** and **18** are determined to be patentable as amended:

Claims **10-12**, and **14-17**, dependent on amended claims, are determined to be patentable.

New claims **19-22** are added and determined to be patentable.

19. *A process for forming a clear distortion-free scratch resistant coating of an organosilicon thermoset cross-linkable polymer on an optical article including the steps of applying a coating of a solution of said polymer from a supply of a solution of said polymer to said article in a controlled atmosphere maintained at a first temperature sufficiently above room temperature to precure a coating of said polymer to a tack free condition within a predetermined period of time, retaining said article in said controlled atmosphere for said predetermined time to precure said article coating to tack free condition, baking said article carrying said precured tack free coating at an elevated temperature with reference to said first temperature for a length of time sufficient to cure said coating fully to said clear distortion-free scratch resistant condition, and cooling said supply of said solution of polymer to a temperature sufficiently below room temperature appreciably to extend the useful life of said solution, said cooling step including controlling the temperature of said supply of said solution to minify the possibility of the application of uneven coatings of said solution to said articles.*

B1 4,144,212 (70th)
AIR-CURING COPOLYMER LATICES
Seymour M. Linder, Baltimore; John W. Calentine, Pasadena, both of Md., assignors to Alcolac Inc., Baltimore, Md.
Reexamination Request No. 90/000,012, Jul. 1, 1981.
Reexamination Certificate for Patent No. 4,144,212, issued Mar. 13, 1979,
U.S. Cl. 524/818 Int. Cl.³ C08F 20/40

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1–8** having been finally determined to be unpatentable, are cancelled.

9. *An air-curing copolymer latex comprising an aqueous dispersion of a copolymer of a mixture of copolymerizable monomers, consisting essentially, in percent by weight based on the total weight of monomers used, of:*

(a) about 1% to about 20% of dicyclopentadienyl acrylate or dicyclopentadienyl methacrylate;
(b) about 99% to about 20% of an alkyl acrylate or alkyl methacrylate, including mixtures thereof, in which the alkyl groups contain from 1 to 4 carbon atoms;
(c) up to about 5% of acrylic acid or methacrylic acid;
(d) about 0% to about 40% of other acrylic monomers selected from the group consisting of higher alkyl acrylates and alkyl methacrylates in which the alkyl groups contain from 5 to 18 carbon atoms, acrylamide, methacrylamide, diacetone acrylamide, acrylonitrile and methacrylonitrile; and
(e) about 0% to about 80% of other monoethylenically unsaturated monomers which are copolymerizable with (a), (b), (c) and (d);

the above comonomers constituting essentially 100% by weight of the total monomers in said copolymer and said copolymer containing essentially 100% of the total weight of said dicyclopentadienyl acrylate or dicylopentadienyl methacrylate present in the latex.

DEFENSIVE PUBLICATIONS

PUBLISHED APRIL 5, 1983

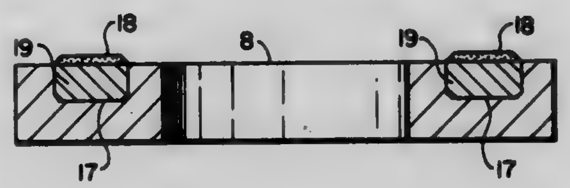
Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased @ 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent and Trademark Office makes no assertion as to the novelty of the disclosed subject matter.

T102,901
METHOD OF FABRICATING A BEARING

Larry A. Offenbacher, 4421 Castleton Rd., West, Columbus, Ohio 43220

Filed Aug. 31, 1981, Ser. No. 298,271
Int. Cl.³ B21D *53/10*
U.S. Cl. 29—149.5 R
1 Sheets Drawing. 10 Pages Specification

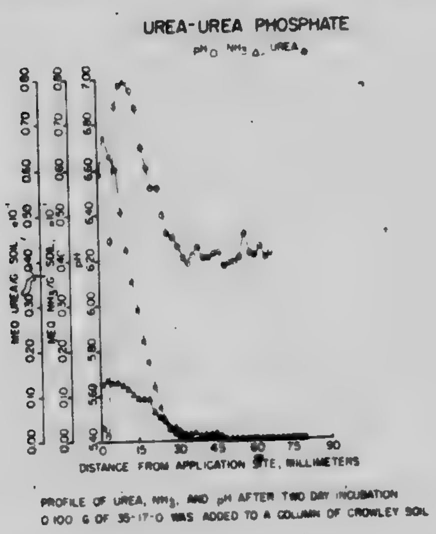


The mating halves 7 and 11 of a new type of thrust bearing for a down hole drilling motor 1 are fabricated by a technique which ensures that the composite diamond compact inserts 9 or 13 are coplanar with each other. Composite compacts are utilized having a chamfer on both the diamond table 18 and the substrate 19. These hard inserts are inserted into recesses 17 in steel bearing body rings 8 or 12, said recesses being the same depth as the substrate. The composite compacts are furnace brazed below the degradation temperature of the diamond. During brazing a weight is placed on the compacts to maintain their coplanar relationship. The space between the inserts 15 is maintained at less than half their diameter. This fabrication technique results in a smooth running, low friction thrust bearing for rotating equipment.

T102,902
GRANULAR UREA - UREA PHOSPHATE FERTILIZER

Fayez E. Khasawneh, 329 Robinhood Dr., Florence, Ala. 35630

Filed Oct. 5, 1981, Ser. No. 308,875
Int. Cl.³ C05C *9/00, 7/08*
U.S. Cl. 71—29
16 Sheets Drawing. 26 Pages Specification

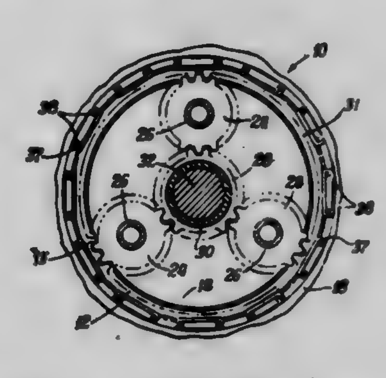


Solid granular fertilizers based on the inclusion of phosphoric acid as an additive to urea and consisting of a homogeneous mixture of two solid crystalline phases, i.e., urea and urea phosphate, and ranging in its overall $N:P_2O_5$ weight ratio from about 2:1 to about 5:1, preferably from about 2:1 to 3:1. These fertilizers are suitable for surface application, especially where immediate incorporation into the soil is not practicable, such as on pastures, or undesirable such as in conjunction with reduced tillage practices, and generally wherever it is necessary or desirable to apply nitrogen on the surface of soil, ensuring substantially reduced losses of urea nitrogen by volatilization, and causing a delay of 4 to 7 days in the commencement of such losses. The product is also suitable for band application, resulting in eliminating the problems of seedling damage and crop stand reduction which are associated with urea or combinations of urea and ammonium phosphates, particularly diammonium phosphate.

T102,903
PINNED-ON PLANETARY RING GEAR ASSEMBLY AND SALVAGE METHOD

Robert S. Orr, 5 Rosewood La., Pekin, Ill. 61554

Continuation of Ser. No. 546,949, Feb. 4, 1975, abandoned, and a continuation-in-part of Ser. No. 385,901, Aug. 6, 1973, abandoned. This application Aug. 30, 1976, Ser. No. 719,027
Int. Cl.² F16H *1/28*
U.S. Cl. 74—801
3 Sheets Drawing. 14 Pages Specification



A ring gear mounted within a final drive or transmission housing and fixed against rotation with respect thereto. The ring gear is provided with a plurality of angularly spaced peripheral semi-circular recesses contiguous with opposing recesses in a peripheral portion of the housing. Drive pins are inserted within the circular apertures formed by the opposed semi-circular recesses. The pins and the ring gear are retained against axial movement by means of keeper plates fastened to a peripheral portion of the housing. In a preferred embodiment the diameters of the angularly spaced peripheral semi-circular recesses are greater than those of the drive pins and the centers of rotation of such enlarged semi-circular recesses are displaced from the centers of the drive pins. A method of salvaging a ring gear-housing assembly having a worn housing spline. The method includes providing the formerly described semi-circular recesses in peripheral portions of the ring gear and housing, providing drive pins for the aperture formed thereby, and providing keeper plates for retaining the ring gear and drive pins against axial movement. A method of salvaging a ring gear-housing assembly having worn semi-circular ring gear retaining recesses in the periphery of the housing. The method includes removing axial retention keeper plates from the housing, removing the drive pins from the apertures formed by the opposing semi-circular recesses in the ring gear and housing, angularly displacing the ring gear with respect to the housing, providing additional semi-circular recesses in the periphery of the housing at points thereof contiguous with the semi-circular recesses provided in the displaced ring gear,

installing drive pins in the apertures formed by the semi-circular recesses in the ring gear and newly provided recesses in housing, and installing keeper plates to retain the pins and ring gear against axial movement.

T102,904
TIRE CORD ADHESION
Hans M. Wenghoefer, 1513 Maple St., Wilmington, Del. 19805
Filed Jan. 27, 1982, Ser. No. 343,073
Int. Cl.³ B29H *17/00;* **B05D** *3/00*
U.S. Cl. 156—110 A
No Drawing. 10 Pages Specification

It has been found that the adhesion of aramid tire cord to rubber tire stock can be improved by pretreating the tire cord with a polyazidoformate under conditions calculated to only partially decompose the azidoformate groups.

T102,905
CONTROL OF SULFIDES IN AQUEOUS SYSTEMS
William H. Kibbel, Jr., 24 Dublin Rd., Pennington, N.J. 08534
Filed Oct. 5, 1981, Ser. No. 308,625
Int. Cl.³ A01N *00/00*
U.S. Cl. 210—759
No Drawing. 10 Pages Specification

Solid peroxygens may be compressed into shaped forms with or without additives to regulate the dissolving rate of the forms. Use of such peroxygen forms provides a simple and inexpensive method to dispense active oxygen and an alkali into a solution over a predetermined time to oxidize sulfides to sulfates and thus to reduce the chemical oxygen demand. Sodium carbonate peroxide and sodium perborate are two commercial peroxygen compounds particularly useful for this application as they provide both the active oxygen to oxidize the sulfide, and the alkalinity required to raise the pH of the solution to pH 8 or greater, thus preventing the formation of elemental sulfur. In addition, the two compounds are compatible with additives, such as carboxymethylcellulose and methylcellulose, which are useful in regulating the dissolution rate, as well as soda ash, which can be used to provide additional alkalinity.

T102,906
METHOD OF REMOVING PHOSPHORUS IMPURITIES FROM YELLOWCAKE
Richard A. Brown, 112 Glendale Dr., Trenton, N.J. 08618, and Donald C. Winkley, 2519 Laguna Shores, Corpus Christi, Tex. 78418
Filed Nov. 24, 1980, Ser. No. 210,063
Int. Cl.³ C01G *1/02, 43/025*
U.S. Cl. 423—16
No Drawing. 15 Pages Specification

Phosphorus impurities are removed from yellowcake by dissolving it in hydrochloric or sulfuric acid to a U_3O_8 assay of at least 150 g/l at a pH of 2; precipitating uranium peroxide with hydrogen peroxide while keeping the pH between 2.2 and 2.6 and recovering the uranium peroxide from the phosphorus impurities remaining in solution.

T102,907
PROCESS TO 3-PHENOXYBENZYL 3-(2,2-DICHLOROVINYL)-2,2-DIMETHYLCYCLOPROPANECARBOXYLATE
Marc Halfon, P.O. Box 64, 10-14 Deer Creek Dr., Plainsboro, N.J. 08536, and William G. Scharpf, 804 Roelofs Rd., Yardley, Pa. 19067
Continuation of Ser. No. 10,183, Feb. 7, 1979, abandoned. This application May 25, 1982, Ser. No. 381,997
Int. Cl.³ C07C *69/743*
U.S. Cl. 560—124
No Drawing. 10 Pages Specification

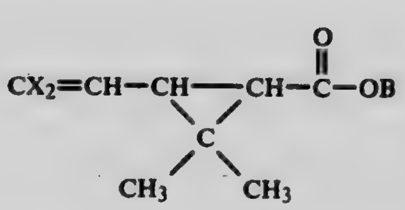
3-Phenoxybenzyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate is prepared in greater than 90% yield by alcoholysis of lower alkyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylates with 3-phenoxybenzyl alcohol. A lower alkyl alcohol, e.g., methanol or ethanol, is generated as a by-product.

The process is conducted under reflux at a temperature of at least 100° C. in an inert solvent between approximately stoichiometric amounts of the reactants. The solvent is selected to form an azeotropic mixture with, or boil at a higher temperature than, the lower alkyl alcohol by-product, and the by-product is removed from the mixture by distillation as it is produced. If lower alkyl is methyl or ethyl, n-octane, benzene, toluene, xylene, or mesitylene may be employed, for example.

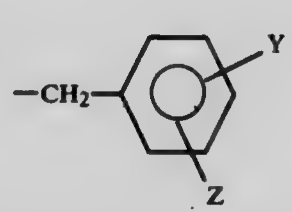
The process is promoted by lower alkyl titanium alkoxide catalysts. The purity of the product 3-phenoxybenzyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate, which is obtained as a bottoms residue after stripping the solvent, is high enough, greater than 90% to be suitable for use in commerce as the pyrethroid insecticide "permethrin" without further purification. The purity is enhanced by the use of only 0.001-0.01 mole of the catalyst per mole of lower alkyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate. To avoid hydrolysis of the catalyst, the reaction is carried out under substantially anhydrous conditions.

T102,908
CATALYZED TRANSESTERIFICATION SYNTHESIS
Joseph Halpern, 1072 Springfield Ave., New Providence, N.J. 07974, and Phillip Adams, 27 Burlington Rd., Murray Hill, N.J.
Continuation of Ser. No. 801,345, May 27, 1977, abandoned. This application May 25, 1982, Ser. No. 382,007
Int. Cl.³ C07C *69/74*
U.S. Cl. 560—124
No Drawing. 12 Pages Specification

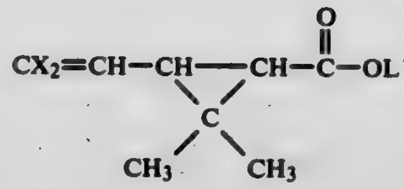
Esters of the formula



wherein X is chlorine or bromine and B is a benzyl group of the formula



where Y and Z may be the same or different and are selected from the group consisting of hydrogen, halogen, lower alkyl, lowr alkoxy, phenyl, phenoxy, lower alkyl phenyl, lower alkyl phenoxy, halophenyl and halophenoxy, are prepared by transesterification between BOH and a compound of the formula



wherein L is a lower alkyl radical of between 1 and 4 carbon atoms, using as catalyst an organometallic compound selected from $(RO)_4Ti$ and R'_2SnO, where R and R' are alkyl radicals of between 1 and 6 carbon atoms. Useful organometallic catalysts include tetrabutyl titanate, tetraisopropyl titanate, and dibutyl tin(IV)oxide. About 1% by weight of the total charge of reactants is catalyst. The process is conducted at 100°–200° C. under vacuum, generally in the absence of solvent, with sustained distillation of the LOH by-product until the theoretical amount of alcohol is collected. The product ester is then distilled under vacuum. For example, 126 g ethyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate, 100 g m-phenoxybenzyl alcohol, and 2.25 grams of tetraisopropyl titanate reacted at 150° C./200 mm Hg yielded the m-phenoxybenzyl ester; bp 181° C./0.1 mm Hg, 89% yield, 99.5% pure.

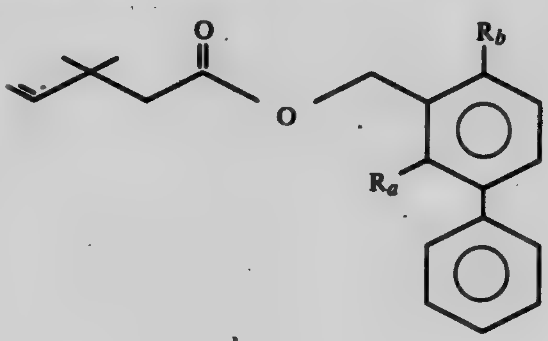
T102,909

INTERMEDIATES AND PROCESS FOR INSECTICIDAL BIPHENYLMETHYL ESTERS

Philip A. Cruickshank, 211 Dodds La., Princeton, N.J. 08540, and Anthony J. Martinez, 20 Weyburne Rd., Hamilton Square, N.J. 08690

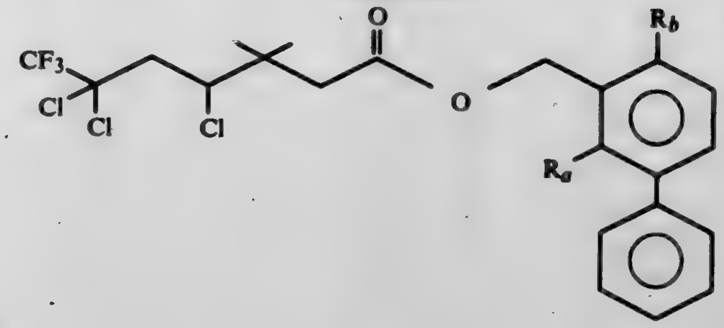
Continuation of Ser. No. 286,489, Jul. 24, 1981, abandoned. This application Sep. 7, 1982, Ser. No. 415,004
Int. Cl.³ C07C *69/533*
U.S. Cl. 560—221
No Drawing. 20 Pages Specification

Compounds of formulae II, III and IV:

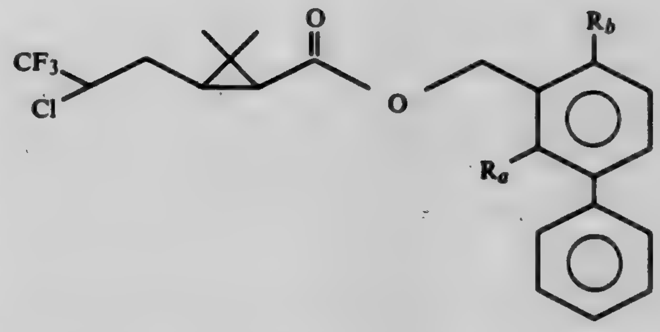


II

-continued

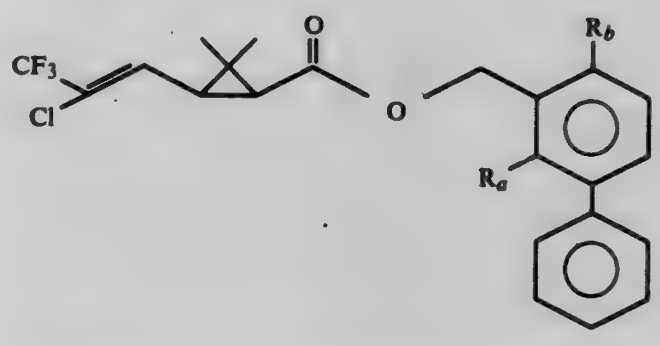


III



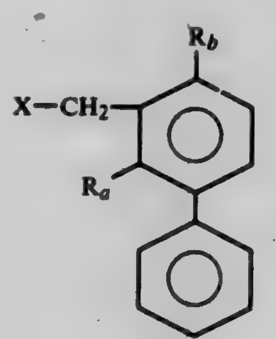
IV

are useful intermediates for preparation of an insecticidal compound of formula (I)



I

in which R_a and R_b are independently hydrogen, halogen, or alkyl. The intermediate II is prepared by reacting 3,3-dimethyl-4-pentenoic acid, a salt thereof, a lower alkyl ester or an acid chloride thereof with a compound of the formula



in which X is hydroxy or a good leaving group. Intermediate III is prepared by reacting II with 1,1,1-trichloro-2,2,2-trifluoroethane in the presence of a solvent and catalyst. Intermediate III is then dehydrohalogenated in the presence of base to remove 2 moles of halogen halide per mole of III in one or two steps to produce I.

[illegible]

REISSUES

APRIL 5, 1983

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 31,195

METHOD AND A DEVICE FOR ASCERTAINING THE DEGREE OF COMPACTION OF A BED OF MATERIAL WITH A VIBRATORY COMPACTING DEVICE

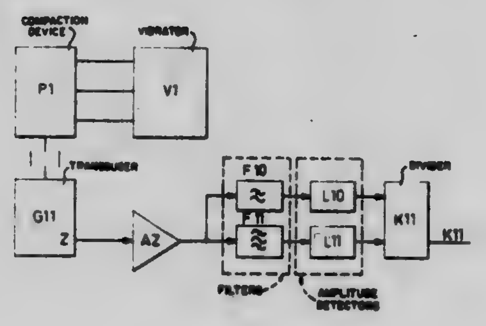
Heinz Thurner, Bunsövägen 29, S-132 00 Saltsjö-Boo, Sweden

Original No. 4,103,554, dated Aug. 1, 1978, Ser. No. 773,783, Mar. 2, 1977. Application for reissue Feb. 15, 1980, Ser. No. 121,907

Claims priority, application Sweden, Mar. 12, 1976, 7603249; Aug. 3, 1976, 7608709

Int. Cl.[3] G01M *7/00*

U.S. Cl. 73—573 **18 Claims**



10. A method for measuring the degree of compaction achieved in a bed of material by a vibratory roller of a compaction device comprising steps of:

vibrating the vibratory roller of the compaction device such that said vibratory roller vibrates against the bed of material to be compacted to generate a characteristic signal of the vibratory motion of the vibratory roller against said material, said characteristic vibratory motion signal having a fundamental frequency and a plurality of harmonic frequencies;

measuring the amplitude of said characteristic vibratory motion signal at said fundamental frequency;

measuring the amplitude of said characteristic vibratory motion signal for at least the second harmonic of said fundamental frequency; and

comparing the measured amplitudes of said fundamental frequency and said at least second harmonic frequency to ascertain the degree of compaction of said bed of material.

Re. 31,196

THROTTLE CONTROL DEVICE FOR MOTORCYCLES AND THE LIKE

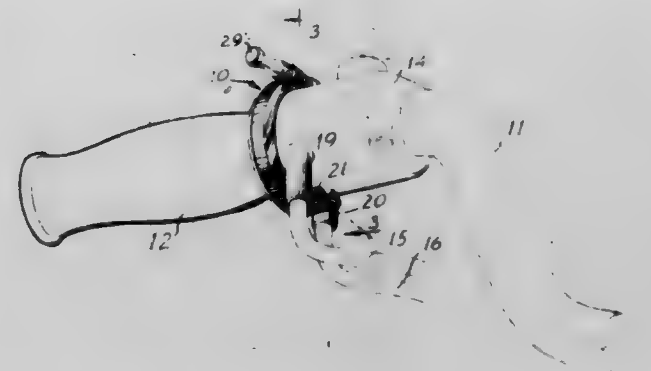
William E. Sowell, Atlanta, Ga., assignor to Andrew Van Dyken, Gallatin Gateway, Mont.

Original No. 4,137,793, dated Feb. 6, 1979, Ser. No. 831,761, Sep. 9, 1977. Application for reissue Feb. 4, 1981, Ser. No. 231,425

Int. Cl.[3] F16D *49/10;* **G05G** *5/16*

U.S. Cl. 74—488 **8 Claims**

7. A throttle control device, for a throttle apparatus including a handlebar and throttle operating means mounted on said handlebar, said throttle operating means including a sleeve rotatably mounted on said handlebar, said sleeve being adapted for receiving a handgrip thereover, and a housing fixed to said handlebar adjacent to said sleeve, said control device comprising clamping means for selectively holding said throttle operating means in a predetermined position, characterized in that said clamping means includes a disk defining an aperture for receiving said sleeve, said disk being positionable between said handgrip and said housing with said handgrip substantially contiguous to said disk, anchoring means for preventing rotation of said disk with respect to said housing including a tab fixed to said disk and engageable with said housing, said disk including at least one open portion separating adjacent sections of the disk, the aperture being large enough to allow free rotation of said sleeve with respect to said disk with the sections separated a predetermined distance, the control device



further comprising constricting means for urging the sections toward one another so as to constrict said aperture until the disk engages and restricts rotation of the sleeve.

Re. 31,197

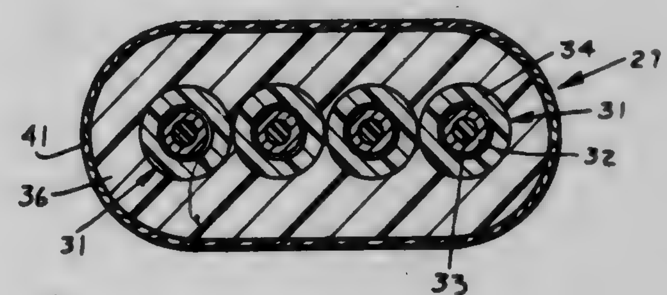
TELEPHONE CORD HAVING BRAIDED OUTER JACKET

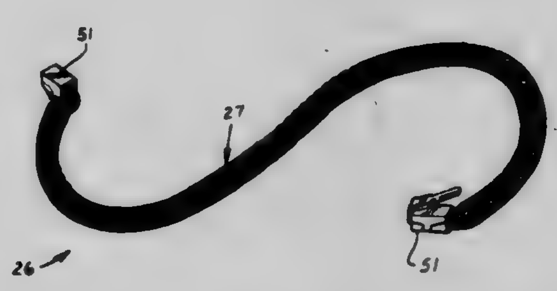
Eugene R. Cocco, Baltimore, Md., assignor to Western Electric Company, Inc., New York, N.Y.

Original No. 4,313,645, dated Feb. 2, 1982, Ser. No. 149,597, May 13, 1980. Application for reissue Apr. 9, 1982, Ser. No. 367,188

Int. Cl.[3] H01B *7/06*

U.S. Cl. 339—103 M **6 Claims**





1. A length of retractile telephone cordage which is coiled in and heat-set in a helical configuration, said cordage comprising:

a plurality of conductors, each of said conductors being insulated with a thermoplastic material which is capable of being coiled in a helical configuration and of being heat-set in such configuration;

an inner jacket which is made of a plastic material and which

encloses said plurality of individually insulated conductors; and

a braided outer jacket which encloses and which is in engagement with said plastic inner jacket, said braided outer jacket including a coating which impregnates an end portion of the braid and bonds said end portion to said plastic inner jacket, said engagement of said braided outer jacket with said plastic inner jacket being sufficient to cause said impregnated end portion to adhere to said plastic inner jacket while being insufficient to [prevent the inhibition of] *inhibit* a substantially uniform distribution of helices of the retractile cordage when the retractile cordage is extended.

Re. 31,198

METHOD FOR CLEANING ALUMINUM AT LOW TEMPERATURES

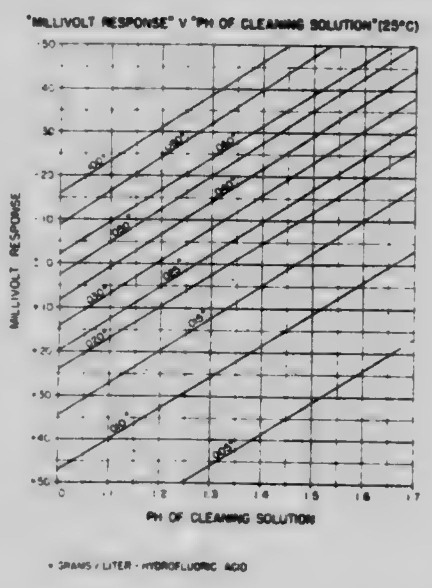
Robert E. Binns, Roslyn, Pa., assignor to Amchem Products, Inc., Ambler, Pa.

Original No. 4,124,407, dated Nov. 7, 1978, Ser. No. 755,929, Dec. 30, 1970. Division of Ser. No. 755,928, Dec. 30, 1976, Pat. No. 4,116,853, and a continuation-in-part of Ser. No. 607,154, Aug. 25, 1975, Pat. No. 4,009,115, which is a continuation-in-part of Ser. No. 442,726, Feb. 14, 1974, abandoned. Application for reissue Sep. 23, 1980, Ser. No. 189,743

The portion of the term of this patent subsequent to Feb. 22, 1994, has been disclaimed.

Int. Cl.^{3} B08B *3/08;* **C23G** *1/12*

U.S. Cl. 134—3 **16 Claims**



1. A process for cleaning an aluminum surface *having thereon deposits of aluminum fines and lubricant consisting essentially of removing said deposits* by contacting said surface with an aqueous cleaning solution comprising hydrofluoric acid in a concentration of about 0.005 to about 0.1 gram per liter of said aqueous cleaning solution and sulfuric acid in a concentration of about 1.0 to about 10 g/l of said aqueous cleaning solution and having a surfactant dissolved therein, *wherein the aluminum of said surface is 3004 alloy or an aluminum alloy substantially equivalent thereto.*

Re. 31,199

MAGNETIC SPEED SENSOR

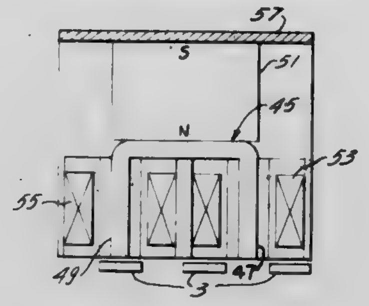
Rex W. Presley, Livonia, and Jack R. Lorraine, Howell, both of Mich., assignors to The Bendix Corporation, Southfield, Mich.

Original No. 3,937,994, dated Feb. 10, 1976, Ser. No. 478,989, Jun. 13, 1974. Application for reissue Jul. 8, 1977, Ser. No. 814,238

Int. Cl.^{3} H02K *21/38*

U.S. Cl. 310—168 **19 Claims**

1. A speed sensor for a vehicle wheel comprising a tone wheel driven by the vehicle and subject to axial misalignment and vibration, the tone wheel being made of magnetic material and having a plurality of teeth, and sensing means having a pair of poles of magnetic material proximate the tone wheel teeth, coil means on the poles, and a permanent magnet having one of its poles connected to the poles on the sensing means for magnetizing the poles on the sensing means to induce a signal voltage in the coil means corresponding to wheel speed upon rotation of the tone wheel relative to the sensing means, the poles on the sensing means being phased relative to the teeth



on the tone wheel to reduce noise voltage components in the wheel speed signal voltage due to axial misalignment and vibration of the tone wheel, and a substantially U-shaped shield connected to the other pole of the permanent magnet and enclosing a substantial portion of the sensing means from electromagnetic noise, a portion of the U-shaped shield being positioned adjacent the tone wheel remote from the teeth to provide a return path for magnetic flux.

Re. 31,200

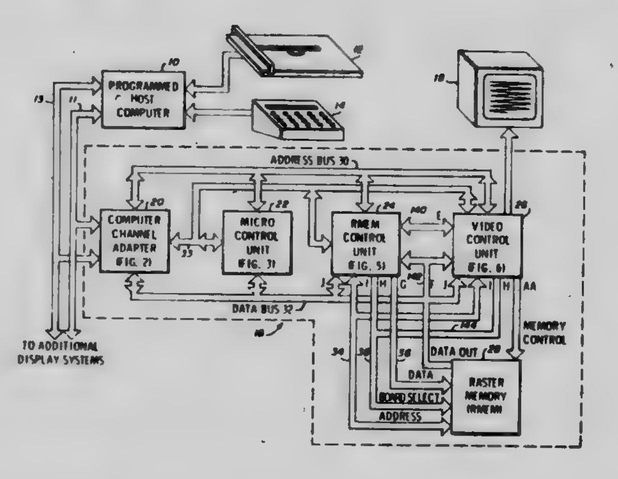
RASTER SCAN DISPLAY APPARATUS FOR DYNAMICALLY VIEWING IMAGE ELEMENTS STORED IN A RANDOM ACCESS MEMORY ARRAY

Josef S. Sukonick, Cupertino, and Greg J. Tilden, San Jose, both of Calif., assignors to Xtrak Corporation, Sunnyvale, Calif.

Original No. 4,070,710, dated Jan. 24, 1978, Ser. No. 650,372, Jan. 19, 1976. Application for reissue Oct. 9, 1979, Ser. No. 82,592

Int. Cl.^{3} G09G *1/16*

U.S. Cl. 340—724 **45 Claims**



2. A computer graphics display system [as recited in claim 1 wherein said video control means includes,] *for use in association with a host computer to provide a visual display of graphics information contained therein, comprising:*

a data bus;

an address bus;

display means for developing a visible image corresponding to video signals input thereto;

channel adapter means for providing an interface for communicating information including bits of graphics data between the host computer and said data bus and said address bus;

system control means communicatively coupled to said data bus and said address bus and operative to generate first and second control signals;

raster memory means including an array of N rows and M

columns of storage sites each capable of storing a bit of graphics data corresponding to a picture element of a graphics image to be formed by said display means;

raster memory control means communicatively coupled to said address bus, said data bus, said raster memory means and said system control means, said raster memory control means being responsive to said first control signal and operative to cause bits of graphics data input from the host computer to be stored in said raster memory means;

video control means communicatively coupled to said address bus, said data bus, said raster memory means, said display means, and said system control means, said video control means being responsive to said second control signal and operative to read out in raster fashion data stored in any selected block of n rows and m columns of said storage sites, where n is an integer less than N and m is an integer less than M, and to use such data to generate a video signal for input to said display means whereby said display means is caused to display an image comprised of picture elements corresponding to the data obtained in the selected block of storage sites; said video memory control means including:

a first control memory for storing a first set of readout control instructions received from said system control means;

a second control memory for storing a second set of readout control instructions received from said system control means;

readout means for reading out bits of graphics data stored in said raster memory means; and

logic means for causing said readout means to read out data stored in a first selected block of storage sites of said raster memory means under control of said first set of instructions and to read out data stored in a second selected block of storage sites of said raster memory means under control of said second set of instructions, the data read out of said first and second blocks of storage sites being included in said video signal and said display means being caused to simultaneously display a first image corresponding to the data from said first block and a second image corresponding to the data from said second block.

PLANT PATENTS

GRANTED APRIL 5, 1983

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

5,020
AFRICAN VIOLET PLANT
Reinhold Holtkamp, Werther Strasse 112, 4294 Isselburg, Fed. Rep. of Germany
Filed Sep. 9, 1981, Ser. No. 300,516
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—69 **1 Claim**

1. A new and distinct cultivar of African violet known by the cultivar name Vermont and particularly characterized by the combined features of vigorous growth habit; 9–15 strong upright flower stems, each of which contains 10–12 or more deep blue flowers; uniform growth habit, and profuse flowering; lush medium green leaves, and by its attractive saleable plant within 8–9 weeks after potting.

5,021
AFRICAN VIOLET PLANT
Reinhold Holtkamp, Werther Strasse 112, 4294 Isselburg, Fed. Rep. of Germany
Filed Sep. 9, 1981, Ser. No. 300,517
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—69 **1 Claim**

1. A new cultivar of African violet known by the cultivar name Improved Maine and characterized by the combined features of profuse blooming habit, with ten or more flower stems carrying up to 9–12 or more flowers per stem, with the flowers being basically white but tipped with blue; single flower form, with an occasional additional petal, frequently in the center; uniform, compact and vigorous growth habit, essentially continuous blooming, and by its ability to provide an attractive saleable plant within 8–9 weeks after potting.

5,022
AFRICAN VIOLET PLANT
Reinhold Holtkamp, Werther Strasse 112, 4294 Isselburg, Fed. Rep. of Germany
Filed Sep. 9, 1981, Ser. No. 300,556
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—69 **1 Claim**

1. A new and distinct cultivar of African violet known by the cultivar Wyoming and particularly characterized by the combined features of compact growth habit with relatively small leaves; upright, strong and sturdy stems which tilt slightly sidewards, forming a profuse, loose flower head; 9 or more flower stems, with 9 or more blue and continuously blooming flowers appearing on each stem, with the center of each flower being relatively darker, velvety and shiny; uniform growth habit; attractive saleable plant with compact flower head within 7–8 weeks after potting, and by its non-dropping and long lasting blossoms.

5,023
AFRICAN VIOLET PLANT
Reinhold Holtkamp, Werther Strasse 112, 4294 Isselburg, Fed. Rep. of Germany
Filed Sep. 9, 1981, Ser. No. 300,628
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—69 **1 Claim**

1. A new and distinct cultivar of African violet known by the cultivar name of Chicago and distinguished by combined characteristics of very compact growth habit for both leaves and corolla; girl-type leaves, medium green in color with bright center and serrated on edges; 7 or more upright flower stems each of which carries 7–11 or more flowers per stem, with the flowers being basically white with purple centers and frequent purple stripes, and having wavy or frilled edges; single to semi-double and occasional double blossom form; uniform growth habit, and by its ability to provide an attractive saleable plant within 10 weeks after potting.

5,024
AFRICAN VIOLET PLANT
Reinhold Holtkamp, Werther Strasse 112, 4294 Isselburg, Fed. Rep. of Germany
Filed Sep. 9, 1981, Ser. No. 300,633
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—69 **1 Claim**

1. A new and distinct cultivar of African violet known by the cultivar name Crater Lake and particularly characterized by the combined features of semi-double to double flowers with up to ten petals purple-blue in color; seven–eleven strong, sturdy tilted flower stems, with each carrying eleven or more flowers; short hairy peduncles; dark brown flower stems and peduncles; shiny and slightly hairy leaves, vigorous growth habit, and by its ability to produce a saleable plant with a compact flower head within 8–9 weeks after potting.

5,025
AFRICAN VIOLET PLANT
Reinhold Holtkamp, Werther Strasse 112, 4294 Isselburg, Fed. Rep. of Germany
Filed Sep. 9, 1981, Ser. No. 300,676
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—69 **1 Claim**

1. A new and distinct cultivar of African violet known by the cultivar name Margit, and particularly characterized by the combined features of compact growth with relatively small leaves, very upright and strong flower stems which form a compact and profuse corolla; nine or more flower stems, with 6–9 or more violet flowers per stem, center of flower is relatively darker, velvety and shiny; uniform growth habit; almost continuous flowering, and by its ability to provide an attractive saleable plant with a compact corolla within 7–9 weeks after potting.

5,026
CHRYSANTHEMUM NAMED QUAKER (G6-217-WS)
May Shoesmith, Woking, England, assignor to Pan American Plant Co., Parrish, Fla.
Filed Oct. 19, 1981, Ser. No. 312,945
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct chrysanthemum variety, substantially as herein shown and described, distinguished by its profuse production of white daisy-like flowers having spoon-tipped ray florets, by its adaptability to year round production in small pots, and by its suitability to be grown as a garden chrysanthemum.

5,027
CHRYSANTHEMUM NAMED GLACIER (P6-134-W)
Leonard H. Shoesmith, Westfield-Woking, England, assignor to Pan American Plant Co., Parrish, Fla.
Filed Oct. [illegible] 1981, Ser. No. 312,886
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—77 **1 Claim**

1. A new and distinctive chrysanthemum cultivar, substantially as herein shown and described, particularly characterized by the creamy white coloration of its generally standard type blooms, its vigorous growth habit and its high production of medium sized flowers.

5,028

CHRYSANTHEMUM PLANT

Jack M. Meek, and William E. Duffett, both of Salinas, Calif., assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Sep. 21, 1981, Ser. No. 304,332

Int. Cl.³ A01H *5/00*

U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct cultivar of *Chrysanthemum morifolium,* Ramat., plant known by the cultivar name of Songster, as described and illustrated, and particularly characterized as to uniqueness by the combined characteristics of flat capitulum form; spooned anemone capitulum type; light yellow ray floret color, with rapid color oxidation; diameter across face of capitulum ranging from 85 to 100 mm. at maturity; uniform eight week flowering response; medium plant height, and semi-spreading branching pattern.

5,029

CHRYSANTHEMUM NAMED BRUIN

May Shoesmith, Woking, England, assignor to Pan American Plant Company, Parrish, Fla.

Filed Oct. 19, 1981, Ser. No. 312,943

Int. Cl.³ A01H *5/00*

U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinctive chrysanthemum cultivar, substantially has herein shown and described, characterized by its small button-type inflorescence of pom pom shape and a distinct bright yellow color, by its capability for year around production in small pots, and its profuse production of blooms.

PATENTS

GRANTED APR. 5, 1983

ERRATA

For CLASS	See PATENT NO.
604–024	4,378,797
604–275	4,378,798
604–032	4,378,799
604–390	4,378,800
604–280	4,378,803
494–054	4,378,906
436–066	4,378,971
436–042	4,378,972
548–472	4,379,091
436–536	4,379,135
377–043	4,379,221
377–081	4,379,222

PATENTS

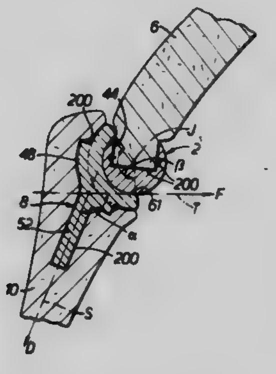
GRANTED APRIL 5, 1983

GENERAL AND MECHANICAL

4,378,606
RAIN HAT
Maxine W. Snowden, 1628 15th St., NW., Washington, D.C. 20009
Filed Oct. 9, 1981, Ser. No. 309,986
Int. Cl.³ A42B *1/02*
U.S. Cl. 2—198 **8 Claims**

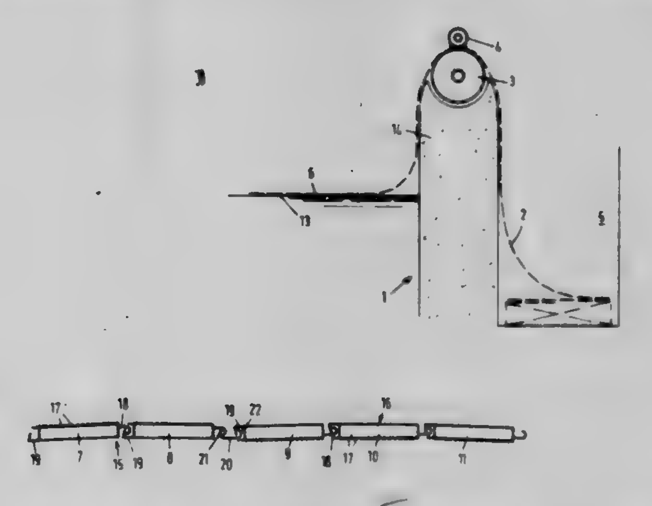
1. A hat comprising:
a crown having a front periphery and a rear periphery joining the front periphery at spaced, opposed junctures to enclose a covering area;
the front periphery being generally inelastic and having a series of spaced pleats adjacent thereto extending a limited distance into the covering area to gather the covering area; and A series of spaced seams sewn in said crown portions to form said pleats said seams are tucked in opposite directions so that when the hat is warn the pleats will face outwardly and downwardly in opposite directions
the rear periphery being elastic to gather the covering area along the rear periphery whereby the covering area puffs to loosely enclose the wearer's hair while the front and rear peripheries fit snugly against the wearer's head generally adjacent the hairline.

4,378,607
ELBOW REPLACEMENT PROSTHESIS
Thomas G. Wadsworth, 22 Hyde Park Sq., London W2 2NL, England
Continuation-in-part of Ser. No. 931,319, Aug. 7, 1978, abandoned. This application Nov. 26, 1980, Ser. No. 210,297
Claims priority, application United Kingdom, May 31, 1978, 25112/78
Int. Cl.³ A61F *1/03*
U.S. Cl. 3—1.91 **10 Claims**



1. An elbow replacement prosthesis comprising:
a humeral component having an articular surface that is curved concave in a coronal plane and curved convex in a sagittal plane, a longitudinal U-shaped slot opposed to said articular surface, said slot being of rectangular section in the sagittal plane defined by a flat floor and parallel anterior and posterior walls, said humeral component further having substantially parallel medial and lateral walls transverse to said slot,
an arcuate ulnar component having an articular surface that is curved convex in a coronal plane and curved concave in a sagittal plane complementary to said articular surface of said humeral component and has a distal end and a proximal end,
said aritcular surfaces of said humeral component and said ulnar component being substantially symmetrical about a plane perpendicular to the axis of turning of the prosthesis,
said ulnar component has a stem extending therefrom opposite to said articular surface of said ulnar component and the angle between the forward direction of the tangent to the distal end of such articular surface and the distal direction of the longitudinal axis of said stem is more than 90°, and the articular surface of the ulnar component subtends at said axis of turning an angle of less than 180°, and
said humeral component has annular grooves in said medial and lateral walls and longitudinal grooves in said anterior and posterior walls to assist in cementing the humeral component in a surgically prepared humeral bone.

4,378,608
APPARATUS FOR COVERING A LIQUID BASIN, AND ROLLER-BLIND TYPE COVER FOR USE THEREIN
Engbert J. Duintjer, Rolderstraat 13, 9531 TC Borger, Netherlands
Filed Nov. 26, 1980, Ser. No. 210,607
Int. Cl.³ E04H *3/16, 3/18*
U.S. Cl. 4—500 **4 Claims**



1. Apparatus for covering a liquid basin, in particular a swimming pool, the apparatus being arranged outside the liquid basin, comprising a roller-blind type cover composed of hollow, elongated slats arranged to be spread over the surface of the liquid in floating condition, and to be removed from said surface wherein the longitudinal edge of each of the elongated slats is provided with a moulding of a first type, and the other longitudinal edge is provided with a moulding of a second type, the slats being assembled to form a roller-blind type cover in a pattern in which, in each adjacent pair of slats, the longitudinal edge with the moulding of the first type of one slat is slid into the moulding of the second type of the longitudinal edge of the other slat to form a slide connection permitting a hinge effect which, in each adjacent pair of slats includes an angle of at least approximately 90° in the direction of one of the sides of the spread roller-blind type cover, and includes a considerably smaller angle than 90° towards the other side, and the cover is assembled from a plurality of packets of slats, each packet including a plurality of slats in which, in one packet, in each pair of adjacent slats, the hinge effect includes the angle of at least approximately 90°, relative to the spread cover, towards one side thereof, and in the adjacent packet of slats

towards the other side thereof, the adjacent packets of slats being interconnected by means of an elongated coupling member having moulded longitudinal edges, one longitudinal edge of which coupling member is slid into the moulding of the first type of the longitudinal edge belonging to the end slat of one packet of slats, and the other longitudinal edge of which coupling member is slid into the moulding of the second type of the longitudinal edge belonging to the initial slat of the adjacent packet of slats to form a coupling which, relative to the spread roller-blind cover, has a hinge effect including an angle of substantially 180° to provide for an accordion-wise stacking of the cover upon retraction of said cover from the surface of the liquid in the liquid basin.

4,378,609

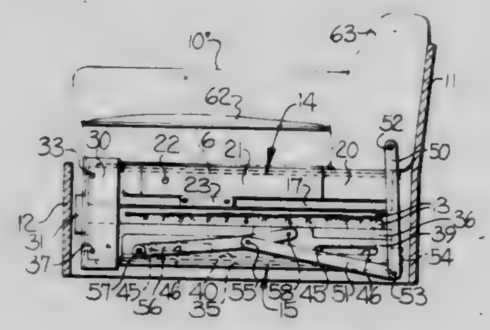
SOFA BED WITH MATTRESS LONGITUDINALLY COMPRESSED FOR STORAGE AND METHOD

Charles A. Patterson, Long Beach, and Tim M. Uyeda, South San Gabriel, both of Calif., assignors to Simmons U.S.A., Atlanta, Ga.

Filed Apr. 14, 1981, Ser. No. 254,168

Int. Cl.³ A47C *17/207*

U.S. Cl. 5—12 R **9 Claims**



1. A convertible sofa bed including a bed frame movable from a folded seat position to an unfolded extended bed position, and a mattress carried by said bed frame and movable therewith from the folded seat position to the unfolded extended bed position, said mattress, when in folded position, being folded off center whereby one portion of the mattress is longer than and projects longitudinally beyond the other portion, and means associated with said bed frame for longitudinally compressing the longer portion of the mattress when the bed frame and mattress are moved in folded condition to the folded seat position whereby the mattress is stored in a more compact condition.

4,378,610

DEVICE FOR REMOVING IMPURITIES FROM DATA CARRIERS

Wolfgang Ermer, Hirten; Bernd Payrhammer, Munich; Heinz Rapp, Munich, and Alois Bauer, Munich, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Feb. 24, 1981, Ser. No. 237,600

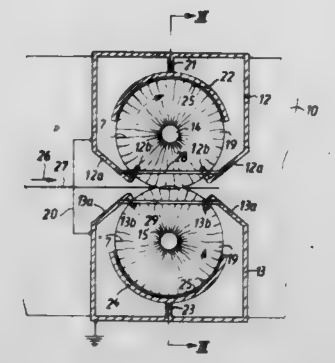
Claims priority, application Fed. Rep. of Germany, Feb. 29, 1980, 3007841; Sep. 9, 1980, 3033823

Int. Cl.³ G03G *21/00*

U.S. Cl. 15—1.5 R **27 Claims**

1. A device for cleaning data carriers, particularly photographic films, records, magnetic tapes and the like, comprising:

(a) a brush for cleaning a data carrier, said brush including separate first and second cleaning elements, and said first elements being electrically conductive to thereby permit electrostatic charge on the data carrier to be neutralized while the data carrier is cleaned by said first elements, said second elements having a cleaning action superior to that of said first elements so as to enhance the cleaning effect obtained with the latter; and



(b) grounding means connecting said elements to ground to thereby enable electrostatic charge on the data carrier to be dissipated.

4,378,611

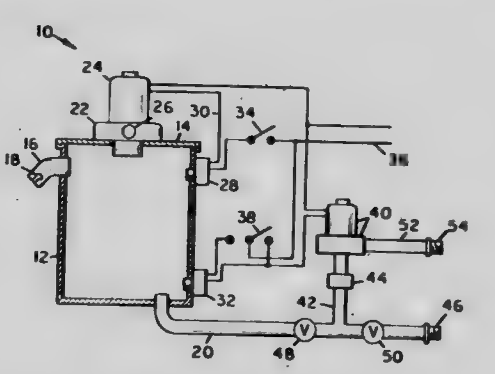
MULTIFUNCTION CLEANING AND DRYING DEVICE

James Ninehouser, 97681 Overseas Hwy., Key Largo, Fla. 33037

Filed Jun. 22, 1982, Ser. No. 390,906

Int. Cl.³ A47L *7/00*

U.S. Cl. 15—353 **4 Claims**



1. A multi-function cleaning and drying apparatus **10** comprising a liquid container **12** having a closed cover **14** thereon, an air suction pump **22** and motor **24** mounted on and through said cover, said pump **22** having an air exhaust vent **26** therein extending externally of said container, a suction inlet pipe **16** having a vacuum hose connection **18** thereon, a drain pipe **20** connected to the bottom of said container **12**, said bottom drain pipe **20** having a standard hose **46** connection thereon providing a liquid inlet, a pair of spaced-apart valves **48** and **50** in said bottom pipe **20**, an outlet T-pipe **42** connected to said liquid inlet between its said spaced-apart valves, said outlet connecting T-pipe having a strainer **44** in its T-stem, a standard hose connection **54** at the end of said outlet T-pipe **42**, a liquid high pressure pump and motor connected to said outlet by a pipe, a power circuit **30** connecting to both said pump motor **24** on its said cover **14** and to said high pressure pump motor **40**, said circuit having a normally closed upper fluid level switch **28** extending into said container **14** at its normally high fluid level, said circuit having normally open low fluid level switch **32**, adjacent the bottom of said container closed when in use but open when the fluid level is below it and connected to shut off said high pressure pump motor **40** when the liquid level is therebelow.

4,378,612

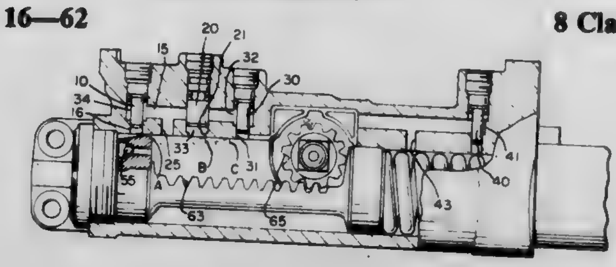
DOOR CLOSER DELAYED ACTION SPEED CONTROL SYSTEM

Bruce N. Beers, Princeton, Ill., assignor to Schlage Lock Company, San Francisco, Calif.

Filed Mar. 16, 1981, Ser. No. 243,888

Int. Cl.³ E05F *3/22*

U.S. Cl. 16—62 **8 Claims**



1. A door closing device comprising:
- a fluid filled cylinder;
- a piston reciprocally and slidably displaced within said cylinder forming a first, second and third chambers;
- a gear mechanism connected to said piston and adapted to be further connected to a pivotable door in order to transmit opening and closing movements of the door to the piston and vice versa;
- a spring forceably biasing said piston in one of its slidable directions;
- a first valve means, a second valve means, and third valve means which sequentially control the flow of fluid from said first chamber to said second chamber;
- a fourth valve means for automatically controlling said fluid from said third chamber to said second chamber;
- said piston is formed with a piston head and sealing surface at each end jointed together by a reduced center rack gear section;
- said rack section cooperates with a pinion gear to connect said piston to a pivotable door;
- said reduced portion of said piston forms said second chamber;
- a first passage means connects said first chamber with said second chamber sequentially through said first valve means, said second valve means and said third valve means;
- a second passage means communicating between said third chamber and said second chamber through said fourth valve means; and
- a third passage means communicating said first fluid passage alternately with said first chamber and said second chamber at a point between said first valve means and said second valve means.

4,378,613

FISH SKINNING APPARATUS

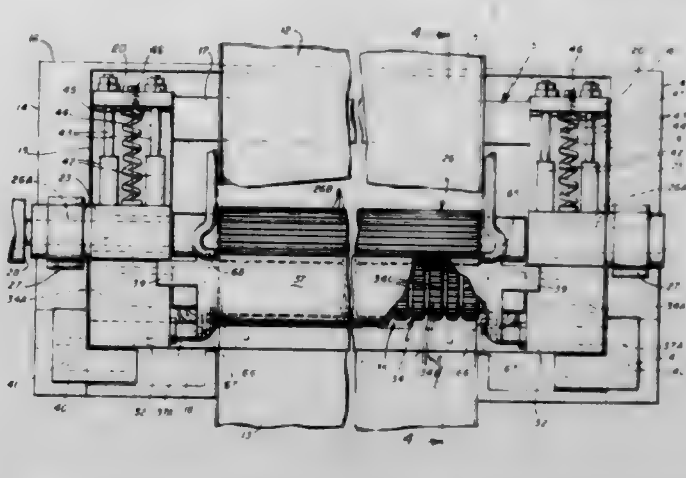
Joseph Crouch, Pleasant Valley Rd., Cumberland, Me.

Filed Oct. 21, 1981, Ser. No. 313,384

Int. Cl.³ A22B *5/16;* **A22C** *25/17*

U.S. Cl. 17—62 **14 Claims**

1. Fish skinning apparatus including a chute down which a fish, skin side down, will slide under the influence of gravity, a knife member disposed transversely of the chute adjacent the outfeed end thereof and in a position to be engaged by a fish sliding down said chute and then to so penetrate the flesh as to form a flap of skin, first and second rotor members each of which has lengthwise teeth which are in mesh, a drive for said rotor members, said rotor members so disposed relative to said outfeed end of the chute and to said knife member as to catch said flap and pull said fish against the knife member until the skin is pulled free from the flesh, and flushing means having discharge outlet means disposed substantially parallel to an elongated axis of at least one of said members and operable to discharge a jet of water against and lengthwise of at least one of the members that will receive materials from the flesh side



of the skins from a position adjacent at least one end of said one member.

4,378,614

AUTOMATIC-RELEASE HOOK FOR SAILBOARD HARNESS

John McKenney, 20 Vista del Sol, South Laguna, Calif. 92677

Filed Sep. 8, 1980, Ser. No. 184,798

Int. Cl.³ A44B *13/00, 19/00*

U.S. Cl. 24—201 TR **7 Claims**

1. An automatic-release latching hook assembly comprising: a base plate with a hole in its central portion; a latch hook extending outward from the front surface of said plate and having a base portion with a pivot pin through it, said pin extending generally parallel to said surface, and said base portion also intruding into said hole and having a notch latchably engageable with a side of said hole to prevent said hook from rotating about said pivot pin; and a leaf spring extending generally parallel to said surface and anchored thereto by anchoring means at its ends and having a folded central ridge portion fitting over said pivot pin to position said pin and urge said notch into engagement with said side of said hole; whereby an outward pulling force on said hook greater than a predetermined force will pull said notch out of engagement to permit said hook to rotate freely about said pivot pin and thereby disengage a line hooked into said hook.

4,378,615

FASTENER RECEPTACLE HAVING PRESS-IN MOUNTING

Conrad J. Gunther, Uniondale, N.Y., assignor to Dzus Fastener Co., Inc., West Islip, N.Y.

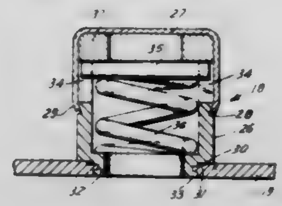
Filed Apr. 6, 1981, Ser. No. 251,186

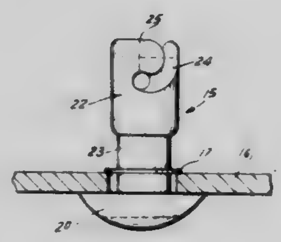
Int. Cl.³ A44B *17/00*

U.S. Cl. 24—221 A **6 Claims**

1. An improved fastener receptacle which is useful in providing protection against dust, weather and radiofrequency leakage for use in a quick release fastener of the type having an interengageable fastener receptacle and fastener stud with the stud having a head and a dependent shank with a spiral cam slot formed with a locking shoulder extending inwardly from the lower end thereof, said fastener receptacle comprising:

an enclosing casing having a cylindrical side wall formed with a serrated toothed shoulder and a groove and rib immediately adjacent thereto providing a self-clinching press-in mounting at the inner end of the cylindrical wall, said casing having a sealing cap enclosing the outer end of the cylindrical wall;





and locking means engageable with the spiral cam slot of the stud disposed within the casing and shiftable longitudinally thereof and normally urged towards the upper end thereof by means of a helical spring disposed within the casing whereby the locking means may shift downwardly against the force exerted by the spring when it is engaged by the spiral cam slot of a fastener stud.

4,378,616

ARRANGEMENT FOR MOUNTING A FLEXIBLE FILM OR THE LIKE

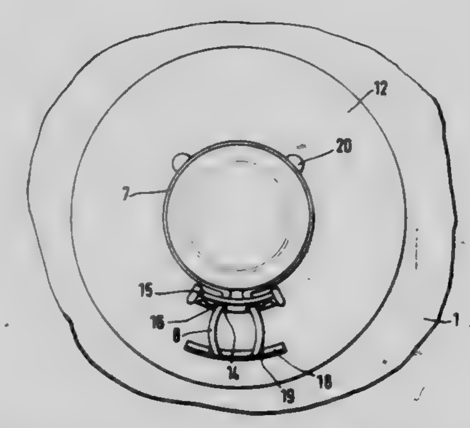
Artur Fischer, Weinhalde 34, 7244 Tumlingen, Waldachtal, Fed. Rep. of Germany, and Gerhard Porlein, Tumlingen, Fed. Rep. of Germany, assignors to Artur Fischer, Tumlingen, Fed. Rep. of Germany

Filed Oct. 17, 1980, Ser. No. 198,240

Claims priority, application Fed. Rep. of Germany, Oct. 22, 1979, 2942634

Int. Cl.[3] **E04B** *1/40*

U.S. Cl. 24—245 R **12 Claims**



1. An arrangement for mounting a flexible film or the like, particularly to seal a substrate, comprising an inner clamping member connected with a substrate and having an outer surface onto which a film is placed, said inner clamping member having an undercut portion adjacent to the substrate; an outer clamping member surrounding the film in the region of said undercut portion of said inner clamping member so that the film is clamped between said inner and outer clamping members, said outer clamping member being a spring ring which is open and has two end portions which are bent in direction away from one another; a disc-shaped carrying member associated with said outer clamping member so that the latter presses said disc-shaped carrying member against the film; and locking means provided on said disc-shaped carrying member and arranged for locking said outer clamping member in clamping condition, said locking means including a first locking element provided with arresting projections which fix said bent end portions of said spring ring in the clamping condition, and a second locking element which is spaced from said first locking element and arranged to press said bent end portions of said outer clamping member against said first locking element.

4,378,617

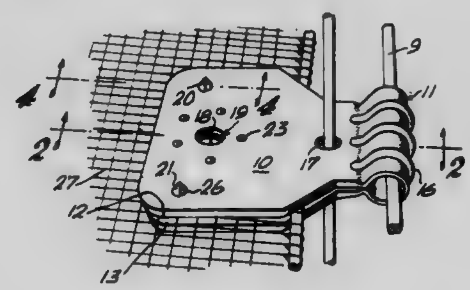
CLASP

Gerard Burns, 38 Kawerau Ave., Devonport, Auckland, New Zealand

Filed Jun. 4, 1981, Ser. No. 270,381

Int. Cl.[3] **A44B** *17/00, 21/00*

U.S. Cl. 24—336 **3 Claims**



1. For use to support the marginal edge of pliable sheets, a one-piece normally open clip of bendable plastic material comprising,

a first and second hingedly connected leaf, a hinge zone, each leaf having a zone adjacent said hinged connection and a first hole outboard of said hinged connection, each said first hole being at a common distance and relative location to register with one another when the inside surfaces are in confronting relation;

each said leaf having an edge bounding an inside surface to confront one another and an outside surface, and each leaf defining a substantial area to overlay a portion of opposite marginal surfaces of a shade sheet and said edges presenting a smooth surface free and clear of pointed corners as the leaves are viewed in plan, the edge of each leaf having a length parallel to the axis of the hinge zone greater than the length of the edges perpendicular to the hinge zone,

said hinged connection comprising a generally circular zone including reinforcing ribs and defining an axial through passageway,

a plurality of locating pins on said first leaf extending generally perpendicularly of the inside surface and arranged in spaced relation about said hole,

a plurality of recesses in the inside surface of the second leaf for companionate interengagement in registry with the pins for orienting the leaves when in overlaying relation of the margin of a sheet and transmitting forces to the leaves, and

lock means comprising a pair of male member each extending from the second leaf towards said first leaf and being located adjacent the outboard edge of the second leaf and one of the edges perpendicular to the axis of the hinge zone and including a barbed outer end for hooked-up engagement in a throughhole provided in the first leaf to hold the pins in their respective recesses and to clamp the clip to the margin of a sheet.

4,378,618

APPARATUS FOR PRODUCING VELOUR-NEEDLEFELT WEBS

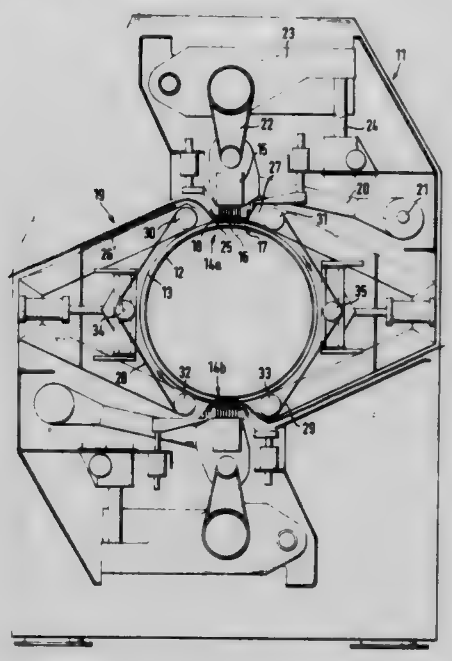
Richard Dilo, Eberbach, Fed. Rep. of Germany, assignor to Oskar Dilo Maschinenfabrik KG, Fed. Rep. of Germany

Filed Dec. 28, 1979, Ser. No. 108,041

Claims priority, application Fed. Rep. of Germany, Jan. 11, 1979, 2900935

Int. Cl.³ D04H *18/00, 11/08*

U.S. Cl. 28—110 **3 Claims**



1. A machine for the production of velour needlefelt webs in the form of a tube, said machine comprising a frame, a shaft mounted in said frame, a lamella plate helically wound and coupled to said shaft and having a constant pitch, said plate being associated with at least one needle beam equipped with felting and fork needles which can be radially moved towards the shaft, at least one fleece band feeding means and at least one tube turning and feeding means comprising endless belt means associated with said shaft in the working area of the needles of said needle beam.

4,378,619

METHOD FOR ATTACHING CONNECTORS IN FOIL CAPACITORS

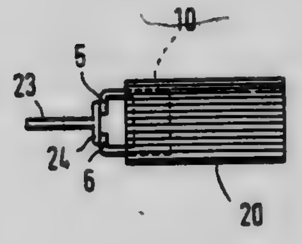
Walter Billeriss; Josef Hösl, both of Landshut, and Werner Dresen, Obergangkofen, all of Fed. Rep. of Germany, assignors to Ernst Roederstein Spezialfabrik Für Kondensatoren GmbH, Landshut, Fed. Rep. of Germany

Continuation of Ser. No. 46,903, Jun. 8, 1979, abandoned. This application Dec. 2, 1981, Ser. No. 327,167

Claims priority, application Fed. Rep. of Germany, Jun. 22, 1978, 2827469

Int. Cl.³ H01G *13/00, 1/14*

U.S. Cl. 29—25.42 **1 Claim**



1. A method for attaching connecting wires to wound foil capacitors which consist of alternately arranged wound strips of metal foil and thermoplastic plastic foil, said plastic foil strips protruding laterally beyond said metal foil strips, comprising the steps of providing a connecting wire with a bent end, providing at least one inserted metal strip having outwardly projecting end portions, said metal strip being welded to a corresponding metal foil strip, soldering said connecting wire with said bent end by means of a soldering piece arranged at said end of said connecting wire to said outwardly projecting end portions of said at least one metal strip, and pressing said outwardly projecting end portions of said metal strip into said protruding plastic foil, wherein the improvement comprises that said metal strip being formed with a U-shaped configuration and being dimensioned in such a way that said end portions are formed as two ends arranged in said wound capacitor in diametrically opposed locations, said bent end of said connecting wire being soldered to said two ends of said U-shaped metal strip, said two ends of said U-shaped metal strip being arranged to project outwardly of said foil capacitor and being bent to extend toward each other.

4,378,620

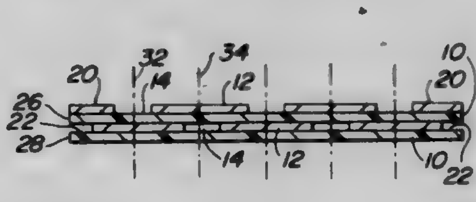
METHOD OF MAKING SMALL SIZED WOUND CAPACITORS

Bernard Lavene, Ocean, N.J., assignor to Electronic Concepts, Inc., Eatontown, N.J.

Continuation of Ser. No. 108,593, Dec. 31, 1979, abandoned. This application Dec. 15, 1981, Ser. No. 330,867

Int. Cl.³ H01G *4/18*

U.S. Cl. 29—25.42 **2 Claims**



1. A method of fabricating substantially small sized wound capacitors comprising plating a plurality of continuous regularly spaced metallic electrodes on one side of each of a pair of dielectric plastic webs, said electrodes being parallel to the web and further the electrodes being separated from each other forming a plurality of regularly spaced unplated lengthwise directed openings;

(a) arranging the electrodes so that in each pair of webs at least one has an electrode lying along one edge and the other has an open area lying along one edge;

(b) mating said pair of webs so that the unplated side of a first of the webs is in physical contact with the plated side of the second web and further arranged so that the plated edge of one web lies over the unplated edge of the other so that the remainder of the electrodes in each web are in a staggered and overlapping arrangement relative to each other such that substantially the same portion of the remaining electrodes on said pair of webs will fall over the remaining open spaces in said webs;

(c) winding a length of said mated webs to form a cylindrical layered coil to form an alternating arrangement of continuous electrodes spaced from layer to layer along the outer edges of said coil as it is wound;

(d) flattening said cylindrical layered coil to form a substantially rectangular layered coil;

(e) tempering the plastic in said webs so that the electrodes and plastic are fixed together with each electrode being fully insulated from those around it without the addition of any separate adhesive;

(f) chopping the coil to provide a clear cut through the alternating open spaces and electrodes in the webs such that at the chopped edges for every layer there is an arrangement in which an electrode is at one edge and an open space at the other, alternating from one layer to the next, the coil being chopped only once to form an individual capacitor of wound continuous electrodes with no further chopping or tempering of said capacitors; and

(g) bonding conductors to the chopped edges of said capacitors, said conductors making electrical contact with each of the plated electrodes lying at the edge to form a finished

capacitor steps c, d, e, f, and g being performed in sequence.

4,378,621

HEADSTOCK FOR A UNIVERSAL MILLING AND DRILLING MACHINE

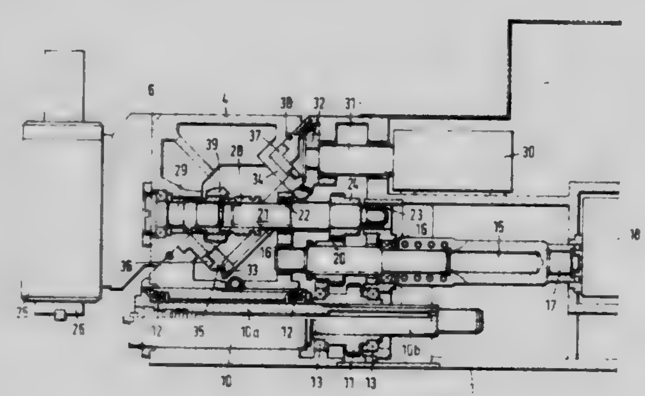
Werner Babel, Pfronten-Meilingen, Fed. Rep. of Germany, assignor to Maho Werkzeugmaschinenbau Babel & Co., Pfronten, Fed. Rep. of Germany

Filed Nov. 7, 1980, Ser. No. 204,867

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1979, 2944983

Int. Cl.³ B23Q *39/02;* **B23C** *1/10*

U.S. Cl. 29—26 A **4 Claims**



1. A universal milling and drilling machine headstock having a vertical front face, said headstock comprising:
main drive means in said headstock,
a horizontal spindle in said headstock extending through said front face;
a first surface on said headstock facing upwardly at a 45° angle from and above said front face, said first surface having a central opening therethrough with a first axis normal to said first surface;
a swivel head rotatably mounted to said headstock and having a second surface in confronting juxtaposition with said first surface, said swivel head being rotatable between a first position and a second position;
a hollow cylindrical extension mounted to said swivel head and extending into said headstock through said opening coaxial with said first axis, said swivel head being rotatable about said first axis;
clamping means coupled to said headstock and surrounding said cylindrical extension, said clamping means comprising at least two annular segments shaped and configured to engage a mating surface on said cylindrical extension to selectively prevent rotation of said swivel head with respect to said headstock;
a vertical milling head mounted on said swivel head so that when said swivel head is in said first position, said vertical milling head is vertically adjacent said front face of said headstock, and when said swivel head is in said second position said front face is free of said vertical milling head;
horizontal drive shaft means connected to said horizontal spindle;
vertical drive shaft means comprising a first part mounted in said headstock parallel to said horizontal spindle and a second part mounted in said swivel head, said first and second parts being connectable when said swivel head is in said first position; and
means for selectively coupling said main drive means to said horizontal and said vertical drive shaft means.

4,378,622

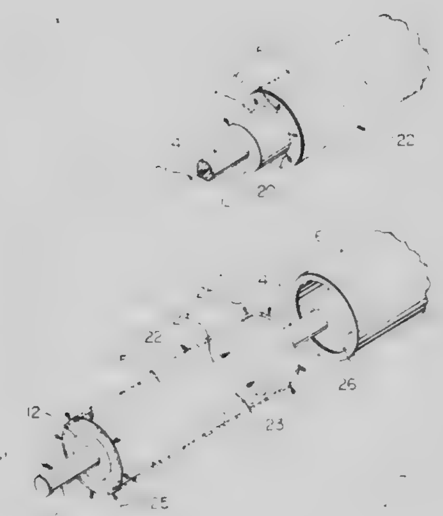
METHOD OF MAKING COMPRESSIBLE PRINTING ROLLER

Melvin D. Pinkston, Waynesville, and Wayne W. Easley, Lake Junaluska, both of N.C., assignors to Dayco Corporation, Dayton, Ohio

Division of Ser. No. 850,435, Nov. 10, 1977, abandoned. This application Aug. 17, 1981, Ser. No. 293,764

Int. Cl.³ B21H *1/14;* **B21K** *1/02*

U.S. Cl. 29—148.4 D **1 Claim**



1. A method of making a printing roller comprising the steps of, providing a central support made of a comparatively rigid material, forming a tubular inner layer of a salt-leached microporous rubber material that has voids therein comprising between 30 and 70% of the total volume of said inner layer and defined by cavities interconnected by passages, disposing said tubular inner layer of microporous rubber material around said central support so that said inner layer is under radial expansion and is secured to said central support solely by the resulting friction fit therewith, and placing a polymeric tubular outer layer around said inner layer in such a manner that said inner layer is under compression by said outer layer whereby said outer layer is secured to said inner layer solely by the resulting friction fit therewith, said layers cooperating to define said printing roller and assure said roller provides optimum contact between said roll and material being coated thereby at comparatively small nip pressures, said disposing step comprising the step of forcing said central support within said tubular inner layer upon relatively moving said central support and tubular inner layer towards each other and thereby causing said radial expansion of said tubular inner layer around said central support and the frictionally holding of said inner layer thereagainst, said placing step comprising the step of partially compressing said inner layer radially inwardly and relatively moving said outer layer around said inner layer during said partial compression such that upon release thereof said inner layer expands radially against said outer layer so that said outer layer is held firmly in position against said inner layer solely by the resulting frictional engagement between said inner layer and said outer layer, said partially compressing step being achieved solely by relatively axially moving said outer layer over said inner layer.

4,378,623

PROCESS AND APPARATUS FOR THE PRODUCTION OF DISC WHEELS MADE OF SHEET METAL, PARTICULARLY LIGHT SHEET METAL

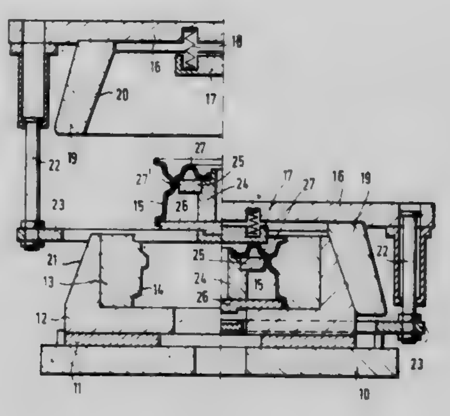
Theo Zimmermann, Konigswinter, Fed. Rep. of Germany, assignor to Lemmerz-Werke KGaA, Konigswinter, Fed. Rep. of Germany

Filed Mar. 4, 1981, Ser. No. 240,487

Claims priority, application Fed. Rep. of Germany, Mar. 7, 1980, 3008738

Int. Cl.³ B21H *1/02*; B21K *1/32*; B23P *11/02*

U.S. Cl. 29—159.01 **5 Claims**



1. A process for assembling and joining together a rim and its dish into a disc wheel, wherein said rim and dish are each made from a sheet of a light metal, said process comprising the steps of:

(a) Pre-fabricating said rim and said dish so as to be oversized in their diameter with respect to their final diameter and in such a manner that the dish and rim may be assembled together in a manner substantially free of radial deformation;

(b) Permanently shaping the assembled dish and rim by means of a tool acting first radially inwardly on the rim, and then radially pressing the rim and dish together in said inwardly radial direction until the dish bears against an inner back-up support and a permanent press fit of the dish in the rim is achieved;

(c) Calibrating the rim simultaneously with the said shaping of step (b) by means of said tool;

(d) Then welding the said dish to said rim while maintaining said press fit.

4,378,624

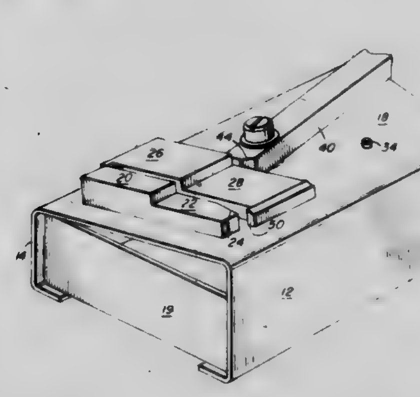
SCALPEL BLADE REMOVER

Roger E. Klingenberg, Wollaston, Mass., assignor to Braintree Scientific, Inc., Braintree, Mass.

Filed Feb. 17, 1981, Ser. No. 234,479

Int. Cl.³ B23P *19/04*

U.S. Cl. 29—239 **10 Claims**



1. A device for removing a scalpel blade from a handle comprising a support base, a fixed block mounted on said base, a movable block also mounted on said base, at least one of said blocks being made of resilient material, means for moving said movable block toward and away from said fixed block, movement toward said fixed block being effective to clamp said blade between confronting surfaces of said fixed and movable blocks, and means formed adjacent one end of one of said blocks to contact an end of said blade and disengage said blade from said handle, movement of said movable block away from said fixed block permitting separation of said handle from said blade.

4,378,625

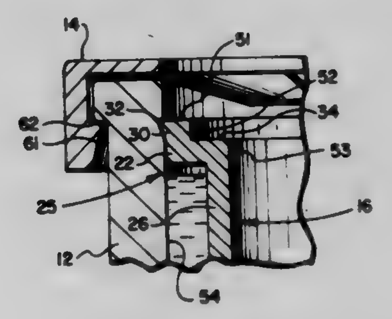
METHOD OF MANUFACTURING IMPROVED REFRIGERATABLE BEVERAGE CONTAINER HOLDER

Thomas L. Crisman; Stanley R. Moore, and Harry R. Weaver, all of Dallas, Tex., assignors to Freezesleeves of America, Inc., Dallas, Tex.

Division of Ser. No. 133,452, Mar. 24, 1980, Pat. No. 4,299,100. This application Jun. 19, 1981, Ser. No. 275,377

Int. Cl.³ B23P *11/02*

U.S. Cl. 29—450 **6 Claims**



1. A method of manufacturing a refreezable beverage container holder comprising the steps of:

providing a cylindrical outer cup of foam material;

providing a cylindrical inner cup having a height less than that of the outer cup and a radially extending flanged region at an open end which comprises an inwardly and downwardly tapered rib circumferentially disposed about the inner cup that has an outer diameter greater than the inner diameter of the outer cup;

injecting freezeable gel into said outer cup;

inserting said inner cup into said outer cup to squeeze said gel up around said inner cup; and

embedding said flanged region within the side walls of an open end of said outer cup by press-fitting the inner cup into the outer cup with the inner and outer cup side wall spaced from each other to seal said gel behind a juncture of closure between said inner and outer cups.

4,378,626

COOLED MIRROR CONSTRUCTION BY CHEMICAL VAPOR DEPOSITION

Frederick G. Eitel, North Palm Beach, Fla., assignor to United Technologies Corporation, Hartford, Conn.

Filed Jun. 10, 1981, Ser. No. 272,426

Int. Cl.³ B22D *11/126*; B23P *15/26*

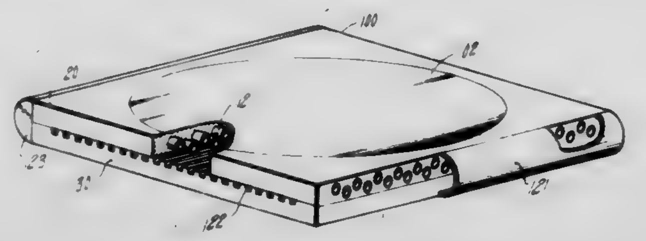
U.S. Cl. 29—527.2 **4 Claims**

1. A method of forming a cooled laser mirror comprising the steps of:

(a) positioning a plurality of disposable cores for coolant passages at predetermined positions in a coolant passage array;

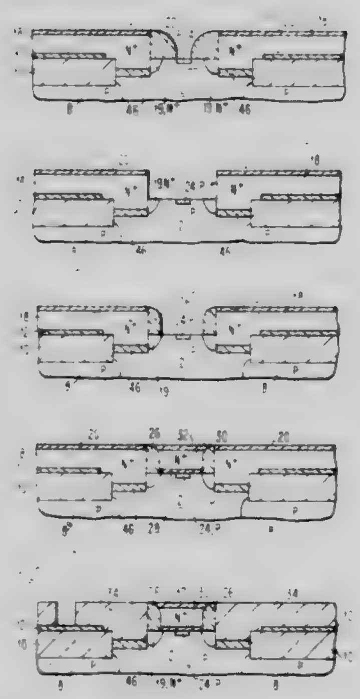
(b) depositing material from a chemical vapor on said plurality of disposable cores in sufficient volume to band together said plurality of disposable cores in a mirror faceplate;

(c) removing said disposable cores, whereby coolant passages remain in said mirror faceplate;



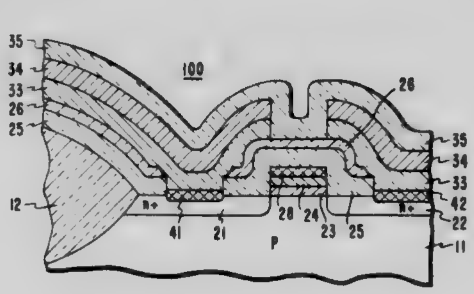
(d) attaching coolant inlet and outlet means to said coolant passages; and
(e) polishing one side of said mirror faceplate.

4,378,627
SELF-ALIGNED METAL PROCESS FOR FIELD EFFECT TRANSISTOR INTEGRATED CIRCUITS USING POLYCRYSTALLINE SILICON GATE ELECTRODES
Chakrapani G. Jambotkar, Hopewell Junction, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jul. 8, 1980, Ser. No. 167,172
Int. Cl.³ H01L *21/302, 21/31*
U.S. Cl. 29—571 8 Claims



1. A method of forming a short-channel field effect transistor integrated circuit comprising:
providing a silicon body having monocrystalline silicon regions dielectrically isolated from similar regions at a major surface of said body;
providing a substantially vertically sided silicon dioxide mask located over the said major surface of at least some of said monocrystalline silicon regions;
reactively ion etching the exposed said monocrystalline silicon to a depth of between about 0.4 to 1.5 micrometers;
ion implanting a dosage of oxygen into the exposed said monocrystalline silicon at low energy and annealing the structure to form a silicon dioxide layer covering the horizontal said exposed monocrystalline silicon regions while allowing the vertically exposed said monocrystalline silicon to remain exposed;
forming on said major surface of said silicon body a doped polycrystalline silicon layer substantially the same thickness as said silicon dioxide mask and in all areas other than the locations of said silicon dioxide mask;
ion implanting a dosage of nitrogen at low energy and annealing the structure to form a silicon nitride layer covering said doped polycrystalline silicon layer;
heating the structure to diffuse impurities through said vertically exposed monocrystalline silicon to form PN junctions therein;
etching away said silicon dioxide mask to provide substantially vertical and substantially horizontal surfaces on the structure and with openings to the surface of said monocrystalline silicon regions;
depositing a first conformal insulating coating on both said substantially vertical and substantially horizontal surfaces;
reactive ion etching said first conformal insulating coating to substantially remove said first conformal coating from said horizontal surfaces and to provide narrowed said openings therebetween due to presence of said insulating coating on the vertical surfaces of said monocrystalline silicon regions;
forming a short-channel region through said narrowed openings;
etching away said first conformal insulating coating on the vertical surfaces;
depositing a second conformal insulating coating on both said substantially vertical and substantially horizontal surfaces;
reactive ion etching said second conformal coating to substantially remove said second conformal coating from said horizontal surfaces and to provide narrow dimensioned dielectric regions on said silicon body;
thermally oxidizing the surface of said monocrystalline silicon between certain of said narrow dimensioned regions to form the gate dielectric regions for said integrated circuit;
forming a highly doped second polycrystalline silicon layer on the designated said gate dielectric regions for said field effect transistor integrated circuits wherein said layer is the gate electrode for said circuits;
removing the remaining said first polycrystalline silicon layer by reactive ion etching to leave the said narrow dimensioned regions and said second polycrystalline silicon layer on said gate dielectric on said silicon body; and
forming a conductive layer on said silicon body which has portions thereof electrically separated by said narrow dimensioned regions for contacting the said source/drain regions.

4,378,628
COBALT SILICIDE METALLIZATION FOR SEMICONDUCTOR INTEGRATED CIRCUITS
Hyman J. Levinstein, Berkeley Heights; Shyam P. Murarka, and Ashok K. Sinha, both of New Providence, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Aug. 27, 1981, Ser. No. 296,914
Int. Cl.³ H01L *21/285*
U.S. Cl. 29—571 22 Claims



1. A method for fabricating cobalt disilicide electrode metallization contacts for a semiconductor integrated circuit including heating a cobalt silicide layer overlying in contact with exposed silicon portions of a patterned silicon wafer to a temperature of at least 700° C., whereby said layer is converted into a layer essentially of cobalt disilicide, and forming a layer of silicon dioxide on said layer of cobalt disilicide.

4,378,629

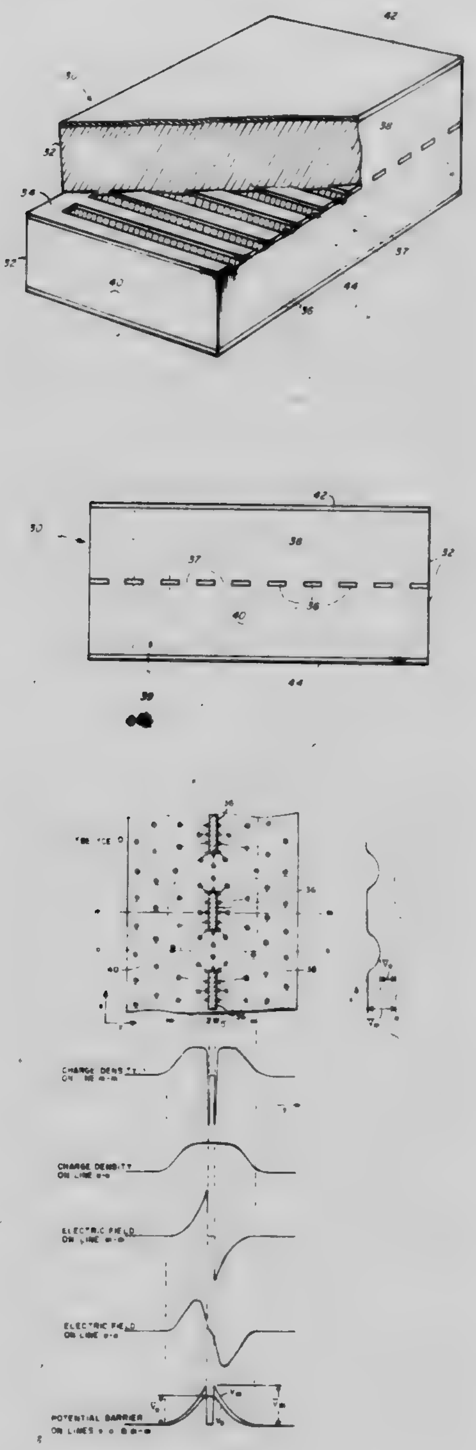
SEMICONDUCTOR EMBEDDED LAYER TECHNOLOGY INCLUDING PERMEABLE BASE TRANSISTOR, FABRICATION METHOD

Carl O. Bozler, Sudbury, Mass.; Gary D. Alley, Londonderry, N.H.; William T. Lindley, Lexington, and R. Allen Murphy, Hudson, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Aug. 10, 1979, Ser. No. 65,514

Int. Cl.[3] H01L *21/20, 21/74, 21/95*

U.S. Cl. 29—580 6 Claims



1. A method of fabricating a transistor device of the type comprising a single type of semiconductor material divided into emitter and collector regions by a metal base layer, the method comprising:

growing a single semiconductor crystal to form a first emitter or collector region of the transistor;

providing a Schottky barrier metal base layer on a surface of the crystal, the thickness of the metal base layer being in the order of 10% of the zero bias depletion width in the semiconductor, the metal base layer having slits therein of a width in the order of the zero bias depletion width of the semiconductor; and

growing a single semiconductor crystal from the first region over the metal base layer to provide a second collector or emitter region of the transistor.

4,378,630

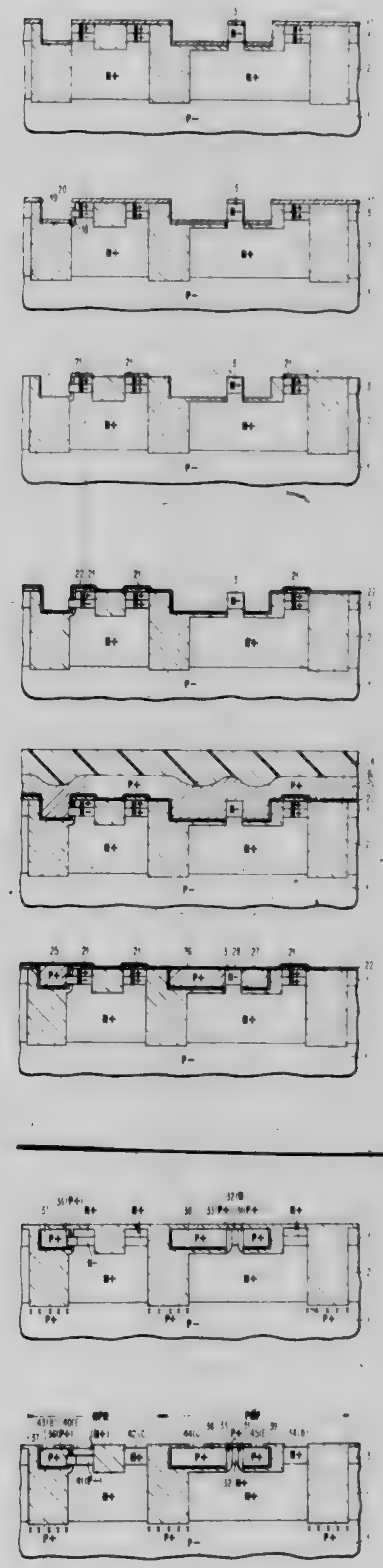
PROCESS FOR FABRICATING A HIGH PERFORMANCE PNP AND NPN STRUCTURE

Cheng T. Horng, San Jose, Calif.; Richard R. Konian, Poughkeepsie, N.Y.; Robert O. Schwenker, San Jose, Calif., and Armin W. Weider, Starnberg, Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 146,921, May 5, 1980, Pat. No. 4,339,767. This application Oct. 8, 1981, Ser. No. 309,627

Int. Cl.[3] H01L *21/203, 21/22*

U.S. Cl. 29—580 8 Claims



1. In a process for forming on a planar surface of a P type silicon substrate (1, FIG. 1) an improved NPN transistor and

an improved PNP transistor, said process including the following steps:

(a) form an N type region (2, FIG. 1) in said planar surface of said P type silicon substrate;

(b) form a thin epitaxial layer (3, FIG. 1) of N type silicon on said surface of said substrate;

(c) form a thin silicon dioxide layer (4, FIG. 1) on said exposed surface of said substrate;

(d) form a silicon nitride layer (5, FIG. 1) on said exposed surface of said substrate;

(e) form a polysilicon layer (6, FIG. 1) on said exposed surface of said substrate;

(f) remove all but a predetermined portion (6', FIG. 2) of said polysilicon layer (6);

(g) chemically vapor deposit a silicon dioxide layer (7, FIG. 3) on said exposed surface of said substrate;

(h) reactive ion etch the exposed surface of said substrate to expose the surface of said polysilicon region (6', FIG. 4) and said surface of said silicon nitride layer (5, FIG. 4);

(i) remove said polysilicon region (6');

(j) remove the exposed portion of silicon nitride layer (5);

(k) provide a mask (8, FIG. 5) having windows W1 and W2 and wherein said window W2 has a block out frame "B";

(l) utilizing said mask having windows W1, W2 and block out frame "B", remove the exposed portions of the silicon dioxide layer (4, FIG. 5);

(m) remove the mask (8);

(n) utilizing the remaining portion of the silicon dioxide layer (4) and blockout frame "B" as a block out mask provide shallow trenches (ST1, ST2 and ST3, FIG. 6);

(o) remove the remaining portion of silicon dioxide layer (4) and blockout frame "B" (FIG. 6);

(p) chemically vapor deposit a layer of silicon dioxide layer (9, FIG. 7) on the exposed surface of the substrate;

(q) form a mask (10, FIG. 7) having windows W3, W4 and W5;

(r) utilize reactive ion etching to remove the portions of the silicon dioxide layer (9, FIG. 7) exposed by windows W3, W4 and W5 of the mask (10);

(s) remove mask (10);

(t) utilize reactive ion etching and the windows W3, W4 and W5 in silicon dioxide layer (9) to provide deep trenches DT1, DT2 and DT3 in the exposed surface of the substrate (FIG. 8);

(u) remove the remaining portion of silicon dioxide layer (9, FIG. 8);

(v) thermally oxidize the exposed surface of the substrate to provide oxide layer (11, FIG. 9);

(w) form a relatively thick oxide layer (12, FIG. 10) on the exposed surface of the substrate, said relatively thick oxide layer (12) filling said shallow trenches (ST1, ST2 and ST3), said deep trenches (DT1, DT2 and DT3) and tending to planarize said exposed surface of said substrate;

(x) utilizing a photoresist material (13, FIG. 10) planarize the exposed surface of the substrate;

(y) utilize reactive ion etching to thin back the exposed surface of the substrate to the surface of the epitaxial layer (3, FIG. 11);

(z) form a block out mask (14, FIG. 12) to block out a predetermined region (B, FIG. 11) of the epitaxial layer;

(a-1) ion implant arsenic ions, A_s^+, into the exposed regions of the epitaxial layer (FIG. 12), the regions implanted with arsenic are the emitter of the NPN device, the collector reach through reach region of the NPN device, and the reach through region of the PNP device (FIG. 12);

(b-1) form a block out mask (15, FIG. 13) to block out predetermined portions of said epitaxial layer;

(c-1) ion implant phosphorous ions, P^+, into the exposed surface of the substrate;

(d-1) remove the block-out mask (15);

(e-1) form a mask (16, FIG. 14) having windows W6 and W7;

(f-1) utilize a silicon dioxide etchant to provide recesses (R1, R2 and R3, FIG. 15) in the exposed surface of the substrate;

(g-1) vacuum evaporate a platinum, Pt, film (17, FIG. 16) on the exposed surface of the substrate;

(h-1) etch the exposed surface of the substrate with an etchant which etches N^+ regions (18, 20, FIG. 17) at greater rate than N^- region (19, FIG. 17), the etching being terminated when the N^+ regions, as compared to the N^- region, are over etched a predetermined depth;

(i-1) remove the platinum, Pt, film;

(j-1) thermally oxidize the exposed surface of the substrate to provide a relatively thick oxide layer (21, FIG. 18) on the exposed N^+ regions and a relatively thin oxide layer on the N^- regions;

(k-1) remove the relatively thin oxide layer on the N^- regions;

(l-1) chemically vapor deposit a silicon nitride, Si_3N_4 film (22, FIG. 19) on the exposed surface of the substrate;

(m-1) convert the silicon nitride Si_3N_4 film (22) on the N^- regions to anodic silicon dioxide;

(n-1) remove the anodic silicon dioxide from the N^- regions;

(o-1) chemically vapor deposit a relatively thick P^+ polysilicon layer (23, FIG. 20) on the exposed surface of the substrate, said relatively thick P^+ polysilicon layer filling said recesses R1, R2 and R3 (FIG. 19);

(p-1) utilizing a photoresist material (24, FIG. 20) planarize the exposed surface of the substrate; and

(q-1) utilize reactive ion etching to thin back the exposed surface of the substrate to the silicon nitride film (22, FIG. 21).

4,378,631

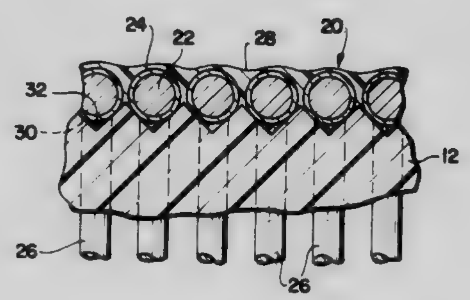
METHOD OF FABRICATING A CHARGE PLATE FOR AN INK JET PRINTING DEVICE

Donald L. Head, Kettering, and Edward A. Dudis, Vandalia, both of Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Jun. 23, 1980, Ser. No. 161,986

Int. Cl.³ H01R *43/00*

U.S. Cl. 29—825 **7 Claims**



1. A method of forming a charge plate for an ink jet printing device, wherein the steps comprising:

coating a relatively more difficult to deplate metal on a relatively easier to deplate core wire;

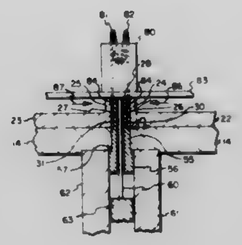
positioning a plurality of said coated wires on a nonconductive support plate having notches formed in an edge portion thereof at predetermined equal intervals and at sufficient depth to locate said coated wires in parallel spaced relation along said edge portion;

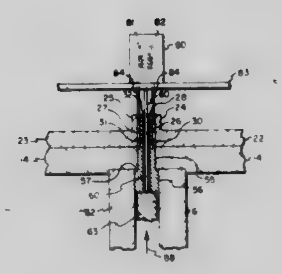
securing said coated wires to said support plate with nonconductive means;

making said coated wires flush with opposite surfaces of said support plate longitudinal to longitudinal axes of said coated wires;

deplating said core wires to leave said coating to form charge rings in said charge plate defining holes through which droplets of printing liquid can pass to be charged.

4,378,632
METHOD OF AND APPARATUS FOR PULL-FITTING CONTACTS
J. Preston Ammon; Harry R. Weaver, both of Dallas, Tex., and Richard O. Norman, Camarillo, Calif., assignors to ELFAB Corporation, Addison, Tex.
Filed Dec. 23, 1980, Ser. No. 219,994
Int. Cl.[3] H05K *3/00;* B23P *19/00*
U.S. Cl. 29—845 **17 Claims**

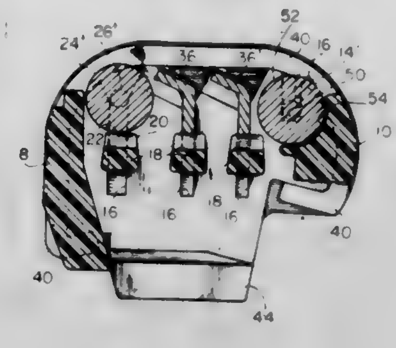




1. A method of mounting contacts having tails protruding in two spaced parallel rows from the bottom of a mounting member by applying a longitudinal force to said contacts relative to said mounting member; said method comprising the steps of:
providing a support member for supporting the mounting member between the contact tails protruding therefrom, said support member including a plurality of apertures therethrough;
positioning said mounting member and contacts upon said support member;
clamping the contact tails to the support member;
providing means for moving the mounting member upwardly relative to the support member and contacts clamped thereto, which means includes mounting pins slidably positioned within said apertures and extendable through said support member; and
moving the mounting member upwardly relative to the support member and contacts clamped thereto by extending said mounting pins through said support member and into engagement with said mounting member.

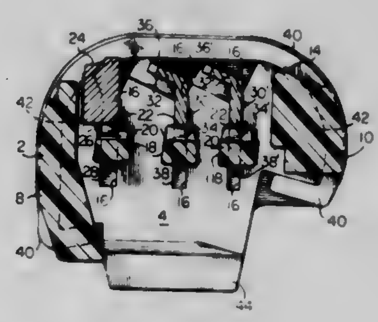
4,378,633
RAZOR BLADE ASSEMBLY
Chester F. Jacobson, Southboro, Mass., assignor to The Gillette Company, Boston, Mass.
Continuation-in-part of Ser. No. 101,101, Dec. 7, 1979, Pat. No. 4,270,268. This application Jan. 29, 1981, Ser. No. 229,711
The portion of the term of this patent subsequent to Jun. 2, 1998, has been disclaimed.
Int. Cl.[3] B26B *21/06, 21/22*
U.S. Cl. 30—47 **9 Claims**

1. A razor blade assembly comprising a body member, a guard member fixed to said body member for movement thereon, blade means mounted on said body member for movement thereon, said guard member and said blade means being independently movable in response to forces encountered during a shaving operation, and spring finger biasing means integral with said body portion and exercising a bias against



said guard member and said blade means, said guard member being a rotatable cylindrically-shaped member.

4,378,634
RAZOR BLADE ASSEMBLY
Chester F. Jacobson, Southboro, Mass., assignor to The Gillette Company, Boston, Mass.
Continuation-in-part of Ser. No. 101,101, Dec. 7, 1979, Pat. No. 4,270,268. This application Jan. 30, 1981, Ser. No. 229,976
The portion of the term of this patent subsequent to Jun. 2, 1998, has been disclaimed.
Int. Cl.[3] B26B *21/06, 21/22*
U.S. Cl. 30—47 **9 Claims**

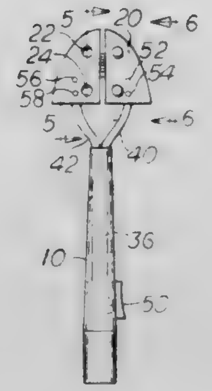


1. A razor blade assembly comprising a body member, a guard member fixed to said body member for movement thereon, blade means mounted on said body member for movement thereon, said guard member and said blade means being independently movable in response to forces encountered during a shaving operation, and spring finger biasing means integral with said body portion and exercising a bias against said guard member and said blade means, said blade means comprising a shaped member having a base portion and a cutter portion, said base and cutter portions defining therebetween an obtuse angle.

4,378,635
HAIR TRIMMING DEVICE
Lorraine Burch, 3813 Blaine, Detroit, Mich. 48206
Filed Aug. 21, 1980, Ser. No. 180,029
Int. Cl.[3] B26B *21/10*
U.S. Cl. 30—58 **11 Claims**

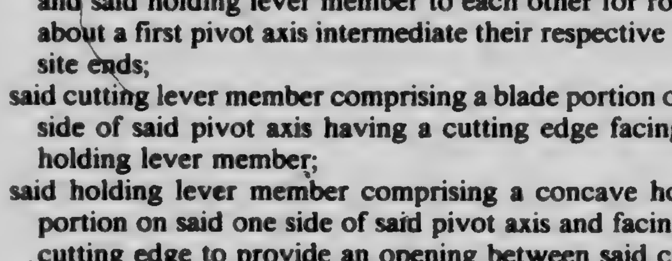
1. A hair trimming device comprising a handle;
a blade-like member;
a blade support;
said blade-like member being mounted on said support;
means for mounting said support on said handle;
said support comprising two plate-like members hingedly connected about a axis parallel to said handle;
means for locking said blade support in association with said handle, with said blade firmly held in said blade support;
a flexible connection link movably extending along said handle;
means for alternately extending and retracting said flexible connection link along said handle;

said flexible connection link being fixedly connected to said plate-like members;
said flexible connection link being flexible transversely of its length;
said handle having a ledge extending transversely of an outer end thereof;
said blade support being urged against and supported upon said ledge with said plate-like members supporting said blade-like



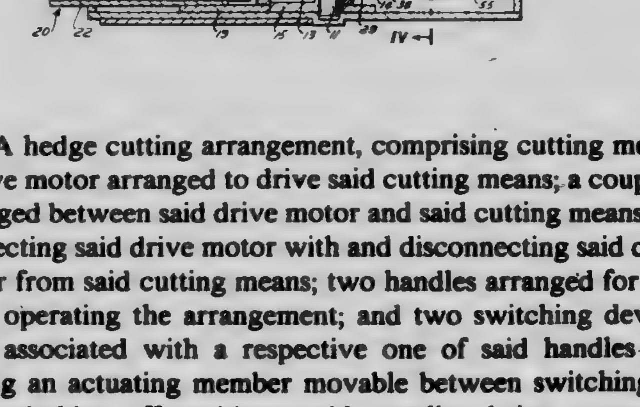
member when said connection link is in a first retracted position; and
said flexible connection link being movable to a second position wherein said plate-like members are spaced from said ledge and said flexible connection link projects outwardly from said handle with said flexible connection link being flexible transversely of its length sufficiently for movement of one of said plate-like members relative to the other for insertion of a blade between the latter members.

4,378,636
CUTTING TOOL
John R. Wick, 11143 Hendrix St., Philadelphia, Pa. 19116
Filed Dec. 12, 1980, Ser. No. 215,771
Int. Cl.³ B26B *13/00*
U.S. Cl. 30—92 12 Claims



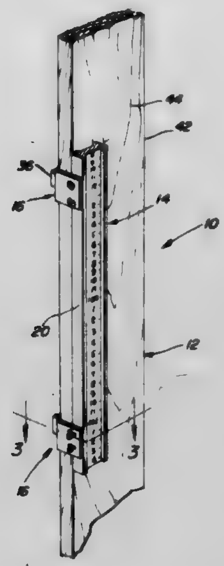
1. A tool suitable for severing thick multistrand communications cable or the like, comprising:
a cutting lever member, a holding lever member, and first pivot means pivotally mounting said cutting lever member and said holding lever member to each other for rotation about a first pivot axis intermediate their respective opposite ends;
said cutting lever member comprising a blade portion on one side of said pivot axis having a cutting edge facing said holding lever member;
said holding lever member comprising a concave holding portion on said one side of said pivot axis and facing said cutting edge to provide an opening between said cutting edge and said holding portion for receiving an object to be severed by movement toward each other of said cutting edge and said holding portion;
a ratchetting lever member, and second pivot means pivotally mounting said ratchetting lever member to one of said cutting lever member and said holding lever member on the opposite side of said first pivot means, said ratchetting lever member having a ratchetting handle portion extending radially outward with respect to the pivot axis of said second pivot means;
the other of said cutting lever member and said holding lever member comprising an integral main gear having main gear teeth thereon extending coaxially with said axis of said first pivot means, and having a handle portion extending radially outward with respect to said first pivot axis;
drive sprocket means mounted for rotation about said second pivot axis and having sprocket teeth meshing with said main gear teeth;
pawl means engageable with said drive sprocket means and responsive to angularly reciprocating motion of said ratchetting lever member, within a predetermined angular range with respect to said one lever member, for providing ratchetted closing motion between said blade portion and said holding portion;
means limiting angular motion of said ratchetting lever member beyond said angular range in one direction for holding said ratchetting lever member in fixed angular relation to said one lever member during further angular motion of said ratchetting lever member in said one direction, with respect to the other of said cutting lever member and said holding lever member, to effect rapid opening of said cutting portion from said holding portion; and
means limiting angular motion of said ratchetting lever member beyond said angular range in the opposite direction for holding said ratchetting lever member in fixed angular relation to said one lever member during further angular motion of said ratchetting lever member in said opposite direction, with respect to the other of said lever member and said holding lever member, to effect rapid closing of said cutting portion toward said holding portion.

4,378,637
HEDGE CUTTING ARRANGEMENT
Hermann Kieser, Nürtingen, and Norbert Schur, Metzingen, both of Fed. Rep. of Germany, assignors to Metabowerke GmbH & Co., Nürtingen, Fed. Rep. of Germany
Filed Feb. 19, 1981, Ser. No. 236,120
Claims priority, application Fed. Rep. of Germany, Feb. 26, 1980, 3007110
Int. Cl.³ A01G *3/04*
U.S. Cl. 30—216 32 Claims



1. A hedge cutting arrangement, comprising cutting means; a drive motor arranged to drive said cutting means; a coupling arranged between said drive motor and said cutting means and connecting said drive motor with and disconnecting said drive motor from said cutting means; two handles arranged for two hand operating the arrangement; and two switching devices each associated with a respective one of said handles and having an actuating member movable between switching on and switching off positions, said coupling being connected with both actuating members so that when even only one of said actuating members moves to its switching off position, said cutting means disconnects from said drive motor.

4,378,638
CHANGEABLE SURVEYORS ROD
Ernest H. Harder, Rte. 1, Whitewater, Kans. 67154
Filed Apr. 14, 1981, Ser. No. 254,159
Int. Cl.³ G01C *15/06*
U.S. Cl. 33—293 **8 Claims**



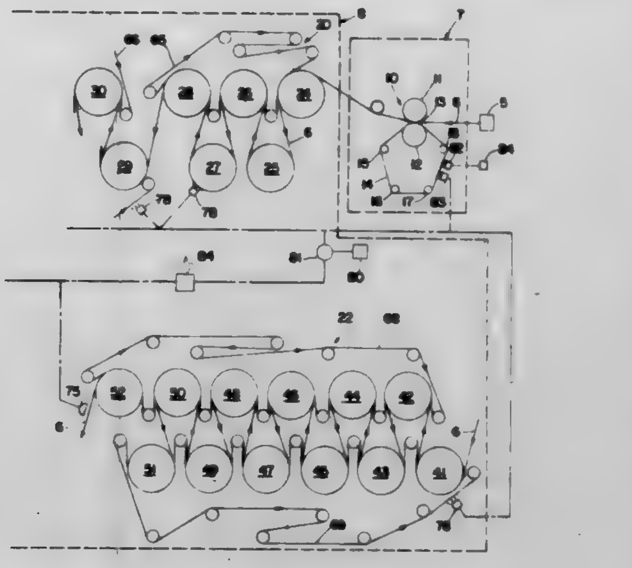
1. A surveyor's measurement rod including upright pole support means, measurement scale means selectively attachable to said pole support means and including first and second calibrated measurement faces lying on opposite surfaces of said measurement scale means whereby one of said first and second faces will be in a hidden opposing relationship with a surface of said pole support means when the other of said first and second faces is visible to a user during a use of said surveyor's measurement rod, clamp means utilized to attach said measurement scale means to said pole support means, said clamp means being fixedly securable to said measurement scale means and reversible relative thereto so as to permit a reversing of said first and second faces as desired by a user, said clamp means being attachable to an edge portion of said measurement scale means so as not to interfere with a user's observation a particular calibrated measurement face being utilized, said clamp means being of an L-shaped configuration having first and second extending leg members, said first leg member being attachable to said edge portion of said measurement scale means and said second leg member extending along a back surface of said pole support means to facilitate an attachment of said measurement scale means to said pole support means.

4,378,639
METHOD AND APPARATUS FOR UNIFORMLY DRYING A CONTINUOUS WEB OF CELLULOSIC FIBERS
Peter J. Walker, Pointe Claire, Canada, assignor to Midland-Ross Corporation, Cleveland, Ohio
Continuation of Ser. No. 971,854, Dec. 21, 1978, abandoned. This application Jun. 17, 1981, Ser. No. 274,608
Int. Cl.³ F26B *3/24, 13/08*
U.S. Cl. 34—12 **13 Claims**

1. A method of uniformly drying a continuous web of wet fibrous material as the web travels along a processing line, comprising:

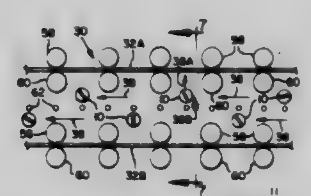
(a) constantly monitoring the moisture content of the web to sense dry streaks therein below a certain desired moisture content, when the web is in a dry end of the line where the moisture content of the web is less than 20%, by weight, and

(b) adding moisture to the web in areas thereof which are spaced substantially upstream from the dry end and longitudinally aligned with any dry streaks sensed in the dry end of the line, the moisture being added in accordance with the moisture content of any such dry streaks, when the web is in a wet end of the line where the moisture content of the web is greater than 25%, and at least 50% greater than the moisture content thereof where monitored at the dry end of the line, and where the web moisture content is not less than 35% of its moisture content



before drying is begun, the differential in moisture content between the area of moisture monitoring and the areas of moisture addition being at least 10%.

4,378,640
FLUID FLOW DEFLECTOR APPARATUS AND SHEET DRYER EMPLOYING SAME
Adolf Buchholz, 11694 SE. Clover La., Portland, Oreg. 97266
Filed Mar. 2, 1981, Ser. No. 239,570
Int. Cl.³ F26B *13/04*
U.S. Cl. 34—155 **14 Claims**



1. A sheet dryer apparatus for removing water absorbed in sheet material, comprising:

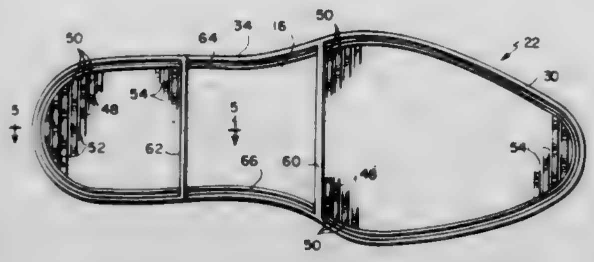
dryer means including at least one drying chamber, for drying sheet material as it is moved through said chamber;

conveyor means for conveying said sheet material through said chamber, including first and second conveyors for conveying first and second sheets in spaced relationship to each other;

heating means for providing heating fluid within said drying chamber including a first stream of heating fluid flowing primarily in one direction between said first and second conveyors; and

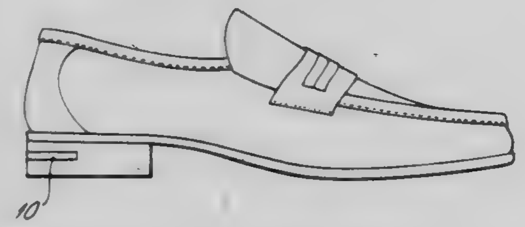
deflector means including a first set of helical deflector members supported between said first and second sheets with the longitudinal axes of the deflector members extending transversely to said one direction of flow of said first stream, for deflecting said first stream of heating fluid with each deflector member in a first direction into contact with said first sheet and in another direction into contact with said second sheet and for mixing the heating fluid for more uniform drying.

4,378,641
BOAT SHOE
Arthur S. Tarlow, 7 Cove Cir., Marion, Mass. 02738
Filed Feb. 6, 1981, Ser. No. 231,967
Int. Cl.³ A43B *13/04, 13/26;* **A43C** *15/00*
U.S. Cl. 36—32 R **18 Claims**



1. A shoesole having a tread side characterized in that there is means at the edge of the tread side defining a continuous uninterrupted wiper peripherally of the tread side and means on the surface of the tread side bounded by the wiper defining a plurality of uniformly distributioned, longitudinally and transversely-spaced, friction-engendering means which individually are more yieldable to bending in a direction longitudinally of the sole than transversely thereof.

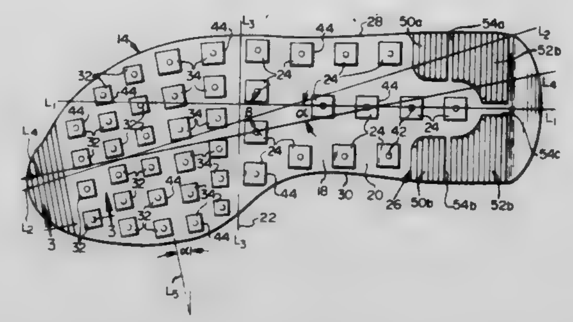
4,378,642
SHOCK-ABSORBING FOOTWEAR HEEL
Leon H. Light, and Gordon E. Maclellan, both of London, England, assignors to National Research Development Corporation, London, England
Continuation of Ser. No. 922,156, Jul. 5, 1978, abandoned. This application Oct. 10, 1980, Ser. No. 196,099
Claims priority, application United Kingdom, Jul. 8, 1977, 28783/77
Int. Cl.³ A43B *21/26, 13/18*
U.S. Cl. 36—35 R **8 Claims**



1. An article of footwear, comprising:
a heel construction having a higher shock absorbing capability in a rear portion compared to the remainder thereof, this difference resulting from the incorporation, at least in said rear portion, of a layer of substantially non-cellular elastomeric material having a low compression set of less than 5 percent and a recovery which is delayed, after compression, by a time of an order not less than that during which load through said construction is transferred from said rear portion to said remainder following heel strike during normal walking;
said recovery time being within the range of 40 milliseconds to one second.

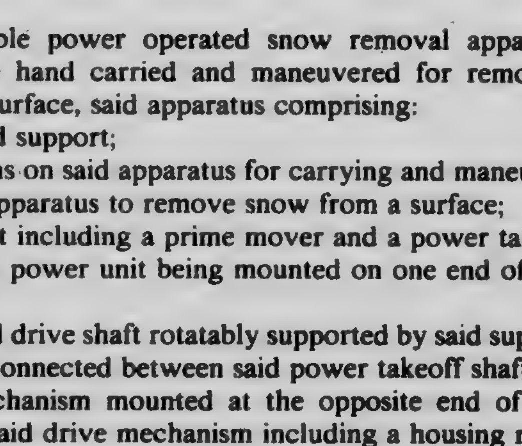
4,378,643
SOLE WITH SKEWED CLEATING ARRANGEMENT
Jeffrey O. Johnson, Newton, N.H., assignor to BRS, Inc., Beaverton, Oreg.
Continuation-in-part of Ser. No. 112,842, Jan. 17, 1980, Pat. No. 4,327,503. This application Feb. 7, 1980, Ser. No. 119,377
Int. Cl.³ A43B *5/00, 13/04, 23/28*
U.S. Cl. 36—129 **21 Claims**

1. A sole for an athletic shoe comprising a molded base having a forefoot region and a rearfoot region, the forefoot and rearfoot regions being separated by a transverse plane which is perpendicular to a major exterior surface of the base and to a first line which substantially bisects the rearfoot region in the longitudinal direction, a plurality of discrete cleats integrally molded to said base and extending outwardly from the major exterior surface in the forefoot region of the sole, said cleats being spaced in both the longitudinal and transverse direction of the sole, said cleats having rearwardly facing gripping edges



from which projecting lines extend to intersect the transverse plane to the inside of the sole at angles which correspond in magnitude to an angle of abduction formed between the first line and a line defining the direction of travel during the propulsion phase of running by a typical athlete who abducts his or her feet slightly outward while pushing forwardly against the ground.

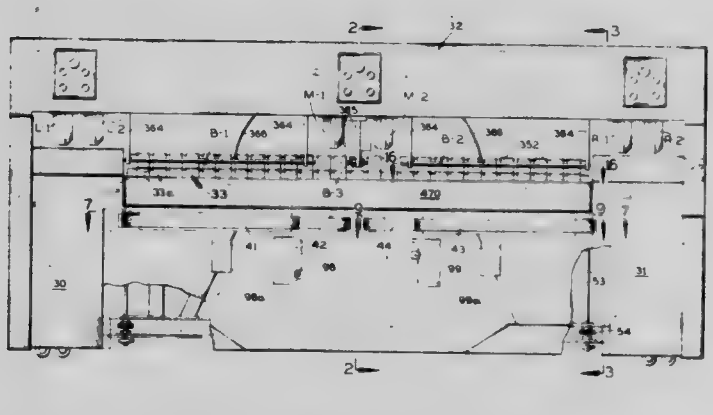
4,378,644
POWERED SNOW REMOVAL APPARATUS
Lloyd H. Tuggle, Shreveport; Ronald C. Loyd, Keithville, both of La.; Stanley A. Johnson, Jr., Brookfield, Wis.; A. Gary Patridge, Shreveport, La.; John W. Ingham, Shreveport, La., and Kenneth J. Friend, Shreveport, La., assignors to Emerson Electric Co., St. Louis, Mo.
Filed Feb. 12, 1981, Ser. No. 233,994
Int. Cl.³ E01H *5/00*
U.S. Cl. 37—244 **38 Claims**



1. A portable power operated snow removal apparatus adapted to be hand carried and maneuvered for removing snow from a surface, said apparatus comprising:
an elongated support;
handle means on said apparatus for carrying and maneuvering said apparatus to remove snow from a surface;
a power unit including a prime mover and a power takeoff shaft, said power unit being mounted on one end of said support;
an elongated drive shaft rotatably supported by said support and interconnected between said power takeoff shaft and drive mechanism mounted at the opposite end of said support, said drive mechanism including a housing rotatably supporting an output shaft having opposed end portions projecting from said housing and rotatable about an axis substantially perpendicular to said support;
impeller means comprising separate snow impellers mounted on respective ones of said opposed end portions of said output shaft for removing snow from said surface, each of said impellers including a plurality of angularly spaced

generally radially projecting paddle blades connected to a hub adapted for mounting said impeller on said output shaft;
means drivably interconnecting said output shaft with said impellers, respectively; and
a shroud disposed at said one end of said support and partially enclosing said impellers, said shroud including a rear wall and spaced apart side walls extending forwardly from said rear wall in the direction of movement of said apparatus to engage a quantity of snow with said impellers, said shroud forming a discharge chute for directing snow removed from said surface by said impellers in a direction generally upward and away from said handle means.

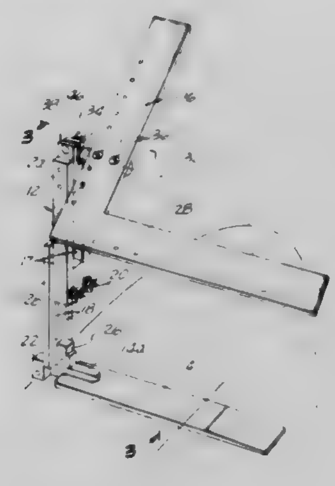
4,378,645
SPREADER FEEDER APPARATUS
William W. Allen, Plantation, and Alvin G. Lundquist, Jr., Fort Lauderdale, both of Fla., assignors to Jensen Corporation, Fort Lauderdale, Fla.
Filed Jun. 10, 1981, Ser. No. 272,315
Int. Cl.[3] D06F *67/04*
U.S. Cl. 38—8 **29 Claims**



1. In an apparatus having:
a conveyor for receiving laundry flat pieces;
clamps at the entry side of the apparatus for releasably gripping a laundry flat piece at adjacent corners along a top edge thereof;
means for moving the clamps apart laterally to spread the laundry flat piece along its top edge;
means for actuating said clamps to release the laundry flat piece onto the conveyor after it has been spread apart along its top edge;
and spreader means below said clamps at the entry side of the conveyor for engaging and spreading laterally the laundry flat piece below its top edge;
the improvement which comprises:
means for moving said conveyor to an extended position beyond said clamps and said spreader means at the entry side of the apparatus to facilitate hand feeding of small laundry flat pieces directly onto the conveyor without engagement by said clamps and said spreader means;
and means operable when the conveyor is in said extended position to disable said clamp moving means and spreader means.

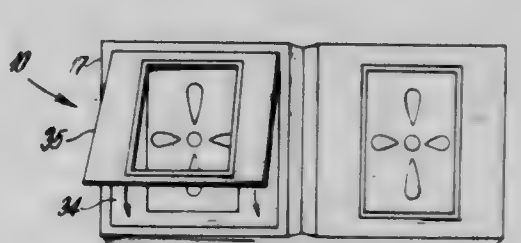
4,378,646
COLLAPSIBLE WORK HOLDING STRUCTURE
Albert Mazeika, Tucson, Ariz., assignor to Needlepointer, Tucson, Ariz.
Filed Dec. 5, 1980, Ser. No. 213,411
Int. Cl.[3] D05C *1/04;* **A47B** *97/04*
U.S. Cl. 38—102 **8 Claims**

1. A collapsible work holding structure comprising:
(a) a first normally vertically extending member;
(b) a second member adapted to rest upon a seating surface and extend beneath a person seated thereon, said second member being pivotally connected to said first member proximate one end thereof and being adapted to pivot relative to said first member through an angle of about 270° from a work position wherein said members are substantially perpendicular to a transport position wherein said members extend generally parallel to each other;
(c) a work holding assembly operably connected to said first member proximate the other end thereof, said assembly comprising:
(1) a pivotable portion connected to said first member and being adapted to pivot from an aligned work position into a transport position;



(2) a work holding member rotatably connected to said pivotable portion for rotation about a horizontal axis, said work holding member comprising a frame having at least two perpendicularly extending legs and including a generally cylindrically shaped member extending substantially at right angles to one of said legs; and
(d) locking means for releasably locking said pivotable portion and said first member in an aligned work position.

4,378,647
PHOTOGRAPHIC ALBUM AND METHOD OF FABRICATION OF SAME
Vincenzo Stancato, 1717 Broadway, Hewlett, N.Y. 11557
Filed Dec. 20, 1979, Ser. No. 105,662
Int. Cl.[3] A47G *1/06;* **G09F** *1/10;* **B42D** *3/00*
U.S. Cl. 40—158 R **6 Claims**



1. A process of fabricating an album having a prebound binding wherein upon the individual pages thereof items of an aesthetic nature are capable of being mounted so as to create an album whose pages once having pictures mounted thereon provide a uniform plane surface, said process comprising the steps of;
(a) removing a first protective covering from the back surface of a mat assembly, said mat assembly comprising;
(i) a mat having a front surface and a back adhesive surface that defines a symmetrically positioned opening therein, therebeing an indented adhesive surface bordering said opening formed within the back face of said mat, said indented adhesive surface defining a recessed area formed only within the back surface of said mat;
(ii) a first protective covering being removeably affixed to said indented adhesive surface, said indent and said adhesive surface only becoming exposed upon the removal of said first protective covering; and
(iii) a second protective covering removeably affixed to

the remaining portion of said back adhesive surface of said mat not covered by said first protective covering;

(b) placing an item of aesthetic nature within said indented adhesive recessed area formed within the back surface of said mat such that the face of said item of aesthetic nature comes into direct contact with said indented adhesive surface, said item of aesthetic nature having dimensions identical to said recessed area formed within the back surface of said mat, such that said item of aesthetic nature fits exactly within the confines of said indented recess, the depth of said indented recess and the thickness of said item of aesthetic nature being identical;

(c) removing said second protective covering from the back adhesive of said mat assembly so as to uncover an adhesive surface that borders the back surface of said mat assembly; and

(d) mounting said mat assembly onto a page of said album, such that said back adhesive surface exposed by the removal of said second protective covering comes into contact with said page, each of said pages of said album comprising;

(i) a base member having a first surface and a second surface, a fold being formed within both surfaces of said base member, symmetrical with respect to each other, said folds traversing both surfaces of said base member parallel to the binding of said page within said album;

(ii) a first border member and a second border member, identical in shape to each other, said first and second border members each defining a symmetrically positioned opening therein identical in size to said mat assembly, said first border member being affixed to one surface of said base member and said second border member being affixed to said second surface of said base member such that there is defined a recessed area as to each surface of said page, said recessed area of each surface of said page being identical in depth to the thickness of said mat assembly such that when said mat assembly is mounted on said page, the entire surface of said page with mounted mat assembly presents a uniform planar surface.

4,378,648

MARKING DEVICE FOR ELECTRICAL WIRES

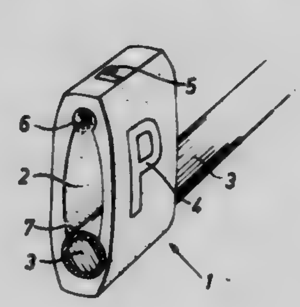
Göran Loof, Gullspang, and Lars Skarin, Otterbäcken, both of Sweden, assignors to Partex Fabriksaktiebolag, Gullspang, Sweden

Filed Sep. 9, 1981, Ser. No. 300,545

Claims priority, application Sweden, Sep. 10, 1980, 8006337

Int. Cl.³ G09F *3/00*

U.S. Cl. 40—316 **3 Claims**



1. A device for marking electrical wires, cables and the like, comprising a body of a synthetic resin material having an inner passage for receiving the wire, the body being resiliently deformable so as to permit use thereof on wires within a given diameter range, characterized in that, in its undeformed state, the cross-section of the body, as seen in a plane perpendicular to the longitudinal axis of the passage, is such that its outer contour is substantially rectangular, whereas its inner contour forms inter-communicating part-circular recesses for receiving wires within the lower portion of said diameter range while retaining the substantially rectangular outer contour of the body, which is deformable to substantially annular form for receiving wires in the upper portion of said range.

4,378,649

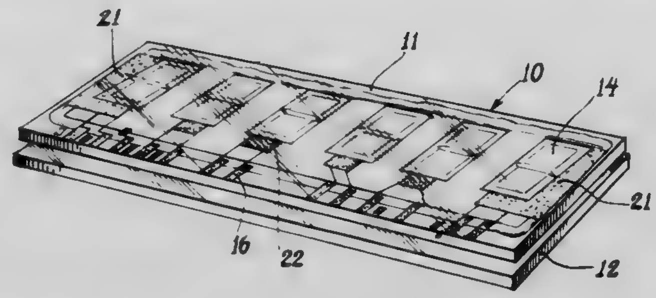
REFLECTIVE SHIELD FOR GAS DISCHARGE DISPLAY

Jon Cokefair, Deerfield, Ill., assignor to Cherry Electrical Products Corporation, Waukegan, Ill.

Filed Jul. 24, 1980, Ser. No. 171,702

Int. Cl.³ G09F *13/22;* H01J *17/48, 63/04;* H05B *33/10*

U.S. Cl. 40—544 **7 Claims**



1. A gas discharge display envelope comprising:

(a) a base plate having on one flat surface screen printed cathode display segments,

(b) a face plate having on a confronting flat surface screen printed anodes,

(c) a sealant on each plate adjacent to the peripheral edges thereof and embracing said cathode display segments and said anodes and sealing said plates together to form the display envelope,

(d) first mask means for covering said base plate so that said cathode display segments are exposed to form glow discharge segments for viewing through said anode face plate, and

(e) second mask means on said face plate extending inwardly of said sealant for shielding from view the light of the glow discharge of said cathode display segments reflected off of said sealant.

4,378,650

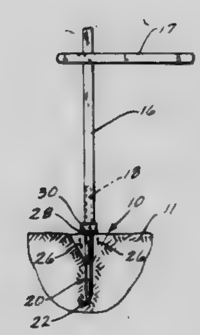
SIGNPOST WITH MEANS AND METHOD FOR INSTALLING AND REMOVING THE SAME

James A. Ottoson, Rte. 4, Box 159, Monroe, Wis. 53566

Filed Jun. 15, 1981, Ser. No. 273,477

Int. Cl.³ G09F *15/00*

U.S. Cl. 40—607 **1 Claim**



1. A wooden signpost and metal mounting base comprising,

a metal mounting base having a first pointed end section for extending into the ground and a second upstanding end section for extending above the ground, said second section being of uniform circular cross section along its length,

a wooden signpost having an axial circular opening for matingly receiving said second section of said metal mounting base and the cross-sectional area of said wooden post less the area of said axial opening being sufficient to provide vertical and lateral support on said second section of said metal mounting base,

a collar rigidly secured on said metal mounting base at the

juncture of said first and second sections for limiting the penetration of said first section into the ground and supporting said wooden signpost therein and said collar and said wooden post having cooperating multisided surfaces for limiting rotation of said wooden post relative to said collar and said mounting base, and

metal fins mounted on the first end section below said collar for limiting rotation of said first end section and said mounting base relative to the ground.

4,378,651

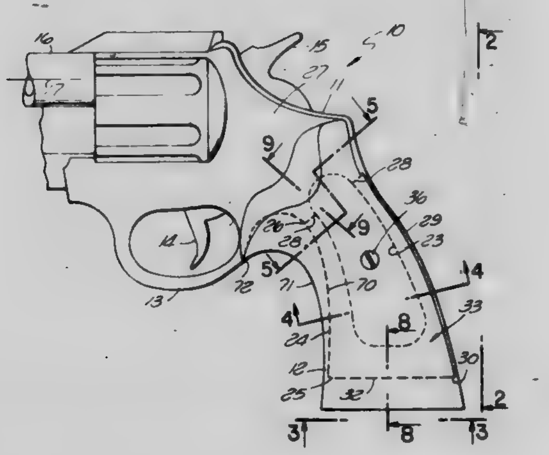
REINFORCED CUSHIONED GUN GRIP

Frank A. Pachmayr, Los Angeles, and Jack R. Farrar, Whittier, both of Calif., assignors to Pachmayr Gun Works, Inc., Los Angeles, Calif.

Filed Sep. 8, 1980, Ser. No. 184,757

Int. Cl.[3] **F41C** *23/00*

U.S. Cl. 42—71 P **14 Claims**



1. A gun grip comprising:

two grip sections each including a body of elastomeric material and a reinforcing plate embedded in and more rigid than said elastomeric material;

said bodies of elastomeric material forming two side walls to be received at opposite sides respectively of a gun handle, and which have rear edge portions adapted to be received at opposite sides of a back surface of the gun handle in a spaced relation leaving said surface exposed between said rear edge portions when the bodies are mounted on the handle;

said bodies of elastomeric material forming two front flanges of said elastomeric material projecting inwardly toward one another at forward edges of said two side walls respectively and at locations to be received in front of said handle;

said reinforcing plates having main portions which are embedded in and reinforce said side walls of the elastomeric material and which have rear edges within said rear edge portions of the elastomeric side walls spaced apart for reception at opposite sides of said rear surface of the handle;

said reinforcing plates having forward portions projecting inwardly toward one another within said flanges of the elastomeric material at locations to be received in front of said gun handle and closer together than are said spaced rear edges of the plates.

4,378,652

MOTOR DRIVEN FISHING REEL

Peter B. Lindgren, 2700 NE. 7th Ave., Pompano Beach, Fla. 33064

Filed Aug. 25, 1980, Ser. No. 180,813

Int. Cl.[3] **A01K** *89/017*

U.S. Cl. 43—26.1 **1 Claim**

1. A fishing device comprising:

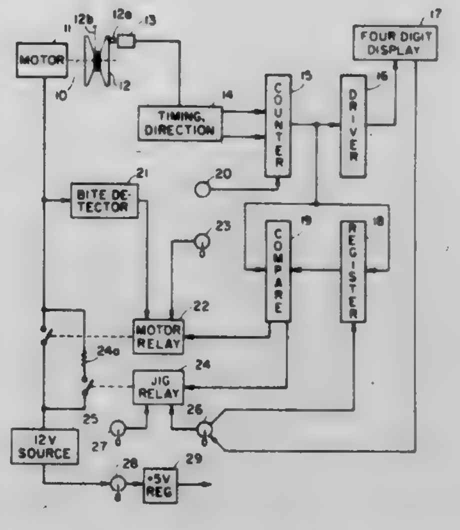
(a) A spool having a shaft;

(b) a fishing line windable on said spool;

(c) electric power means;

(d) electric motor means which when connected to said power means rotates said spool shaft so as to rewind said fishing line on to said spool but which when unconnected is rotated by the unwinding of the fishing line in the reverse direction so as to generate an electric current;

(e) first switch means for connecting said power means to said motor means; and



(f) second switch means actuable by a predetermined minimum voltage of said generated current so as to actuate said first switch means, causing said electric motor means to reverse and rewind said fishing line on said spool.

4,378,653

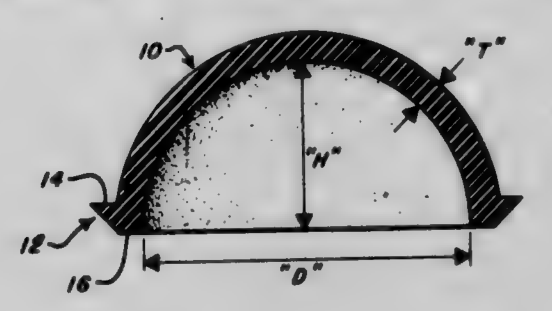
AERODYNAMIC TOY

Bernard O'Brien, 64D Beacon Village, Burlington, Mass. 01803

Filed Sep. 21, 1981, Ser. No. 303,764

Int. Cl.[3] **A63H** *27/00*

U.S. Cl. 46—74 D **4 Claims**



1. An aerodynamic toy adapted to be thrown through the air comprising:

a substantially hemispherically shaped body formed of a strong and resilient material and having a substantially hemispherically shaped cavity disposed therein, said body having an axis extending normally from a plane defined by a base of said body, said cavity progressively increasing in cross sectional area toward said base; and

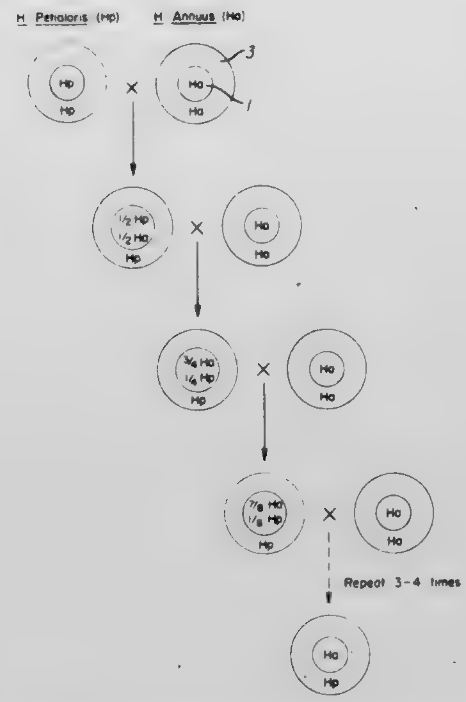
a solid rim disposed around the outer surface of said body closely adjacent said base and projecting outwardly away from the outer surface of said body, said rim having an upper surface spaced from said base and extending generally normally to said axis of said body and an outer frustoconically shaped wall extending from said upper surface inwardly and downwardly toward said base, said rim reinforcing said body adjacent said base and providing aerodynamic balance to said toy during flight.

4,378,654
KIT FOR THE CONSTRUCTION OF A THREE DIMENSIONAL FIGURE
Alan A. Wilson, Agincourt, Canada, assignor to Progressive Merchandising Display Limited, Scarborough, Canada
Filed Jan. 22, 1981, Ser. No. 227,960
Claims priority, application Canada, Jan. 30, 1980, 344654
Int. Cl.³ A63H *3/00*
U.S. Cl. 46—115 **3 Claims**

1. A kit for the construction of a three dimensional figure having a body portion and a head portion integral therewith, comprising:
a cylindrical core of a roll of sheet paper product;
a wrappable member having a peripheral contour delineating the outline of the figure in two dimensions, the body portion having projecting limbs and being wrappable about the vertical axis of the cylindrical core including portions adapted to project outwardly from the surface of the core, and the head portion being wrappable over the end of the core thereby covering it; and
spaced apart projections on the member positioned at the end of the body portion adjacent the head portion, the projections being shaped to conform to and abut the head portion when the three dimensional figure is assembled, with the head portion extending between the projections and forming therewith an enclosure to conceal the core end.

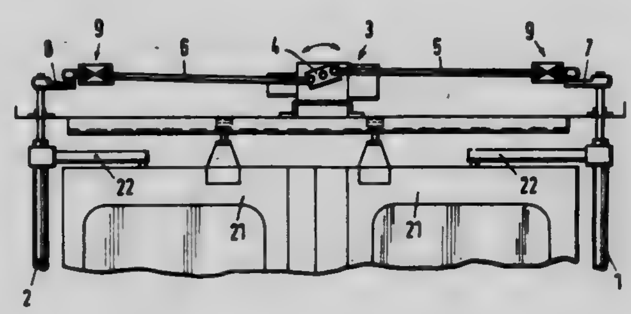
4,378,655
SEMI-DWARF HYBRID SUNFLOWER SEED AND PLANT AND METHOD OF PRODUCING HYBRID SEED
Freeman K. Johnson, Moorhead, Minn., assignor to Red River Commodities, Inc., Fargo, N. Dak.
Filed Aug. 24, 1981, Ser. No. 295,363
Int. Cl.³ A01H *1/02*
U.S. Cl. 47—58 **24 Claims**

1. A method of producing semi-dwarf hybrid sunflower seeds which will produce sunflowers with reduced internode length under normal growing conditions, which comprises:
(a) growing a pair of parent plants (P_1 and P_2) wherein in at least one parent substantially all pollen is nonfunctional and at least one parent has gametes with nuclei which carry at least one dominant gene for reduced internode length (Df);



(b) cross pollinating the plants (P_1+P_2) to produce hybrid seeds F_1; and
(c) harvesting the hybrid seeds.

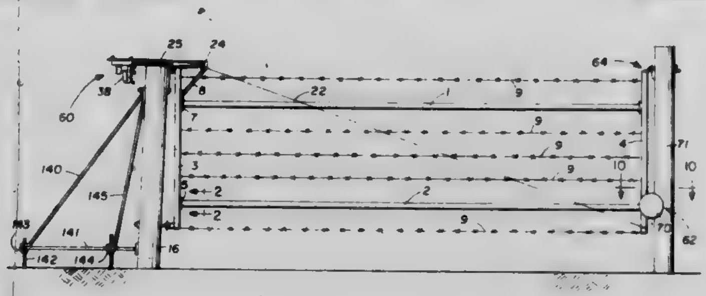
4,378,656
ANTI-CLAMPING DEVICE FOR A VEHICLE DOOR
Siegfried Heinrich, Edermunde, and Manfred Horn, Kaufungen, both of Fed. Rep. of Germany, assignors to Firma Gebr. Bode & Co. GmbH, Kassel, Fed. Rep. of Germany
Filed Sep. 29, 1980, Ser. No. 191,770
Claims priority, application Fed. Rep. of Germany, May 21, 1980, 3019373
Int. Cl.³ E05F *15/20*
U.S. Cl. 49—28 **10 Claims**



1. An anti-clamping device for a vehicle door driven in opening and closing movements by a turnable shaft in turn driven by a transmission rod, said device comprising a telescopic element interposed in said transmission rod, said telescopic element including first and second telescopically engaged parts including means respectively connecting said parts to said transmission rod in axial alignment therewith such that drive to the door is effected through said transmission rod and said telescopic parts, said telescopic parts each being movable to undergo telescopic movement relative to the other part, said telescopic parts having retracted and extended positions, control means on one of said parts and movable therewith and switch means on the other of said parts and movable therewith, said switch means facing and being operatively associated with said control means to control a circuit to reverse the direction of door movement both when the door is opening or closing and encounters an obstacle, said telescopically engaged parts of said telescopic element not undergoing extension or retraction during opening or closing of the door without encounter-

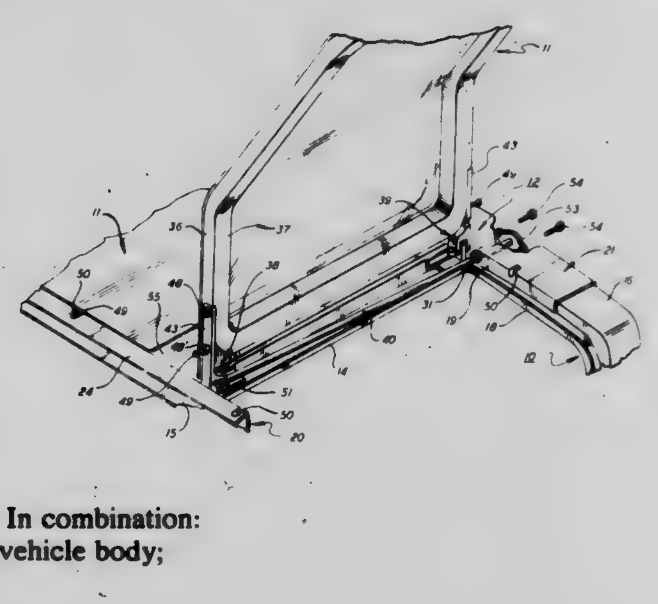
ing an obstacle to transmit drive from the transmission rod to the turnable shaft whereas when an obstacle is encountered during opening or closing of the door the telescopically engaged parts undergo relative telescoping movement to produce retraction or extension of said parts to actuate the switch means.

4,378,657
BUMPER ACTUATED GATE
Felix B. Romberg, P.O. Box 218, Holland, Tex. 76534
Filed Dec. 9, 1980, Ser. No. 214,754
Int. Cl.³ E05C *15/00*
U.S. Cl. 49—364 **20 Claims**



1. A vehicle thrust actuated gate, comprising:
a frame for a generally rectangular gate, said frame including a pair of upright end members interconnected by a plurality of stiff longitudinal intermediate members;
an upright gate post;
means mounting said gate frame at one end member thereof on said gate post for pivotal movement about an upright hinge axis between closed and open positions;
first latch means mounted on the upper end portion of the other end member of said frame;
a bumper thrust transmitting assembly for receiving and transmitting vehicle thrust laterally against the lower part of said other end member to twist said gate frame and thereby store torsional spring energy in said frame;
second latch means for retaining said first latch means when said gate frame is in its closed position and for releasing said first latch means at a predetermined angle of gate twist; and
upright structure mounting said bumper thrust transmitting assembly and said second latch means in a vertically spaced operating relationship with respect to said other end member and said first latch means mounted thereon.

4,378,658
MOUNTING FOR A VEHICLE DOOR
John Z. DeLorean, New York, N.Y., assignor to Delorean Research Limited Partnership, Bloomfield Hills, Mich.
Filed Feb. 4, 1981, Ser. No. 231,398
Int. Cl.³ E05F *1/00*
U.S. Cl. 49—379 **8 Claims**



1. In combination:
a vehicle body;
a door;
a pair of hinges disposed on a common hinge axis, for mounting said door on said vehicle body for movement between a closed position and an open position, each hinge having a mounting plate, a hinge plate and a pin mounted on said axis and in said mounting plate with said hinge plate pivoted thereon;
means securing said mounting plate to said vehicle body;
at least one bolt securing each respective hinge plate to said door frame, said bolt having a projecting head for abutting said vehicle in a recessed manner in a closed position of said door; and
a torsion bar having one end secured to said door and another end secured to said vehicle body biasing said door toward said open position.

4,378,659
WINDOWS
Stephen L. Hosmer, Englewood, Colo., and Paul R. Steuer, Cheltenham, Pa., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Jul. 17, 1978, Ser. No. 925,300
Int. Cl.³ E06B *1/04*
U.S. Cl. 49—504 **2 Claims**

1. In a window assembly comprising a transparent viewing section and an annular main frame carrying the viewing section and adapted to mount the assembly in a structure having inside and outside walls and an opening means therein, the annular main frame comprising:
an annular center web;
means on the interior of the web for mounting the viewing section;
an outside peripheral flange connected to one edge of the web and extending radially outwardly thereof, the outside flange being adapted to engage the outside of the outside wall of the structure mounting the window;
an inside peripheral flange connected to the opposite edge of the web and extending radially outwardly thereof, the inside flange being adapted to engage the outside of the inside wall of the structure mounting the window;
said flanges extending outwardly so that the periphery of the inner flange defines a cross sectional area smaller than the cross sectional area formed by the periphery of the outer flange and providing for the assembly to be pushed, from a direction outside to inside, into the structure opening and positioned with said flanges engaged as aforesaid;
aperture means on the inside flange to receive mounting screw bearing on and extending thru the inside wall of the structure; and
a support connected to the inside flange and having means to

support a cover for the heads of said mounting screws so that the heads can not be viewed from inside the structure.

4,378,660

METHOD OF AND MEANS FOR GRINDING PAIRS OF GEAR WHEELS AS SPIRAL OR CURVED TOOTHED BEVEL GEAR WHEELS

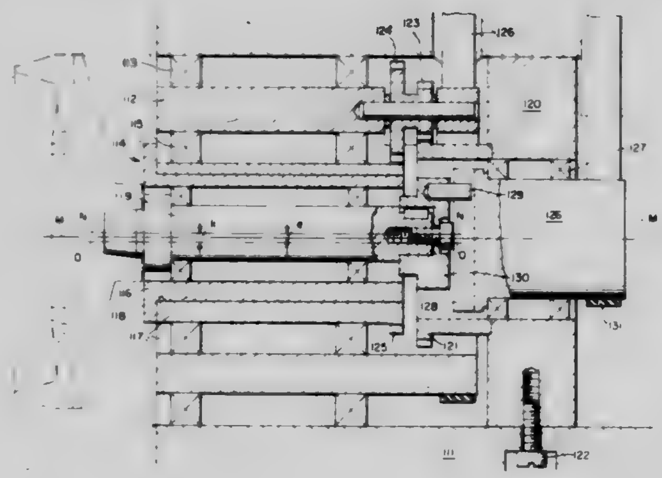
Dieter Wiener, 9 Tulpenstrasse, D-7505 Ettlingen-Bruchhausen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 104,071, Dec. 17, 1979, abandoned, which is a continuation of Ser. No. 904,883, May 11, 1978, abandoned. This application Nov. 10, 1980, Ser. No. 205,252

Claims priority, application Fed. Rep. of Germany, May 11, 1977, 2721164; Nov. 10, 1979, 2945483

Int. Cl.³ B24B *19/00*

U.S. Cl. 51—56 G **21 Claims**



1. Apparatus for use in grinding pairs of at least one of spiral and curved tooth bevel gears, the apparatus comprising a cup grinding wheel mounted for rotation about a grinding axis, the cup grinding wheel having two rectilinear grinding flanks that are linear in cross section and inclined relative to each other to form a tool with a conical ring, and means for applying a slight eccentric elliptical cyclic motion to the cup grinding wheel during a grinding operation.

4,378,661

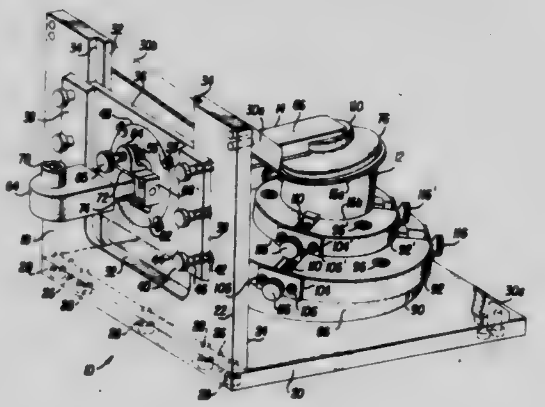
APPARATUS FOR HOLDING VALVE ELEMENT AND REFINISHING TOOL

Ernest E. Grimsley, 4533 Wake Forest Rd., Portsmouth, Va. 23703

Filed May 29, 1980, Ser. No. 154,357

Int. Cl.³ B24B *15/00*

U.S. Cl. 51—125 **8 Claims**



1. A portable apparatus for refinishing a sloped surface of a wedge-shaped gate valve element, said apparatus comprising:

a tool having a working surface mounted thereon by a swivel joint;

frame means, said frame means comprising a first frame member lying substantially in a first plane and a second frame member lying substantially in a second plane, said second plane being substantially orthogonal to said first plane;

carriage means for holding said tool, said carriage means being selectively positionable in said first plane of said frame means so that the position of said tool is selectively adjustable with respect to said second plane, said tool being held by said carriage so that said tool may be selectively pivoted about an axis parallel to a line formed by the intersection of said first plane and said second plane;

vise means for holding said gate valve element so that said sloped surface thereof faces said tool; and,

support means mounted on said second frame member and upon which said vise member is rigidly mounted, said support member having a support surface inclined at an angle with respect to said second frame member upon which it is mounted so that said sloped surface of said wedge-shaped gate valve element held in said vise means acquires a desired orientation with respect to said tool.

4,378,662

AIRLESS CENTRIFUGAL BLAST DEVICE

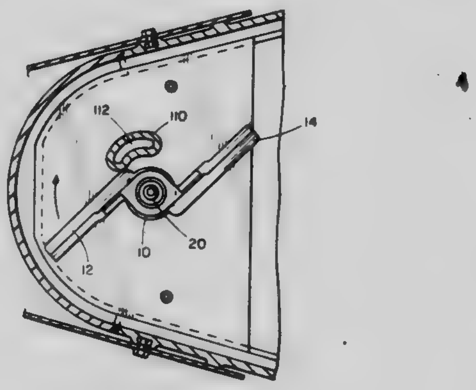
Raymond M. Leliaert, South Bend; Richard C. Kanouse, Mishawaka; Bill J. Butler, Mishawaka, and Robert N. Lindner, Granger, all of Ind., assignors to Wheelabrator-Freye Inc., Hampton, N.H.

Continuation-in-part of Ser. No. 909,770, May 26, 1978, Pat. No. 4,207,711. This application May 14, 1980, Ser. No. 149,156

The portion of the term of this patent subsequent to Jun. 17, 1997, has been disclaimed.

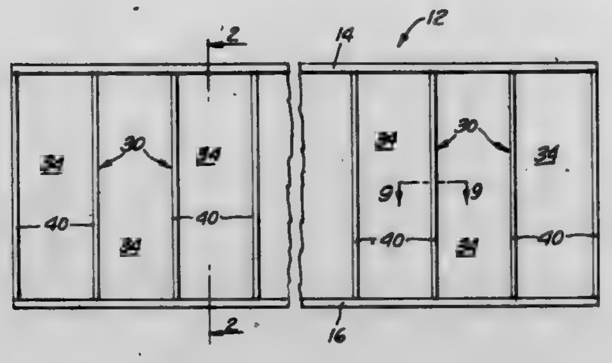
Int. Cl.³ B24C *5/06, 7/00*

U.S. Cl. 51—432 **20 Claims**



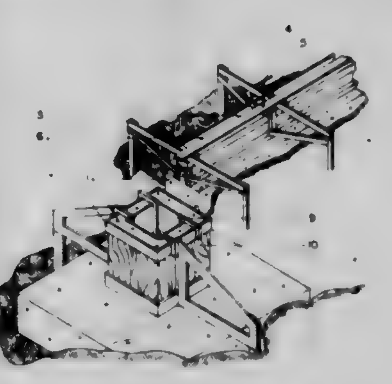
1. A device for airless blast with particulate media comprising wheel blades mounted for rotational movement in a vertically disposed plane, means offset laterally from the plane of rotation of the blades for feeding particulate material from a feeding opening in crosswise alignment with the inner end portions of the blades to the inner end portions of the wheel blades for engagement by the blades during rotational movement of the wheel at high speed whereby the engaged particulate media is projected from the ends of the blades comprising a vertically disposed tubular member having vertically disposed side walls and an inlet opening at the top and an opening in the vertically disposed side wall below the inlet and a horizontally disposed hollow body having an open end portion extending from and in registry with the opening in the side wall of the tubular member and a feed opening in an end portion facing the wheel blades and laterally offset from the lateral edges thereof for flowing particulate media from the inlet, through the tubular member and hollow body onto the inner end portions of the blades.

4,378,663
STRUCTURAL PANEL
Gordon A. Audet, 1139 Rosalind, Rialto, Calif. 92376
Filed Oct. 27, 1980, Ser. No. 200,992
Int. Cl.[3] E04C 1/10
U.S. Cl. 52—580 1 Claim



1. A prefabricated structural panel for use with other like panels in the on-site construction of a building, comprising:
a pair of laterally spaced, elongated rails extending generally parallel to one another and forming two opposite longitudinal edges of the panel;
each of said rails having a lengthwise-extending channel formed in the surface facing the other rail, said channel being formed with sloping, downwardly converging sides;
a pair of lengthwise extending, narrow slots formed in said surface of each rail at the top edges of said sloping sides;
each of said rails having, on the side opposite said channel, a configuration that is adapted to interlock with a mating configuration on the rail of the next-adjacent panel;
a plurality of ribs extending perpendicularly between said rails, the ends of said ribs being beveled to fit snugly into said channels and bearing against the sloping sides thereof;
two panels of relatively flat, structural sheet material disposed on opposite sides of said ribs and having edges that fit snugly into said narrow slots;
said panels of sheet material cooperating with said rails and said ribs to enclose a dead air space between them; and
a plurality of fasteners, some driven through said rails and through the edges of said panels that are seated in said narrow slots; and others driven diagonally through opposite sides of said rails so that they penetrate the adjacent panel near the bottom edge thereof and also penetrate the beveled surfaces of said rib at an angle approaching the perpendicular thereto;
the projection of said rib ends down into said channels, with said beveled surfaces bearing against the sloping sides of said channel, providing a positive, mechanical interlock that prevents any forcible lateral displacement of the rib with respect to the rails.

4,378,664
SYSTEM FOR CONSTRUCTING A BUILDING
Antonio P. Andaya, Metro Manila, Philippines, assignor to Pilar Development Corporation, Manila, Philippines
Filed Apr. 18, 1980, Ser. No. 141,389
Claims priority, application Philippines, Jun. 8, 1979, 22867
Int. Cl.[3] E04C 3/00; E04G 21/00
U.S. Cl. 52—745 3 Claims
1. An improved system for constructing a building with prefabricated panels, comprising the steps of:
preparing a level-topped foundation for the prefabricated wall panels utilizing templates having a plurality of preformed holes at preselected locations, fitted with removable vertically extending dowels, with the templates placed on top of foundation pouring forms so that anchoring holes are formed at predetermined locations in the top of the foundation following setting and curing of concrete poured into the forms;
preparing forms for socket type pedestals each with an opening to fit a prefabricated, precast column to be located at a end of a wall section;
preparing a floor slab by embedding a plurality of wooden blocks or pegs during the pouring of the concrete for the floor slab, whereby a plurality of angled wall panel stabilizing braces can be secured to the wooden blocks during erection of the building;
hoisting the prefabricated, precast columns with hoisting equipment provided with means for connection to the column, and lowering the columns into place in the socket type pedestals;
providing a plurality of prefabricated wall panels, all suitable as load-bearing wall panels and all being similar in outer dimensions, each panel also including protruding bolts and nuts at the top end corners of the panel and each including downwardly protruding steel bar dowels at its bottom, spaced for registry with and for close fit with the preformed anchoring holes in the foundation;
hoisting the prefabricated panels, one by one, with hoisting equipment including a steel cable stretching between the ends of a panel, and including steel cup-claws attached to the ends of the steel cable and slipped and locked onto the bolts and nuts protruding at the top end corners of the panel;
installing the first prefabricated wall panel in place on the foundation by positioning it over the foundation and lowering the panel so that the steel bar dowels at the bottom of the panel fit into the anchoring holes of the foundation;
temporarily retaining the installed wall panel in place using

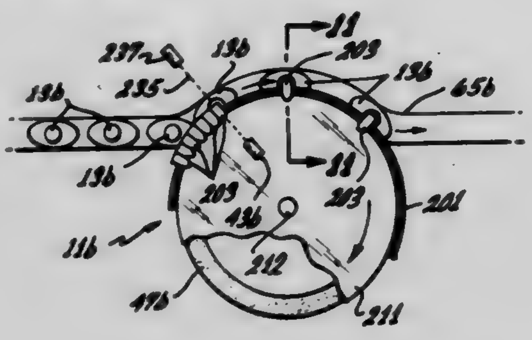


said angled brace, secured to one of the wooden blocks embedded in the floor slab, including connecting the other end of the brace to the installed wall panel and manipulating the brace to assure the plumb of the panel, and removing the cup-claws from the bolts and nuts at the top ends of the panel;
erecting succeeding prefabricated wall panels in like manner as the first panel, but instead of using a brace, interconnecting the subsequent panel with the previously installed panel by securing a flat bar strap onto the bolts and nuts at the adjacent top ends of the adjoining panels, and continuing this procedure for succeeding panels along the same wall;
at corners, installing adjacent prefabricated wall panels in the same manner as subsequent panels, but utilizing an L-shaped flat bar strap;
at T-shaped wall intersections, installing adjacent prefabricated panels in the same manner as subsequent panels, but utilizing a T-shaped flat bar strap for connection to the protruding bolts and nuts at the top ends of three adjacent panels in the T-shaped intersection;
installing prefabricated roof trusses by positioning each truss to fit, at each end, between angled brackets bolted to a flat bar strap connecting adjacent wall panels, with flanges of the brackets extending upwardly, and bolting the truss to the flanges of the brackets while the truss rests on the flat bar strap and on the tops of the wall panels, which serve as a roof beam, with no separate roof beam required; and
placing bonding mortar into voids formed along the joints of adjoining panels.

4,378,665

MACHINE FOR ORIENTING AN ARTICLE AND PERFORMING A WORK OPERATION ON THE ARTICLE

Michael Crankshaw, Santa Fe Springs, and Leo Kucheck, Irvine, both of Calif., assignors to Label-Aire Inc., Fullerton, Calif.
Continuation-in-part of Ser. No. 930,720, Aug. 3, 1978, Pat. No. 4,201,621. This application Mar. 27, 1980, Ser. No. 134,572
The portion of the term of this patent subsequent to May 6, 1997, has been disclaimed.
Int. Cl.³ B65G *29/00*
U.S. Cl. 53—69 **22 Claims**



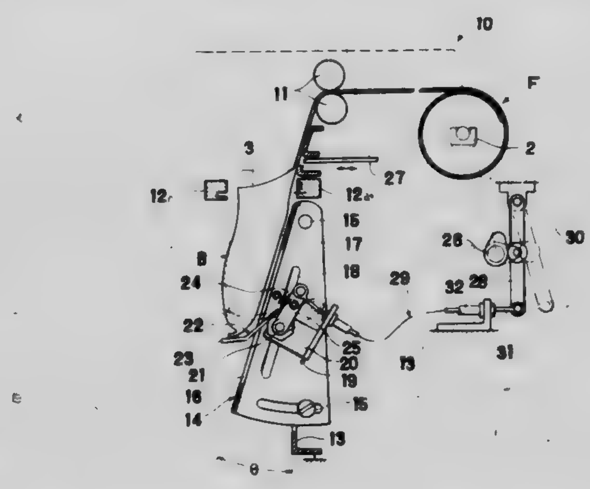
1. An apparatus for orienting articles which are moved along a path by a conveyor so that a work operation may be performed on the articles while the articles are oriented, said apparatus comprising:
- a wheel having a peripheral surface, at least a portion of said peripheral surface being resiliently deformable;
- means for mounting said wheel for rotation about a rotational axis which extends generally transverse to the direction of movement of the conveyor adjacent said wheel, said wheel being adapted to lie at least partially in the path of the articles conveyed to the wheel by the conveyor;
- motor means for rotating said wheel about said rotational axis; and
- guide means adjacent said peripheral surface of said wheel for urging articles conveyed to the peripheral surface of said wheel against the peripheral surface to resiliently deform the peripheral surface sufficiently to capture the articles and hold the articles in a predetermined orientation whereby the articles are captured between the guide means and the wheel and held in a predetermined orientation during normal operation of the apparatus so that the work operation can be performed.

4,378,666

PACKING MACHINE WITH BAG-SUPPORTING DEVICE

Masami Onishi, Tokyo, Japan, assignor to Taiyo Shokai Co., Ltd., Tokyo, Japan
Filed Sep. 15, 1980, Ser. No. 187,062
Claims priority, application Japan, Sep. 14, 1979, 54-127650[U]
Int. Cl.³ B65B *1/06, 7/06, 43/26*
U.S. Cl. 53—570 **3 Claims**

1. A packing machine for filling and sealing a series of bags comprising a pair of intermittently operated pinching rollers for intermittently transferring a strip-like bag material of a collapsed plastics film strip, a stationary heat-sealer, a movable heat-sealer arranged to move toward and away from said stationary heat-sealer in a horizontal plane to seal the tops of said bags, a guide plate provided under said stationary heat-sealer at a front portion of the machine for guiding a leading bag section formed in said bag material and having a transversely extending opening portion thereof, said guide plate having along a front face a plurality of vertically extending parallel slits, a supporting device for supporting the leading bag section, said supporting device being provided on a rear side of said guide plate and arranged to be capable of being raised and lowered therealong and comprising a comblike supporting member having a pectination projecting frontwardly of said guide plate through said slits thereof and arranged to be swung about a horizontal axis so as to be capable of upholding a bottom of the leading bag section with said pectination when said supporting member is swung upwardly, said pectination being normally biased obliquely downwardly by means of a spring, a reciprocating crank mechanism operatively connected to said movable heat-sealer for sequentially operating operative parts of the machine and said movable heat-sealer, said reciprocating crank mechanism being drivingly connected to said supporting member by means of a flexible pulling member so that said supporting member can be

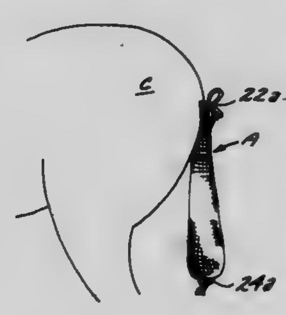


swung upwardly about said horizontal axis against the action of said spring as said flexible pulling member is pulled by said crank mechanism, means for operatively connecting said reciprocating crank mechanism and said movable heat-sealer such that said crank mechanism pulls said flexible pulling member to cause said supporting member to be upwardly swung immediately before said movable heat-sealer is moved toward said stationary heat-sealer and after the filling operation to raise at least a portion of said top of said bag relative to said heat sealers to a proper sealing position.

4,378,667

DISPOSABLE TAIL SLEEVE ENVELOPING ASSEMBLY

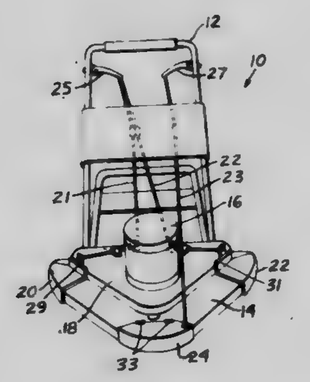
Ernest Velarde, Jr., Rte. 1, Box 472, Markleeville, Calif. 96120
Filed Nov. 2, 1981, Ser. No. 317,268
Int. Cl.³ A01K *13/00*
U.S. Cl. 54—78 **7 Claims**



1. A disposable assembly for substantially enveloping the tail of an animal having a tail bone, said assembly including:
- a. a guide ring of substantial width and of such internal diameter as to encircle said tail of said animal, said ring having first and second laterally spaced circular edges, and said ring capable of being moved longitudinally on said tail to dispose said first edge over said tail bone;
- a. an elongate tubular sleeve of a light weight woven material that is wound in over lapping circular folds on said ring, said sleeve having first and second ends, and said sleeve including a tab on said first end that is adjacent said first circumferential edge;
- c. a resilient elongate strip that extends in opposite directions from said tab, said strip capable of being disposed to encircle said tail bone in a tensioned condition and then knotted to removably hold said first end of said sleeve on said tail

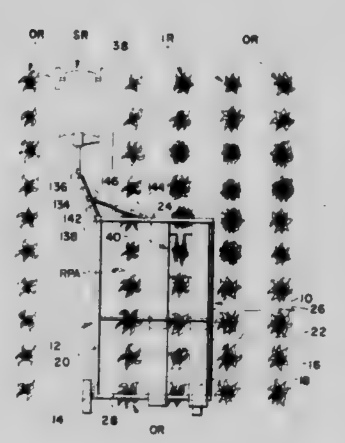
bone, with said ring and the balance of said sleeve being moved longitudinally away from said tail bone, with said sleeve peeling from said ring until none remains thereon, with said ring now being discarded, and said second end of said sleeve knotted for said sleeve to substantially envelop said tail.

4,378,668
LAWNMOWER-EDGE TRIMMER
Brad Gullett, 376 Hidden Pines Cir., Casselberry, Fla. 32707
Continuation-in-part of Ser. No. 76,146, Sep. 17, 1979, abandoned. This application May 18, 1981, Ser. No. 264,678
Int. Cl.³ A01D *46/00*
U.S. Cl. 56—12.7 **13 Claims**



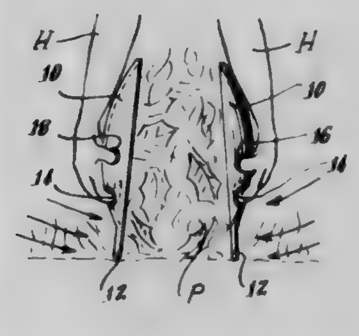
1. Apparatus for mowing a lawn and trimming edges comprising, in combination, a wheel-supported central rotary pulley-type mower having a housing with a guard extending around the lower part thereof and wheel-supporting means supporting said housing on front and rear axles for movement of said mower, said guard having a plurality of gaps therein, retractable guard elements for covering said gaps, means for retracting said guard element, a handle for guiding said apparatus, a central rotary shaft pulley rotatably supported within said housing, means for rotating said pulley, a plurality of whip blade elements arranged peripherally underneath said housing each in the vicinity of one of said gaps and each having at least one whip blade, and belt means for turning said whip blade elements.

4,378,669
PULL TYPE AUTOMATIC TOBACCO HARVESTER AND METHOD OF HARVESTING TOBACCO
Arvin W. Prince, Whiteville, N.C., assignor to Harrington Manufacturing Company, Lewiston, N.C.
Continuation of Ser. No. 884,181, Mar. 7, 1978, abandoned, which is a division of Ser. No. 701,791, Jul. 1, 1976, Pat. No. 4,332,128. This application Jul. 20, 1981, Ser. No. 285,357
Int. Cl.³ A01D *45/16*
U.S. Cl. 56—27.5 **8 Claims**



1. A method of harvesting tobacco in a field having a plurality of laterally spaced rows throughout the field with at least one skip row provided at intervals within the field for allowing a tractor to pass therethrough, wherein said method of harvesting tobacco utilizes a pull type automatic harvester having a main frame having ground engaging means mounted thereto for supporting said main frame and allowing the same to move on the ground during the harvesting operation, said ground engaging main frame being connected to a tractor that is adapted to move through respective skip rows within the field and to pull said ground engaging main frame of the harvester therebehind through the field during the tobacco harvesting operation, said method comprising the steps of: positioning the ground engaging main frame of said harvester in a first position relative to said tractor where a defoliator assembly carried thereby aligns with a first row of tobacco; pulling said ground engaging main frame of the harvester through the field such that the defoliator assembly carried thereby comes into operative engagement with stalks of said first row for defoliating leaves therefrom for harvesting said first row during the harvesting operation; simultaneously moving said ground engaging main frame of said harvester together with said defoliator assembly laterally over the ground with respect to said tractor to a second position where the defoliator assembly carried by said ground engaging main frame aligns with a second row laterally spaced from said first row, whereby said first and second laterally spaced rows may be harvested with the tractor occupying the same skip row while the harvester is positioned in said first or second position for harvesting said first and second rows, and pulling said ground engaging main frame of the harvester through the field such that the defoliator assembly carried by said ground engaging main frame comes into operative engagement with stalks of said second row for defoliating leaves from the respective stalks thereof.

4,378,670
HAND SCOOP FOR GRASS AND LEAVES
Mathias M. Check, 34 Bowman Dr., Greenwich, Conn. 06830, and Elia L. Goodby, 22 Barrow Dr., East Greenwich, R.I. 02818
Filed Aug. 28, 1980, Ser. No. 182,215
Int. Cl.³ A01D *7/00*
U.S. Cl. 56—400.01 **9 Claims**



1. A hand scoop for gathering leaves or other debris and depositing into a receptacle comprising a scoop body having a depression for holding a large amount of leaves and debris and a generally curved periphery for said scoop body, means on said scoop body for the user's hand to grip and manually move said scoop, and a flat marginal edge at the bottom of said scoop body being provided with a plurality of spaced teeth for raking and assembling said leaves or other debris, and said curved periphery providing easy entry into said depositing receptacle.

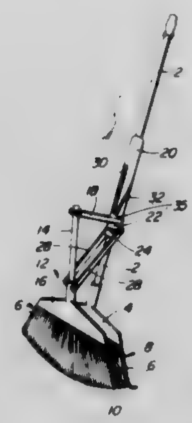
4,378,671
RAKE
Lorenzo Gascon, 175 Archambault St., Hull, Quebec, Canada
Filed Mar. 9, 1982, Ser. No. 356,384
Int. Cl.³ A01D *7/00*
U.S. Cl. 56—400.12 **4 Claims**

1. A pick-up rake comprising a rake handle having a main rake head with a raking side and a rear side secured to its lowermost end

and an auxilliary rake head assembly including an auxilliary

rake head carried by the rake handle which is selectively movable from a storage position adjacent the rear side of the main rake head enabling normal raking to a pick-up position opposite the raking side of the main rake head enabling leaves, grass and debris to be gathered and held between the two rake heads,

the auxilliary rake head assembly including a shaft pivotally secured at its upper end to a pair of outwardly extending sleeve arms which are fixedly secured to a handle sleeve which is mounted for guided sliding movement along the rake handle,



and a pair of auxilliary rake head guide arms pivotally secured to the shaft adjacent its lower end and pivotally secured to a collar carried by the rake handle, the collar being mounted for rotational movement with respect to the rake handle and being restrained against relative axial movement,

and guide means for guiding movement of the handle sleeve with respect to the rake handle in a first selected path for reciprocal movement of the auxilliary rake head assembly in pick-up capacity, and in a second selected path for movement of the auxilliary rake head assembly to and from storage position.

4,378,672

RING/TRAVELER SYSTEM NOISE REDUCTION

B. Dean Lassiter, Greensboro, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.

Filed Nov. 28, 1980, Ser. No. 211,048

Int. Cl.³ D01H *7/54*

U.S. Cl. 57—122 **14 Claims**

1. A spinning or twisting ring assembly for mounting a traveler, and adapted to be mounted to a ring rail, said assembly comprising

a metal ring for mounting a traveler thereon;

a rigid holder support having a plurality of openings formed therein for receipt of fasteners for attaching it to a ring rail;

an annular ring holder of resilient material operatively connected between said metal ring and said rigid holder support;

a plurality of fasteners for receipt by said openings in said rigid holder support; and

bushing means of resilient material for cooperation with said fasteners to attach said rigid holder support to a ring rail while isolating said support from the ring rail, so that no portion of said support touches the ring rail and no metal portion of said fasteners touches the ring rail.

4,378,673

FUEL CONTROL SYSTEM FOR GAS TURBINE ENGINE

Toshimi Abo, and Hidetoshi Kanegae, both of Yokohama, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Jun. 4, 1980, Ser. No. 156,776

Claims priority, application Japan, Jun. 4, 1979, 54-69553

Int. Cl.³ F02C *9/04*

U.S. Cl. 60—39.141 **14 Claims**

1. Apparatus for controlling the speed of a turbine having a power shaft mounted independently of a gasifier shaft, the gasifier shaft being driven in response to fuel flowing through a fuel controller, comprising first means for controlling the amount of fuel flowing through the fuel controller during starting of the turbine, second means for controlling the amount of fuel flowing through the fuel controller during normal operation of the turbine, and means for switching operation from the first controlling means to the second controlling means in response to a predetermined relationship between the fuel flowing through the fuel controller during starting and the smaller of first and second errors between set point and actual values of the speeds of the power and gasifier shafts.

4,378,674

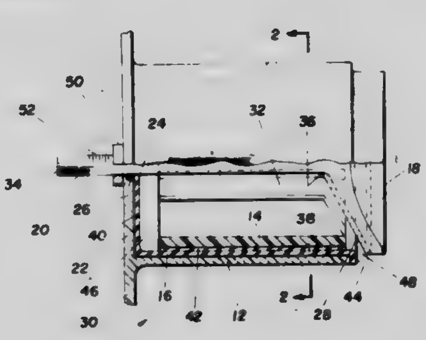
VARIABLE APERTURE ANNULAR NOZZLE FOR ROCKET MOTOR IGNITER

Frank H. Bell, Logan, Utah, assignor to Thiokol Corporation, Newtown, Pa.

Filed Mar. 26, 1981, Ser. No. 247,706

Int. Cl.³ F02C *7/26;* **F02K** *1/00, 9/95, 9/97*

U.S. Cl. 60—39.823 **12 Claims**



1. An ignition device comprising

a body forming a combustion chamber having oppositely disposed first and second openings in the wall thereof, at least the second of said openings being generally circular,

an insulation coating on the wall of the chamber between the chamber wall first and second openings,

a propellant charge having an axial bore and substantially filling the coated portion of the chamber wall with the bore of the charge extending longitudinally between the chamber wall first and second openings,

a shaft having a first end and a second end, said shaft extending in sealing manner through the first opening in the wall of the chamber and through the bore of said charge with

the second end thereof in position adjacent the second opening in the chamber wall, and

a plug supported by the second end of said shaft adjacent the second chamber wall opening, said plug having an annular flange that diverges outwardly with respect to the second chamber wall opening thereby forming an annular aperture the area of which is predetermined in accordance with the adjusted position of said shaft within the chamber.

4,378,675

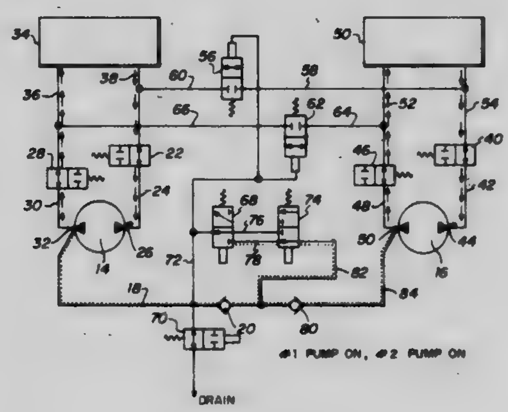
HYDRAULIC PUMP INTERLOCK SYSTEM

Bernard Otto, Arlington, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Jan. 14, 1981, Ser. No. 224,980

Int. Cl.³ F01B *25/02*

U.S. Cl. 60—421 **2 Claims**



2. In combination:

first and second hydraulic source means for supplying pressurized fluid;

first and second hydraulic circuits, each connected to said first and second hydraulic source means;

first valve means for permitting fluid flow between said first hydraulic source means and said first and second hydraulic circuits;

second valve means for permitting fluid flow between said second hydraulic source means and said first and second hydraulic circuits; and

third valve means connected between said first valve means and said second hydraulic circuit and between second valve means and said first hydraulic circuit for preventing fluid flow whenever both said first and second hydraulic source means are operating.

4,378,676

BOOSTER FOR A HYDRAULIC CLUTCH SYSTEM

David Parsons, Kenilworth, and David R. Arrowsmith, Leamington Spa, both of England, assignors to Automotive Products Limited, Leamington Spa, England

Filed Jun. 13, 1980, Ser. No. 159,378

Claims priority, application United Kingdom, Jun. 15, 1979, 7920909

Int. Cl.³ B60T *13/12*

U.S. Cl. 60—548 **2 Claims**

1. An air/hydraulic servomotor unit for providing power assistance for a clutch operating hydraulic system and comprising:

a compressed air cylinder having a housing with end walls; said air cylinder housing having a co-axial tubular extension at one end;

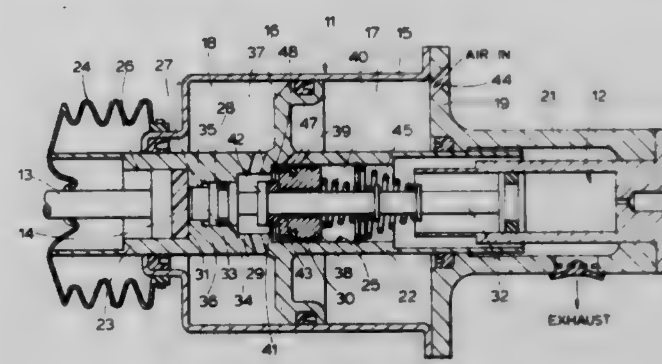
a servo piston located in the housing and responsive to a pressure differential to provide said assistance, said piston having co-axial tubular projections extending one on each side of the piston and sealingly passing through their respective air cylinder housing end walls;

a hydraulic slave cylinder co-extensively fitted in said tubular extension and being arranged co-axially with said servo piston and being the means whereby an input load is transmitted to the servo motor unit;

a co-axial clutch operating means at the other end of the housing and located in one of the tubular projections;

a load proportioning means also located in said one tubular projection and which determines the ratio in which the servo motor unit output is derived from the hydraulic slave cylinder and the air cylinder;

a control valve for controlling the pressure differential across the servo piston and which is located in the other tubular projection;



a slave cylinder piston operated by the hydraulic slave cylinder and which has a co-axial extension that passes through the control valve and servo piston so that both pistons engage with the load proportioning means through which all output loads are transmitted to the clutch operating means; and

said slave cylinder and co-axial tubular extension having sufficient annular space therebetween so that the tubular projection which houses the control valve can telescope into said annular space.

4,378,677

BYPASS CONTROL APPARATUS FOR TURBOCHARGED INTERNAL-COMBUSTION ENGINES

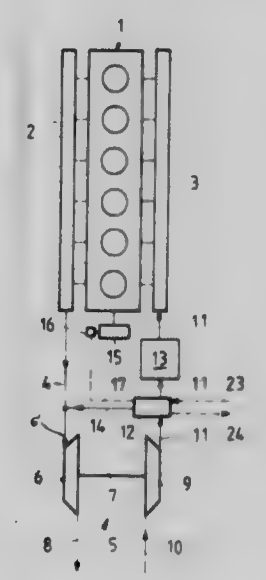
Bruno Zumstein, Lucerne, Switzerland, assignor to BBC Brown, Boveri & Company Limited, Baden, Switzerland

Filed Jun. 16, 1980, Ser. No. 159,606

Claims priority, application Switzerland, Jul. 11, 1979, 6464/79

Int. Cl.³ F02B *37/00*

U.S. Cl. 60—606 **3 Claims**



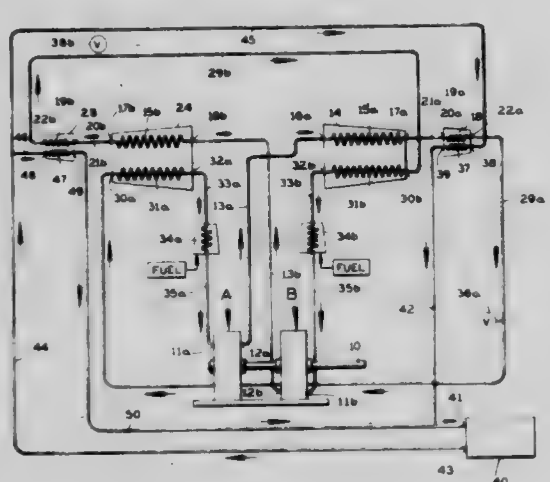
1. In a bypass control apparatus for turbocharged internal-combustion engines having an opening characteristic, depending upon the engine speed, for a bypass valve located in a bypass pipe which connects a point of a boost air pipe located downstream of a compressor to a point of an exhaust gas pipe located upsteam of a turbine inlet of a turbocharger for the engine, the improvement which comprises:

a flow pipe intended to accommodate a fluid stream for flow therethrough and flow communicating with the bypass valve;
said fluid stream serving as a work medium for actuation of the bypass valve;
fluid source for delivering said fluid stream to said flow pipe;
a supply pipe operatively associated with said fluid source means for receiving said fluid stream;
a discharge pipe flow communicating with said supply pipe for the outflow of said fluid stream;
said flow pipe extending between said supply pipe and said discharge pipe to define a pipe section;
a fixedly adjustable throttle valve provided for said pipe section;
a spring-loaded control throttle valve provided for said pipe section;
electrical signal transducer and amplifier means for operating said spring-loaded control throttle valve as a function of the speed of the engine;
proportional electromagnetic means including an armature;
a signal line connecting the amplifier with said proportional electromagnetic means; and
said armature being rigidly connected with said control throttle valve for controlling operation of said control throttle valve as a function of the speed of the engine.

4,378,678
TURBINE SYSTEM

Demos Papastavros, 2429 NE. 184th Ter., North Miami Beach, Fla. 33160

Continuation-in-part of Ser. No. 279,765, Jul. 2, 1981, abandoned, which is a continuation-in-part of Ser. No. 104,438, Dec. 17, 1979, abandoned. This application Jul. 6, 1982, Ser. No. 395,498
Int. Cl.³ F01K *23/02*
U.S. Cl. 60—655 **7 Claims**

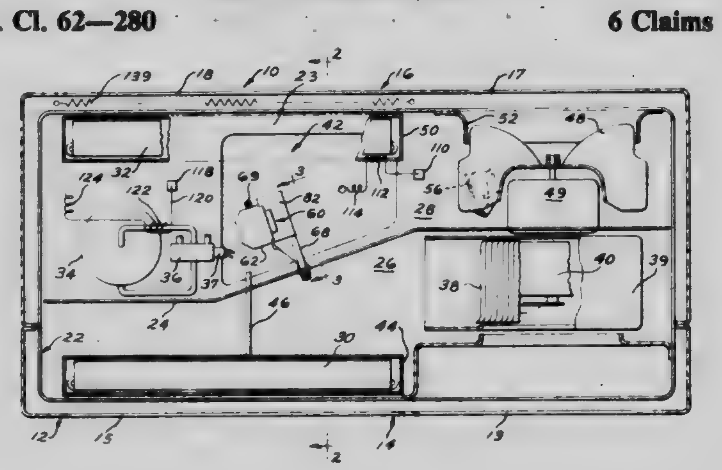


1. In a turbine system having:
first and second turbines having their respective rotors coupled to each other for rotation in unison with each other, each of said tubines having a fluid inlet and a fluid outlet;
first, second, third and fourth heat exchangers each having a first fluid passageway arrangement having opposite ends and a second fluid passageway arrangement having opposite ends, said first and second fluid passageway arrangements in each heat exchanger being in heat transfer relationship to one another;
fluid conduit means operatively connecting the output of said first turbine to one end of said first fluid passageway arrangement in said first heat exchanger;
and fluid conduit means operatively connecting the output of said second turbine to one end of said first fluid passageway arrangement in said third heat exchanger;
the improvement which comprises the combination of:
fluid conduit means operatively connecting the opposite end of said first fluid passageway arrangement in said first heat exchanger to one end of said first fluid passageway arrangement in said second heat exchanger;
fluid conduit means operatively connecting the opposite end of said first fluid passageway arrangement in said second heat exchanger to one end of said second fluid passageway arrangement in said third heat exchanger;
fluid conduit means operatively connecting the opposite end of said second fluid passageway arrangement in said third heat exchanger to the inlet of said first turbine;
fluid conduit means operatively connecting the opposite end of said first fluid passageway arrangement in said third heat exchanger to one end of said first fluid passageway arrangement in said fourth heat exchanger;
fluid conduit means operatively connecting the opposite end of said first fluid passageway arrangement in said fourth heat exchanger to one end of said second fluid passageway arrangement in said first heat exchanger;
fluid conduit means operatively connecting the opposite end of said second fluid passageway arrangement in said first heat exchanger to the inlet of said second turbine;
a cooler having a fluid inlet, a fluid outlet, and cooling means between its inlet and outlet for cooling fluid;
fluid conduit means operatively connecting the outlet of said cooler to one end of the second fluid passageway arrangement in said second heat exchanger;
fluid conduit means operatively conecting the opposite end of said second fluid passageway arrangement in said second heat exchanger to the inlet of said cooler;
fluid conduit means operatively connecting the outlet of said cooler to one end of said second fluid passageway arrangement in said fourth heat exchanger;
and fluid conduit means operatively connecting the opposite end of said second fluid passageway arrangement in said fourth heat exchanger to the inlet of said cooler.

4,378,679
AIR CONDITIONING APPARATUS

George E. Stocking, and Bruce L. Ruark, both of Louisville, Ky., assignors to General Electric Company, Louisville, Ky.

Filed Sep. 8, 1981, Ser. No. 300,351
Int. Cl.³ F25B *47/00*
U.S. Cl. 62—280 **6 Claims**



1. A self-contained refrigeration heat pump air conditioning unit operable in a heating and cooling cycle for conditioning the air of an enclosure comprising:
a chassis including a base member and a barrier dividing said chassis into an indoor compartment and an outdoor compartment;
indoor and outdoor heat exchangers mounted respectively in said indoor and outdoor compartments;
an indoor air moving means for recirculating enclosure air through said indoor compartment;
an outdoor air moving means for circulating air through said outdoor compartment;
a compressor mounted in said outdoor compartment;
means for selectively connecting said compressor to said heat exchangers whereby said outdoor heat exchanger functions as an evaporator during operation of the unit on

the heating cycle and said indoor heat exchanger functions as an evaporator during the cooling cycle;

a condensate collection sump in said outdoor compartment formed in said base member being arranged to collect condensate from said indoor and outdoor heat exchangers;

means for directing condensate formed on said indoor and outdoor heat exchangers into said sump; and

condensate disposal means arranged in said outdoor compartment including a housing forming a compartment comprising:

(a) a hood portion projecting from said one wall of said housing to a position overlying a portion of said sump to define a condensate lifting area,

(b) a passageway having substantially parallel side walls and upper and lower walls diverging from an inlet communicating with said housing lifting area to an outlet positioned in said indoor compartment through an opening in said barrier,

(c) a motor operable in the heating cycle being mounted in said compartment with the drive shaft of said motor extending through one wall of said housing,

(d) a condensate lifting disc rotatably mounted on said shaft being positioned under said hood,

(e) the diameter of said disc being sufficient to place a portion of its lower circumferentially disposed edge in said sump, said circumferentially disposed edge portion of said disc being tapered to form substantially a knife edge effective for lifting and throwing a diverging thin wall of mist tangentially off said edge portion,

(f) said disc being positioned axially on said shaft so that said knife edge is in a plane in alignment with said passageway inlet for directing said diverging thin wall of mist into said passageway inlet and through said passageway outlet in said indoor compartment into the path of air.

4,378,680

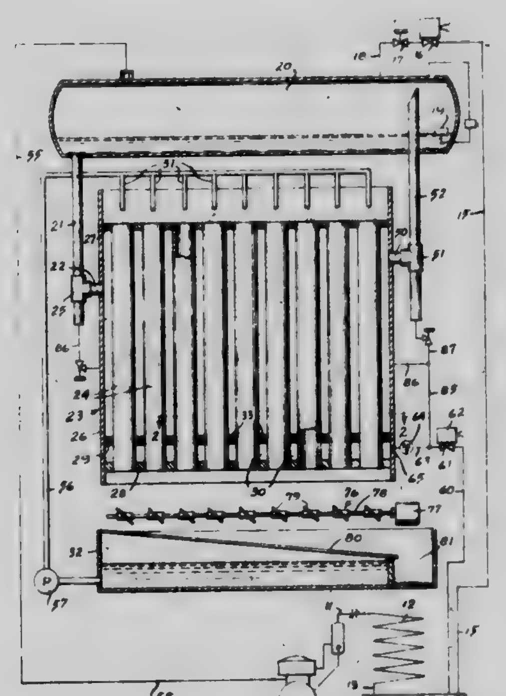
SHELL AND TUBE ICE-MAKER WITH HOT GAS DEFROST

Milton W. Garland, Waynesboro, Pa., assignor to Frick Company, Waynesboro, Pa.

Filed Oct. 8, 1981, Ser. No. 309,749

Int. Cl.³ F25C *5/10*

U.S. Cl. 62—352 **7 Claims**



1. Apparatus for producing and harvesting ice intermittently comprising vertical shell means having tube means therein, means for supplying water to the interior of said tube means, an accumulator-separator for refrigerant, a first conduit means connecting the lower portion of said accumulator-separator to said shell means for supplying liquid refrigerant thereto, a second conduit means connecting the upper portion of the accumulator-separator to the shell means for withdrawing gaseous refrigerant from said shell means, said first and second conduit means being connected to spaced portions of the shell means so that liquid and gaseous refrigerant flow through the shell means is in the same direction during ice making, said shell means having a false bottom at its lower portion which snugly engages said tub means and which constitutes a wall of an enclosed space, restricted flow means in said false bottom, said flow means comprising apertures of predetermined size located intermediate said tube means and substantially preventing liquid flow but permitting gaseous flow, means for supplying relatively high temperature and pressure gaseous refrigerant to the space beneath the false bottom for upward flow through said flow means into said shell means and to cause release of ice from the tube means, and means for retaining the liquid refrigerant within said shell means when said relatively high temperature and pressure gaseous refrigerant is supplied to the space beneath the false bottom for harvesting the ice.

4,378,681

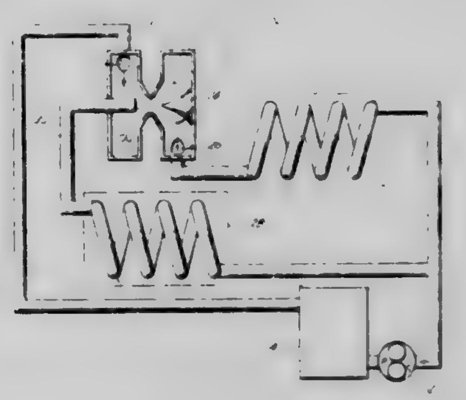
REFRIGERATION SYSTEM

Jerry Modisette, Houston, Tex., assignor to Modisette, Inc., Houston, Tex.

Filed Sep. 8, 1981, Ser. No. 299,715

Int. Cl.³ F25B *1/06*

U.S. Cl. 62—500 **17 Claims**



1. A closed refrigeration system in which a fluid refrigerant can be circulated, comprising:

(a) heating means for converting the fluid to a relatively high pressure gas;

(b) an expansion chamber downstream from the heating means, the expansion chamber including a cylindrical chamber with a fluid inlet opening adapted for introducing the gas tangentially into the chamber and an outlet concentric about the chamber axis, and of smaller diameter than the chamber so that conservation of angular momentum causes the fluid to increase the tangential component of its velocity, thereby producing an approximately isentropic expansion with reduced pressure and temperature as it passes through the expansion chamber;

(c) a compression chamber connected to the outlet of the expansion chamber, the compression chamber being approximately a mirror image of the expansion chamber, so that the tangential component of the fluid velocity is caused to decrease by the conservation of angular momentum as the fluid passes from the small diameter inlet to the tangential outlet, thereby producing an approximately isentropic compression;

(d) condensing means downstream of the compression chamber and upstream of the heating means for condensing the gas from the compression chamber to a liquid;

(e) vaporizing means for vaporizing a portion of the liquid at a relatively low pressure for providing refrigeration, the inlet of the vaporizing means being connected between the condensing means and the heating means for diverting a portion of the fluid flowing from the condensing means;

(f) a conduit connected at one end to the outlet of the vapor-

izing means, the other end being located on the axis of the expansion chamber so that the low pressure region will cause fluid to circulate through the vaporizing means;

(g) circulating means for circulating fluid through the condensing means, heating means, expansion chamber, and compression chamber;

(h) the outlet of the compression chamber being larger than the inlet to the expansion chamber so as to accommodate the increased flow volume, including the added flow from the evaporator and the increased volume of the gas due to heating;

(i) means within the expansion chamber in the form of a generally conically shaped body to guide the flow to the tangential outlet in a smooth manner.

4,378,682

PRESSER FOOT FOR A KNITTING MACHINE

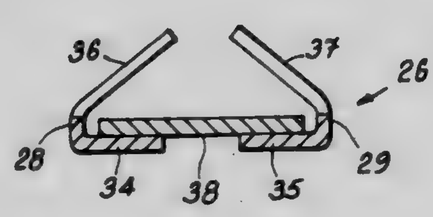
Max W. Betts, Coventry, England, assignor to Courtaulds Limited, London, England

Filed Sep. 19, 1980, Ser. No. 188,828

Claims priority, application United Kingdom, Oct. 3, 1979, 7934342

Int. Cl.³ D04B *7/04*

U.S. Cl. 66—64 **9 Claims**



1. A presser foot for a knitting machine having independently operable needles disposed in at least two needle beds, said presser foot being adapted for movement across the needle beds in synchronism with needle operation and comprising an elongate presser member comprising:

(a) two elongate side-by-side presser elements providing side parts of said presser member,

(b) said side parts sloping upwardly and inwardly with respect to one another in a roof-like configuration.

4,378,683

TRANSVERSELY STRETCHABLE STRINGER TAPE FOR SLIDE FASTENERS

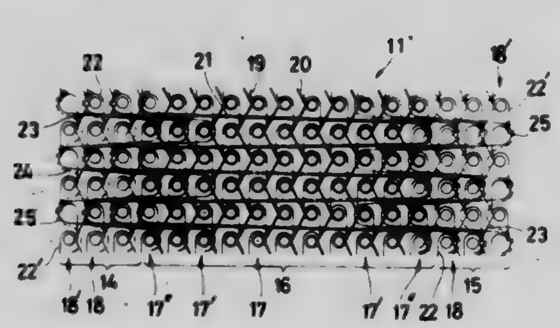
Yoshio Matsuda, Nyuzen, and Yoshiharu Yamaguchi, Namerikawa, both of Japan, assignors to Yoshida Kogyo K. K., Tokyo, Japan

Filed Mar. 12, 1981, Ser. No. 242,972

Claims priority, application Japan, Mar. 18, 1980, 55-35579[U]

Int. Cl.³ D04B *23/08, 23/10*

U.S. Cl. 66—193 **21 Claims**



1. A transversely stretchable stringer tape for a slide fastener having a pair of rows of coupling elements, comprising:

(a) an elongate warp-knit web having a plurality of longitudinal wales disposed between a pair of longitudinal edges, said web including a pair of marginal portions extending along said pair of longitudinal edges, respectively, and an intermediate portion extending between said marginal portions, at least one of said marginal portions being non-stretchable for supporting therealong one coupling element row of the slide fastener;

(b) said intermediate portion being transversely stretchable and including a plurality of yarns (hereafter called second yarns) forming a knit ground structure containing stitch loops, and at least one elastic yarn (hereafter called third yarn) laid in said knit ground structure and extending transversely across a plurality of adjacent ones of said wales, said second yarns being elastic and each extending across at least an adjacent pair of said wales, the number of the wales across which each said second yarn extends being smaller than the number of the wales across which said third yarn extends.

4,378,684

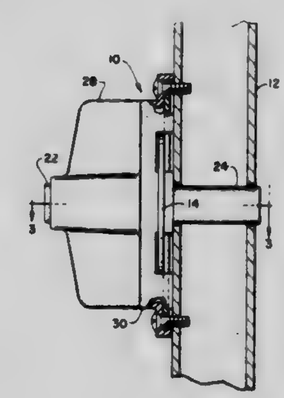
DOUBLE CYLINDER SLIDING DOOR LOCK

Thomas J. Dugan, 226 Paseo de Cristobal, and Dennis G. Dugan, 117 Avenida Dominguez, both of San Clemente, Calif. 92672

Filed Aug. 15, 1980, Ser. No. 178,370

Int. Cl.³ E05B *65/08*

U.S. Cl. 70—100 **4 Claims**



1. A locking mechanism for a door which comprises:

a locking member for securing an associated door in a closed position, said locking member being arcuate;

means for mounting said locking member to permit rotation about an axis;

a first lock extending in a first direction, said first lock operatively cooperating with said locking member;

a second lock extending in a second direction which is opposite to said first direction, said second lock operatively cooperating with said locking member;

means for transferring rotary movement of one of said locks to said locking member;

said means for transferring motion comprising a shaft extending intermediate said first and second lock, and further including at least a collar cooperating with said shaft in a manner which prevents relative angular motion between said collar and said shaft, a second collar cooperating with said shaft, said second collar including means cooperating with said shaft to prevent relative angular motion therebetween; and

at least one spring biased member having an axis and at least one planar surface extending radially of the axis and bearing on the peripheral surfaces of the collars in at least some angular positions of the collars.

4,378,685

METHOD OF SETTING AXIAL POSITION OF LOOSELY CARRIED SLEEVE IN A ROLLING MILL

Shigeru Ogawa; Yuji Uehori; Hiromi Matsumoto, all of Kitakyushu, and Koe Nakajima, Nakama, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

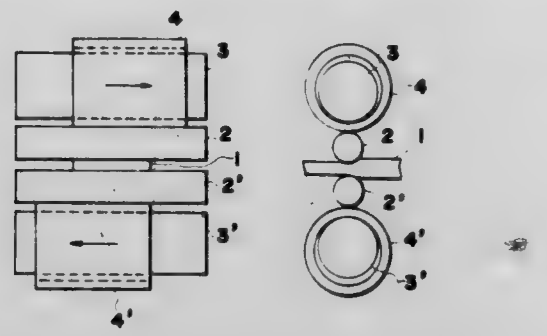
Filed Jan. 26, 1981, Ser. No. 228,697

Int. Cl.³ B21B *31/16*

U.S. Cl. 72—21 **6 Claims**

1. A method of changing the axial position of a sleeve in a

rolling mill having at least one roll on which said sleeve is loosely positioned and contacting the inner surface of the sleeve along a straight line parallel to the roll axis for rotating of the sleeve with the roll, said sleeve further being axially shiftable along the outer circumferential surface of the said one roll, said one roll, during normal operation of said rolling mill, being subjected to a rolling load from one side of the sleeve directed toward the sleeve center and onto the outer circumferential surface of said one roll, and the roll necks of said one



roll being subjected to a balancing force for said load through bearing means, said method comprising displacing said sleeve in one direction along said roll axis by exerting on said sleeve transversely thereof a force which produces a force transversely of said sleeve axis for inclining the sleeve axis slightly so that the end toward which it is desired to displace the sleeve is moved in the same direction as the direction in which said sleeve is moving at the line of contact of said one roll with the inner surface of said sleeve.

4,378,686

FORMING OF MATERIALS BY EXTRUSION

John A. Pardoe, Lytham St. Annes, England, assignor to United Kingdom Atomic Energy Authority, London, England

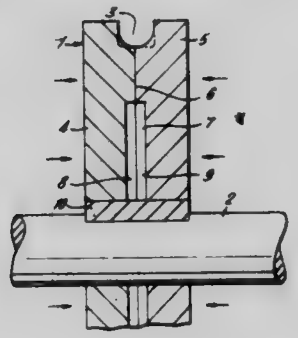
Filed Mar. 6, 1978, Ser. No. 883,662

Claims priority, application United Kingdom, Mar. 16, 1977, 11047/77

The portion of the term of this patent subsequent to Sep. 5, 1997, has been disclaimed.

Int. Cl.³ B21C *23/02, 29/00*

U.S. Cl. 72—262 9 Claims



1. In apparatus for the continuous forming of materials by extrusion, a wheel member with an endless peripheral groove and comprising an assembly of two parts joined in a radial plane within the groove base width, at least one of the parts having a portion which abuts with the other part along the said joining plane, the amount of abuttment being limited to extending radially only part way to a driving shaft to which the wheel member is secured for rotation therewith, for providing an annular separation zone extending from the driving shaft periphery part way towards the groove of the wheel member, and means for holding the two wheel member parts in abutting position during rotation of the wheel member by the driving shaft for operation to perform extrusion.

4,378,687

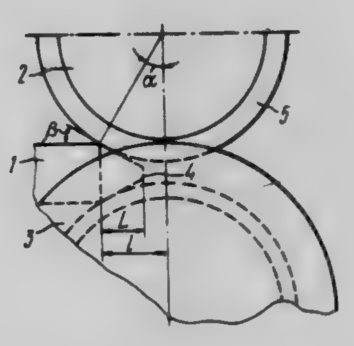
METHOD FOR ROLLING H-SECTIONS IN CONTINUOUS MILL

Vladislav A. Shilov, ulitsa S. Kovalevskoi, 1, kv. 77; Vitaly K. Smirnov, ulitsa Malysheva, 130-b, kv. 31; Viktor S. Pechersky, ulitsa 40 let Oktyabrya, 36, kv. 7, all of Sverdlovsk; Alexandr A. Kugushin, Kemerovskoi oblasti, prospekt Metallurgov, 25, kv. 128, Novokuznetsk; Vladimir N. Bespalov, Kemerovskoi oblasti, ulitsa Kurako, 16, kv. 85, Novokuznesk; Jury O. Labetsky, Kemerovskoi oblasti, ulitsa Kirova, 56, kv. 61, Novokuznesk, and Boris M. Melnikov, Kemerovskoi oblasti, ulitsa Suvorova, 2, kv. 79, Novokuznetsk, all of U.S.S.R.

Filed Jan. 22, 1981, Ser. No. 227,368

Int. Cl.³ B21B *1/08*

U.S. Cl. 72—366 3 Claims



1. A method for rolling H-sections in a continuous mill, comprising bevelling a forward end of a billet prior to rolling on the faces that are to be horizontal during rolling at an angle of 20°-30° relative to a horizontal axis of said billet, and subsequent rolling of said billet in slitting and beam passes.

4,378,688

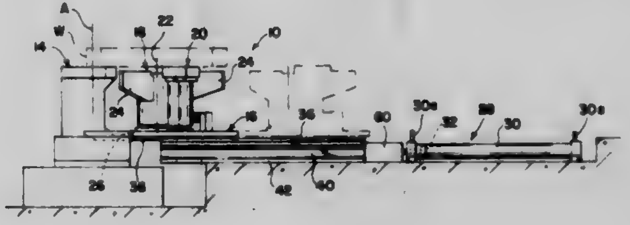
APPARATUS FOR FEEDING AND ORIENTING WORKPIECES IN A PRESS

Edwin A. Spanke, Oak Forest, and Melvin H. Francey, Palos Heights, both of Ill., assignors to Gulf & Western Manufacturing Company, Southfield, Mich.

Filed Mar. 12, 1981, Ser. No. 243,247

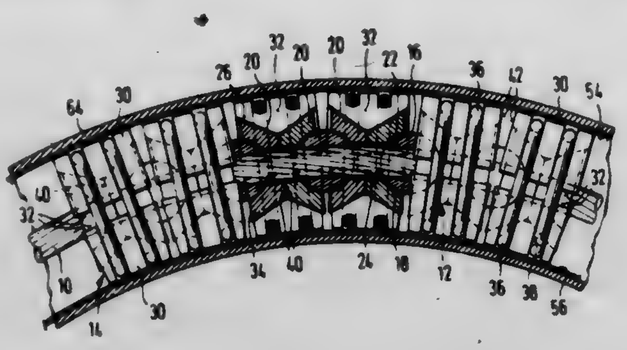
Int. Cl.³ B21D *43/00;* B21J *13/08*

U.S. Cl. 72—420 30 Claims



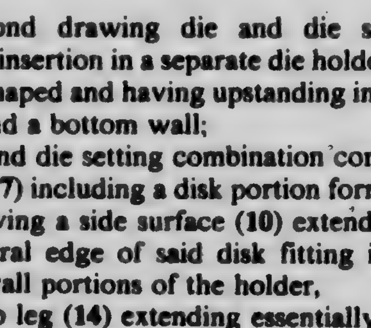
1. Apparatus for feeding and orienting a workpiece relative to a work station in a press comprising, shuttle means, means supporting said shuttle means for reciprocation relative to said press between workpiece receiving and press loading positions, means including workpiece support means on said shuttle means underlying and supporting a workpiece in a working position at said work station and in a feeding position spaced above said working position, mounting means supporting said workpiece support means on said shuttle means for displacement relative thereto along a vertical axis for said workpiece support means to engage under and displace a workpiece between said feeding and working positions, said mounting means further supporting said workpiece support means for displacement about said vertical axis to rotate a workpiece supported at said work station in said feeding position, and means for displacing said workpiece support means along and about said axis.

4,378,689
CORE FOR A PIPE THAT IS TO BE BENT
Theodor Molz, Chur, Switzerland, assignor to W. Eckold AG, Switzerland
Filed Jan. 2, 1981, Ser. No. 222,245
Claims priority, application Fed. Rep. of Germany, Jan. 4, 1980, 3000170
Int. Cl.³ B21D *9/03*
U.S. Cl. 72—466 **14 Claims**



1. Core for a pipe that is to be bent, comprised of elements that are coupled to one another in articulated manner, characterized in that there are arranged on a wire cable (10) separate wedge elements which are themselves articulated and, between successive wedge elements, expanding elements that can be expanded transversely to the extension of the cable, the wedge elements can be pushed together in the direction of extension of the cable with the expanding elements being expanded, each of such wedge elements being comprised of a joint member of round cross-section at least in the bending plane of the pipe and a semi-wedge member arranged at each side, having a bearing face complementary to the cross-section of the joint member.

4,378,690
DIAMOND DRAWING DIE AND SETTING COMBINATION
Wolfram Stiebritz, Königsbrunn; Georg Sitterer, Graben, and Klaus Seidel, Mittelstetten, all of Fed. Rep. of Germany, assignors to Patent-Treuhand-Gesellschaft für Elektrische Glühlampen mbH, Munich, Fed. Rep. of Germany
Filed Jan. 7, 1981, Ser. No. 223,224
Claims priority, application Fed. Rep. of Germany, Jan. 15, 1980, 3001261
Int. Cl.³ B21C *3/02, 3/12*
U.S. Cl. 72—467 **5 Claims**



1. Diamond drawing die and die setting combination adapted for insertion in a separate die holder (5), the die holder being cup-shaped and having upstanding inner wall portion, an open end and a bottom wall;

said die and die setting combination comprising

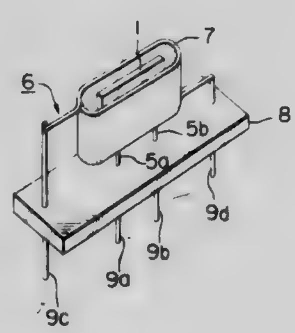
a carrier (7) including a disk portion forming a base plate (8) and having a side surface (10) extending along the outer peripheral edge of said disk fitting into the upstanding inner wall portions of the holder,

and a stub leg (14) extending essentially centrally from the base plate having conical side surfaces and a die seating surface (16) opposite the base plate, one side of said die (3) being secured to said seating surface;

a central opening formed through the base plate and the stub leg and in alignment with the die drawing openings; and

a sinter holding body (4') in the form of a molded body positioned essentially flush with the side surface (10), surrounding portions of the die and the stub leg including the conical surface thereof, and shaped to fit into the cup shaped die holder, said carrier and die being fitted in the die holder so that the carrier extends across the die holder opening with the side surface engaging the inner wall of the die holder and the sinter holding body being positioned intermediate the bottom wall and the open end of said die holder with the sinter holding body in engagement with the bottom wall and upstanding inner wall, a side of said die opposite said one side being solely supported by said sinter holding body and said plate and die being arranged for drawing of wire through the combination in the direction first through the base plate and the stub leg, then through the die, and then through the sinter body to place the sinter body in compression and, in use, in direct contact with the die holder (5).

4,378,691
MULTI-FUNCTIONAL SENSOR
Jiro Terada, and Tsuneharu Nitta, both of Katano, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Jan. 28, 1981, Ser. No. 229,181
Claims priority, application Japan, Apr. 2, 1980, 55-12889; Apr. 2, 1980, 55-12890
Int. Cl.³ G01N *27/12, 31/06*
U.S. Cl. 73—27 R **6 Claims**



1. A multi-functional sensor capable of detecting humidity and a gas or gases comprising

(a) a sensing element consisting essentially of a p-type metal-oxide ceramic semiconductor,

(b) means attached to said sensing element for detecting or measuring humidity in terms of variations in ion conduction due to the physical absorption of water, temperature lower than 150° C., and

(c) means attached to said sensing element for detecting or measuring a gas or gases in terms of variations in electron conduction due to the chemical absorption of said gas or gases at temperature between 200° C. and 600° C.

4,378,692
LEAK DETECTING MONITOR
L. Irwin Walle, Largo, Fla., assignor to Air Monitor Co., Inc., Largo, Fla.
Filed Jul. 31, 1981, Ser. No. 288,683
Int. Cl.³ G01M *3/32*
U.S. Cl. 73—49.2 **10 Claims**

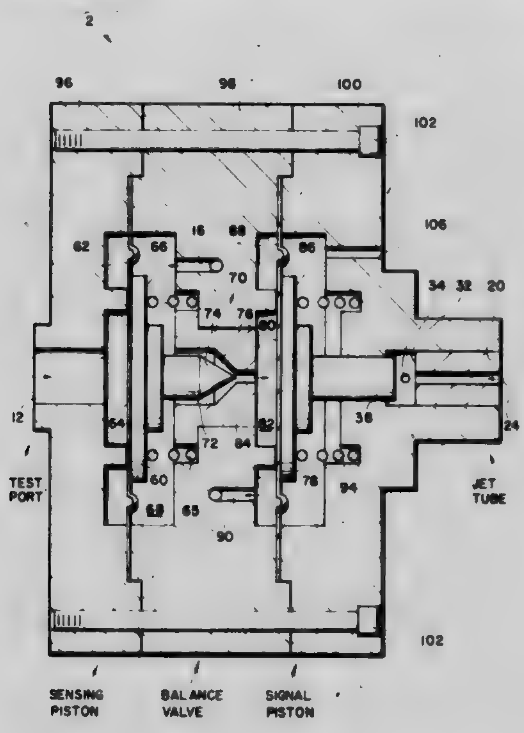
1. A fluid pressure monitor, comprising:

an axially displaceable sensing piston having a first surface exposed to a fluid pressure to be monitored and a second surface opposite to said first surface, having a first portion exposed to a reference gas pressure in a first chamber and a second portion not so exposed;

a balance valve having an axially displaceable valve stem mounted on said second portion of said sensing piston and

within said first chamber, having a valve face formed on said valve stem and having a valve seat which operatively mates with said valve face when said valve stem is axially displaced in conjunction with the axial displacement of said sensing piston in response to changes in the relative magnitude of said fluid pressure to be monitored with respect to said reference gas pressure;

an axially displaceable signal piston having a first surface exposed to gas pressure in a second chamber which communicates through said valve seat of said balance valve with said first chamber, and a second surface opposite to said first surface;

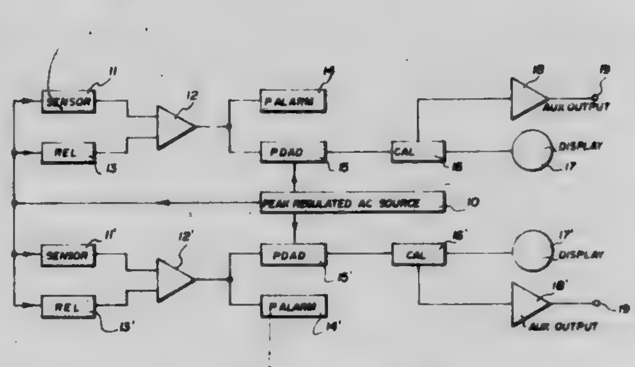


said axial displacement of said balance valve controlling the rate of flow of said reference gas from said fist chamber to said second chamber;

a gas jet having an inlet connected to a sensing gas pressure source and sensing gas pressure detector and an outlet proximate to said second surface of said signal piston;

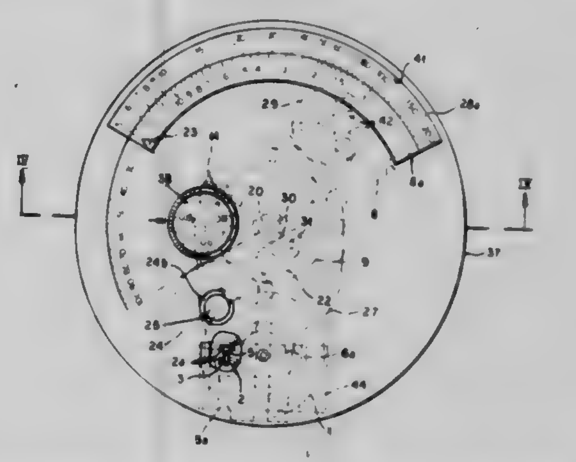
said signal piston blocking said outlet of said gas jet, producing a pneumatic signal detectable by said detector, in response to said reference gas being admitted from said first chamber to said second chamber through said valve seat in response to a decrease in said fluid pressure to be monitored with respect to said reference gas pressure which axially displaces said sensing piston, moving said valve face away from said valve seat of said balance valve.

4,378,693
DEFLECTION MEASURING SYSTEM
Edward L. Ratcliffe, Ottawa, Canada, assignor to Hambro International (Structures) Limited, Ottawa, Canada
Filed Feb. 11, 1981, Ser. No. 233,645
Int. Cl.^{3} G01B *5/28*
U.S. Cl. 73—105 **7 Claims**



1. A system for sensing deviation of a surface, structure or the like from a reference axis comprising a tilt sensitive transducer including a first and a second impedance the values of which vary differentially according to the angle and direction of tilt, means for applying an A.C. voltage across the first impedance, means for applying an antiphase A.C. voltage across the second impedance, rectifier means for deriving a positive D.C. voltage having a magnitude depending on the magnitude of the first impedance and deriving a negative D.C. voltage having a magnitude depending on the magnitude of the second impedance, means for adding the positive D.C. voltage and the negative D.C. voltage to derive a D.C. voltage the magnitude of which is dependent on the angle of tilt and the sign of which is dependent on the direction of tilt.

4,378,694
INSTRUMENT FOR MEASURING THE SPEED AND FUEL CONSUMPTION OF MOTOR VEHICLES
Nandor Böhm; Janos Böhm, and Robert Böhm, all of Budapest, Hungary, assignors to Kozuti Kozlekedesi Tudomanyos Kutato Intezet, Budapest, Hungary
Filed Dec. 18, 1980, Ser. No. 217,786
Int. Cl.^{3} G01F *9/02*
U.S. Cl. 73—114 **17 Claims**



1. An instrument for continuously indicating the instantaneous rate of fuel consumption during operation of a motor vehicle equipped with a speedometer and with a flowmeter traversed by fuel fed to the motor, comprising:

a stationary speed scale logarithmically graduated with first markings representing distance per hour;

a movable consumption scale logarithmically graduated with second markings representing units of fuel per predetermined distance, said consumption scale being disposed on a carrier operatively coupled with said flowmeter; and

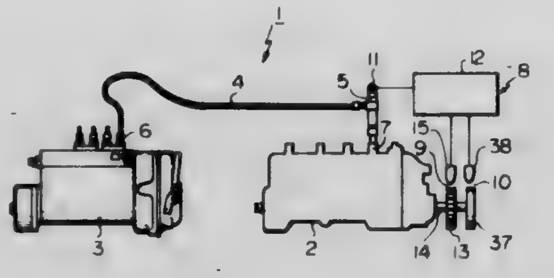
a pointer driven by said speedometer for simultaneously sweeping said speed scale with increasing speed in a direction of increasing markings of said speed scale and decreasing markings of said consumption scale, said consumption scale advancing codirectionally with said pointer upon a rise in speed accompanied by an increased fuel flow, said speedometer being provided with a logarithmically calibrated restoring spring.

4,378,695
APPARATUS FOR MEASURING FUEL INJECTION TIMING
Hidekazu Oshizawa, Kumagaya, Japan, assignor to Diesel Kiki Co., Ltd., Tokyo, Japan
Filed Dec. 17, 1980, Ser. No. 217,554
Claims priority, application Japan, Dec. 25, 1979, 54-168977
Int. Cl.^{3} G01M *15/00*
U.S. Cl. 73—119 A **8 Claims**

1. An apparatus for measuring the fuel injection timing of a fuel injection apparatus which injects fuel into an engine, comprising:

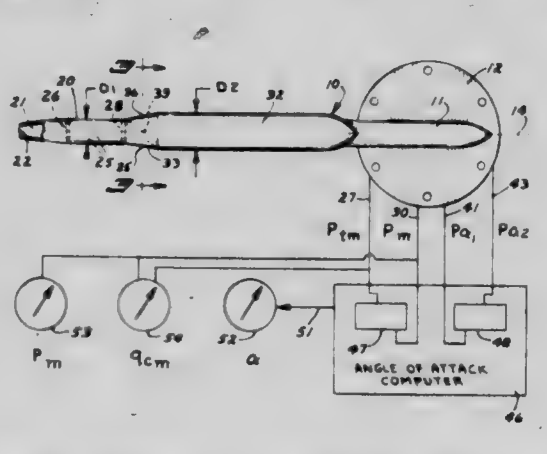
a pulse generator for generating a pulse train signal which changes in frequency in relation to the speed of the engine;

a first timing detecting means for generating a first timing pulse in response to fuel injection;
a second timing detecting means for generating a second timing pulse at the time when the associated crank of the engine is at top dead center;
a gate signal generator for generating a gate signal having a pulse width corresponding to the period from the time of occurrence of said first timing pulse to the time of occurrence of said second timing pulse, and;



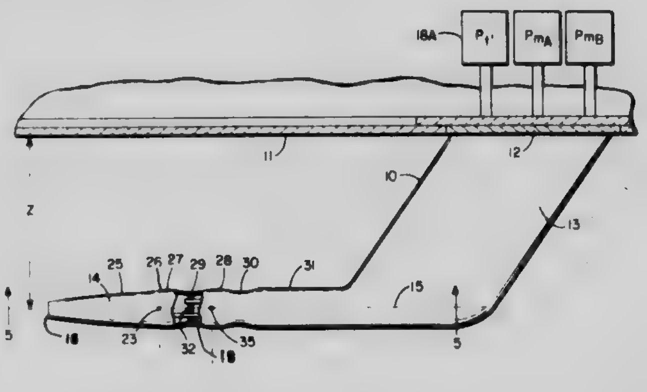
a counter for counting the pulses of said pulse train signal from said pulse generator for the period of the pulse width of the gate signal,
wherein said pulse generator has a sensor for generating a signal changing in frequency in response to the speed of the engine and a frequency multiplying circuit for multiplying the frequency of said signal from said sensor.

4,378,696
PRESSURE SENSOR FOR DETERMINING AIRSPEED ALTITUDE AND ANGLE OF ATTACK
Richard V. DeLeo, Hopkins, and Floyd W. Hagen, Eden Prairie, both of Minn., assignors to Rosemount Inc., Eden Prairie, Minn.
Filed Feb. 23, 1981, Ser. No. 236,900
Int. Cl.³ G01C *21/00;* G01P *5/165*
U.S. Cl. 73—180 **13 Claims**



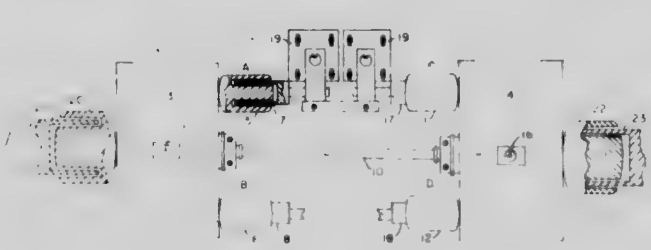
1. An air data sensing probe for sensing the angle of relative movement between the probe and a fluid stream, comprising a barrel having a longitudinal axis and including:
a leading end and a trailing end, a first generally cylindrical section, a second generally cylindrical section spaced rearwardly from the first generally cylindrical section, the second section being larger diameter than the first generally cylindrical section, and an increasing diameter surface section generated about the longitudinal axis and joining the first and second sections the increasing diameter surface section forming an included angle of between in the range of 5° and 25° with respect to the longitudinal axis;
a pair of pressure sensing port means on said increasing diameter section, said port means having axes which together with the barrel longitudinal axis define a plane in which an angle to be sensed is to be measured with respect to a reference position of the longitudinal axis;
means to subtract the pressure at one of said port means from the other; and
means providing a signal representing a ratio of the difference between the pressures sensed at the respective port means and a pressure quantity including a pitot pressure function which provides a ratio value which is nonlinear with increasing angles of above about twenty degrees with respect to the reference position of the longitudinal axis.

4,378,697
STRUT MOUNTED MULTIPLE STATIC TUBE
Richard V. DeLeo, Hopkins, and Floyd W. Hagen, Eden Prairie, both of Minn., assignors to Rosemount Inc., Eden Prairie, Minn.
Filed Jul. 6, 1981, Ser. No. 280,860
Int. Cl.³ G01P *5/165*
U.S. Cl. 73—182 **15 Claims**



1. In a probe for sensing static fluid pressures, said probe having a laterally extending mounting strut at a rear portion thereof for mounting said probe in spaced relationship to an external surface in a fluid flow stream and having a probe barrel with a longitudinal axis, the improvement comprising:
an annular smoothly curved corrugation formed on the outer surface of said barrel in a position between the leading end of said probe and the strut to form a pressure disturbance along said barrel and having substantially equal static pressure occurring at axially spaced positions on opposite sides of a radial plane lying on the minimum cross sectional dimension of said annular corrugation.

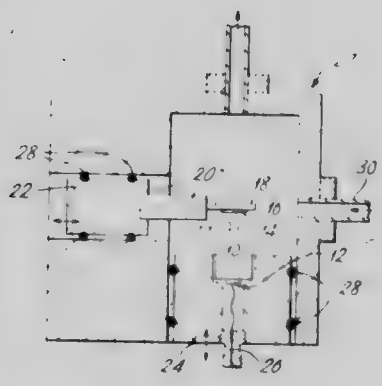
4,378,698
AMPLITUDE AND PHASE DETECTOR IN A HARMONIC OSCILLATOR SYSTEM
Lucien Masse; William L. Medlin, both of Dallas, and James H. Sexton, Duncanville, all of Tex., assignors to Mobil Oil Corporation, New York, N.Y.
Filed May 1, 1981, Ser. No. 259,770
Int. Cl.³ G01N *29/00*
U.S. Cl. 73—579 **4 Claims**



1. In a system for measuring dynamic elastic constants of rock materials having a rock material horizontally supported between a pair of masses which are vertically suspended and a coil-magnet system driven by a sinusoidal current such that the masses move in opposition with the rock material acting as a spring element connecting them, the improvement comprising:
(a) a pair of coil-magnet displacement detectors mounted on each of said masses,
(b) means for connecting the coils of said coil-magnet displacement detectors so as to produce an emf displacement

signal across said coils that is proportional to the relative displacements of said masses,
(c) a resistive element connected in series with the driving coils to said masses, whereby the voltage across said resistive element has the same phase as said sinusoidal driving current,
(d) means for utilizing the voltage across said resistive element to produce a first square wave signal in phase with the driving current and a second square wave signal 90° out of phase with said first square wave signal,
(e) a synchronous detector to which said displacement signal and said first square wave signal are applied, said detector producing a output when said displacement signal is in phase with said first square wave signal,
(f) a quadrature detector to which said displacement signal and said second square wave signal are applied, said detector producing a signal when said displacement signal is in phase with said second square wave signal.

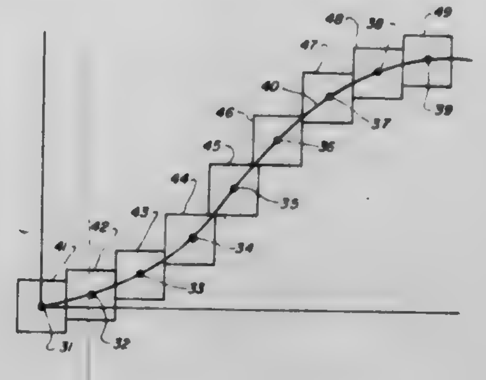
4,378,699
SCANNING ACOUSTIC MICROSCOPE
Hemantha K. Wickramasinghe, London, England, assignor to National Research Development Corporation, London, England
PCT No. PCT/GB80/00089, § 371 Date Jan. 23, 1981, § 102(e) Date Jan. 23, 1981, PCT Pub. No. WO80/02594, PCT Pub. Date Nov. 27, 1980
PCT Filed May 15, 1980, Ser. No. 229,576
Claims priority, application United Kingdom, May 24, 1979, 7918101
Int. Cl.[3] **G01N** *29/00*
U.S. Cl. 73—606 **12 Claims**

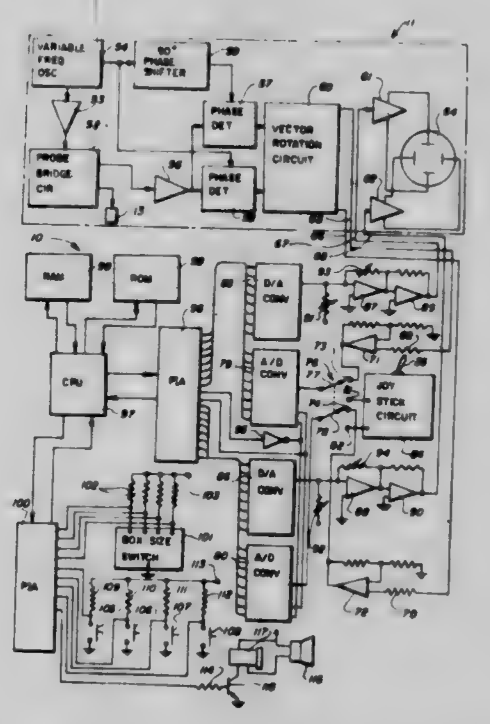


1. A scanning acoustic mircoscope comprising:
transducer means for providing a convergent beam of acoustic radiation;
means for causing relative movement in the focal plane of the focus of said beam and a sample under investigation;
transducer means for receiving acoustic radiation modulated by the sample near the beam focus; and
means for supplying a gas at higher than atmospheric pressure to a volume between surrounding the transducer means and the sample.

4,378,700
INDICATING SYSTEM FOR USE IN NONDESTRUCTIVE TESTING
John J. Flaherty, Elk Grove Village, and Eric J. Strauts, Park Ridge, both of Ill., assignors to Magnaflux Corporation, Chicago, Ill.
Filed Nov. 7, 1980, Ser. No. 204,950
Int. Cl.[3] **G01N** *29/00*
U.S. Cl. 73—620 **25 Claims**

1. In an indicating system for a nondestructive testing system which includes means for concurrently developing first and second analog test signals having amplitudes which concurrently vary relative to each other as a function of characteristics of a structure under test, said indicating system comprising: recording means for recording digital reference signals which establish set limits with respect to relative variations of the amplitudes of said first and second analog signals and which define a certain range of characteristics of a structure under test, converter means for converting said first and second analog test signals into first and second digital test signals,



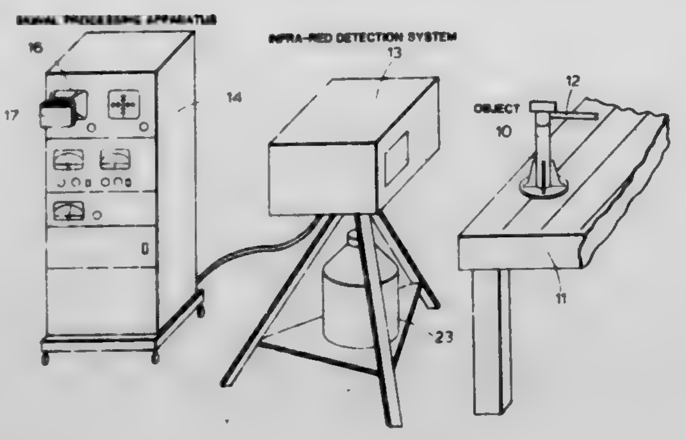


comparator means for comparing said first and second digital test signals and said digital reference signals, and output means coupled to said comparator means for output of a signal indicating the existence or non-existence of correspondence between the relationship of the amplitudes of said first and second analog signals and said set limits.

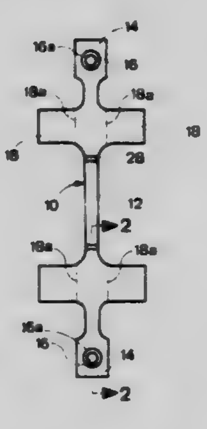
4,378,701
APPARATUS AND METHOD FOR INDICATING STRESS IN AN OBJECT
David S. Mountain, Portsmouth; Anthony J. Allnutt, Chislehurst; Lionel R. Baker, Orpington; Laurence J. Cox; Alan J. Picot, both of Beckenham; Peter F. Wardropper, West Wickham, and Julian M. Webber, Beckenham, all of England, assignors to Sira Institute Limited, Kent, England
PCT No. PCT/GB79/00081, § 371 Date Jan. 31, 1980, § 102(e) Date Jan. 11, 1980, PCT Pub. No. WO79/01156, PCT Pub. Date Dec. 27, 1979
PCT Filed May 25, 1979, Ser. No. 179,285
Claims priority, application United Kingdom, May 31, 1978, 26014/78
Int. Cl.[3] **G01N** *3/32*
U.S. Cl. 73—808 **37 Claims**

1. A method for indicating and distinguishing tension and compression in a predetermined part of a complex shaped object comprising determining a continuously changing load on the object and measuring and distinguishing increases and decreases in temperature of the predetermined part of the object with change of load, said measuring of the temperature

being performed by determining the thermal radiation of the predetermined part and correlating these changes of temperature with respect to the instantaneous value of the continuously changing load.



4,378,702
FLAT MEASURING STRING CONSTRUCTION
Eugene Meier, Meilen, Switzerland, assignor to Mettler Instrumente AG, Greifensee, Switzerland
Filed Sep. 9, 1981, Ser. No. 300,487
Claims priority, application Switzerland, Dec. 16, 1980, 9253/80
Int. Cl.³ G01N *3/08*
U.S. Cl. 73—826 **8 Claims**

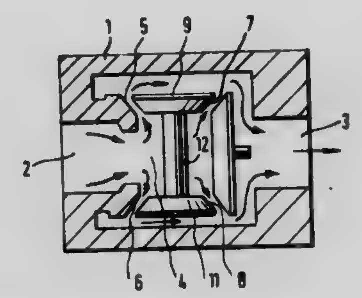


1. A flat measuring string, comprising
a unitary body member formed by punching from a metal sheet, said body member including
(a) a flat planar central main string portion (**12**);
(b) a pair of flat end portions (**14**) arranged at the ends of said main string portion, respectively; and
(c) a pair of nodal portions arranged between said main string portion and said end portions, respectively, each of said nodal portions including a flat center portion coplanar with said main string portion and of flat, integral wing portions (**18**) folded with respect to said center portion about parallel fold lines (**18***a*), respectively.

4,378,703
FLOWMETER
Richard A. Furness, South Benfleet, and Robert A. Lauder, Romford, both of England, assignors to The British Steam Specialties Limited, Lee Circle, England
Filed Jan. 7, 1981, Ser. No. 223,040
Claims priority, application United Kingdom, Jan. 11, 1980, 8000963; Jan. 11, 1980, 8001041
Int. Cl.³ G01F *1/12*
U.S. Cl. 73—861.79 **4 Claims**

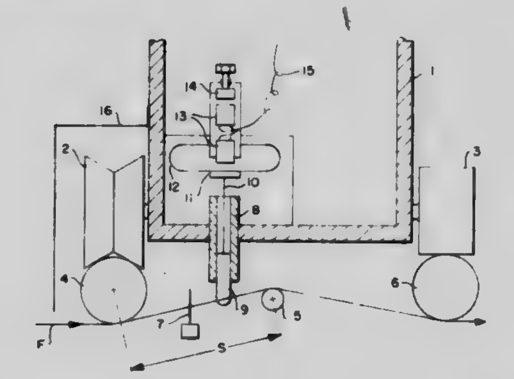
1. In a flow meter of the type comprising a body including a double ended rotor provided with two spaced bearing heads cooperable with bearing seats in the body to act as combined radial and thrust fluidic bearings, and turbine means associated with each head to rotate the rotor in response to fluid flow; the improvement that the geometries of the bearing heads and associated turbine means differ and are chosen so that the transitions from laminar to turbulent flow occur at different flow rates and the decline in the characteristic curve due to the first transition coincides with a rise due to laminar flow prior to the second transition.

4. A flow meter of the type comprising a body having an inlet passage leading to a stator passage which splits the flow



from the inlet passage, a double-ended rotor in the stator passage, the rotor having a pair of bearing heads cooperable with bearing seats in the body to form combined radial and thrust bearings supporting the rotor in the fluid flowing through the stator passage, the rotor having turbine means whereby it is rotated by fluid flow, said flow meter characterized by the fact that:
the turbine means for rotating the rotor are formed by angled passages through the bearing heads, each of said angled passages having an inlet end and an outlet end spaced from the periphery of its respective bearing head.

4,378,704
PROCESS AND DEVICE TO IDENTIFY DIFFERENCES IN YARN TENSION
Hans-Joachim a'Brassard; Robert Kloss; Paul Ketzler, and Johannes Wolz, all of Heinsberg, Fed. Rep. of Germany, assignors to Akzona, Incorporated, Asheville, N.C.
Filed Aug. 4, 1980, Ser. No. 174,745
Int. Cl.³ G01L *5/10*
U.S. Cl. 73—862.07 **13 Claims**

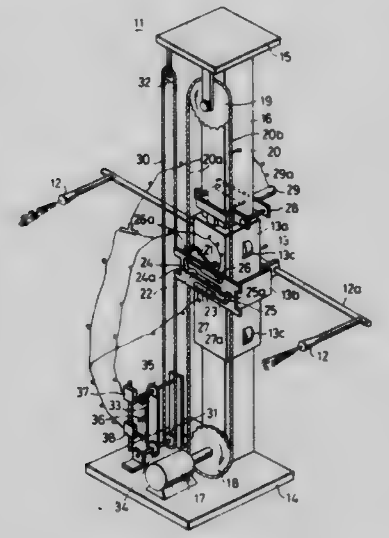


1. A process to identify differences in yarn tension in a traveling sheet of parallel yarn ends on a textile machine, especially a creel or a warper, wherein individual ends in the yarn sheet are equidistant from each other in a measuring zone, characterized in that the entire yarn sheet is deflected under identical conditions for individual ends from a general plane into another plane of a length limited in the direction of travel by the measuring zone and is returned to the general plane after the measuring zone, that individual ends are deflected in a specific sequence at a predetermined force in the measuring zone from said another plane, and that the extent of deflection is measured and used to determine the tension in each successive yarn end whereby operation of the textile machine can be monitored.

5. A device for determining differences in yarn tension in a

sheet of parallel yarn ends on a textile machine which comprises at least two yarn deflecting bars, said yarn deflecting bars simultaneously acting to establish a measuring zone; a reed for guiding individual yarn ends in the measuring zone, in a direction transverse to the yarn sheet; a movable measuring carriage equipped with a yarn feeler movable along a line essentially or nearly perpendicular to the yarn sheet plane in the measuring zone, said feeler being biased towards the yarn sheet and having means for contacting the individual yarn ends in sequence to effect deflection of the yarn ends from the yarn sheet plane and the position of the feeler being determined by measuring means; and the measuring means being connected to means for indicating the tension of the individual ends thereby permitting control of the operation of said textile machine.

4,378,705
RECIPROCATING DEVICE
Kenji Oka, Ebina, Japan, assignor to Tokico, Ltd., Kawasaki, Japan
Filed Aug. 19, 1980, Ser. No. 179,530
Claims priority, application Japan, Aug. 20, 1979, 54-105639
Int. Cl.³ F16H *19/06*
U.S. Cl. 74—37 2 Claims



1. A reciprocating device comprising:

an endless member such as a chain or belt having a forward side span and a backward side span, and moving in circulation;

driving means for driving said endless member along only one direction;

a reciprocating member freely movable for reciprocation, said reciprocating member comprising a first movable member and a second movable member, said second movable member being unitarily movable with said first movable member and also separately and relatively movable with respect to said first movable member;

guide means for guiding said reciprocating member substantially parallel along said forward side span and backward side span of said endless member, said guide means guiding said first movable member;

engaging means consisting of a sprocket wheel rotatably provided on said reciprocating member, for selectively engaging with either said forward side span or backward side span of said endless member, said sprocket wheel having a projection and being provided with teeth throughout a predetermined angular range, said reciprocating member moving to one side according to the movement of said endless member upon engagement of said endless member with said forward side span of said endless member, and moving to the other side upon engagement of said engaging means with said backward side span of said endless member;

changeover means for changing over the engagement of said engaging means from either one side span of said endless member to the other side span of said endless member, at predetermined reciprocating movement range limit positions of said reciprocating member, said changeover means having locking and releasing means for locking said sprocket wheel in a non-rotatable state and releasing the locking with respect to said sprocket wheel; and

stopping means for stopping the movement of said first movable member at the predetermined reciprocating movement range limit positions of said reciprocating member, said stopping means being arranged and provided in a manner such that the stopping operation of said stopping means and the lock releasing operation of said locking and releasing means are performed simultaneously,

said stopping means comprising means which moves unitarily with said first movable member and stops the movement of said first movable member by engaging with said guide means in an immovable manner at the reciprocating movement range limit positions of said reciprocating member,

said second movable member having an elongated opening with said projection of said sprocket wheel inserted therethrough, said elongated opening extending in a direction perpendicular to said forward and backward side spans of said endless member, said second movable member moving relatively with respect to said first movable member during rotation of said sprocket wheel due to the engagement between said projection and said elongated opening,

said sprocket wheel engaging to either said forward side span or backward side span in a non-rotatable state when said sprocket wheel is locked, to move unitarily with said reciprocating member in accordance with the movement of said endless member, and being rotated by the movement of said endless member when the lock with respect to said sprocket wheel is released to engage with the other side span of said endless member from either said forward side span or backward side span of said endless member,

said locking and releasing means having first and second locking means for locking said projection of said sprocket wheel in a state where said sprocket wheel is fixedly engaged with either one of said forward side span or backward side span of said endless member, and means for respectively releasing the locking operation of said first and second locking means at said predetermined reciprocating movement range limit positions of said reciprocating member at both said forward and backward side spans of said endless member.

4,378,706
RECIPROCALLY DRIVING DEVICE
Koichi Miyamoto, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 12, 1980, Ser. No. 186,740
Claims priority, application Japan, Sep. 17, 1979, 54-119050; Oct. 9, 1979, 54-130313
Int. Cl.³ F16H *33/02, 29/02*
U.S. Cl. 74—89.22 13 Claims

1. A mechanism for reciprocally driving a movable member, said mechanism comprising:

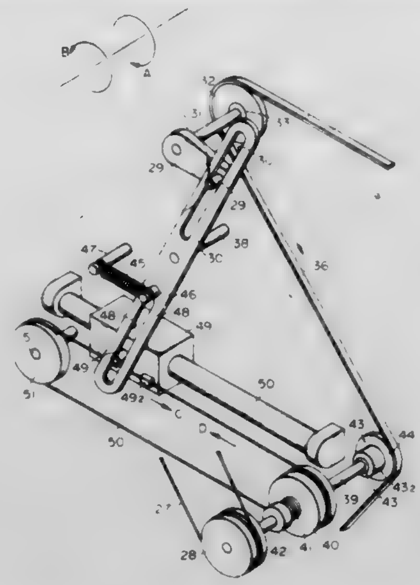
a constant speed drive source movable in a predetermined direction;

movement converting means for converting the movement of said drive source into a reciprocal movement in which the time required for backward movement is shorter than the time required for forward movement;

output means connected to said movement converting means to put out a reciprocal movement for driving the movable member; and

speed control means for controlling the speed of the forward movement of said movable member so as not to exceed a

predetermined speed, said speed control means comprising overrunning clutch means interposed between said constant



speed drive source effecting a constant speed movement and said output means.

4,378,707

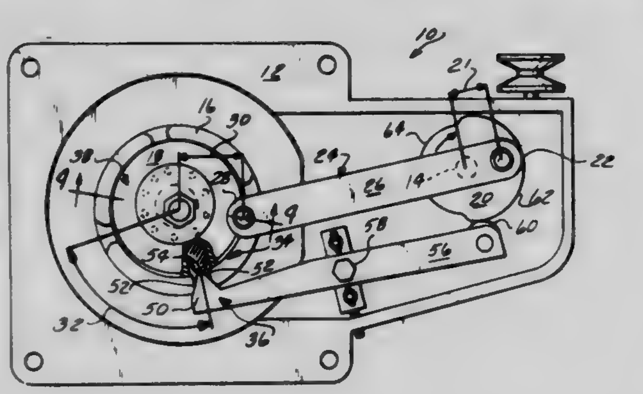
INDEXING APPARATUS

Richard W. Jeffries, Birmingham, Mich., assignor to Jackson Machine Products, Madison Heights, Mich.

Filed Aug. 21, 1980, Ser. No. 180,385

Int. Cl.³ F16H *29/04;* **B23Q** *17/00*

U.S. Cl. 74—117 **3 Claims**



1. In an indexing apparatus operated by a unidirectionally rotating drive shaft supported on a base, an indexing member rotatably mounted to the base, a driven member supported by the base adapted to selectively rotatably engage the indexing member, interconnecting means driven at a first end by a first crank arm associated with said drive shaft and connected at a second end to said driven member by a second crank arm whereby said drive shaft oscillates said driven member in opposite first and second directions through an arc of travel, releasably engaging means carried by said driven member engaging said indexing member during oscillation of said driven member in said first direction, locking means operated in timed relation to rotation of said drive shaft to selectively engage said indexing member to lock said indexing member against rotation and to release said indexing member for rotation during oscillation of said driven member in said first direction; the improvement comprising:

means for varying the length of said second crank arm so as to vary the length of said arc of travel of said driven member.

4,378,708

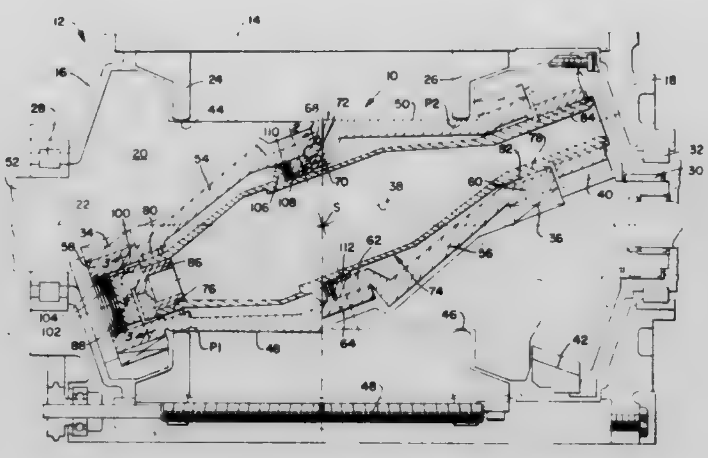
NORMAL FRICTION FORCE DEVELOPING SYSTEM FOR TRACTION DRIVE TRANSMISSIONS

Harvey N. Pouliot, Livermore, Calif., assignors to Vadetec Corporation, Troy, Mich.

Filed Dec. 18, 1980, Ser. No. 217,751

Int. Cl.³ F16H *13/10, 13/00, 15/16*

U.S. Cl. 74—191 **5 Claims**



1. In a biconical torque transmitting body having a pair of oppositely convergent, generally conical traction surfaces of revolution about one axis inclined with respect to and intersecting another axis coaxial with another pair of axially spaced traction surfaces against which said conical traction surfaces are retained under normal force loading for the transmission of torque by rolling friction between said respective pairs of rolling surfaces, such normal force loading being variable in accordance with torque loading on the biconical body and developed by force application acting to separate a pair of cone members carrying said conical surfaces along said one axis, the improvement comprising:

a torque member coaxial with and supported by the biconical body with freedom for rotatable and axial movement relative thereto:

ramp means operative between said torque member and said cone members to develop an axial thrusting force between said cone members; and

means for preventing relative rotation of said cone members while permitting axial separation thereof.

4,378,709

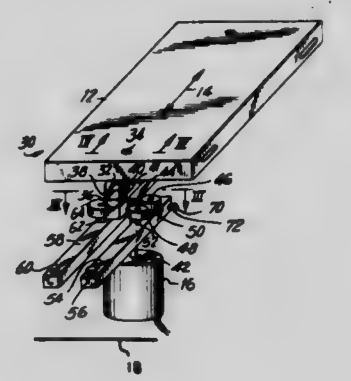
FRICTION DRIVE FOR POSITIONING TABLE

Anwar Chitayat, Plainview, N.Y., assignor to Anorad Corp., Happauge, N.Y.

Filed Oct. 8, 1980, Ser. No. 195,238

Int. Cl.³ F16H *13/10, 15/00*

U.S. Cl. 74—207 **5 Claims**



1. A positioning apparatus comprising:

a frame;

a table on said frame, said table being movable back and forth in a straight line;

a friction drive bar centered along an axis of motion of said table;
means for attaching said friction drive bar to said table;
a servomotor fixed to said frame having a rotatable shaft;
means for pinching a peripheral surface of said shaft into frictional contact with friction drive bar; and
said means for attaching being effective to permit translation of said friction drive bar in a direction normal to said axis of motion and substantially parallel to a surface of said table.

4,378,710

VARIABLE-SPEED TRANSMISSION FOR MOTOR CARS

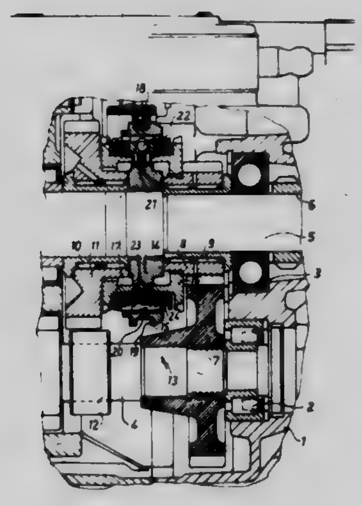
Gunter Knödel, Mühlacker, Fed. Rep. of Germany, assignor to Getrag Getriebe-und Zahnradfabrik GmbH, Ludwigsburg, Fed. Rep. of Germany

Filed Aug. 28, 1980, Ser. No. 182,228

Claims priority, application Fed. Rep. of Germany, Sep. 6, 1979, 2936009

Int. Cl.³ F16H *3/38;* **F16D** *23/06*

U.S. Cl. 74—339 **7 Claims**



1. A multi-step reduction gear for motor vehicles, comprising a transmission of the countershaft type of construction, having several forward gear sets and one reverse gear set in which at least the reverse gear set is synchronized and constantly engaged with each other, at least one gear set of the forward speeds and reverse speed is engaged for the transmission of power by a clutch having an axially sliding member, said clutch serving to actuate the reverse gear being blocked against engagement therewith by a stop actuated by centrifugal force when a given speed is exceeded, said stop being built into the clutch and engaging the axially movable member positively when engaged to prevent movement thereof into engagement with the gear set for reverse motion.

4,378,711

PLANETARY MECHANISM HAVING A FLUID BAFFLE

Steven A. Daniel, Marquette Heights, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/01284, § 371 Date Sep. 29, 1980, § 102(e) Date Sep. 29, 1980, PCT Pub. No. WO82/01232, PCT Pub. Date Apr. 15, 1982

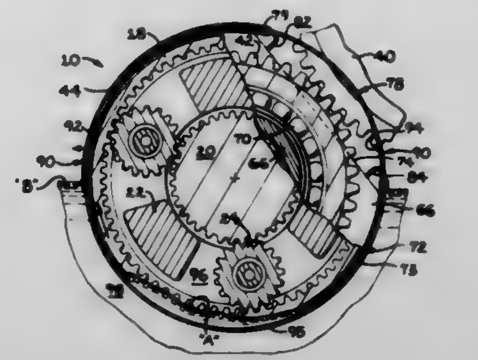
PCT Filed Sep. 29, 1980, Ser. No. 261,115

Int. Cl.³ F16H *57/04*

U.S. Cl. 74—467 **16 Claims**

1. In a planetary mechanism (10) of the type having a stationary support (30,48,50,66), a ring gear element (18), a sun gear element (20), a planet carrier element (22), and a plurality of planet gear elements (24) rotatably mounted on the planet carrier element (22) and in meshing engagement with the sun gear element (20) and the ring gear element (18), the elements (18,20,22,24) being rotatably connected to the stationary support (30,48,50,66), the improvement comprising:

a baffle (78) encircling the elements (18,20,22,24) of the planetary mechanism (10) and defining with the support (30,48,50,66) an internal chamber (96) and an external chamber (98), the baffle (78) including an opening (86/88) and wiping means (90) for wiping fluid from one of the



elements (18,20,22,24) of the planetary mechanism (10) and directing fluid from the internal chamber (96) to the external chamber (98) through the opening (86/88) and reducing the fluid level within the internal chamber (96) in response to rotation of the one element (18,20,22,24).

4,378,712

CONTROL CABLE

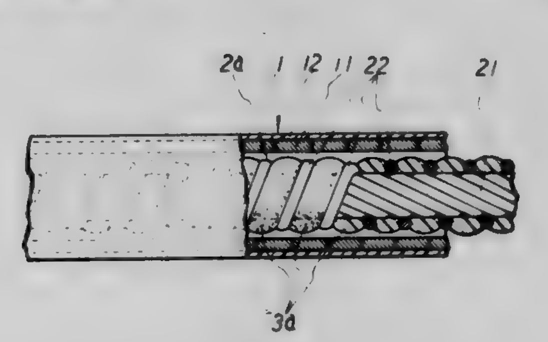
Junnosuke Yoshifuji, Takarazuka, Japan, assignor to Nippon Cable System, Inc., Japan

Continuation of Ser. No. 63,402, Aug. 3, 1979, abandoned. This application Aug. 10, 1981, Ser. No. 291,415

Claims priority, application Japan, Feb. 27, 1979, 54-22766; Apr. 6, 1979, 54-42256; Apr. 6, 1979, 54-42275

Int. Cl.³ F16C *1/10*

U.S. Cl. 74—501 R **3 Claims**



1. A gear-operable control cable comprising:
a conduit,
an inner cable inserted in the conduit to be operated, the inner cable being a screw inner cable engagable with a gear comprising a core and teeth formed by winding a wire spirally on the outer surface circumference of the core at a constant gap tightly, and
a foamed elastic layer adhered closely to the outer circumference of core between adjacent teeth along the entire core so as to project more than the height of the teeth outward radially.

4,378,713

SELF-ADJUSTING CABLE CONTROL DEVICE

Hugh H. Haskell, Kent, England, and William J. Gilmore, Manitou Beach, Mich., assignors to Acco Industries Inc., Trumbull, Conn.

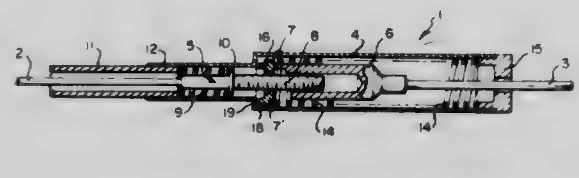
Filed Jun. 10, 1980, Ser. No. 158,315

Int. Cl.³ F16C *1/22;* **F16D** *13/75, 65/52*

U.S. Cl. 74—501.5 R **6 Claims**

1. Self-adjusting cable control device for automatically compensating for wear in a control cable system where the system includes a movable control cable connected at one of its ends to a controlled member and operatively connected at an opposite end to an actuation member through which a control force may be exerted on the controlled member; the improvement

comprising in that said device includes a cable termination member adapted to connect with an end of a control cable, a connecting member adapted to connect with an actuation member, clutch means carried by said connecting member adapted to lock with said termination member, a main housing adapted to be anchored with respect to said control cable surrounding said termination member and said connecting member, first spring means for urging said termination member towards said clutch and said connecting member, second spring means operatively positioned between said main housing and said connecting member for urging said connecting member towards the termination member and urging the clutch to an unlocked position with respect to said termination member whereby when said clutch is unlocked with respect to

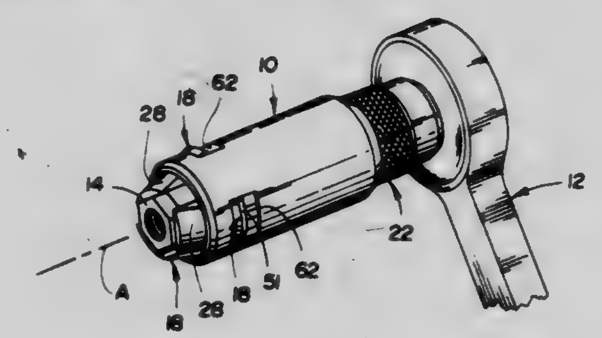


said termination member, said termination member is free to move with respect to said clutch and connecting member to compensate for wear in a control cable system and when an actuation member is moved against the force of said second spring means, said clutch will lock with respect to said termination member to cause movement of said cable to actuate a controlled member, said clutch comprising an annular collar loosely surrounding said termination member and an ear portion on said collar contained within a slot on said connecting member whereby when an actuation member is moved to in turn move said connecting member against the force of said second spring means, said annular collar will tilt about said termination member to engage and lock with said termination member.

4,378,714

ADJUSTABLE SOCKET INCLUDING APERTURED SLEEVE

David S. Colvin, 23933 Haynes, Farmington Hills, Mich. 48018
Filed Mar. 26, 1981, Ser. No. 247,672
The portion of the term of this patent subsequent to Jul. 22, 1997, has been disclaimed.
Int. Cl.^{3} B25B *13/12*
U.S. Cl. 81—128 **3 Claims**

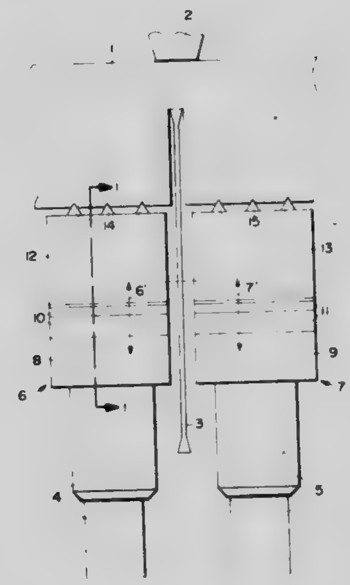


1. An adjustable socket comprising: a driver adapted to be rotatively driven about an axis of rotation thereof; a plurality of jaws each of which has a mounting lug including an enlarged end mounted on the driver for radial movement with respect to the axis of rotation thereof; each jaw also having camming and slide surfaces that are oriented in opposite axial directions; said camming and slide surfaces having a junction with each other which defines the outer radial extremity of the jaw; the driver having a jaw support end that engages the slide surfaces on the jaws; spring means for biasing the jaws radially outward; a sleeve that receives the driver and the jaws and is axially movable with respect thereto; said sleeve having camming surfaces that respectively engage the camming surfaces of the jaws to position the jaws against outward radial movement under the bias of the spring means; the sleeve having apertures respectively associated with the camming surfaces thereof; said apertures receiving the jaws at the junctions of the camming and slide surfaces thereof upon outward jaw movement under the bias of the spring means; and means for axially positioning the sleeve with respect to the driver.

4,378,715

APPARATUS FOR KEEPING OPEN THE GAP CUT BY A SAW IN A WORK PIECE

Gerhard Kaiser, Metzingen, and Eric Spieth, Gomaringen, both of Fed. Rep. of Germany, assignors to Gustav Wagner Maschinenfabrik, Reutlingen, Fed. Rep. of Germany
Filed Mar. 29, 1982, Ser. No. 363,075
Claims priority, application Fed. Rep. of Germany, Apr. 2, 1981, 3113356
Int. Cl.^{3} B23D *47/04*
U.S. Cl. 83—113 **3 Claims**



1. An apparatus for keeping open the gap cut by a saw blade in a work piece, comprising fixed abutment means arranged on one side of a work piece, said abutment means being substantially centrally aligned with said saw blade, first and second clamping jaw means arranged substantially opposite said fixed abutment means and spaced laterally on one and the other side of said saw blade, power drive means operatively connected to said first and second clamping jaw means for pressing and moving said first and second clamping jaw means toward and away from said fixed abutment means, each of said first and second clamping jaw means comprising a base portion, a work piece engaging portion and means slidably mounting the work piece engaging portion to the respective base portion for permitting lateral movement of the work piece engaging portion relative to the base portion, and further power drive means operatively connected to the respective work piece engaging portions of the clamping jaw means for laterally moving the respective work piece engaging portion independently of the operation of said first mentioned power drive means and in a direction extending substantially perpendicularly to the direction of movement of said first mentioned power drive means.

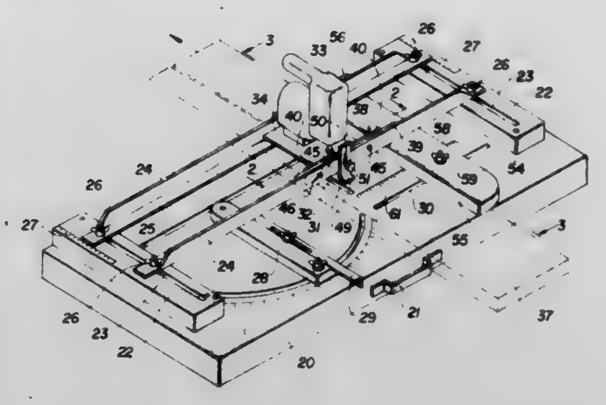
4,378,716

RIPPER ATTACHMENT FOR MULTI-PURPOSE WOODWORKING POWER TOOL GUIDE TABLE

Michael J. Volk, 216 McKeon Rd., Severna Park, Md. 21146
Continuation-in-part of Ser. No. 128,554, Mar. 10, 1980, Pat. No. 4,320,678. This application Nov. 4, 1980, Ser. No. 204,065
Int. Cl.^{3} B27B *19/06, 27/02*
U.S. Cl. 83—438 **12 Claims**

1. A device to enable ripping of material by a portable power saw comprising a table member having a saw blade slot, first and second abutment members on the table member, means to adjust and lock at least one abutment member relative to the other whereby the space between said abutment members may

be varied, a portable power saw positioning means carried by one abutment member including an elongated plate body portion, a pair of opposing elements on said elongated plate body portion having spaced end faces directed toward each other and adapted to engage opposite upper portions of a portable



saw sole plate to prevent upward and lateral displacement of the sole plate which also engages the other abutment member, and at least one of the opposing elements of said pair of opposing elements being adjustable and lockable on said plate body portion relative to the other of the opposing elements.

4,378,717

CIRCUIT ARRANGEMENT FOR AN ADJUSTING DRIVE FOR A PRESS RAM ADJUSTMENT

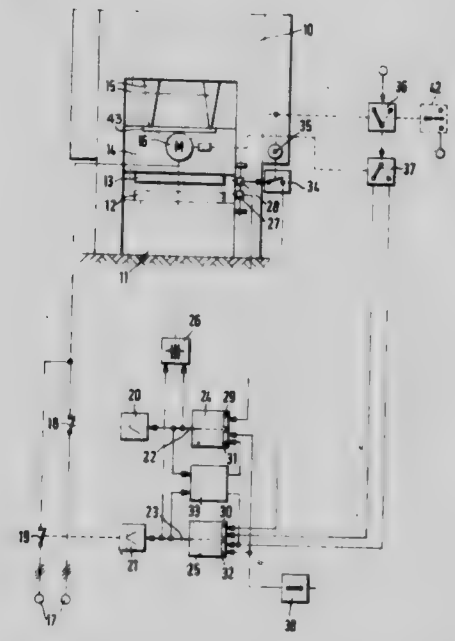
Franz Schneider, Göppingen; Ewald Bergmann, Rechberghausen, and Gerhard Gering, Süssen, all of Fed. Rep. of Germany, assignors to L. Schuler GmbH, Goppingen, Fed. Rep. of Germany

Filed Aug. 1, 1979, Ser. No. 62,579

Claims priority, application Fed. Rep. of Germany, Aug. 2, 1978, 2833829

Int. Cl.^{3} B26D *7/26;* **B30B** *15/14*

U.S. Cl. 83—530 **6 Claims**



1. In a high-speed cutting press comprising a press ram, a platen, an upper die means attached to the press ram, a lower die means attached to the platen, the upper die means being adapted to penetrate into the lower die means during a cutting operation, and drive means for driving the press ram to adjust the position thereof, the improvement comprising a control arrangement for the adjusting drive of the press ram comprising means for actuating the drive means, switching means for controlling the connection between the drive means and the actuating means so that said drive means may be actuated in either a direction to raise the press ram or a direction to lower the press ram, and means for maintaining a depth of penetration of the upper die means into the lower die means at a constant value during operation of the high-speed cutting press in dependence upon an operating condition of the high-speed cutting press, wherein said maintaining means includes at least one limit switch means adjustably mounted at a press frame in a displacement path of the press ram for sensing the operating condition of the high-speed cutting press at the bottom end position of the moving press ram and for providing an output signal indicative of the sensed operating condition, and oscillator means operatively connected with the at least one limit switch means and the switching means for controlling the switching means so that the drive means is actuated in a direction so as to one of raise and lower the press ram to adjust the position thereof in response to the sensed operating condition.

4,378,718

HANDLE FOR PIVOTABLE MACHINE PARTS

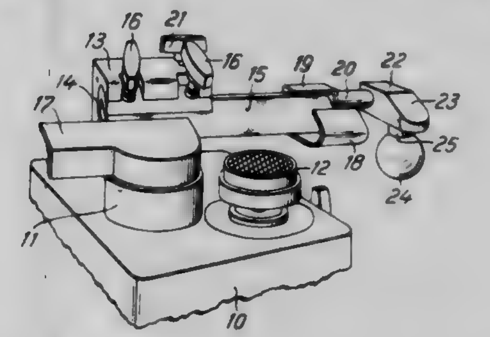
Winfried Kraft, Werdorf; Artur Reichel, Wetzlar, and Günter Holmok, Lahnau-Waldgirmes, all of Fed. Rep. of Germany, assignors to Ernst Leitz Wetzlar GmbH, Wetzlar, Fed. Rep. of Germany

Filed Jul. 24, 1980, Ser. No. 171,997

Claims priority, application Fed. Rep. of Germany, Jul. 25, 1979, 7921193[U]

Int. Cl.^{3} G01N *1/06*

U.S. Cl. 83—592 **6 Claims**



1. In a microtome having a blade holder in the form of an arcuately pivotable arm, a handle for said blade holder comprising a thumb support member for receiving the thumb of an operator, said thumb support member being essentially square and having a bevelled surface for supporting the operator's thumb, a grip member for receiving the remaining fingers of the hand of an operator, said grip member being rotatably mounted on the bottom side of said thumb support by a cylindrical connecting piece, the axis of said connecting piece forming an angle of less than 90° with the bevelled surface of said thumb support, and means for adjusting the relative position of said thumb support member and said grip member.

4,378,719

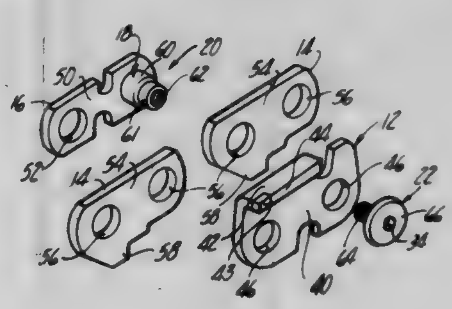
SAW CHAIN CONNECTOR

Vernon J. Burgess, 1976 Club View Dr., Highland, Mich. 48031

Continuation of Ser. No. 5,341, Jan. 22, 1979, abandoned. This application Dec. 4, 1980, Ser. No. 212,812

Int. Cl.^{3} B27B *33/14*

U.S. Cl. 83—831 **5 Claims**



1. A saw chain comprising:
a plurality of elongated center links;
a plurality of elongated connecting links;

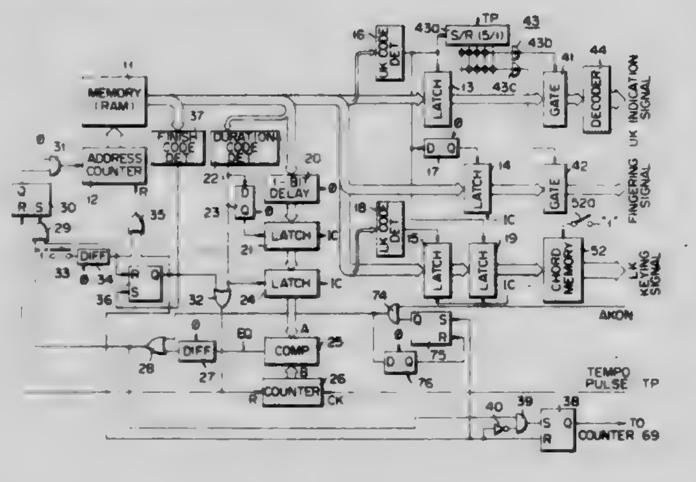
a plurality of elongated saw tooth links;
wherein said saw tooth links are constructed of an extremely hard material;
wherein said center links and said connecting links are constructed of a nonhardened metal;
wherein each center link has an aperture formed in each longitudinal end, each connecting line has an aperture formed in each longitudinal end and said saw tooth link has an aperture formed in each longitudinal end, and further comprising means for detachably connecting one end of at least one center link between one end of one saw tooth link and one end of one connecting link, said last-mentioned ends of said connecting link, saw tooth link and center link being positioned so that the apertures in said last-mentioned ends are in registry with each other, said detachable connecting means further comprising a female member having a sleeve portion positioned through said registering apertures and a male member which threadably engages said female member, said members each including an enlarged head whereby said links are entrapped between the enlarged heads; and
wherein said apertures in said connecting links and said center links are substantially the same diameter and wherein said female member includes a cylindrical sleeve having an outer diameter substantially equal to the diameter of said last-mentioned apertures, said sleeve including an internally threaded axial bore, and further including a reduced diameter portion having substantially the same diameter as the diameter of said apertures in said saw tooth links, and said male member including an externally threaded shank which threadably engages said sleeve axial bore.

4,378,720

ELECTRONIC MUSICAL INSTRUMENT HAVING MUSICAL PERFORMANCE TRAINING SYSTEM

Akira Nakada, Hamamatsu; Eisaku Okamoto, Hamakita; Toshio Sugiura, and Kiyoshi Yoshida, both of Hamamatsu, all of Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Sep. 2, 1980, Ser. No. 183,385
Claims priority, application Japan, Sep. 6, 1979, 54-114414
Int. Cl.³ G10F *1/00*
U.S. Cl. 84—1.03 **8 Claims**



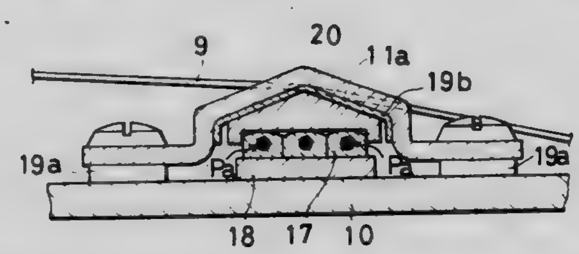
1. An electronic musical instrument comprising:
an automatic performance device for effecting an automatic accompaniment which sounds a plurality of consecutive beats in a music rhythm progression, said beats defining reference times for correct timing of a musical performance;
keyboard means having keys representing respective notes and being capable of being depressed by an operator of the instrument;
tone forming circuit means coupled to said keyboard means for producing musical tone signals corresponding to notes of the keys being depressed;
memory means for storing performance data of a musical piece to be played in the form of note pitch data and duration data of notes constituting a progression of the musical piece;
keyboard indicator means coupled to said memory means and responsive to each application of note pitch data read out of said memory means for visually indicating a key to be depressed on said keyboard means by an operator of the instrument; and
control means coupled to said memory means for reading at least the note pitch data of said performance data out of said memory means and including means for sequentially applying the read out note pitch data corresponding to each note to said keyboard indicator means and for causing said keyboard indicator means to visually indicate to an operator a respective key determined by said note pitch data of each note at an indication time which precedes by a substantial amount of time a correct key depression timing instant at which said indicated key is to be depressed for a correct performance of the musical piece, said instant being in synchronism with the rhythm defined by said consecutive beats defined by said automatic accompaniment, said substantial amount of time being previously determined in relation to the progression of the musical piece.

4,378,721

PICKUP APPARATUS FOR AN ELECTRIC STRING TYPE INSTRUMENT

Kenkichi Kaneko; Katsuyuki Tanaka, both of Hamamatsu; Satoru Hayashi, Toyoda; Kensaku Hakamada, Hamamatsu; Masakazu Matsumoto, Hamamatsu; Shinji Tagaki, Hamamatsu, and Takayuki Goshima, Toyoda, all of Japan, assignors to Kabushiki Kaisha Kawai Seisakusho, Hamamatsu, Japan

Continuation of Ser. No. 56,436, Jul. 10, 1979, abandoned. This application Apr. 12, 1982, Ser. No. 367,356
Claims priority, application Japan, Jul. 20, 1978, 53-87693; Dec. 8, 1978, 53-168034; Dec. 20, 1978, 53-173704; Dec. 29, 1978, 53-180128; Dec. 29, 1978, 53-180129; Feb. 2, 1979, 54-11534
Int. Cl.³ G10H *3/18*
U.S. Cl. 84—1.14 **10 Claims**



1. Pickup means for electric string-type instrument, which instrument comprises a frame and a plurality of strings mounted on a frame, each string producing a note; said pickup means comprising:
a plurality of individual elastic elongated pickups, each pickup comprising:
an elastic, cylindrical piezo-electric member, said piezo-electric member being prepared by mixing a high molecular material with a piezo-electric ceramic powder and a vulcanizing agent, said piezo-electric member being polarized;
a pair of electrodes on said piezo-electric member, one of said electrodes comprising a lead wire embedded axially in said piezo-electric member, the other electrode being mounted on the circumferential periphery of said piezo-electric member; and
an insulating member encasing said piezo-electric member and said pair of electrodes, said elastic member having an upper non-planar surface; and
a bridge member directly mounted on the upper non-planar surfaces of the plurality of pickups, the pickups being disposed longitudinally parallel to one another;
the pickup means being directly interposed between said strings and said frame, with said pickups resting on said

frame so that the plurality of pickups and the bridge member extend to support plural strings covering plural notes of the instrument so as to be common thereto.

4,378,722

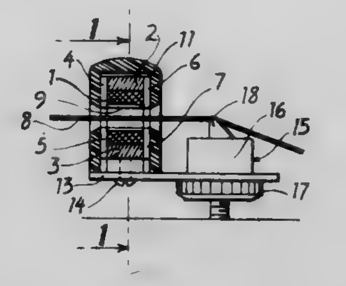
MAGNETIC PICKUP FOR STRINGED MUSICAL INSTRUMENTS

David A. Isakson, 24618 Nameless La., Fort Bragg, Calif. 95437

Filed Oct. 9, 1981, Ser. No. 310,223

Int. Cl.³ G10H *3/18*

U.S. Cl. 84—1.15 **15 Claims**



1. In devices for sensing vibrational motions of tuned strings and producing thereby an electrical signal corresponding to the relative harmonic emphasis of a stringed musical instrument, a magnetic pickup comprised of:

a. coil windings of insulative conductive wire,

b. a magnetically susceptible linear string segment of each string of a musical instrument,

c. magnetic means for providing a magnetic field within each said linear string segment and portions of said coil windings,

wherein portions of a coil are disposed proximate each said linear string segment, two said portions of a coil being oppositely disposed to the axis of each said linear string segment, the axes of the coil wires in each said oppositely disposed portion of coil being substantially perpendicular to the axis of the proximate said linear string segment, said magnetic means providing a magnetic field within a portion of coil windings disposed proximate each said linear string segment, the overall north to south direction of said magnetic field within each said portion of coil windings being substantially parallel to the axis of the proximate said linear string segment and perpendicular to the axes of the coil wires in said portions of coil windings, whereby magnetic "lines of force" are disposed perpendicularly to and caused to move perpendicularly through said proximately disposed coil wires at two opposite points in each elliptical oscillation of a vibrating said linear string segment, angular motions at one said point on the ellipse causing a peak positive impulse at a coil lead while motions at the opposite point cause a peak negative impulse at the same said coil lead and the remaining composite of angular motions complete the translation of elliptical motion to a linear electrical wave form, said magnetic pickup further including means for stably positioning said coil windings and said magnetic means relative to the quiescent axes of said linear string segments of said musical instrument, and means for electrically connecting the leads of said coil windings to appropriate signal preamplification and amplification devices.

4,378,723

STRING TUNING AND FASTENING ARRANGEMENT

Donald T. Scholz, 13 Rich Valley Rd., Wayland, Mass. 01778

Filed Apr. 30, 1981, Ser. No. 259,248

Int. Cl.³ G10D *3/14*

U.S. Cl. 84—297 R **12 Claims**

1. Fastening and tuning apparatus for a stringed musical instrument comprising:

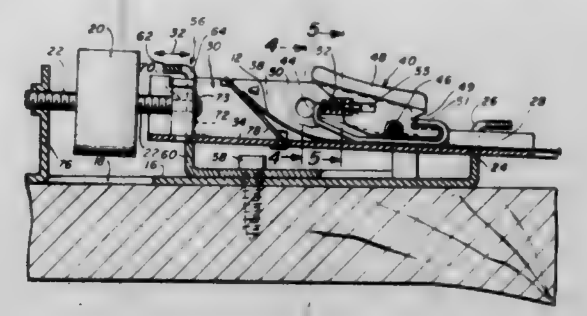
a support base,

means for securing the support base to the instrument,

a clamping member,

a support piece for carrying said clamping member,

and manual tuning means coupled to and for longitudinally displacing said support piece to increase and decrease string tension to thereby tune said stringed musical instrument,



said clamping member comprising a wedge member constrained to move linearly along an inclined plane toward the base of the support piece to wedge the string against the base of the support piece.

4,378,724

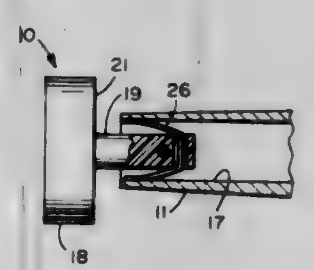
WIND INSTRUMENT PRACTICE ACCESSORY

Rene Lamart, 7205 Fountain Ave., West Hollywood, Calif. 90046

Filed Jul. 20, 1981, Ser. No. 284,621

Int. Cl.³ G09B *15/06;* **G10D** *9/02*

U.S. Cl. 84—465 **3 Claims**



1. An accessory co-operable with the mouthpiece portion of a wind musical instrument for use in practicing without the complete instrument, said mouthpiece portion having one end co-operable with the player's embouchure and the other end adapted for connection to the instrument, said mouthpiece portion having a generally cylindrical longitudinal bore therethrough, said bore having its largest diameter adjacent said other end, said accessory comprising, a base having a dimension larger then said largest diameter of said bore, and a plug mounted on said base and having a cross sectional area less than the cross sectional area of said largest diameter permitting the plug to project into the bore for a distance greater than said largest diameter of the bore, friction retaining means arranged on said plug and extending outwardly therefrom serving to engage the sidewalls of said bore adjacent said other end for maintaining the device in connection with the mouthpiece at a selected position so that the base is spaced a selected distance from said mouthpiece other end.

4,378,725

METHOD OF MANUFACTURING SEALED ROPE AND KNOTTED NETTING FROM SUCH ROPE

Johannes Hospers, Ijssel, and Gerhard ten Lohuis, Apeldoorn, both of Netherlands, assignors to Anza B.V., Apeldoorn, Netherlands

Filed Nov. 20, 1980, Ser. No. 208,577

Claims priority, application Netherlands, Nov. 22, 1979, 7908515

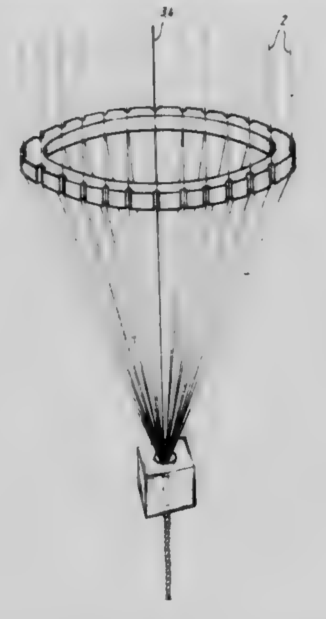
Int. Cl.³ D04C *1/12;* **D02G** *3/04, 3/40;* **D07B** *1/04*

U.S. Cl. 87—12 **9 Claims**

1. A method for producing a sealed rope of braided or

twisted filaments comprising forming a rope of braided or twisted, heat-shrinkable filaments about a core containing thermoplastic material, placing the rope under tension and, while under tension, treating the rope to cause the thermoplastic core material to melt while simultaneously maintaining the rope at a temperature sufficient to cause the heat-shrinkable filaments to shrink but not to melt, whereby the shrinking of the filaments, while the rope is under tension, reduces the cross section of the rope and causes the melted thermoplastic material to penetrate into the openings between and to surround and seal the filaments of the rope.

2. A method for producing a knotted netting of sealed rope



of braided or twisted filaments comprising forming a rope of braided or twisted, heat-shrinkable filaments about a core containing thermoplastic material, knotting the rope to form a reticulated network of ropes, placing the knotted reticulated net under tension in all directions, and treating the net, while under tension, to cause the thermoplastic core material to melt while simultaneously heating the net to a temperature sufficient to cause the filaments to shrink but not to melt, whereby the shrinking of the filaments, while the net is under tension, reduces the cross section of the ropes of the net and causes the melted thermoplastic material to penetrate into the openings between and to surround and seal the filaments of the ropes of the net.

4,378,726

PISTON DESIGNED FOR USE WITH A MAGNETIC FORCE PICKUP

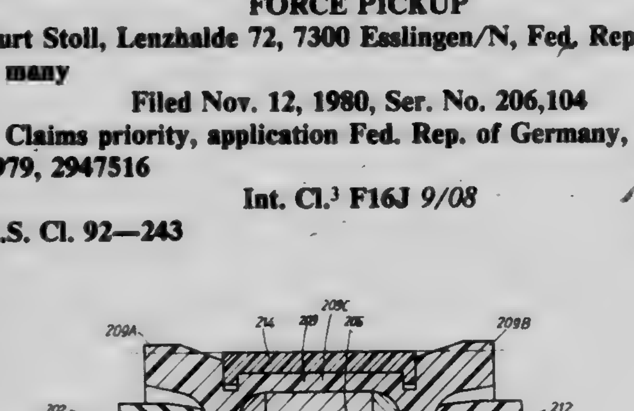
Kurt Stoll, Lenzhalde 72, 7300 Esslingen/N, Fed. Rep. of Germany

Filed Nov. 12, 1980, Ser. No. 206,104

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1979, 2947516

Int. Cl.³ F16J *9/08*

U.S. Cl. 92—243 **6 Claims**



**1. A piston, comprising means defining a generally cylindrical piston body having a circumferential groove therein, said groove having sidewalls, a sealing washer concentrically encircling said body in radial alignment with said groove and having two axially spaced annular flanges which project substantially radially into said groove and engage said sidewalls thereof, an annular magnet disposed in said groove between said flanges of said sealing washer, two annular plates disposed in said groove between said flanges of said sealing washer and on opposite axial sides of said magnet, and an annular guide ring support on and concentrically encircling said sealing washer.

4,378,727

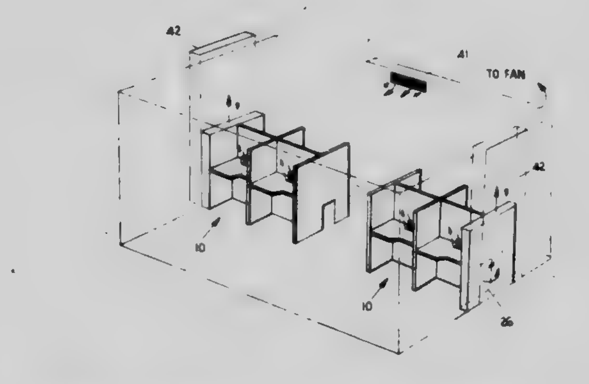
DATA STATION WITH WIRE AND AIR DUCT

James A. Doss, Spring Lake, Mich., assignor to Structural Concepts Corporation, Spring Lake, Mich.

Filed Jun. 27, 1980, Ser. No. 163,788

Int. Cl.³ F24F *7/00*

U.S. Cl. 98—33 R **2 Claims**



1. In an open space office system including:

a room;

freestanding work stations including vertical panels and horizontal work surfaces supported by said vertical panels, said work stations being arranged about said room in a selected configuration for dividing the room into separate interrelated work areas;

ventilation means for providing air circulation in said room; the improvement which comprises:

said vertical panels arranged to form a vertical conduit with said work surfaces being radially arranged about said vertical conduit;

said conduit arranged adjacent said work surfaces;

port means in said work areas communicating air between said ventilation means and said conduit;

duct means communicating with said conduit for either withdrawing air from said room through said port means or for supplying air to said room through said port means;

wherein air circulating in said room is communicated to said duct means by said conduit or air is supplied to said room from said ventilation means through said conduit.

4,378,728

COATING BOOTH FOR ELECTROSTATIC APPLICATION OF PULVERIZED MATERIALS

Adolf Berkmann, Weissach, Fed. Rep. of Germany, assignor to Nordson Corporation, Amherst, Ohio

Division of Ser. No. 17,879, Mar. 5, 1979, Pat. No. 4,245,551, which is a continuation-in-part of Ser. No. 15,408, Feb. 26, 1979, abandoned. This application May 14, 1980, Ser. No. 149,589

Claims priority, application Fed. Rep. of Germany, Mar. 2, 1978, 2809020

The portion of the term of this patent subsequent to Jan. 20, 1998, has been disclaimed.

Int. Cl.³ B05C *15/00*

U.S. Cl. 98—115 SB **4 Claims**

1. An assembly of a powder spray booth and at least one interchangeable portable filter module, said powder spray

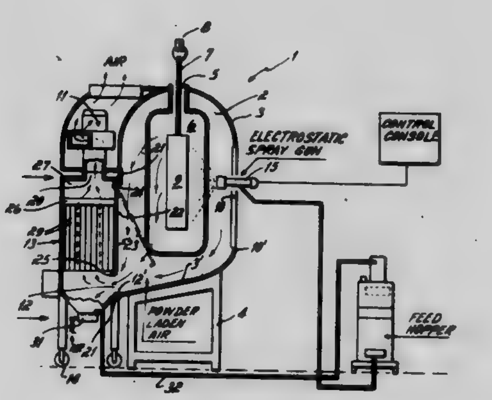
booth being adapted to receive an electrostatic spray means for spraying dry particulate powder material onto workpieces contained in the booth, said assembly comprising,

first and second vertical walls and a floor angled downwardly from said first vertical wall toward said second vertical wall, said first vertical wall being connected to said floor by a spiral curved wall section, a ceiling connecting the top of said first vertical wall to the top of said second vertical wall, vertical end walls extending from said first vertical wall generally toward said second vertical wall,

at least one interchangeable filter module, said module including a powder collection chamber, said powder collection chamber being disposed adjacent said second vertical wall, said booth and said powder collection chamber being separated by said second vertical wall, said second vertical wall extending downward from the ceiling so as to form a barrier to the flow of powder laden air from said booth into said powder collection chamber,

an air inlet opening in said first vertical wall,

said second vertical wall having a lower edge spaced from said floor so as to define a booth outlet opening adjacent the lower edge thereof providing an air flow path through which powder laden air is free to pass without significant restriction from said booth directly into said collection chamber;



means for collecting oversprayed dry particulate powder material in the bottom of said powder collection chamber, said collecting means being operable to collect said powder material in a dry condition suitable for reuse in said electrostatic spray means,

a clean air chamber sealed from the booth, said clean air chamber being located adjacent to and above said powder collection chamber, said clean air chamber having a clean air chamber opening from the powder collection chamber thereinto;

filter means mounted adjacent said clean air chamber opening for preventing powder from entering said clean air chamber from said booth outlet opening while permitting air flow from the powder collection chamber into said clean air chamber;

blower means having an inlet connected to said clean air chamber to create a negative pressure in said clean air chamber, whereby air flows downwardly in said booth and through said booth outlet opening directly into said powder collection chamber and then upwardly through said filter means into said clean air chamber,

sealing means to sealingly secure said filter module to said booth outlet opening and to said blower means, and

one wall of said filter module being located immediately adjacent said booth and being hinged at one side so that it is free to pivot outwardly into the interior of said booth in the event of an explosion within said filter module.

4,378,729

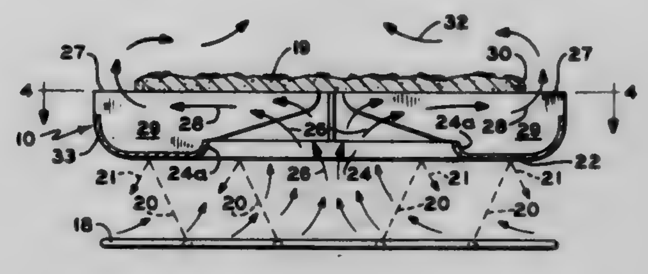
APPARATUS FOR PREPARING PIZZA IN A BAKING OVEN

Richard L. Pierick, 3256 Hampshire Ave., North, Minneapolis, Minn. 55427

Continuation-in-part of Ser. No. 261,511, May 7, 1981. This application Dec. 11, 1981, Ser. No. 329,815

Int. Cl.[3] **A47J** *37/00*

U.S. Cl. 99—400 **14 Claims**



1. An oven appliance for heating pizza comprising a base including a baffle with a vent opening of smaller cross sectional dimension than the diameter of the pizza, a plurality of upwardly extending risers integral with the baffle and having coplanar upper edges defining a pizza supporting surface above the base in a position to enable the pizza to be centered thereon directly over the vent opening in the baffle, the supporting surface being open to allow air to flow freely across the lower surface of the pizza, and the baffle serving as a shield means surrounding the vent opening and positioned below the support surface to shield the peripheral edge of the pizza from infrared radiation arising from beneath said baffle, the hot air rising through the vent opening will strike the center of the lower surface of the pizza to thereby disrupt and reduce stagnant boundary layer air whereby the pizza will be heated uniformly thereby.

4,378,730

CITRUS PRESS DEVICE

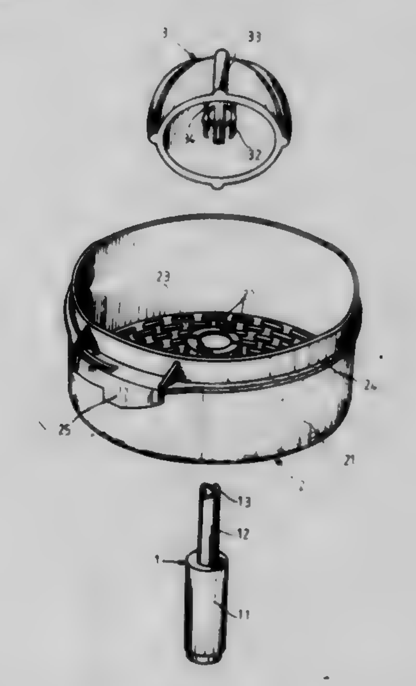
Marcel Coggiola, Le Perreux, France, assignor to Robot-Coupe, S.A., Bagnolet, France

Filed Jun. 18, 1980, Ser. No. 160,814

Claims priority, application France, Jun. 18, 1979, 79 15502

Int. Cl.[3] **A23N** *1/00*

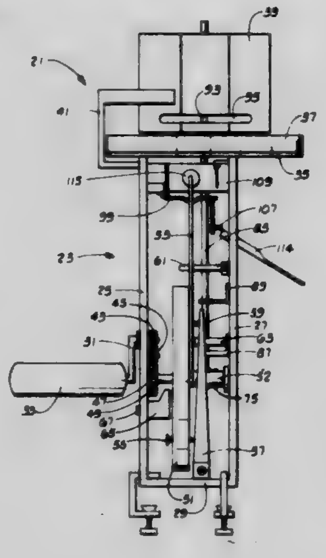
U.S. Cl. 99—501 **4 Claims**



1. A citrus press device for use with a food processor, said processor comprising a casing, an upwardly directed drive shaft and a bowl provided on the casing into which the upper of the end of the drive shaft penetrates, the device comprising a basket, the base of which includes apertures and a cone

mounted in removable fashion inside the basket, wherein a hub portion is formed in the center of the base of the basket, said hub portion having an orifice, the cone including elastic prongs which penetrate into the hub portion, thereby mounting the cone to the basket, the exterior cylindrical surface defined by said prongs being of greater diameter than that of said hub portion orifice.

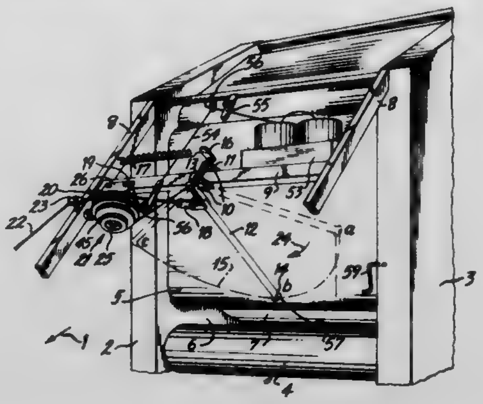
4,378,731
NUT CRACKING DEVICE
Suwat Ruangburapa, P.O. Box 2263, Norman, Okla. 73070
Filed Aug. 29, 1980, Ser. No. 182,806
Int. Cl.³ A23N *5/00*
U.S. Cl. 99—571 **8 Claims**



8. A nut cracking device comprising:
a frame;
a rest connected to said frame for receiving a nut in a nut cracking position;
means for cracking a nut disposed on said rest in a nut cracking position;
a turntable having a slot therein and rotatably connected to said frame;
a plurality of pieces each of which removably fits in said slot and each having an opening sized for receiving a predetermined size and shape of nut therein in an orientation for being received on said rest;
means for rotating said turntable;
a table above which said turntable rotates such that said table supports a nut received in said opening of a selected one of said pieces disposed in said turntable slot and having a hole disposed above said rest such that a nut will fall from said opening into said rest; and
a reservoir disposed above said turntable for holding a plurality of nuts in communication with said turntable such that as said turntable rotates, nuts disposed in said reservoir will roll on said turntable and will be oriented by said rolling to be received in said opening as said opening rotates beneath said reservoir.

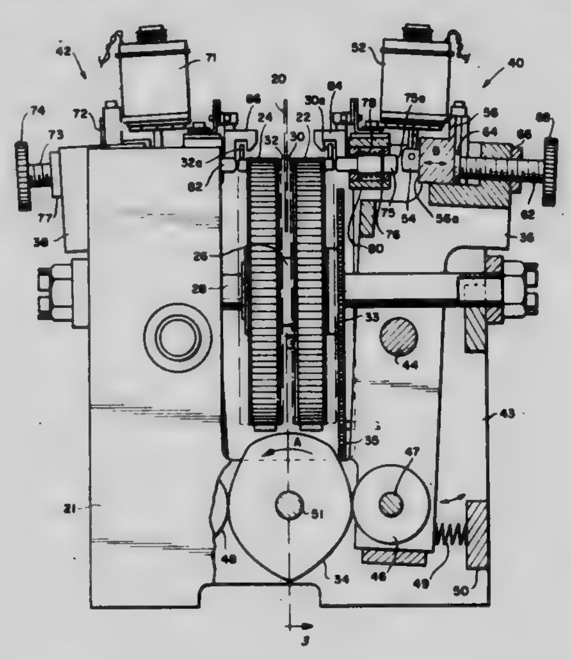
4,378,732
TYING APPARATUS FOR AGRICULTURAL ROLL BALERS
Jürgen Simonis, and Hans-Otto Sacht, both of Wolfenbüttel, Fed. Rep. of Germany, assignors to Gebrüder Welger GmbH & Co. Kommanditgesellschaft, Wolfenbüttel, Fed. Rep. of Germany
Filed Feb. 18, 1981, Ser. No. 235,643
Claims priority, application Fed. Rep. of Germany, Nov. 8, 1980, 3042254
Int. Cl.³ B65B *13/18*
U.S. Cl. 100—5 **17 Claims**

1. An apparatus for helically tying with twine roll bales of agricultural crop material formed in a bale chamber housing of a roll baler having an intake aperture extending across the width thereof comprising a guide member for guiding said twine along said intake aperture, spring means biasing said guide member toward a lateral rest position, said spring means being tensioned by movement of said guide member into a start position opposite said rest position and control means for con-



trolling the rate of feed of said guide member during tying, said control means comprising a ratchet and pawl mechanism operating to hold said guide member in position against the force of said spring means and to release said guide member from movement toward said rest position under the force of said spring means.

4,378,733
EMBOSSING DRIVE MECHANISM FOR AN AUTOMATIC EMBOSSING SYSTEM
Michael D. Polad, Mendota; Leroy E. Gerlach, Bloomington; Edward R. Gabel, Eden Prairie; Robert H. Schmidt, and Glenn H. Heiller, both of Minnetonka, all of Minn., assignors to Data Card Corporation, Minnetonka, Minn.
Filed Oct. 20, 1980, Ser. No. 198,486
Int. Cl.³ B31F *1/07*
U.S. Cl. 101—18 **18 Claims**



1. A drive mechanism for actuating a die element carried by a die wheel and a punch element carried by a punch wheel to emboss a document positioned between the punch element and the die element, comprising:
a cam;
means for driving said cam in constant rotation;
a first bail arm mounted for pivotal movement in a plane transverse to said die wheel;
a second bail arm mounted for pivotal movement in a plane transverse to said punch wheel;
first and second cam followers, mounted on said first and second bail arms, respectively, said first and second cam followers biased in rolling contact with said cam and

driven by rotation of said cam for in turn driving said first and second bail arms in complementary oscillatory movement;

first interposer means adjustably mounted on said first bail arm and selectively actuable to be disposed between said first bail arm and the die element;

second interposer means adjustably mounted on said second bail arm and selectively actuable to be disposed between said second bail arm and the punch element;

said first and second interposer means driving the corresponding die and punch elements into and out of engagement with the document for embossing the document in response to the complementary oscillatory movement of said first and second bail arms, said first and second interposer means being adjustable relative to said first and second bail arms, respectively, to achieve a desired embossing height on the document.

4,378,734

SHEET TRANSFER CYLINDER FOR SHEET-FED ROTARY PRINTING MACHINES CONVERTIBLE BETWEEN FIRST FORM AND PERFECTOR PRINTING

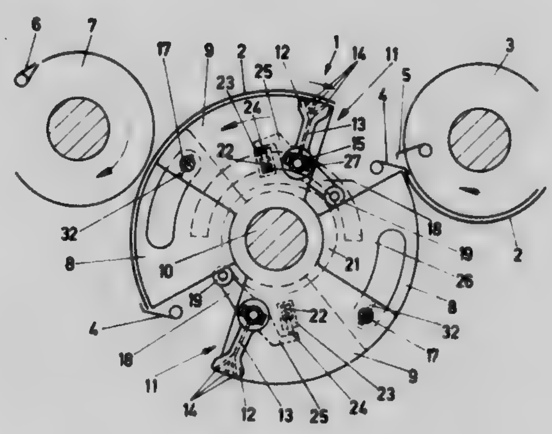
Arno Wirz, Bammental, Fed. Rep. of Germany, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Fed. Rep. of Germany

Filed Sep. 25, 1981, Ser. No. 305,513

Claims priority, application Fed. Rep. of Germany, Sep. 30, 1980, 3036790

Int. Cl.³ B41F *5/02, 21/04, 21/08, 5/22*

U.S. Cl. 101—230 **10 Claims**



1. Sheet transfer cylinder for a sheet-fed rotary printing machine convertible between first form and perfector printing having a gripper device for gripping the leading edge of a sheet and a suction device for gripping the trailing edge of the sheet and tightening and smoothing the sheet in travel direction thereof through the machine and transversely to the travel direction comprising first control means including at least one circumferential cam for controlling circumferential sheet-tightening movement, second control means including lateral cams for controlling lateral sheet-tightening movement, the suction device having parts thereof disposed side-by-side in axial direction of the cylinder and formed with suction holes, and transmission means operatively connecting said first and said second control means with said parts of said suction device so as to superimpose actions thereon for applying a diagonal tightening force to the sheet, said first and said second control means being independent of one another.

4,378,735

ANTILINTING DEVICE FOR INK FOUNTAINS

John MacPhee, Rowayton, Conn., assignor to Baldwin Gegenheimer Corporation, Stamford, Conn.

Filed May 14, 1981, Ser. No. 263,514

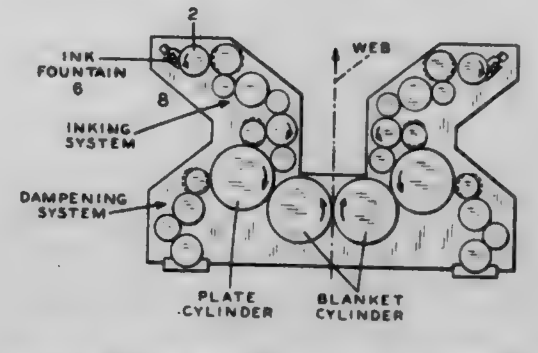
Int. Cl.³ B41F *31/06, 35/04*

U.S. Cl. 101—363 **5 Claims**

1. An antilinting system for use in a printing press having an ink fountain, an ink fountain blade, an ink fountain roller, an ink metering nip formed between the terminal end of the ink fountain blade and the ink fountain roller and an ink agitator means extending into said ink fountain and reciprocating along the full length of the ink fountain roller comprising:

(a) a blade holder having a relatively narrow, flexible, scraping blade adjustably attached to said blade holder;

(b) means for adjustably positioning said scraping blade adjacent the surface of said ink fountain roller and above said ink fountain so that said flexible blade can be moved a predetermined distance from the surface of said ink



fountain roller so as to remove the ink film and lint on said ink fountain roller whereby the ink film and lint falls into said ink fountain and the lint will not clog said ink metering nip; and

(c) means interconnecting said blade holder and said flexible scraping blade to said ink agitator means so that said flexible blade reciprocates back and forth along the entire length of said ink fountain roller so as to continuously remove ink and lint from said ink fountain roller.

4,378,736

INKING DEVICE

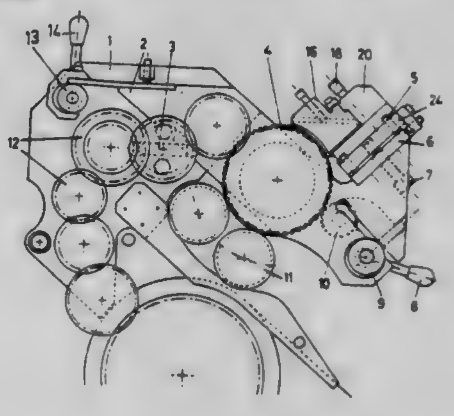
Jean L. Sarda, 25, rue Pradier, Paris, France (75019)

Continuation of Ser. No. 27,829, Apr. 6, 1979, abandoned. This application Apr. 13, 1981, Ser. No. 253,392

Claims priority, application France, Apr. 7, 1978, 78 10437

Int. Cl.³ B41F *31/04, 31/34*

U.S. Cl. 101—365 **9 Claims**



1. A mechanism for inking the printing parts of a press, comprising:

at least one roller means for simultaneously distributing a plurality of inks to the printing parts of the press;

a single, rotating, non-grooved cylindrical means for carrying the plurality of inks in narrow zones from near the top side of the outer surface of the cylindrical means to said at least one roller means located near the bottom side of the outer surface of the cylindrical means;

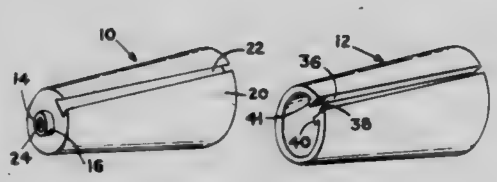
at least one blade means, positioned near the top side of the cylindrical means, for micrometrically proportioning the thickness of each of the plurality of inks being carried on the outer surface of said cylindrical means;

a plurality of lever means, maintained in contact with the inner face of the at least one blade means, for independently adjusting the bottom edge of the at least one blade means from the outer surface of the cylindrical means;

a plurality of screw means, positioned above the at least one

blade means, for independently actuating each of the plurality of lever means;
a plurality of separator means for dividing the plurality of inks into the narrow zones on the outer surface of the cylindrical means; and
a plurality of holder means, positioned near the top side of the cylindrical means, for maintaining the plurality of separator means in simultaneous contact along one edge against the outer surface of the cylindrical means and along another edge against the outer face of the at least one blade means;
wherein said cylindrical means includes a plurality of internal vane means for radiating heat away from the outer surface thereof;
wherein said cylindrical means includes a collar means for forming the outer surface thereof; and
wherein said outer surface of the cylindrical means is coated with a hardened elastomer.

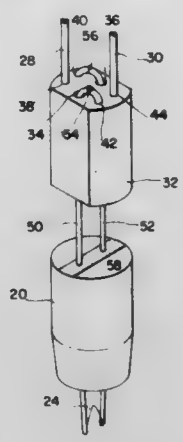
4,378,737
ROLLER APPARATUS WITH REPLACEMENT BLANKET
Alan D. Kirkpatrick, Martinsville, N.J., assignor to Robud Company, Pine Brook, N.J.
Filed Jun. 1, 1981, Ser. No. 268,871
Int. Cl.[3] B41F *27/06*
U.S. Cl. 101—415.1 **9 Claims**



1. Roller apparatus comprising:
a core;
means formed on said core for mounting said core with respect to a machine to be served;
a channel formed in the surface of said core and extending across the surface of said core, said channel being tapered in width from a first width adjacent a first edge to a second width adjacent a second opposite edge;
a blanket for covering said core, said blanket comprising a split element adapted to fit around the surface of said core and having first and second abutting edges; and
first and second flanges depending from said first and second abutting edges, said first and second flanges, when in abutting relationship, defining a cross-sectional area substantially identical to said channel formed in said surface of said core.

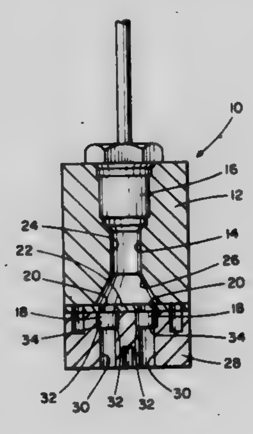
4,378,738
ELECTROMAGNETIC AND ELECTROSTATIC INSENSITIVE BLASTING CAPS, SQUIBS AND DETONATORS
Paul W. Proctor, Rte. 2, Box 60 Kathy La., White Plains, Md. 20695, and Robert L. Dow, Rte. 5 Box 415, La Plata, Md. 20646
Filed Dec. 19, 1979, Ser. No. 105,467
Int. Cl.[3] F42C *11/00*
U.S. Cl. 102—202.7 **8 Claims**

1. An electroexplosive device protected against premature initiation from electromagnetic radiation comprising:
a conductive housing having an upper portion and a closed lower portion wherein said lower portion contains an explosive train comprising an ignition mix, a primer, and a base charge;
an insulating plug contained in said housing having mounted therein a pair of conductors extending into said lower portions;
a bridgewire coupled between said pair of conductors and imedded in said ignition mix;
attenuator means formed of a lossy ferrite material contained within said housing and spaced from said insulating plug, said ferrite material having a Curie temperature greater



than about 150° C. and said attenuator means being configured to receive said conductors therethrough; and
nonconductive seal means mounted within the upper portion of said housing and extending therefrom, wherein said conductors pass through said seal means for coupling to a source of power for initiating said device.

4,378,739
PRIMER FIRING MEANS
Edward A. Klein, Florissant, and Morry L. Schimmel, University City, both of Mo., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Mar. 23, 1981, Ser. No. 246,480
Int. Cl.[3] F42C *19/10*
U.S. Cl. 102—204 **8 Claims**



1. A firing mechanism for detonating at least two percussion primers comprising:
a housing defining a cavity,
an explodable means secured to the housing and communicating with the cavity for providing an explosive energy within the cavity upon detonation of the explodable means,
at least two percussion primers having an output upon detonation of the explodable means for firing an external explodable device, each of the at least two percussion primers being secured with respect to the housing and having means communicating with the cavity and detonatable by the explosive energy, and
a detonation coupling means secured to the housing and disposed within the cavity between the explodable means and the at least two percussion primers, the detonation coupling means being provided with at least two passageways for transmitting to the at least two percussion primers the explosive energy provided by the explodable means for initiating the at least two percussion primers,

the length and direction of travel provided by the at least two passageways for the explosive energy providing means for the substantially simultaneous initiation of the at least two percussion primers.

4,378,740

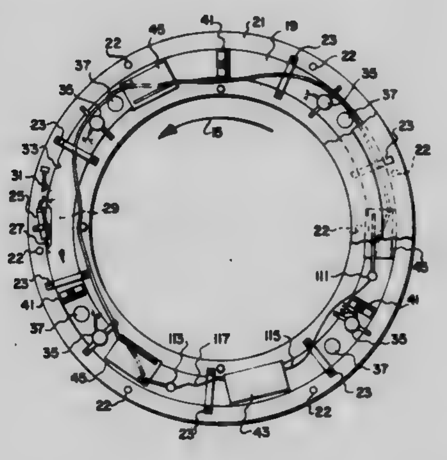
MUNITION FUSE SYSTEM HAVING OUT-OF-LINE SAFETY DEVICE

Clayton J. Schneider, Jr., East Aurora, N.Y., assignor to Calspan Corporation, Buffalo, N.Y.

Filed Oct. 15, 1980, Ser. No. 197,307

Int. Cl.³ F42C *15/40*

U.S. Cl. 102—216 **13 Claims**



1. A fuze for arming and exploding a projectile, the said projectile being launched along a longitudinal axis of rotation, the said fuze comprising:
   a. a source of electrical energy;
   b. an electronic control circuit having a power input, a signal input, a first signal output responsive to a first signal input, and a second signal output responsive to a second signal input;
   c. means for sensing the said launching thrust of the projectile and responsive thereto connecting the said source of electrical energy to the said power input of the electronic control circuit whereby the control circuit is energized;
   d. an electric signal fired detonator charge communicating with the said second signal output of the said electronic control circuit;
   e. a booster charge;
   f. means initially positioning the said booster charge and the said detonator charge in spaced apart non-communicable firing relationship;
   g. means initiated by an electric signal, communicating with the said first signal output of the electronic control circuit, for moving the said booster charge and the said detonator charge into communicable firing relationship;
   h. means for sensing a first predetermined condition of rotation of the said projectile and providing a first signal input to the electronic control circuit whereby the said booster charge and the said detonator charge are moved into communicable firing relationship; and
   i. means for sensing a second predetermined condition of rotation of the said projectile and providing a second signal input to the electronic control circuit whereby the said electronic control circuit provides the said second signal output firing the said detonator exploding the projectile.

4,378,741

INTERFACED CONVEYOR SYSTEMS AND DRIVERLESS VEHICLE FOR USE THEREIN

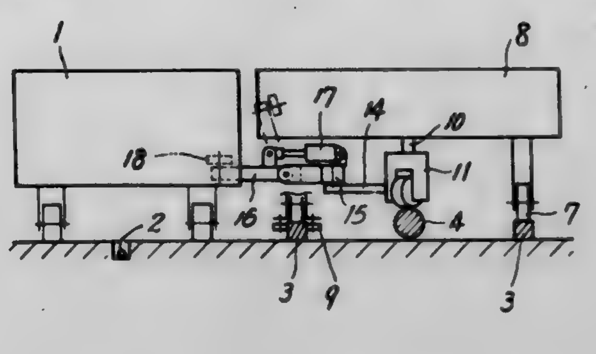
Katsuhiro Nagahori, Chiba, Japan, assignor to SI Handling Systems, Inc., Easton, Pa.

Filed Jan. 21, 1981, Ser. No. 226,586

Claims priority, application Japan, Jan. 21, 1980, 55-5524

Int. Cl.³ B61B *13/12;* **B61K** *1/00*

U.S. Cl. 104—18 **9 Claims**



5. A driverless vehicle comprising a base mounted on support wheels, at least one drive wheel assembly pivotable about an upright axis on said base between a drive position and an accumulation position, means for pushing another vehicle by interfacing said base with another vehicle moving in the same direction, said means including a contact arm movably supported by said base for movement between an extended position wherein the arm extends transversely beyond a side edge of the base and a retracted inoperative position.

4,378,742

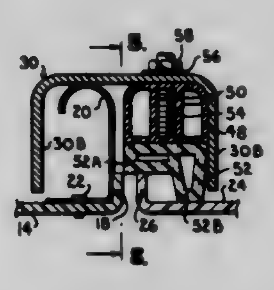
HOLD DOWN BAR FOR HOPPER CAR HATCH COVERS

James R. Saylor; Lewis H. Wiens, both of Johnson County, Kans., and Orville E. Blume, Buchanan County, Mo., assignors to Aero Plastics of K.C., Inc., Kansas City, Mo.

Filed Mar. 2, 1981, Ser. No. 239,322

Int. Cl.³ B61D *39/00;* **B63B** *19/00*

U.S. Cl. 105—377 **11 Claims**



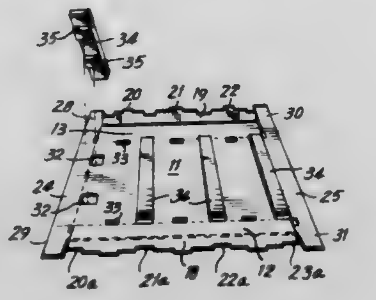
1. In a hold down bar arrangement having a channel member adapted to cover one end of a hopper car hatch cover, means mounting the channel member on the hopper car for pivotal movement between latching and release positions relative to the hatch cover, and releasable means for maintaining the channel member in the latching position to hold down the hatch cover, an insert for the channel member comprising:

a rigid insert bar adapted to be inserted in the channel member;

means for securing said insert bar in the channel member; and

a resilient gasket carried on said insert bar at a location to seal against said one end of the hatch cover in the latching position of the channel member.

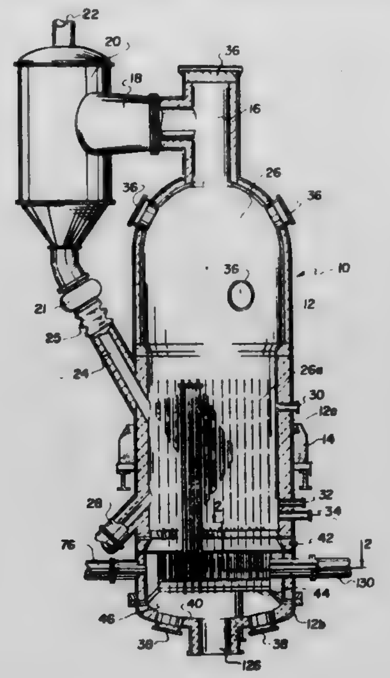
4,378,743
PAPERBOARD PALLET HAVING INTERLOCKED RUNNERS
William M. McFarland, Georgetown, S.C., assignor to International Paper Company, New York, N.Y.
Filed Sep. 25, 1981, Ser. No. 305,672
Int. Cl.^{3} B65D *19/34*
U.S. Cl. 108—51.3 **1 Claim**



1. A pallet which comprises:
(a) a tray constructed of corrugated sheet material which comprises a bottom wall, a pair of first side wall panels foldably connected to said bottom wall at the ends thereof, a pair of second side wall panels foldably connected to said first side wall panels, each of said second side wall panels having at least one locking tab at the free edge thereof, each of said pair of first and second side wall panels being folded into face-to-face contact to form a pair of side walls, a pair of end walls foldably connected to said bottom wall at the other ends thereof, each of said end walls having a pair of foldably connected end flaps at either end thereof, said pairs of end flaps being sandwiched between said first and second side wall panels, said locking tab engaging with a groove provided in the bottom wall to maintain the tray in an erect condition;
(b) said tray having a plurality of runners disposed in spaced relationship upon the bottom wall to provide a rigid deck for the pallet, the ends of each of said runners being held in position by recesses provided in the second side wall panels, each of said runners having at least two support blocks which are accommodated in apertures provided in the bottom wall of the tray whereby legs are provided for the pallet and entry is afforded the tines of a forklift truck.

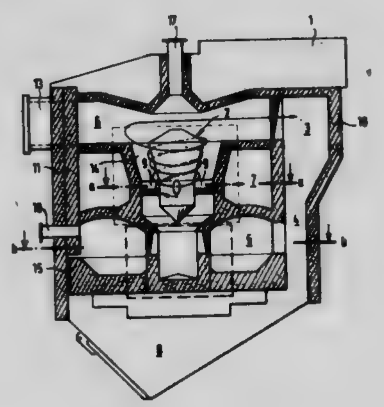
4,378,744
FLUIDIZED BED COMBUSTOR AND REMOVABLE WINDBOX AND TUBE ASSEMBLY THEREFOR
Angelo DeFeo, Totowa, and William Hosek, Mt. Tabor, both of N.J., assignors to Curtiss-Wright Corporation, N.J.
Division of Ser. No. 62,746, Aug. 1, 1979, Pat. No. 4,292,023. This application Apr. 27, 1981, Ser. No. 257,852
Int. Cl.^{3} F23L *5/00*
U.S. Cl. 110—182.5 **10 Claims**

1. A tuyere for directing air into a fluidized bed of a fluidized bed reactor comprising a hollow socket member having an exterior threaded portion for threading it to a support by an amount to position it at a predetermined angular position and having an air inlet passage therethrough and an interior with a curved receiving surface, an indicating member connected to said hollow socket member and projecting outwardly from said curved receiving surface, a tubular sleeve body engaged in said hollow socket member and having a side wall with a ledge portion and a sleeve body curved surface below said ledge portion engaged on said curved receiving surface and having a recess into which said indicating member extends to fix said tubular sleeve body angularly in respect to said hollow socket member, the interior of said hollow socket member being spaced outwardly of said tubular sleeve body and having a coarse threaded portion, said tubular sleeve body having an interior passage therethrough aligned with said air inlet passage and having a plurality of radially extending discharge passages adjacent the upper end thereof extending radially outwardly therefrom at a plurality of angularly spaced locations, the angle of disposition of each of said passages being determined by the position of said tubular sleeve body relative to said hollow socket member as determined by said indicating member, and a retaining sleeve disposed in said hollow socket



member between said hollow socket member and said tubular sleeve body and being threaded to said hollow socket member and engaged on said ledge to urge said curved surface of said tubular sleeve body into engagement with the curved surface of said hollow socket member.

4,378,745
METHOD AND FURNACE FOR INCINERATION OF SOLID AND LIQUID WASTE
Torkjell Flatland, Notodden, Norway, assignor to Norsk Hydro A.S., Oslo, Norway
Filed Jun. 25, 1980, Ser. No. 162,794
Claims priority, application Norway, Jul. 5, 1979, 792236
Int. Cl.^{3} F23G *5/12*
U.S. Cl. 110—346 **8 Claims**



1. A method for the incineration of solid and liquid waste, said method comprising:
providing a primary combustion zone, a secondary combustion zone, and a restricted annular space extending from said primary combustion zone to said secondary combustion zone, with the area of said annular space being less than the areas of said primary and secondary combustion zones, and with said annular space having an inner surface defined by a substantially cylindrical central member having a height greater than its diameter;
conducting primary combustion of waste in said primary combustion zone, thereby generating products of combustion including unburned combustibles and incombustible particles;
passing said products of combustion from said primary com-

bustion zone, smoothly through said annular space, toward said secondary combustion zone;

introducing secondary combustion air, in a quantity sufficient to achieve complete combustion of said unburned combustibles, into said annular space in the form of high velocity air jets from a plurality of openings in said central member;

introducing said secondary combustion air and said products of combustion into said secondary combustion zone under conditions of violent rotation and expansion, and thereby achieving mixing of said secondary combustion air and said unburned combustibles in said secondary combustion zone, and causing said incombustible particles to be thrown outwardly through an outlet and discharged from said secondary combustion zone;

conducting secondary combustion of said unburned combustibles in said secondary combustion zone; and

collecting said discharged incombustible particles in an ash pit separate from said combustion zones.

4,378,746

APPARATUS FOR MAKING POCKETS OF THE STRIP TYPE WITH SLIDE FASTENER

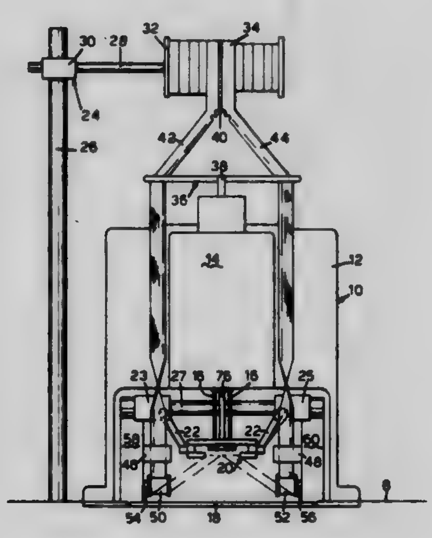
Silvano Perlino, Pavia, Italy, assignor to Necchi Societa per Azioni, Pavia, Italy

Filed Jun. 21, 1979, Ser. No. 40,400

Claims priority, application Italy, May 19, 1978, 42907 A/78

Int. Cl.³ D05B *3/12*

U.S. Cl. 112—104 **1 Claim**



1. An apparatus for producing pockets of a strip type with a slide fastener comprising a roller on which there is wound a slide-fastener tape, a sewing machine for the sewing of strip pockets having a movable support frame, a presser frame lying over the support frame and movable therewith, two needles and a knife supported on the sewing machine and adapted to carry out vertical reciprocations in order to produce two parallel seams on the work and a cut which is parallel and central to the seams, the presser frame being provided with two guides which engage the teeth of the two portions of the slide fastener tape, the sewing machine being further provided with two reversing knives adapted to form two V-shaped incisions at the two ends of the cut formed by the knife.

4,378,747

AQUATIC RECREATION VEHICLE

Theodore D. Beatty, 20911 Skimmer La., Huntington Beach, Calif. 92646, and James J. Beatty, 5573 Rainier St., Ventura, Calif. 93003

Filed Jul. 18, 1980, Ser. No. 170,317

Int. Cl.³ B63B *5/24*

U.S. Cl. 114—56 **10 Claims**

1. An aquatic vehicle capable of buoying and transporting one or more crew members which comprises:

a hull symmetrical about a longitudinally extending, centrally located, vertical symmetry plane;

said hull having a plurality of integrally formed longitudinally extending surfaces;

said surfaces including at least three longitudinally extending sections and at least two longitudinally extending pressure ridges symmetrically located to the right and left of said vertical symmetry plane, each of said pressure ridges downwardly and inwardly directed toward said symmetry plane, each of said pressure ridges interspaced between two of said hull sections;

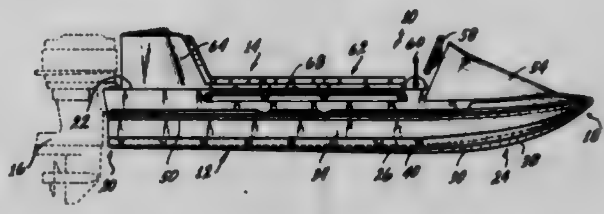
said sections of said hull and said pressure ridges curving outwardly and downwardly from the fore end of said hull and extending backwardly to the aft end of said hull said pressure ridges diverging from points adjacent said symmetry plane at said fore end;

said hull including a deck forming the uppermost surface of the hull;

a longitudinally extending superstructure located over said hull extending along a portion of the length of said hull upwardly from said deck;

said vertical symmetry plane dissecting said superstructure along its longitudinal axis into essentially symmetrical right and left side halves;

the combined centers of gravity and buoyancy of said hull and said superstructure normally lying essentially in said vertical symmetry plane;



said superstructure including a longitudinally oriented crew supporting means located above the center of buoyancy of said vehicle, and projecting upwardly from said deck, said deck extending from said crew supporting means outwardly to the right and the left of said vertical symmetry plane, said crew supporting means sized and shaped to allow one or more of said crew members to individually straddle said supporting means such that if two or more crew members occupy said vehicle, said crew members are aligned tandemly one behind the other along the length of said supporting means and each of said crew members independently can sit astride said crew supporting means with their legs projecting downwardly and outwardly towards said deck with their feet locatable on said deck;

said crew members capable of freely shifting their center of gravity from a position directly over the center of buoyancy of said vehicle to positions to the right or left of a point directly over the center of buoyancy of said vehicle such that when the center of gravity of said crew is shifted to the right or left of a point directly over the center of buoyancy of said vehicle, said pressure ridge located on said side of said vertical symmetry plane to which said center of gravity is shifted will be depressed downwardly with respect to the static water line of said vehicle.

4,378,748

SAILBOAT KEEL APPARATUS

Joel Kurtz, Box 26, Damascus, Pa. 18415

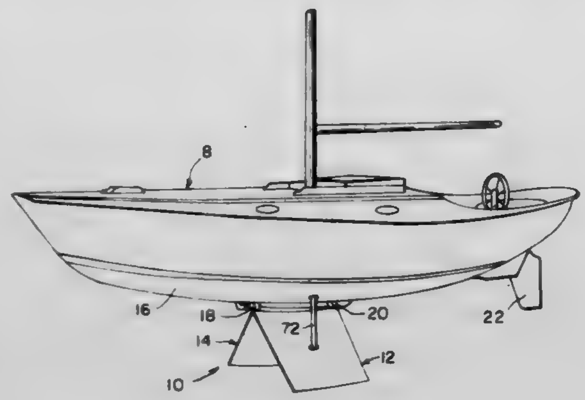
Filed Jan. 18, 1982, Ser. No. 339,985

Int. Cl.³ B63B *41/00*

U.S. Cl. 114—141 **26 Claims**

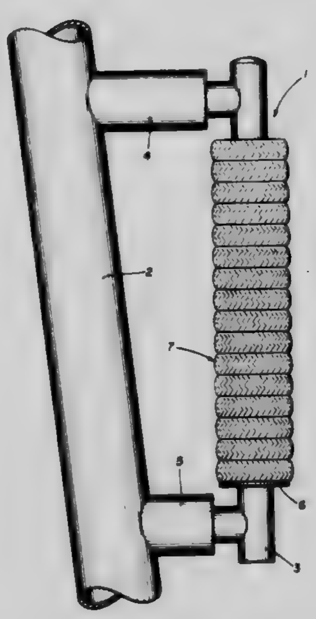
1. In a boat, attitude control apparatus comprising a keel axis mounted for elevational angulation at a medial point on the underside of said boat; first positioning means coupled to said keel axis for adjusting the elevation angle between said keel axis and the longitudinal axis of said boat and for maintaining

said keel axis in fixed orientation, after adjustment, relative to the longitudinal axis of said boat; a keel means pendant from said keel axis for angulation about said fixedly oriented keel



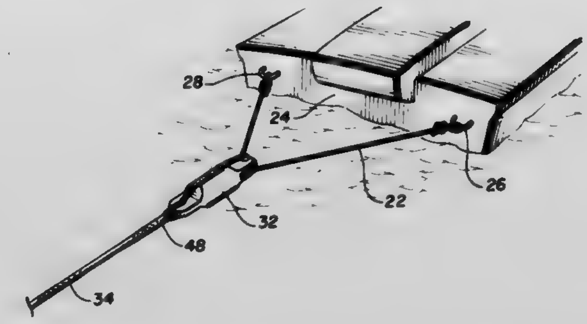
axis; and second positioning means coupled to said keel means for adjusting the angular position of said keel means about said keel axis.

4,378,749
ROTATABLE TIRE FOR BARGE BUMPER
Raymond F. Leblanc, North Canton, and William T. Cummins, Mogadore, both of Ohio, assignors to Teledyne Industries, Inc., Los Angeles, Calif.
Filed Apr. 30, 1981, Ser. No. 259,260
Int. Cl.[3] B63B *59/02*
U.S. Cl. 114—220 **3 Claims**



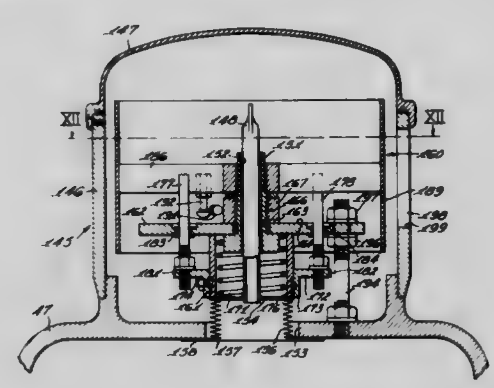
1. In a bumper for an offshore oil rig or barge loading structure of the type in which an upright metal bumper pipe is mounted on upper and lower shock cells in turn mounted on a leg of such structure, and in which a stack of rubber rings normally surrounds said upright metal bumper pipe between said shock cells; wherein the improvement consists of a series of rotatable energy-absorbing, distortion-resisting, ringlike sleeves surrounding said upright metal bumper pipe stacked directly on one another and extending solely between said shock cells; each ringlike sleeve consisting of a rim-free pneumatic-type rubber-containing vehicle tire carcass, and a cured-within-the-carcass lightweight elastomeric foam filling in the carcass; and there being a rubber inner tube located within the carcass; the elastomeric foam filling being located within the rubber inner tube; and the foam filling being cured within said rubber inner tube located within the carcass.

4,378,750
WATER SKI TOW HARNESS FLOAT
Henry J. Holzhauer, Spirit Lake, Iowa, assignor to Berkley and Company, Inc., Spirit Lake, Iowa
Filed Jun. 3, 1981, Ser. No. 270,096
Int. Cl.[3] B63B *21/56*
U.S. Cl. 114—249 **2 Claims**



1. In combination with a motor powered boat, a tow line harness comprising:
- a tubular float, said float having a slot at one end thereof and a pulley mounted at the other end thereof, with said pulley having a rope receiving passageway therethrough;
- a hitch rope roved through said pulley for attachment at both ends to the transom of said boat to form a V with the pulley located at the apex thereof and
- a tow rope, one end of which is passed through said slot around said float through the rope receiving passageway of said pulley, back along said float and through said slot in an opposite direction and secured to the remainder of said tow rope.

4,378,751
CONDITION INDICATING DEVICE FOR A PUFFER TYPE LOAD BREAK SWITCH
Donald L. Lott, Portland; Guenter G. Schockelt, Tigard, and Matthew L. Worrix, Sheridan, all of Oreg., assignors to Siemens-Allis, Inc., Atlanta, Ga.
Division of Ser. No. 903,694, May 8, 1978, Pat. No. 4,319,105, which is a division of Ser. No. 754,574, Dec. 27, 1976, Pat. No. 4,123,637. This application Sep. 29, 1981, Ser. No. 306,710
Int. Cl.[3] G01L *19/12;* H01H *9/00*
U.S. Cl. 116—271 **3 Claims**



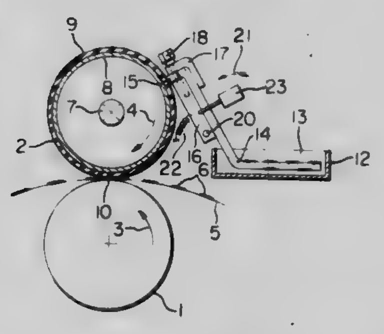
1. In a pressure condition indicating device for a pressurized electrical envelope;
- an indicator drum rotatably journaled for movement from a first condition indicating position to a second, different condition indicating position;
- a biasing spring operably connected to bias said drum from its first position to its second position;
- a stop plate supported in fixed relationship to the envelope;
- releasable holding means having a first end and a second end, said second end extending into interfering engagement with said drum for maintaining said drum in the first position, said holding means extending through said stop plate;

an actuator means after operably coupled to the second end of said releasable holding means to effect a release of said holding means from said drum to free said drum for movement to its second position by operation of said biasing spring, said actuator including a bellows connected in sealed relationship to the envelope in a manner to be responsive to the pressure within the envelope wherein a drop in pressure in the envelope below a predetermined value effects operation of said actuator, a tubular collar disposed in abutting engagement with said stop plate and secured to said bellows, a compression spring disposed in coaxial relationship within said collar and working between said stop plate and said bellows, and means connecting said collar to said releasable holding means; and

a pinch filler tube sealingly coupled to said bellows to communicate with the interior of said envelope and extending upwardly through said collar;

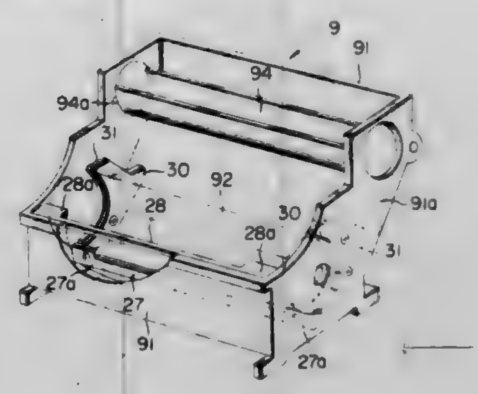
whereby a drop in pressure within the envelope below a predetermined value will result in the collapse of said bellows under the influence of said compression spring and said collar being secured to said bellows will be drawn downwardly to thereby effect the release of said holding means from said indicator drum and said drum under the influence of said biasing spring is moved from its first condition indicating position to its second condition indicating position.

4,378,752
FIXING APPARATUS
Wilhelm Knechtel, Biebertal, Fed. Rep. of Germany, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 893,434, Apr. 4, 1978, abandoned. This application Nov. 12, 1981, Ser. No. 320,703
Claims priority, application Fed. Rep. of Germany, Apr. 20, 1977, 2717391
Int. Cl.^{3} B05C *11/00;* **G03G** *21/00*
U.S. Cl. 118—60 **5 Claims**



1. A fixing apparatus comprising roller means for fixing a toner image formed on a supporting element, a vessel containing an offset preventing liquid, a member, having an end surface contactable with said roller means, for applying, by capillary action, the offset preventing liquid on the surface portion of said roller means which is utilized for the fixing action, means provided adjacent to said end surface of said liquid applying member for controlling the capillary action to thereby control the amount of liquid applied to said roller means by said liquid applying member, means for supporting said liquid applying member, and means for moving said support means toward and away from said roller means such that said end surface of said liquid applying member is movable into and out of contact with said roller means.

4,378,753
DEVELOPING APPARATUS FOR AN IMAGE REPRODUCTION
Kenji Ueno, and Yoshio Ymazaki, both of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Japan
Filed May 19, 1981, Ser. No. 265,418
Int. Cl.^{3} G03G *15/09*
U.S. Cl. 118—657 **3 Claims**

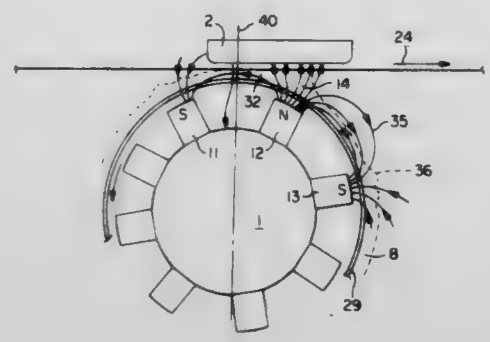


1. In an electrophotographic copying machine having a movable photosensitive member and a magnetic brush developing device in juxtaposition to said photosensitive member for transporting and applying developer thereto, said developing device comprising a housing having a developing chamber for storing developer, developing means mounted in said chamber comprising a cylindrical sleeve formed of nonmagnetic material, a plurality of radially spaced magnets positioned within said sleeve and extending along the central axial section thereof, and means mounting said sleeve and said axially spaced magnets for relative rotation adjacent said photosensitive member, whereby said magnets cause adherence of developer to said sleeve for transport from said chamber toward said photosensitive member, and a regulating plate positioned adjacent said chamber and having an edge extending axially across and adjacent to the surface of said sleeve at a predetermined distance therefrom to regulate the thickness of the adhering developer coming from said chamber, the improvement comprising a second regulating plate having an edge extending axially across and adjacent to the surface of said sleeve at a predetermined distance therefrom, and means mounting said second plate relative to said sleeve downstream of said first plate and immediately before the juxtaposition of said sleeve and said photosensitive member to recontrol the thickness of the adhering developer, and in which the outer edges of at least one of said plates opposite the respective outer edges of said sleeve are substantially wider and closer to said sleeve than the center sections of said plates, whereby spreading and swelling of the developer at the outer edges of said sleeve is prevented.

4,378,754
TONER APPLICATOR SYSTEM FOR MAGNETOGRAPHY
Houshang Rasekhi, Convent Station, N.J.; Alfred M. Nelson, Redondo Beach, Calif.; John S. Kula, Jr., Budd Lake, and John J. Sudano, Paterson, both of N.J., assignors to Wang Laboratories, Inc., Lowell, Mass.
Filed Aug. 5, 1981, Ser. No. 290,274
Int. Cl.^{3} G03G *15/09*
U.S. Cl. 118—658 **9 Claims**

1. In apparatus having a movable magnetizable medium capable of carrying latent magnetic images, magnetically attractable toner particles capable of developing the magnetic images of said medium and magnetic roll means for bringing said toner particles from a relatively remote location into continuous operative contact with said medium, the improve-

ment comprising an eccentrically mounted and operated rake arrangement having a center wire stem and a plurality of



transversely oriented curved wire tines, for urging toner particles into contact with said magnetic roll.

4,378,755

DE-ICING AND CLEANING SYSTEM FOR AIRCRAFTS

Ulla M. Magnusson, and Kjell-Eric Magnusson, both of Forstenavägen 3A, S-161 35 Bromma, Sweden

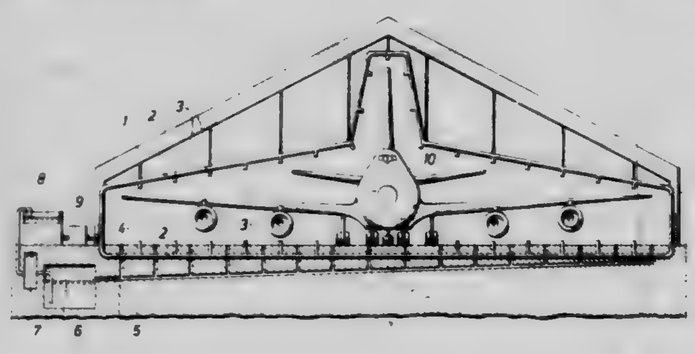
PCT No. PCT/SE78/00071, § 371 Date Jul. 25, 1979, § 102(e) Date Jul. 25, 1979, PCT Pub. No. WO79/00331, PCT Pub Date Jun. 14, 1979

PCT Filed Nov. 8, 1978, Ser. No. 173,135

Claims priority, application Sweden, Jan. 12, 1977, 7713619

Int. Cl.^{3} B05C *5/00*

U.S. Cl. 118—684 **14 Claims**



1. An apparatus for de-icing and cleaning aircraft comprising:

first and second stationary stations for accommodating the sequential passage of said aircraft from said first station to said second station, and for application for first and second discrete treatments, respectively, to said aircraft;

means disposed within said stationary stations for spraying said aircraft with liquid;

means for supporting said spraying means which comprises a corridor having an opening substantially similar to a frontal profile of said aircraft for allowing the passage of said aircraft through said stations;

said support means comprising conduits connected to said spraying means and forming a rigid frame in the form of a substantially closed loop defining said corridor;

wherein a lower part of said frame in at least one of said first and second stationary stations is disposed beneath the roadway on which the aircraft is moving through the station for encompassing all the exterior surface portions of said aircraft such that said spraying means treats substantially all said exterior surface portions of said aircraft;

first and second separate drainage systems operatively associated with said first and second stationary stations, respectively for separately collecting said liquid;

one or more means provided along the movement path of the aircraft for sensing the position and motion at any moment of said aircraft relative to said stations; and

means for automatically controlling said spraying means in response to said sensing means.

4,378,756

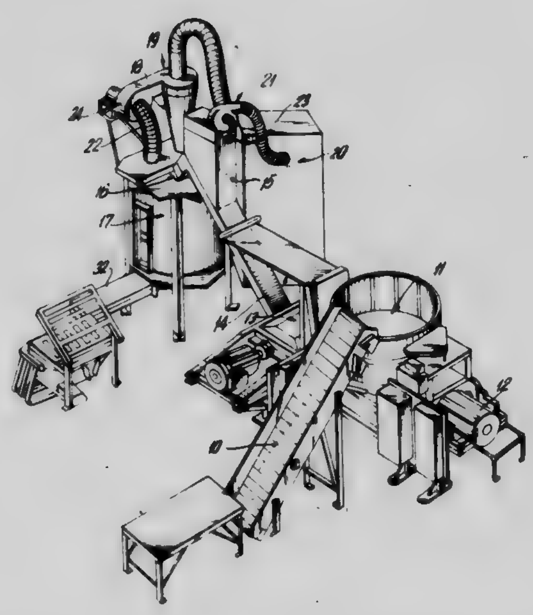
ANIMAL BEDDING, PROCESS AND APPARATUS FOR PREPARING THE SAME

Patrick W. Whiteman, Reston, Va., assignor to Recycled Paper Bedding, Inc., Reston, Va.

Continuation of Ser. No. 74,238, Sep. 10, 1979, abandoned. This application Aug. 10, 1981, Ser. No. 291,482

Int. Cl.^{3} A01K *1/015*

U.S. Cl. 119—1 **2 Claims**



1. An animal bedding comprising subdivided newsprint consisting essentially of flat particles with irregularly shaped major surfaces of a maximum diameter not more than about three times the minimum diameter, said maximum diameter being less than about one-inch, said particles having a particle size distribution including at least about 15 wt. percent greater than one-quarter inch maximum diameter, at least about 40 wt. percent greater than 1/32 inch but less than one-quarter inch in maximum diameter and not more than about 30 wt. percent smaller than 1/32 inch in maximum diameter.

4,378,757

MILKING METHOD AND MACHINE

Jörn Hamann, Aschauweg 18, D-2300 Kiel-Kronshagen, Fed. Rep. of Germany

Filed May 28, 1981, Ser. No. 267,728

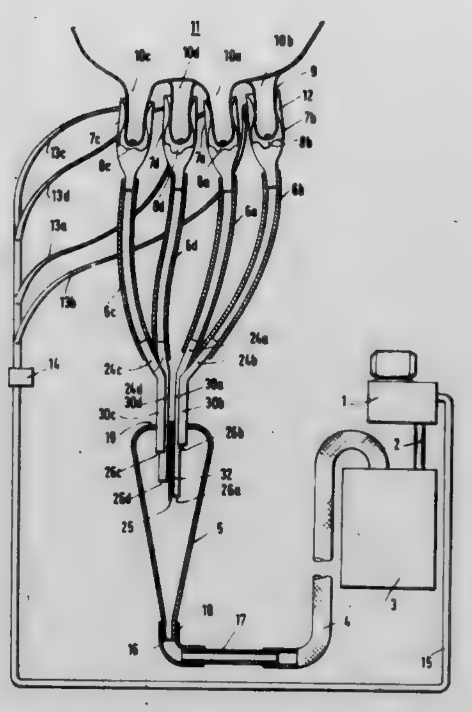
Claims priority, application Fed. Rep. of Germany, May 31, 1980, 3020758

Int. Cl.^{3} A01J *5/10*

U.S. Cl. 119—14.02 **52 Claims**

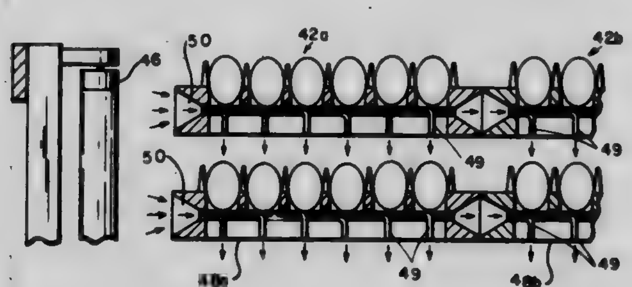
1. A method of milking a milk producing animal, such as a cow, comprising the steps of alternately appying and interrupting the application of suction to the teats of the animal's udder so that successive individual streams of milk issue from milk orifices at the tips of the respective teats; establishing a path for the flow of said streams to a collector station; admitting at at least one of said individual milk streams into said path at a first location and admitting at least one other individual stream into said path at at least one second location downstream of said first location for combined flow with said first stream; and introducing into said path a concurrent stream of air in the region of at least one of said locations so as to accelerate the

flowing milk in a direction toward the collector station and thereby prevent droplets of milk from being aspirated back



into contact with the teat tips during subsequent applications of suction to the teats.

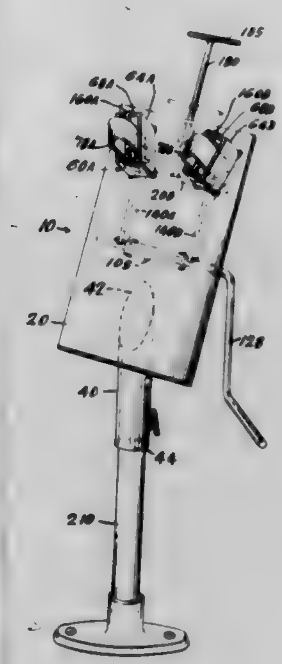
4,378,758
INCUBATION METHOD AND PROCESS
Marilyn A. Coleman, Columbus, Ohio, assignor to Gerald L. Smith and Jerry K. Mueller, Jr., both of Columbus, Ohio, a part interest
Filed Jun. 29, 1979, Ser. No. 53,407
Int. Cl.^{3} A01K *41/00, 41/02*
U.S. Cl. 119—35 **8 Claims**



6. A tray for the incubation of eggs comprising:
means to support eggs and means to receive, transmit and discharge light, said discharging means discharging light in a pattern to encounter the upper surface of each egg which could be supported below said tray by an identical and vertically aligned tray;
with said tray in operative position, the means to receive light being near the sides of the tray and the means to discharge light discharging a portion downward.

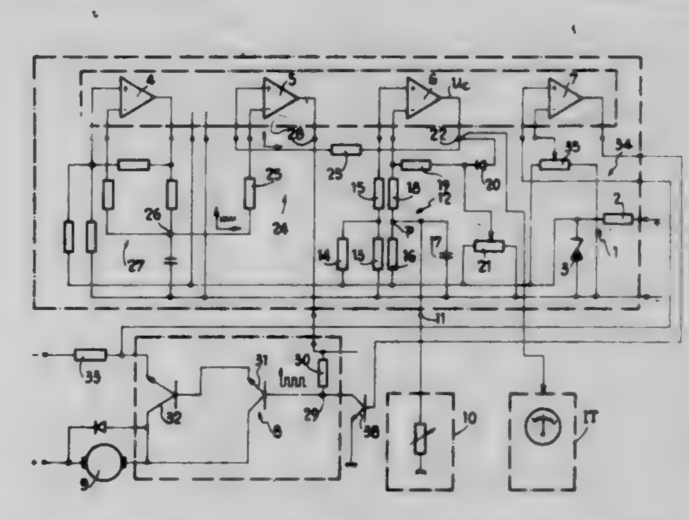
4,378,759
ANIMAL RESTRAINING DEVICE
Ted L. Garrett, 5694 County Rd. 23, Fostoria, Ohio 44830
Filed Jul. 2, 1981, Ser. No. 279,679
Int. Cl.^{3} A61D *3/00*
U.S. Cl. 119—98 **2 Claims**

1. A device for holding an animal's legs securely in position for purposes of administering medical treatment to such animal, said device comprising:
(a) a support plate member, said support plate member having a front face an back face, said support plate member being adapted to be supported in a substantially upright position, and said support plate member having two openings in a portion of said plate, each of which opening extend completely from the front face to the back face of said support plate member;
(b) a frame member affixed over each of said openings in said support plate with said frame members having a hollow interior extending completely through the frame member with two openings on each end of each frame member such that one opening of such frame member is in position



directly over its adjacent opening and the other opening being directed outwardly away from the front face of the plate;
(c) loop means affixed through the hollow interior of the frame members and through the openings in said plate with the loop portion extending out through the opening in the frame into the area outwardly of the plate.

4,378,760
DEVICE FOR CONTROLLING THE VENTILATING MEANS OF AN INTERNAL COMBUSTION ENGINE
Jean Barge, Montbeliard, France, assignor to Aciers et Outillage Peugeot, Audincourt, France
Filed Jun. 16, 1981, Ser. No. 273,567
Claims priority, application France, Jun. 16, 1980, 80 13299
Int. Cl.^{3} F01P *5/02*
U.S. Cl. 123—41.12 **18 Claims**



1. A device for controlling ventilating means of a radiator of an internal combustion engine comprising a temperature sensor placed in contact with a heat-carrying fluid circulating in said engine and control means responsive to said sensor for supplying power to motor means drivingly connected to the ventilating means as a function of variations in the temperature of the heat-carrying fluid, said temperature sensor comprising a component including a thermistor sensitive to a continuous range of temperatures and a continuous regulating loop for regulating the power supplied to said motor means, said temperature

sensitive component being connected, as an input element, to said loop, and said loop comprising a threshold circuit determining a lower value of said temperature range, and an operational amplifier which is arranged as a comparator and has an input connected to said temperature sensitive component, said operational amplifier being moreover provided with a negative feedback circuit having a negative feedback level which is defined by a fixed reference voltage which determines a threshold beyond which said loop effects the temperature regulation.

4,378,761

FUEL SUPPLY SYSTEM FOR A MULTI-CYLINDER INTERNAL COMBUSTION ENGINE

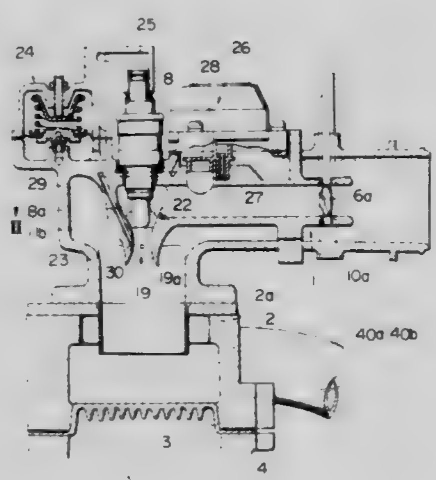
Yoshihisa Kawamura, Fujisawa, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Oct. 29, 1979, Ser. No. 89,266

Claims priority, application Japan, Nov. 1, 1978, 53-135031

Int. Cl.³ F02B *19/10, 75/18*

U.S. Cl. 123—52 M **11 Claims**



1. A fuel supply system for a single point fuel injection internal combustion engine comprising:

a primary induction air passage in an intake manifold;

a secondary induction air passage defined by partitioning the air intake manifold and positioned on at least a portion of the outer circumference of said primary induction air passage, said secondary induction air passage having an exit where it is joined with said primary induction passage, said exit facing a portion of a floor surface of a riser portion of the intake manifold;

a fuel injection valve provided in said intake manifold adjacent to said exit facing said portion of the floor section of the riser portion;

primary and secondary throttle valves provided in said primary and secondary induction air passages, respectively; and

a linking mechanism cooperatively connecting said primary and secondary throttle valves for controlling the rate of opening of said secondary throttle valve in comparison with that of the primary throttle valve is smaller in the region of a low load on the engine than the rate of opening of said secondary throttle valve as compared to that of said primary throttle valve in the region of a high load on the engine.

4,378,762

TWO-STROKE INTERNAL COMBUSTION ENGINE AND METHOD OF OPERATION THEREOF

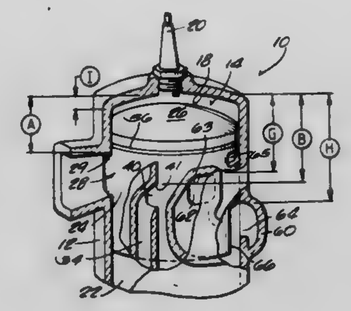
Josef Ehrlich, Ashridge Near Berkhempsted, England, assignor to Outboard Marine Corporation, Waukegan, Ill.

Division of Ser. No. 184,487, Sep. 5, 1980, Pat. No. 4,340,016. This application May 10, 1982, Ser. No. 376,738

Claims priority, application United Kingdom, Aug. 29, 1980, 8027983

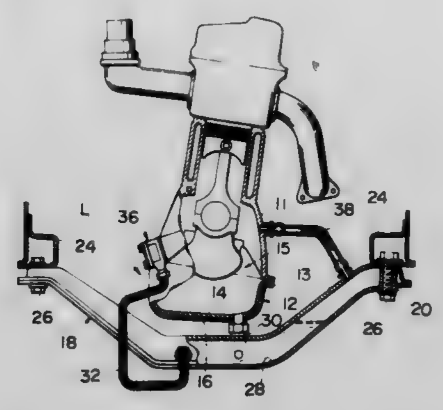
Int. Cl.³ F07B *33/04*

U.S. Cl. 123—73 PP **8 Claims**



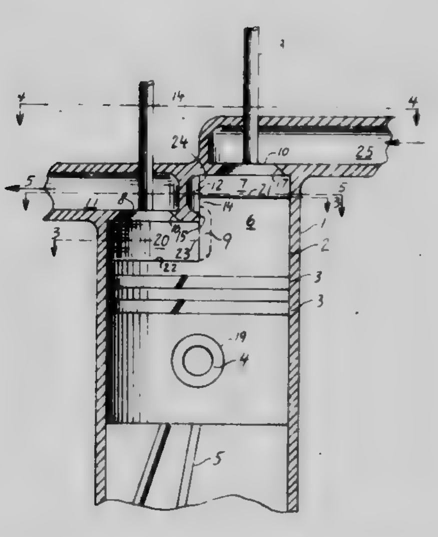
3. A two-stroke internal combustion engine including a cylinder, a crankcase extending from said cylinder, a piston movable relative to said cylinder between top dead center and bottom dead center positions and relative to first, second, third, fourth, and fifth positions respectively spaced from said top dead center position at respectively greater distances, whereby said cylinder and said crankcase are subject to cyclical conditions at relatively low and high pressure, a first transfer passage communicable with said cylinder in response to piston travel and with said crankcase in response to piston travel, a second transfer passage communicating with said crankcase and communicable with said cylinder in response to piston travel, means for supplying a fuel-air mixture to said crankcase when said crankcase is subject to low pressure, means for igniting said fuel-air mixture within said cylinder when said piston is located generally adjacent to said top dead center position, thereby creating within said cylinder above said piston high pressure ignition gases, means for isolating said first transfer passage from said crankcase while establishing communication between said first transfer passage and said cylinder during piston travel from said first position to said second position and during the presence of high pressure ignition gases within said cylinder, whereby the high pressure ignition gases are introduced into said first transfer passage, means for maintaining the isolation between said crankcase and said first transfer passage and the communication between said cylinder and said first transfer passage during piston travel from said second position to said third position and during conditions of low pressure in said cylinder, whereby the high pressure ignition gases supplied to said first transfer passage flow into said cylinder, means for establishing communication between said second transfer passage and said cylinder when said crankcase is subject to high pressure and during piston travel between said fourth position and said bottom dead center position, whereby the fuel-air mixture flows from said crankcase into said cylinder through said second transfer passage, and means for establishing communication between said first transfer passage and said crankcase when said crankcase is subject to high pressure and during piston movement between said fifth position and said bottom dead center position, whereby the fuel-air mixture flows from said crankcase into said cylinder through said first transfer passage in addition to the flow of fuel-air mixture into said cylinder through said second transfer passage.

4,378,763
LUBRICATING SYSTEM FOR INTERNAL COMBUSTION ENGINE
Masao Ishihama, Yokosuka, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan
Filed Aug. 14, 1980, Ser. No. 178,059
Claims priority, application Japan, Aug. 17, 1979, 54-104766
Int. Cl.³ F01M ***1/00***
U.S. Cl. 123—196 R **9 Claims**



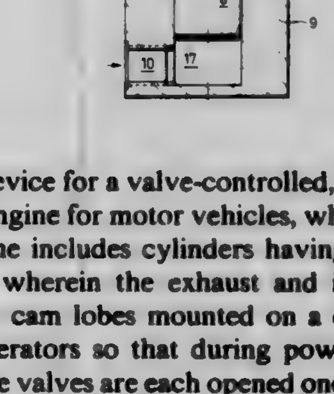
1. A lubricating system for the internal combustion engine of an automotive vehicle, said engine having a cylinder block defining a crankcase and being provided with an oil pump, said system comprising:
a crankcase cover sealingly secured to the bottom surface of the cylinder block, said crankcase cover cooperating with said cylinder block to define a first chamber, said crankcase cover being constructed and arranged to absorb vibration;
a vehicle body frame member spaced from said engine and said crankcase cover, said frame member defining a second chamber;
a first flexible conduit for establishing a fluid connection between said first and second chambers whereby oil in said first chamber may drain into said second chamber; and
a second flexible conduit for establishing a fluid connection between said second chamber and said oil pump.

4,378,764
PISTON AND COMBUSTION CHAMBER WITH IMPROVED FUEL CIRCULATION
Adam A. Jorgensen, 1911 NW. 36 St., Oakland Park, Fla. 33309
Filed Nov. 27, 1981, Ser. No. 325,141
Int. Cl.³ F02F ***3/24***
U.S. Cl. 123—307 **15 Claims**



1. In an internal combustion engine comprising at least one cylinder with a combustion chamber, a piston disposed coaxially, slidably, reciprocally movable between an upper and lower dead center position inside said cylinder, said piston having generally horizontal upper surfaces, said cylinder having an intake port and an exhaust port, means for opening and closing said ports in a timed relationship with the movement of said piston, means for delivery of fuel and air to said cylinder, means for igniting fuel and air combined in said cylinder, means for transfer of energy produced from the expansion of hot gasses resulting from the combustion of said combination of fuel and air, from said piston to an external recipient of said energy, the improvement further comprising:
a first combustion chamber section defined by part of the upper surface of said piston, and the top of the cylinder walls;
a second combustion chamber section defined by the walls and the top of said cylinder, and the upper surface of a piston extension;
said piston extension coordinated with said second combustion chamber section such that said piston extension is slidably received inside said second combustion chamber section, and such that gas captured inside said second combustion chamber section is compressed, and wherein said piston extension and said second combustion chamber section have coordinated air passages such disposed that during the last part of the piston's upward movement, said air passages become partially overlapping, thereby providing a common passage for the gas contained in compressed condition in said second combustion chamber section to said first combustion chamber section, such that the gas contained therein can escape, thereby imparting to the gas in said first combustion chamber section an agitated swirling motion.

4,378,765
BRAKING DEVICE FOR A VALVE CONTROLLED INTERNAL COMBUSTION ENGINE
Hubert Abermeth; Andreas Deckert, both of Cologne; Helmut Müller, Bensberg, and Jürgen Wahnschaffe, Bergisch Gladbach, all of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz Aktiengesellschaft, Cologne, Fed. Rep. of Germany
Filed Jan. 28, 1981, Ser. No. 229,124
Claims priority, application Fed. Rep. of Germany, Feb. 1, 1980, 3003566
Int. Cl.³ F02D ***13/04***
U.S. Cl. 123—321 **5 Claims**



1. A braking device for a valve-controlled, four-cycle, internal combustion engine for motor vehicles, wherein the internal combustion engine includes cylinders having exhaust and intake valves and wherein the exhaust and intake valves are opened by single cam lobes mounted on a cam shaft, which engage valve operators so that during power operation, the exhaust and intake valves are each opened once during each set of four cycles, the braking device comprising:
a bore extending through the cam shaft;
an operating shaft received within said bore for reciproca-

tion therein, the operating shaft having a reduced diameter portion and an enlarged diameter portion thereon;

a hole through the cam shaft positioned 160° to 200° ahead of the lobe on the cam shaft in the direction of rotation of the cam shaft;

a supplemental cam positioned within the hole and being in engagement with the operating shaft that is within the cam shaft;

means for aligning the reduced diameter portion of the operating shaft with the supplemental cam during power operating of the engine;

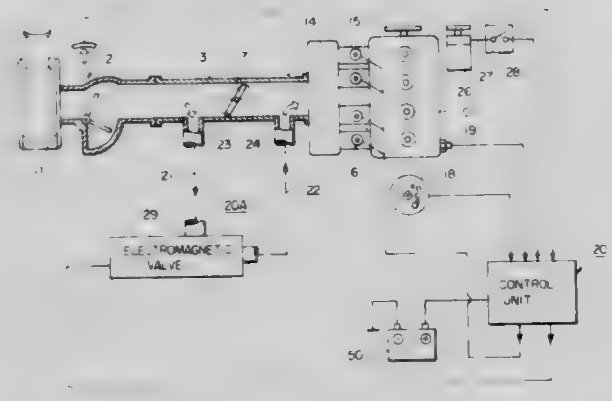
means for moving the operating shaft in the cam shaft to a position where the enlarged diameter portion engages the supplemental cam to project the supplemental cam a sufficient distance beyond the cam shaft to engage the valve operator to open the exhaust valve during braking operation of the engine, whereby air compressed within the cylinder is released through the exhaust valve during what would have been the power cycle of the engine.

4,378,766

CLOSED LOOP IDLE ENGINE SPEED CONTROL WITH A VALVE OPERATING RELATIVE TO NEUTRAL POSITION

Hisamitsu Yamazoe, Kariya; Ichita Sogabe, Gifu; Kazuyoshi Tamaki, Nagoya, and Matsuju Yoshida, Bisai, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Feb. 20, 1981, Ser. No. 236,627
Claims priority, application Japan, Feb. 22, 1980, 55-21765
Int. Cl.³ F02M *51/06;* F02D *11/10, 1/04;* B05B *1/30*
U.S. Cl. 123—339 9 Claims



1. A method for controlling the idle speed of an internal combustion engine by supplying thereto an auxiliary air flow through an auxiliary air delivery system including an electromagnetic valve, said valve comprising a valve member movable with respect to a valve seat, said valve member being normally located at a neutral position between two positions at which said air flow is at maximum and minimum respectively, said valve member being spaced a sufficient distance from said valve seat when located at said neutral position to prevent vapor-laden air from clogging the space between said valve member and said valve seat when the vapor is frozen, the method comprising:

(a) detecting the actual idle speed of said engine;

(b) establishing a reference idle speed;

(c) deriving a deviation signal representing the deviation of said actual idle speed with respect to said reference idle speed;

(d) deriving a valve control signal from said deviation signal;

(e) detecting whether said valve control signal is more or less than a predetermined value corresponding to said neutral position;

(f) moving said valve member in a first direction away from said neutral position when said valve control signal is more than said predetermined value to increase the auxiliary air flow and moving said valve member in a second, opposite direction away from said neutral position when said valve control signal is less than said predetermined value to decrease the auxiliary air flow; and

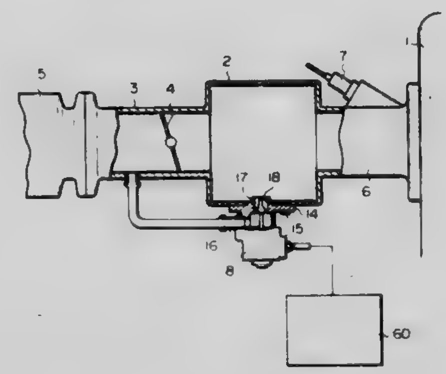
(g) moving said valve member forcibly to said neutral position when said electromagnetic valve is de-energized.

4,378,767

IDLING SPEED CONTROL DEVICE OF AN INTERNAL COMBUSTION ENGINE

Mamoru Kobashi, Aichi; Shinichiro Tanaka, Toyota, and Hiroshi Ito, Nagoya, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Mar. 2, 1981, Ser. No. 239,644
Claims priority, application Japan, Sep. 16, 1980, 55-127091
Int. Cl.³ F02B *3/00*
U.S. Cl. 123—339 13 Claims



1. An idling speed control device of an internal combustion engine having an intake passage and a throttle valve arranged in the intake passage, said device comprising:

a bypass passage interconnecting the intake passage located upstream of the throttle valve to the intake passage located downstream of the throttle valve;

valve means arranged in said bypass passage and having a control valve controlling a flow area of said bypass passage;

a step motor for controlling the amount of air flowing within said bypass passage in accordance with a change in the operating condition of the engine at the time of idling, said step motor comprising a motor housing, a stator stationarily arranged in said motor housing, and a rotor rotatably arranged in said motor housing;

a valve shaft axially movable in said motor housing and actuated by said rotor, said control valve being fixed onto said valve shaft, said rotor being rotatably mounted on said valve shaft; and

transforming means, including said rotor and operatively coupling said rotor and said valve shaft, for transforming the rotation motion of said rotor to the axial movement of said valve shaft.

4,378,768

METHOD OF AND APPARATUS FOR CONTROLLING THE IDLING SPEED OF AN ENGINE

Hiroshi Itoh, Nagoya, and Mamoru Kobashi, Aichi, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Jul. 24, 1981, Ser. No. 286,713
Claims priority, application Japan, Jan. 23, 1981, 56-8145
Int. Cl.³ F02D *11/10;* F02M *17/00*
U.S. Cl. 123—339 4 Claims

1. Apparatus for controlling the idling speed of an engine, said engine including a main intake passage having a throttle valve disposed therein, the apparatus comprising:

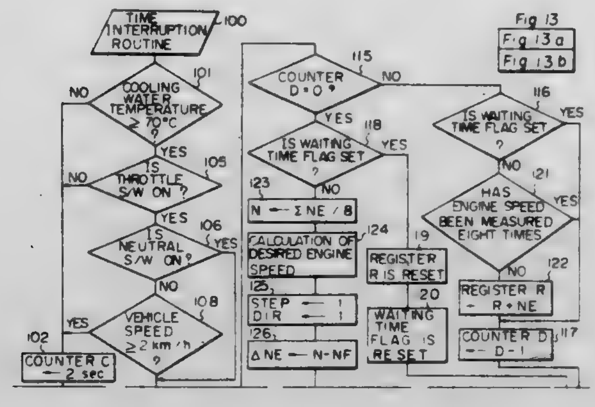
a bypass passage having first and second ends connected to the main intake passage upstream and downstream of the throttle valve, respectively;

means for controlling the amount of air passing through the bypass passage;

means for measuring the actual idling speed of the engine;

means for calculating the speed difference between said actual idling speed and a predetermined desired speed,

said calculating means calculating said speed difference after a predetermined waiting time has elapsed since the previous calculation, said waiting time being increased when said measuring means initially measures said actual



idling speed after the operating condition of the engine is changed to an idling operating condition; and

means for adjusting the controlling means to cause actual idling speed to approach the desired speed only when speed difference exceeds a predetermined value.

4,378,769

DIGITAL IGNITION CONTROL FOR A MAGNETOPOWERED IGNITION SYSTEM OF AN INTERNAL COMBUSTION ENGINE

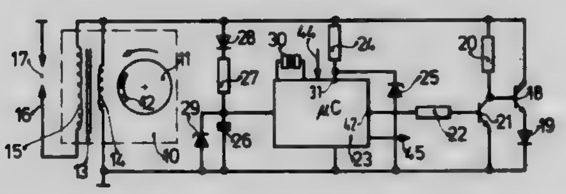
Georg Haubner, Berg; Jürgen Wesemeyer, Nuremberg; Werner Meier, Rednitzhembach, and Hans Schrumpf, Oberasbach, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 18, 1981, Ser. No. 235,758

Claims priority, application Fed. Rep. of Germany, Feb. 20, 1980, 3006288

Int. Cl.³ F02P *1/00, 3/02, 5/04*

U.S. Cl. 123—416 **11 Claims**



1. In an ignition system for an internal combustion engine having a magneto generator driven by said engine for powering and timing ignition for said engine, said magneto generator having an AC voltage wave output of a repetition rate corresponding to the engine speed, and means for creating a spark in response to a spark initiation signal: apparatus for creating said spark initiation signal comprising

means (32) connected to said output of said magneto generator for deriving a reference signal at a predetermined point in each repetition of said AC voltage wave;

means (36,41) furnishing clock signals;

digital speed counter means (35) for counting said clock pulses from receipt of a speed counter activating signal until receipt of a speed counter stop signal;

storage means (38) for storing a plurality of constants each signifying a desired timing advance at a given motor speed;

digital timing counter means (40) connected for activation in response to each reference signal produced by said reference signal deriving means, and

digital control means (33) connected to said digital speed counter means, said storage means, and said digital timing counter means for furnishing said speed counter activating and stop signals in response to selected ones of said reference signals so that the count on said digital speed counter means upon receipt of said speed counter stop signal constitutes a motor speed specifying signal, addressing said storage means with said motor speed specifying signal, thereby reading out a count value indicative of said desired timing advance at said then present motor speed, furnishing said timing advance count value to said digital timing counter means for entry at the times of its activation by said reference signals, and furnishing said spark initiating signal when said timing counter means reaches a count indicative of the end of a time interval corresponding to said count value.

4,378,770

METHOD AND APPARATUS FOR IGNITION SYSTEM SPARK TIMING CONTROL DURING ENGINE CRANKING

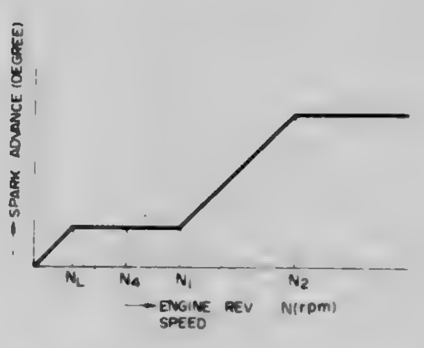
Kenji Ikeura, Yokosuka, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Continuation of Ser. No. 137,001, Apr. 3, 1980, abandoned. This application Jun. 10, 1982, Ser. No. 387,277

Claims priority, application Japan, Apr. 16, 1979, 54-45323

Int. Cl.³ F02P *5/04*

U.S. Cl. 123—424 **14 Claims**



1. A method for the control of an ignition system spark timing for a spark ignition internal combustion engine having an idle speed, said method comprising the steps of:

detecting a cranking condition wherein the engine is under cranking and generating a cranking condition signal indicative of the cranking condition;

detecting cranking speed of the engine and generating a cranking speed signal indicative of the cranking speed; and

decreasing, in response to the cranking condition signal and the cranking speed signal, the value of spark advance in accordance with a drop in the detected cranking speed of the engine when the engine is under cranking and at the same time the detected cranking speed is lower than a predetermined value which is lower than the idle speed.

5. An apparatus for the control of an ignition system for a spark ignition internal combustion engine having an idle speed, said apparatus comprising:

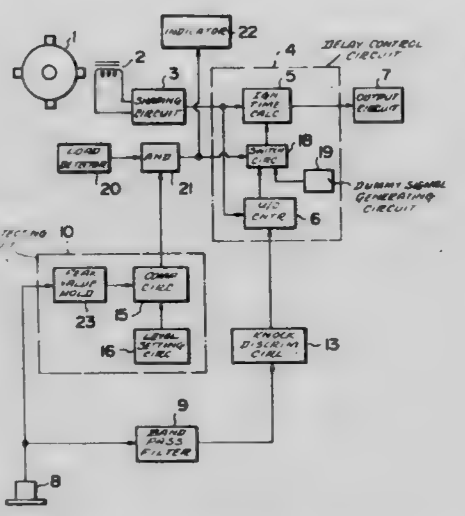
an engine cranking sensor for detecting a cranking condition wherein the engine is under cranking and generating a cranking condition signal indicative of the cranking condition;

an engine revolution speed sensor for detecting cranking speed of the engine and generating a cranking speed signal indicative of the cranking speed of the engine; and

correction means, in response to the cranking condition signal and the cranking speed signal, for decreasing the value of spark advance in accordance with a drop in the detected cranking speed of the engine when the engine is under cranking and at the same time the detected cranking speed is lower than a predetermined value which is lower than the idle speed.

4,378,771
SYSTEM FOR CONTROLLING IGNITION TIMING IN AN ENGINE

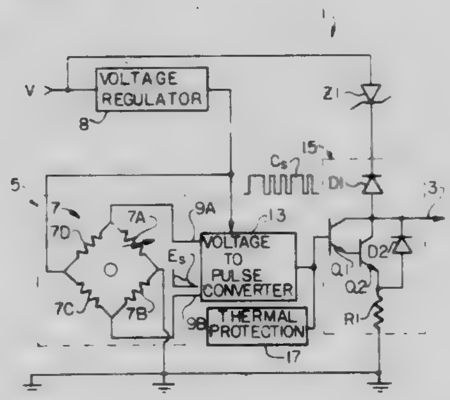
Daisaku Sawada; Takashi Shigematsu, and Yuji Takeda, all of Shizuoka, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan
Division of Ser. No. 42,343, May 25, 1979, Pat. No. 4,320,729. This application Jun. 16, 1981, Ser. No. 274,075
Claims priority, application Japan, May 26, 1978, 53-63568
Int. Cl.³ F02P *5/14*
U.S. Cl. 123—425 **15 Claims**



1. A system for controlling ignition timing of an engine comprising:
- means for generating an operation signal related to an operating condition of said engine;
- means for generating a knocking signal related to knocking in said engine;
- means for controlling said ignition timing in response to said operation signal and said knocking signal;
- means for determining a peak value of said knocking signal;
- means for generating a fault signal when said peak value is beyond a predetermined threshold;
- means for generating a dummy signal, said dummy having the effect of retarding said ignition timing to a timing at which knocking is unlikely to occur when said dummy signal is applied to said controlling means; and
- means for substituting said dummy signal for said knocking signal to said controlling means in response to said fault signal.

4,378,772
OPEN LOOP ELECTRONIC CIRCUIT FOR ALTITUDE COMPENSATION

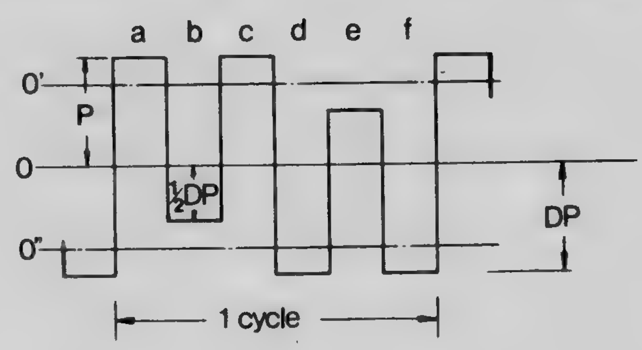
Paul M. Meyer, East Alton, Ill., assignor to ACF Industries, Inc., New York, N.Y.
Filed Jun. 26, 1981, Ser. No. 278,298
Int. Cl.³ F02M *7/12*
U.S. Cl. 123—438 **2 Claims**



1. An open loop electronic circuit for altitude compensation of a carburetor installed on an internal combustion engine, the carburetor having an associated solenoid controlling auxiliary air bled into the fuel circuits of the carburetor thereby to control the air-fuel ratio of the mixture produced by the carburetor, the circuit comprising a bridge circuit having a variable resistant element which includes a strain gage the resistance of which changes as a function of altitude, the bridge circuit producing an electrical signal the amplitude of which changes in response to changes in air density; means responsive to the electrical signal for generating a variable pulse width control signal which is supplied to the solenoid, the signal response means operating in the range of 10–100 Hz and varying the pulse width of the control signal in response to amplitude changes in the electrical signal, the signal responsive means being calibrated to generate a control signal having a zero percent duty cycle at sea level and an increasing duty cycle at increasing altitude above sea level; and, thermal responsive means connected to the output of the signal responsive means, the thermal responsive means changing the pulse width of the control signal produced by the signal responsive means if the engine is operating at colder temperature conditions than for which the circuit is otherwise calibrated, the thermal responsive means affecting the control signal for the carburetor to produce a richer air-fuel mixture than what otherwise be produced thereby making it easier to start and operate the engine.

4,378,773
CONTROL SYSTEM

Masaaki Ohgami, Musashino, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 1, 1980, Ser. No. 174,385
Claims priority, application Japan, Aug. 2, 1979, 54-98853
Int. Cl.³ F02B *33/00;* **F02M** *7/00*
U.S. Cl. 123—440 **24 Claims**



1. A feedback control system comprising
- a dither signal generating circuit means for producing a periodical dither signal having a pattern of pulses having a period which comprises a plurality of alternating positive excursions and negative excursions,
- at least one of said positive excursions being lower than another of said positive excursions and at least one of said negative excursions being shallower than another of said negative excursions, said dither signal defining a center line having a level,
- shift control circuit means for shifting the level of the center line of said dither signal so as to provide a shifted dither signal from time to time,
- driving circuit means operatively connected to said shift control circuit means for producing a driving output depending on said dither signal,
- actuator means operatively connected to said driving output for producing a controlled output,
- output means including detecting means for sensing the controlled output and, means for distinguishing higher values of said controlled output from lower values of said controlled output, and providing an output signal, said higher values being higher than a desired value, said lower values being lower than said desired value,
- comparing circuit means for comparing said output signal with reference pulses having the same period as that of

corresponding of said pulses of said dither signal and for producing a control signal corresponding to said dither signal but said control signal omitting corresponding portions of the dither signal from time to time dependent on said output signal,

a shift signal generating circuit means for producing a shift signal dependent on said control signal for shifting the level of said center line of said dither signal from time to time via said shift control circuit means.

4,378,774

FUEL INJECTION SYSTEM FOR INTERNAL COMBUSTION ENGINES

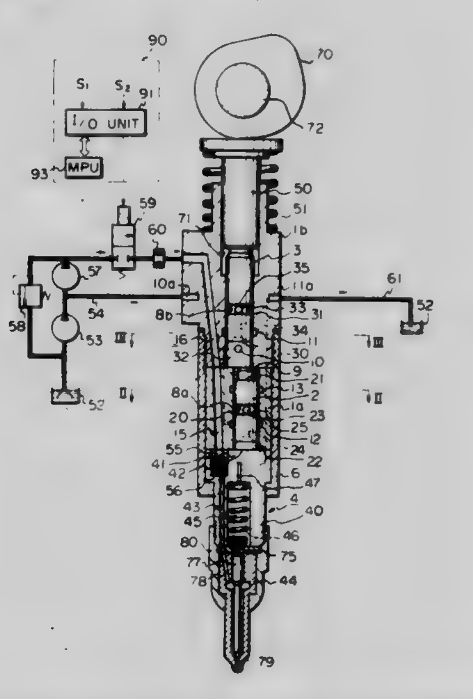
Masaaki Kato, Kariya, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Apr. 8, 1981, Ser. No. 252,196

Claims priority, application Japan, Apr. 14, 1980, 55-49494

Int. Cl.[3] F02M *39/00*

U.S. Cl. 123—446 **5 Claims**



1. A fuel injection system for an internal combustion engine, comprising a substantially cylindrical injector body having a delivery cylinder which has a first cylinder bore and an injection cylinder which has a second cylinder bore connected to and deviated from said first cylinder bore, a delivery plunger which is slidably fitted in said first cylinder bore and which defines a delivery pump chamber in the delivery cylinder, an injection plunger which is slidably fitted in said second cylinder bore of the injection cylinder and which defines an injection pump chamber in the injection cylinder, said injection plunger being displaced by the fuel fed into the injection pump chamber, through a stroke in proportion to the amount of the fed fuel, fuel passage means for feeding the fuel into the injection pump chamber, and nozzle means for injecting the fuel delivered by the injection pump chamber, said injection plunger being moved under the pressure which occurs in the delivery pump chamber due to the displacement of the delivery plunger to deliver the fuel in the injection pump chamber into the nozzle means.

4,378,775

METHOD AND APPARATUS FOR FUEL INJECTION IN INTERNAL COMBUSTION ENGINES IN PARTICULAR DIESEL ENGINES

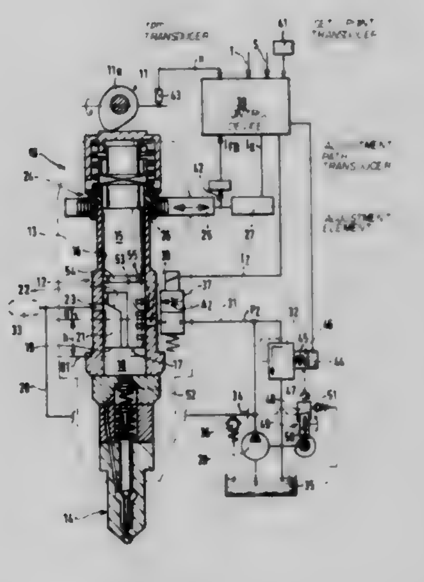
Max Straubel, Stuttgart; Hermann Eisele; Klaus-Dieter Zimmermann, both of Vaihingen, and Wilhelm Vogel, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jun. 25, 1981, Ser. No. 277,426

Claims priority, application Fed. Rep. of Germany, Jul. 1, 1980, 3024886; May 12, 1981, 3118669

Int. Cl.[3] F02M *39/00*

U.S. Cl. 123—458 **29 Claims**



11. An apparatus for regulating fuel injection in an internal combustion engine having a fuel supply pump which provides an inlet pressure, in particular a Diesel engine, having a piston injection pump which includes:

a piston;

a pump work chamber;

an adjusting device connected to the piston injection pump to alter the end of a piston supply stroke;

a diversion opening in the wall of the piston injection pump;

a control face on the piston which controls the diversion opening;

an inlet line provided with an inlet valve;

a pressure regulating valve connected to regulate the inlet pressure;

wherein the inlet valve is a magnetic inlet valve and is connected to the pump work chamber to regulate a fuel quantity which is prestored in the pump work chamber; the piston injection pump also including:

an electromechanical adjusting element connected to actuate the adjusting device;

a pulse generating means which is connected to generate a control pulse to the electromechanical adjusting element to alter the piston position;

a set-point transducer which generates set-point information to the adjusting device;

an adjustment-path transducer which generates adjustment path information to the adjusting device;

an electrical control device connected to generate a signal to the electromechanical adjusting element such that the electromechanical adjusting element is dependent on the electrical control device, and wherein the electrical control device is connected to the set-point transducer to receive the set-point information and to the adjustment path transducer to receive the adjustment path information, and wherein the electrical control device is also connected to generate a metering pulse to the magnetic inlet valve to determine duration of the magnetic valve opening.

4,378,776

INTERNAL COMBUSTION ENGINE HAVING EXHAUST GAS RECIRCULATION SYSTEM

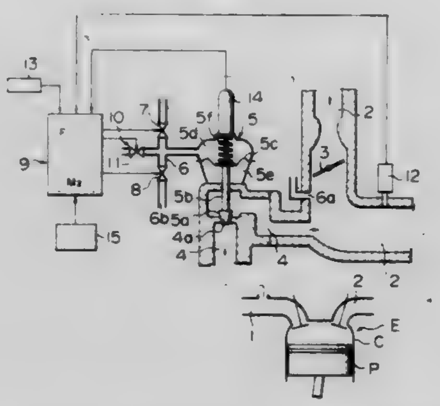
Takayoshi Nishimori, Hiroshima, Japan, assignor to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Aug. 24, 1981, Ser. No. 295,519

Claims priority, application Japan, Aug. 25, 1980, 55-117462

Int. Cl.³ F02M ***25/06***

U.S. Cl. 123—571 **5 Claims**



1. An internal combustion engine comprising an exhaust system for passing exhaust gas from combustion chamber means, an intake system leading to said combustion chamber means to provide a supply of intake gas thereto, an exhaust gas recirculation system having exhaust gas recirculation passage means for returning certain amount of exhaust gas to said intake system, recirculation valve means provided in said recirculation passage means, said recirculation valve means including valve member means of which position can be changed to vary the amount of exhaust gas which is to be returned to the intake system, engine load sensing means for detecting engine load and producing an engine load signal, engine speed sensing means for detecting engine speed and producing an engine speed signal, valve member position sensing means for detecting the position of the valve member means in the recirculation valve means, memory means storing memories of desired positions of the valve member means under various combinations of values of the engine load and the engine speed, control means for controlling the recirculation valve means in accordance with the load and engine speed signals so that the actual position of the valve member means conforms with the desired position under the detected engine load and speed, means for closing said recirculation passage means, said control means including means for actuating said closing means when the actual position of the valve member means does not conform with the desired position within a predetermined time.

4,378,777

INTERNAL COMBUSTION ENGINE HAVING EXHAUST GAS RECIRCULATION SYSTEM

Katsuyoshi Iida; Yoshikuni Yada, and Kathumi Okazaki, all of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

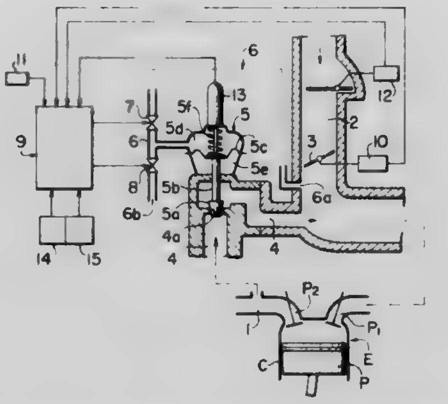
Filed Aug. 26, 1981, Ser. No. 296,539

Claims priority, application Japan, Aug. 27, 1980, 55-118767

Int. Cl.³ F02M ***25/06***

U.S. Cl. 123—571 **3 Claims**

1. An internal combustion engine comprising an exhaust system for passing exhaust gas from combustion chamber means, an intake system leading to said combustion chamber means to provide a supply of intake gas thereto, an exhaust gas recirculation system having exhaust gas recirculation passage means for returning a certain amount of exhaust gas to said intake system, recirculation valve means provided in said recirculation passage means, said recirculation valve means including valve member means of which position can be changed to vary the amount of exhaust gas which is to be returned to the intake system, engine load sensing means for detecting engine load and producing an engine load signal, engine speed sensing means for detecting engine speed and producing an engine speed signal, valve member position sensing means for detecting the position of the valve member means in the circulation valve means, first memory means storing memories of desired positions of the valve member means under various combinations of values of the engine load and the engine speed, control means for controlling the circulation valve means in accordance with the load and engine speed signals so that the actual position of the valve member means conforms with the desired position under the detected engine load and speed, second



memory means storing memories of desired values of intake gas flow under various combinations of values of the engine load and engine speed, intake flow sensing means for detecting actual intake gas flow and producing an intake flow signal, said control means further including means for controlling the circulation valve means so that the valve member means is moved beyond the desired position when the actual intake gas flow is greater than the desired value so as to compensate for a decrease in the recirculated exhaust gas.

4,378,778

IGNITION SYSTEM FOR INTERNAL COMBUSTION ENGINES

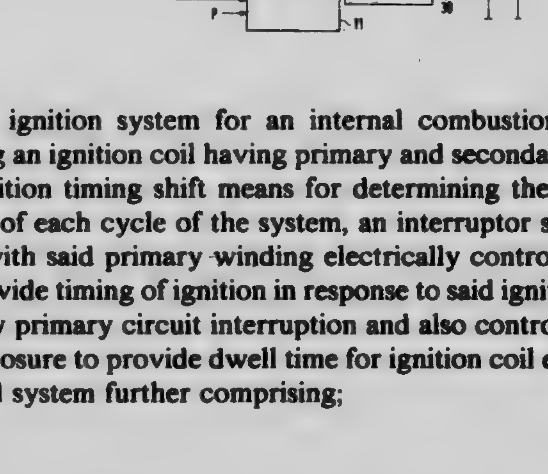
Werner Harter, Hummelberg, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 31, 1981, Ser. No. 297,612

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1980, 3034440

Int. Cl.³ F02P ***5/04***

U.S. Cl. 123—609 **11 Claims**



1. An ignition system for an internal combustion engine including an ignition coil having primary and secondary windings, ignition timing shift means for determining the ignition moment of each cycle of the system, an interruptor switch in circuit with said primary winding electrically controllable so as to provide timing of ignition in response to said ignition shift means by primary circuit interruption and also controllable in circuit closure to provide dwell time for ignition coil energization, said system further comprising;

a generator of engine rotation increment signals including a rotary device driven by said engine;

means for counting the number of said increment signals during the initial fraction (βt) of dwell time in which the current in said primary winding builds up to a predetermined value (Io) and for storing said number;

means (16, 17) for deriving from said number a larger number of increment signals determining a first approximation of the full dwell time;

means (18) for correcting the output of said number deriving means by the ratio of the duration of the increment signal from said generator appearing at a predetermined point of the cycle of operation of the system to the duration of the most recent increment signal from said generator, and

means responsive to the corrected derived number provided by said deriving and correcting means to determine the beginning of dwell time.

4,378,779

IGNITION SYSTEM FOR INTERNAL COMBUSTION ENGINES

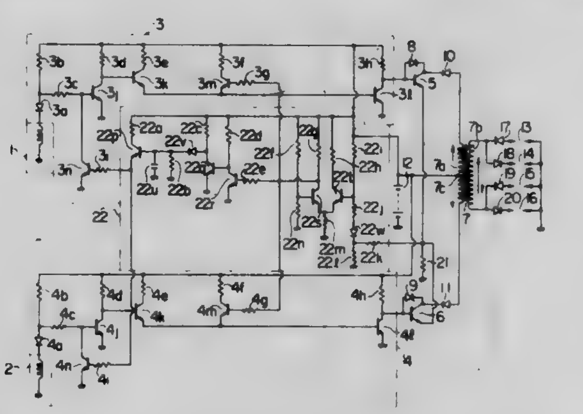
Takasi Hachiga, Kariya, and Yasuo Taguchi, Yokohama, both of Japan, assignors to Nippondenso Co., Ltd., Kariya and Toshiba Corporation, Kawasaki, both of, Japan

Filed Jul. 28, 1980, Ser. No. 173,895

Claims priority, application Japan, Jul. 27, 1979, 54-96509

Int. Cl.^{3} F02P *1/00*

U.S. Cl. 123—644 **4 Claims**



1. An ignition system for an internal combustion engine comprising:

an ignition coil including a primary winding divided into two parts by a center terminal connected to one end of a power source and a secondary winding;

a first pair of spark plugs connected in parallel with one end of said secondary winding of said ignition coil;

a second pair of spark plugs connected in parallel with the other end of said secondary winding;

a high-tension diode connected between each of said spark plugs and said ignition coil secondary winding with a polarity such that a positive-going output and a negative-going output generated in said secondary winding are distributed to said spark plugs;

a pair of power transistors having collectors thereof respectively connected to one and the other ends of said primary winding of said ignition coil and also having emitters thereof connected to each other;

a primary current detecting resistor connected between said interconnected emitters and the other end of said power source;

a current control circuit responsive to a primary current detected by said primary current detecting resistor to control said power transistors so as to feedback control said primary current; and

ignition signal generating means for generating ignition signals so as to turn off said power transistors at different ignition times.

4,378,780

ARROW REST FOR ARCHERY BOW

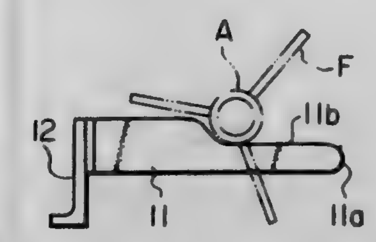
Tadao Izuta, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Japan

Continuation of Ser. No. 768,860, Feb. 15, 1977, abandoned. This application Nov. 16, 1978, Ser. No. 961,248

Claims priority, application Japan, Feb. 24, 1976, 51/21011

Int. Cl.^{3} F41B *5/00*

U.S. Cl. 124—24 R **4 Claims**



1. An archery bow for use with an arrow of the type which includes a cylindrical shaft having a nock formed on one end thereof and a plurality of fletchings spaced 120° apart about the periphery of said shaft, said archery bow comprising:

(a) an archery bow having a sight window formed therein, said sight window including a generally horizontal bottom wall and a generally vertical side wall; and

(b) an improved arrow rest, comprising:

(1) an elongated body having a free end and being flexible in a direction parallel to said generally horizontal bottom wall;

(2) support means coupled to said elongated body at a point spaced from said free end; said support means supporting said elongated body along a line extending between a first point and a second point forward of, and closer to said side wall than, said first point; said second point defining said free end of said elongated body and being sufficiently close to said side wall to ensure that when said arrow is shot by said bow with a first one of said fletchings oriented substantially perpendicular to said side wall and the remaining said fletchings contacting said side wall, a second fletching of said arrow contacts said elongated body and is biased, along with said nock, towards said side wall by the combined effect of said elongated body and said support means; said elongated body having a scooped portion therein extending from said free end towards the other end of said elongated body, said scoop portion limiting the distance which said arrow shot by said bow can move away from said generally vertical side wall.

4,378,781

ARROW LOCATING DEVICE

David C. Shiflett, 2001 Berkley, Flint, Mich. 48504

Filed Apr. 17, 1981, Ser. No. 255,162

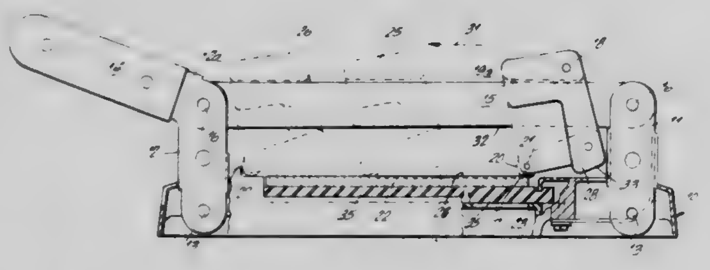
Int. Cl.^{3} F41B *5/00*

U.S. Cl. 124—24 R **8 Claims**

1. An arrow locating device for use with an archery bow

and arrow for locating the arrow after flight from a bow, the combination comprising: a hollow spool of line coiled for dispensing said line axially from internally of said spool, attaching means at one end of said spool engageable with complementary attaching means adapted to be fixed on a bow to dispose said spool with its axis generally parallel to the path of an arrow, said line having one end attachable to an arrow for pulling line from said spool upon discharge of said arrow from said bow, and second attaching means for supporting said spool on an arrow in readiness for detachment from said arrow and attachment to said bow.

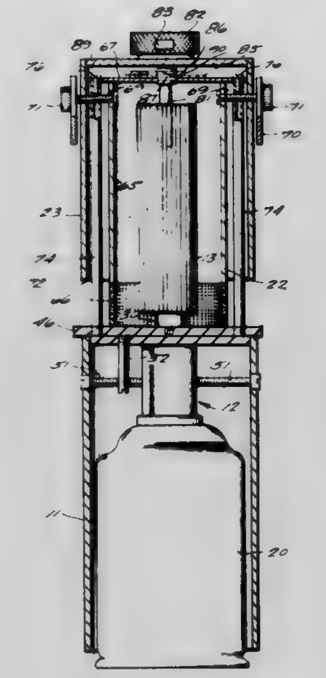
4,378,782
CERAMIC TILE CUTTER
Schotter D. Richard, Glenwood, and Robert P. Heinis, Totowa, both of N.J., assignors to Red Devil Inc., Union, N.J.
Filed May 1, 1981, Ser. No. 259,420
Int. Cl.³ B28D *1/32*
U.S. Cl. 125—23 T **7 Claims**

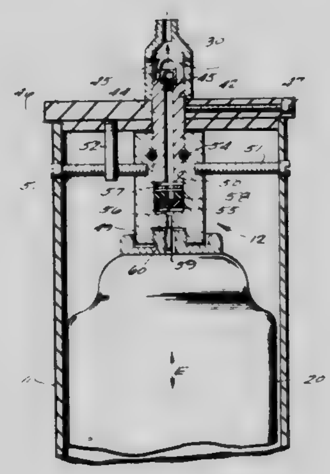


1. A tile scoring and fracturing device comprising a base, a resilient tile receiving member on said base, spaced links swingably secured to the base at opposed ends thereof and extending upwardly from said base, an elongated guide bar having a top and a bottom edge, said guide bar being freely coupled at each end to one of the free ends of the links, a tile scoring head slidably carried by the guide bar, a slot in said head to receive the bar therethrough, a top and a bottom bearing surface in said slot, a tile scoring member carried by the tile scoring head adjacent the surface of the resilient tile receiving member, tile fracturing legs on each side of the tile scoring head extending from the tile scoring head in the direction of the resilient tile receiving member, means coupled to the links to swing the said links through an arc about their base secured portion whereby the bottom edge of the guide bar acting against the bottom bearing surface of the tile scoring head slot rotates said scoring head to bring the tile fracturing legs into forcible contact with a scored tile.

4,378,783
HOT SPOT BUTANE HEATER
James B. Hunter, Newton Square, Pa., assignor to Johnson Matthey Inc., Malvern, Pa.
Filed Jul. 29, 1980, Ser. No. 173,352
Int. Cl.³ F24B *3/00*
U.S. Cl. 126—25 B **10 Claims**

1. A portable heater comprising
a combustion chamber;
a hollow casing component having an interior cross-sectional area large enough to receive a canister of combustible gas therein;
control valve means mounted within said casing component for receiving a canister of combustible gas and valving the flow of combustible gas from said canister;
means for providing the transport of combustible gas from the canister through said control valve means into said combustion chamber;
means for providing the transport of ambient air into said combustion chamber to mix with said combustible gas to effect combustion; and
said control valve means comprising: a disc of flexible material and means defining a small opening in said disc; a hollow tube actuator; a washer of rigid material disposed between said disc and said actuator; means for minimizing abrasive action as a result of relative movement between said actuator and said disc, and for facilitating a smooth tunable control of gas flow through said disc; and means for effecting movement of said actuator and rigid material washer to effect or relieve compression of said disc to





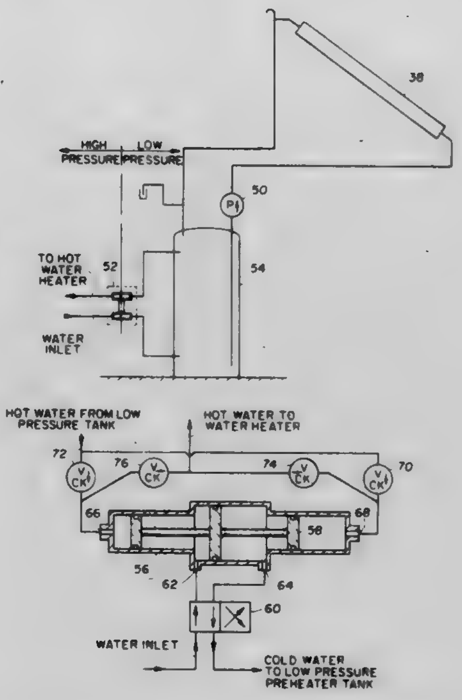
close or open, respectively, the small opening in said disc to prevent or allow, respectively, combustible gas flow therethrough, said means for effecting movement of said actuator comprising means for effecting rotation of said actuator, and means for transforming rotary movement of said actuator into linear movement thereof toward and away from said disc.

4,378,784
SOLAR HEATING SYSTEM
Arthur M. Frank, Plainview, N.Y., assignor to Grumman Aerospace Corporation, Bethpage, N.Y.
Division of Ser. No. 122,856, Feb. 20, 1982, Pat. No. 4,329,979, which is a division of Ser. No. 885,356, Mar. 13, 1976, abandoned. This application Feb. 8, 1982, Ser. No. 346,685
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—418 **2 Claims**

1. A domestic solar hot water system having a pressurized water input and output comprising:
means for reducing the input water pressure;
an insulated low pressure preheater tank with an input in fluid communication with said pressure reducing means and an output discharge conduit leading from said preheater tank;
a first pumping means between the system output and said

preheater tank output for communicating water from said preheater tank to a pressurized external hot water heater when useage requires;

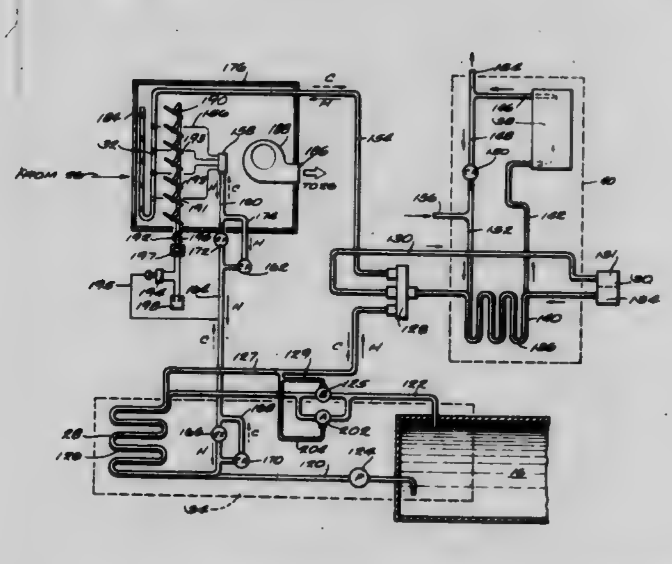
an array of interconnected solar assembly units having input and output ports, both being connected to said preheater tank;



a differential temperature controller connected between said solar array and said preheater tank, being adjustable to actuate when said array receives sufficient solar energy to heat the water therein to a temperature greater than that of the water in said preheater; and

second pumping means connected to and actuated by said differential temperature controller to pump water from said preheater through said solar array.

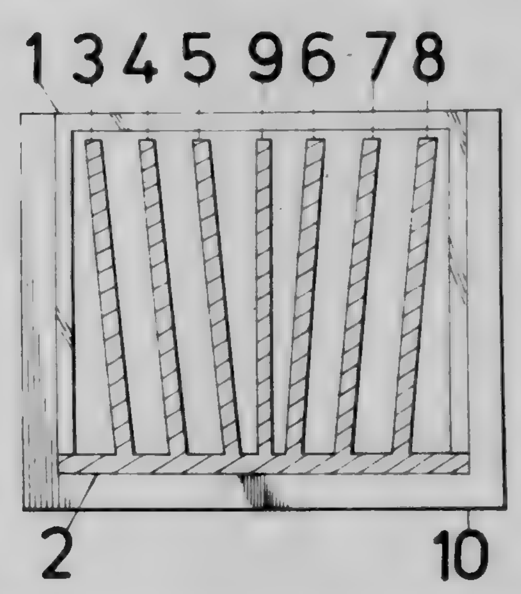
4,378,785
SOLAR HEATING SYSTEM
Dale Fleischmann, P.O. Box 321, Dorchester, Wis. 54425, and Marvin E. Blanton, 118 Wymore Rd., Winter Park, Fla. 32789
Filed May 28, 1981, Ser. No. 267,946
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—421 **8 Claims**



1. A solar heating system for a building comprising:

A. building walls defining an air space and a living space;
B. means forming at least one wall of said air space to allow sunlight to heat said air space;
C. a heat reservoir;
D. heat transfer means to transfer heat from said reservoir to said living space;
E. forced air duct means within said air space;
F. first heat pump means comprising an evaporator within said duct means to collect low grade heat from said duct, a compressor to transform said low grade heat into higher grade heat, a condenser to receive said higher grade heat, second transfer means to transfer said higher grade heat from said condenser to said heat reservoir, and a refrigerant circuit including a liquid line and a suction line to circulate a refrigerant between said evaporator, said condenser, and said compressor,
G. first damper means to regulate air flow through said duct;
H. sensing means in said suction line to detect the refrigerant pressure therein; and
I. control means operatively connecting said sensing means to said damper means to close said damper means to decrease heat transfer to said evaporator when the pressure detected by said sensing means exceeds a predetermined level, maintaining the heat pump in an efficient operating condition.

4,378,786
APARTMENT SOLAR HEATING PANEL
Joseph E. Comeau, Jr., 24-A Chestnut Sq., Foxboro, Mass. 02035
Filed Feb. 9, 1981, Ser. No. 232,910
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—429 **1 Claim**



1. A Solar Heating Panel wherein said panel can be placed in a south facing window in order to heat a room, said panel comprising;

a piece of clear plastic that will make up the front, left, right, and top sides of the panel;

a piece of aluminum that will make up the back of said panel, said back is a flat vertical sheet wherein there are at least seven fins rising vertically from the back, three fins that are the closest to said left side shall be at an angle of 80 degrees with respect to said back, another three fins that are the closest to said right side shall be at an angle of 80 degrees with respect to said back, a central degrees with respect to said back, a central fin between the three fins on the left and the three fins on the right and be at an angle of 90 degrees with respect to the back;

said fins shall be painted flat black or be black anodized aluminum so that the air that the fan is pushing across the fins will be heated;

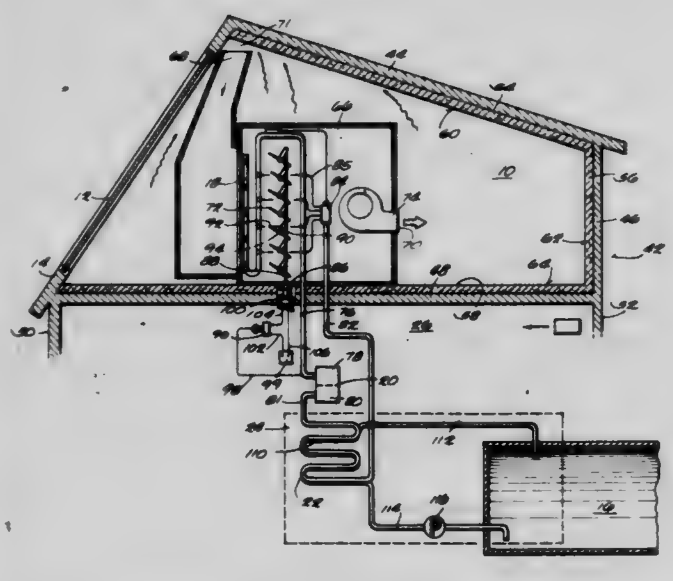
an air input opening at the top back of said panel, so that a fan will draw in the warm air near the ceiling of said room to make it even warmer;

an air output opening at the bottom back of said panel, so that the warm air will be exhausted from said panel into the cooler air near the floor of said room thereby warming said room;

a piece of aluminum that starts at the front bottom of the fins and goes from the left to the right sides, that angles down

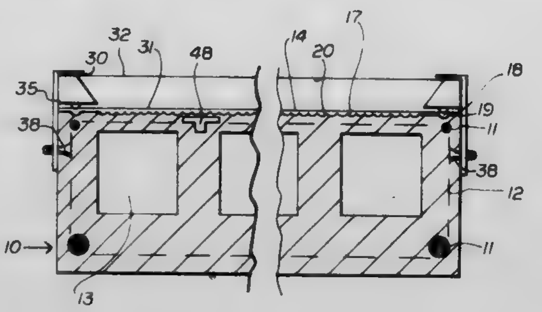
so that it will end at the bottom back of the fins to create an air deflector in said panel;
a fan having blades located just a few inches below the air input opening at the top back of said panel;
a cone type air duct that starts at all of the inside sides just below the air input duct and gets smaller as it goes down until it reaches the fan blades at which time it gets bigger until it reaches all of the inside sides just above the top of the fins of said panel;
a series of photovoltaic cells at the top front inside of said panel to provide electrical power to the fans motor;
a stand which consists of a flat plate forming the bottom of said panel to stably support panel in an upright position;
said panel shall be of an overall size that will enable one person to carry said panel.

4,378,787
SOLAR HEATING SYSTEM
Dale Fleischmann, P.O. Box 321, Dorchester, Wis. 54425
Filed May 28, 1981, Ser. No. 267,947
Int. Cl.[3] F24J *3/02*
U.S. Cl. 126—430 **11 Claims**



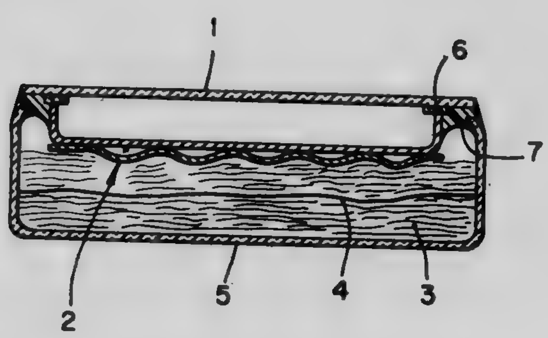
1. A solar heating system for a building comprising:
A. building walls defining an air space and a living space;
B. means forming at least one wall of said air space to allow solar energy to heat said air space;
C. a heat reservoir;
D. first heat pump means comprising a first refrigerant coil to collect relatively low grade heat from said air space, a first compressor to transform said low grade heat into relatively concentrated heat, and a second refrigerant coil to receive said relatively concentrated heat from said compressor;
E. first transfer means to transmit said relatively concentrated heat from said second refrigerant coil to said reservoir;
F. second heat pump means comprising a third refrigerant coil to collect heat from said reservoir, a second compressor to transform said heat into highly concentrated heat, and fourth refrigerant coil to receive said highly concentrated heat from said second compressor:
G. second transfer means to transmit said heat from said reservoir to said third refrigerant coil; and
H. third transfer means to transmit said highly concentrated heat from said fourth coil into said living space.

4,378,788
SHEET-FLOW CONCRETE SOLAR COLLECTOR
Albert F. Naccache, 918 Ramona, Albany, Calif. 94706
Filed May 26, 1981, Ser. No. 267,253
Int. Cl.[3] F24J *3/02*
U.S. Cl. 126—445 **15 Claims**



1. A sheet-flow type solar collector, comprising a reinforced concrete slab acting as a backing insulation and having an upper surface acting as a photothermal conversion surface, an inner glazing substantially in contact with the conversion surface, an outer glazing spaced from the inner glazing, means retaining the two glazings to the slab, the inner glazing serving to contain the flow of a heat transfer fluid along the conversion surface and the outer glazing serving to reduce convection and radiation heat losses, the conversion surface including a series of parallel grooves from the upper end of the slab to the lower end, with ridges between the grooves and with the inner glazing resting substantially on the ridges, for containing the heat transfer fluid in the grooves and under the inner glazing, means for admitting the heat transfer fluid to flow longitudinally over the conversion surface, and means for collecting heated transfer fluid from the conversion surface, the concrete slab being at least about two inches thick and of good insulation properties, the photothermal conversion surface being coated with an impermeable cermet solar selective coating having high absorptivity to light radiation and low emissivity for thermal radiation, said coating further having an exposed surface of high capillarity.

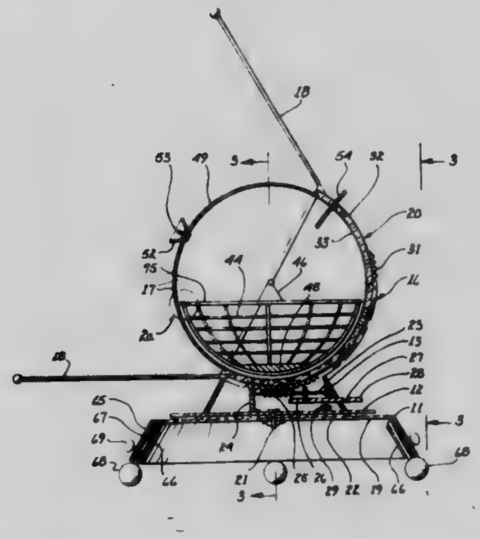
4,378,789
SOLAR HEATING UNITS
Pierre Vironneau, Chemin des Palanques, Portet-sur-Garonne 31120, France
Continuation of Ser. No. 12,128, Feb. 14, 1979, abandoned. This application Jul. 17, 1981, Ser. No. 284,524
Claims priority, application France, Feb. 16, 1978, 78 04996
Int. Cl.[3] F24J *3/02*
U.S. Cl. 126—450 **5 Claims**



1. A solar heating collector unit comprising a polygonal casing, a polygonal transparent panel closing one side of said casing, an insulation substrate disposed within the casing, a polygonal metal heat-absorbing panel having a polygonal upstanding marginal flange disposed within said casing between said insulation substrate and said transparent panel, said marginal flange extending continuously about all sides of said heat-absorbing panel and spacing said heat-absorbing panel from said transparent panel, a thermally polymerized elastomer forming a continuous polygonal peripheral joint between

said transparent panel and said upstanding marginal flange and sealing said flange to said transparent panel in fluidtight relationship and securing said panels together, an inert gas sealed in the space between said panels by said elastomer, and means defining a path for heat exchange fluid against the side of said metal panel that is opposite said transparent panel.

4,378,790
DEMOUNTABLE SOLAR OVEN
Samuel F. Erwin, P.O. Box 2209, Sedona, Ariz. 86336
Filed May 11, 1981, Ser. No. 262,565
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—451 **14 Claims**



1. A demountable solar oven comprising a supporting base, a horizontally rotatable member mounted on said base, a hollow columnar member having a circular opening disposed on said rotatable member, a pair of arms removably attached at one end to said columnar member and having their other ends projecting upwardly, a hemispherical oven chamber including a diametrically opposed first pair of pivot members on its open rim removably disposed, respectively, on said other ends, a gear mechanism supported by said columnar member, a gear member disposed on the surface of said hemispherical oven chamber and engaged with said gear mechanism, means for rotating said gear mechanism and pivoting said oven chamber about said diametrically opposed first pivots for changing the oven's solar angle, a self leveling food container including a rim removably disposed in said oven chamber, said self leveling food container comprises a second pair of pivot members on said rim inward of said hemispherical oven chamber on the same axis as said diametrically opposed pivots, and a third pair of pivot members on said food container on an axis at right angles to said second pair of pivot members.

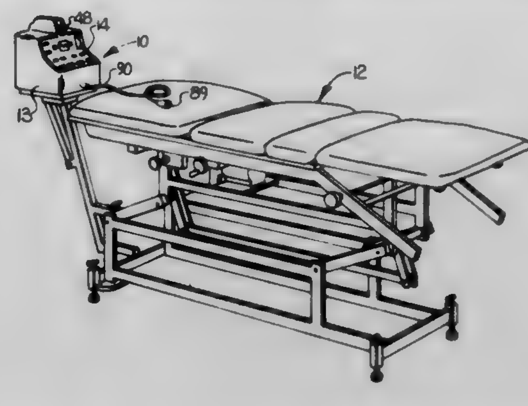
4,378,791
THERAPEUTIC TRACTION APPARATUS
Ivan D. Sarrell, Rising Fawn, Ga., assignor to Chattanooga Corporation, Chattanooga, Tenn.
Filed Sep. 5, 1980, Ser. No. 184,381
Int. Cl.³ A61F *5/00*
U.S. Cl. 128—71 **13 Claims**

1. In a therapeutic traction applying apparatus adapted to intermittently apply a traction force to the body of a patient, and comprising a rotatably mounted drum, a length of cord having one end wound upon said drum and an opposite end adapted to be affixed to a traction appliance positioned on a patient, power means for rotating said drum in either direction to thereby selectively either wind-up or wind-down the cord on said drum, and control means for cyclically reversing the direction of rotation of said drum upon predetermined minimum and maximum forces being present in said cord, the improvement wherein said control means comprises

means for continuously monitoring the tension in said cord and for generating an electrical output signal (Eo) which is linearly proportional to such tension,

first force controlling means for generating an electrical output signal (Emax) representing a desired maximum tension in said cord,

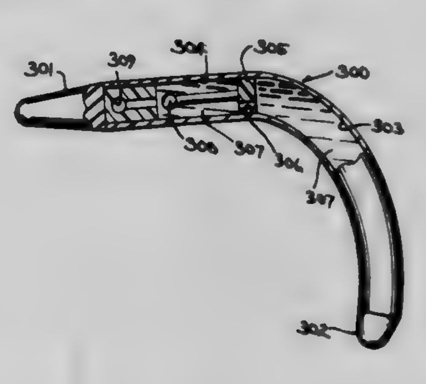
second force controlling means for generating an electrical



output signal (Emin) representing a desired minimum tension in said cord, and

comparator circuit means for cyclically connecting said power means for rotation of said drum in the wind-up direction upon Eo equaling or being less than Emin, and connecting said power means for rotation of said drum in the wind-down direction upon Eo equaling or exceeding Emax.

4,378,792
PENILE PROSTHESIS
Roy P. Finney, Tampa, Fla., assignor to Medical Engineering Corporation, Racine, Wis.
Division of Ser. No. 150,231, May 15, 1980, Pat. No. 4,318,396. This application Oct. 22, 1981, Ser. No. 313,729
Int. Cl.³ A61F *5/00*
U.S. Cl. 128—79 **3 Claims**

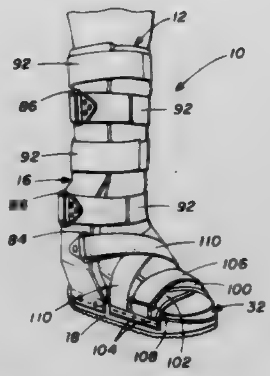


1. A penile implant for use in a penile prosthesis comprises an elongated, flexible member of physiologically inert material having at one end a relatively short stem adapted to be inserted into the root end of the corpus cavernosum of a penis; a distal tip adapted to be implanted in the corpus cavernosum of the pendulous penis at the other end; a pair of axially aligned chambers intermediate said stem and said tip, the first of said chambers being collapsible and located adjacent the stem and the second of said chambers being non-distensible and located adjacent the tip, both of said chambers being substantially filled with liquid and separated by a dividing wall having an opening for communication between said chambers and locking means for holding said first chamber in a collapsed condition.

4,378,793
REMOVABLE ANKLE BRACE

Donald M. Mauldin, and Richard E. Jones, III, both of Dallas, Tex., assignors to Kenneth D. Driver, Dallas and Melvin L. Stills, Lewisville, both of, Tex., part interest to each

Filed May 26, 1981, Ser. No. 266,966
Int. Cl.³ A61F *3/00*
U.S. Cl. 128—80 H **3 Claims**

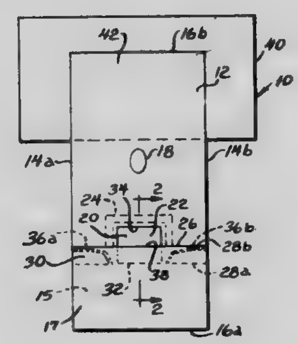


1. A removable ankle brace for stabilizing the ankle of patient comprising:
a rigid shoe having a planar upper surface for engaging the sole of the patient's foot, side walls extending perpendicularly to the upper surface and downwardly therefrom, and an outer sole comprising the lowermost surface of the shoe;
the outer sole of the shoe having a fulcrum, a planar first portion extending rearwardly from the fulcrum to the heel of the shoe and a second portion comprising a continuous curve extending from the fulcrum upwardly and forwardly to the toe of the shoe;
means for locating the foot of the patient on the planar upper surface of the shoe with the metatarsal point of the foot positioned forward of the fulcrum so that the shoe normally sets on the planar first portion of the outer sole and pivots about the fulcrum onto the curved second portion as the weight of the patient shifts forward of the metatarsal point of the foot;
left and right side members positioned on opposite sides of the shoe and each including a thermoplastic side piece and a metal ankle stay;
the metal ankle stay of each side member engaging the adjacent side wall of the shoe and extending upwardly therefrom beyond the ankle of the patient;
the thermoplastic side piece of each side member surrounding the metal ankle stay thereof on the front, on the outside, and on the rear and extending upwardly from the shoe in contact with the metal ankle stay;
means securing the metal ankle stay of each side member to the side piece thereof;
a plurality of fasteners extending through the metal ankle stay and the thermoplastic side piece of each side member and into the adjacent side wall of the shoe for rigidly securing the side members to the shoe;
the metal ankle stay and the thermoplastic side piece of each side member comprising a first portion secured to the side wall of the shoe, a second portion extending from the upper end of the first portion angularly upwardly and outwardly with respect thereto and a third portion extending upwardly from the upper end of the second portion substantially parallel to the first portion;
the metal ankle stay of each side member terminating at the upper end of the third portion thereof;
the thermoplastic side piece of each side member further including a fourth portion extending from the end of the third portion angularly upwardly and inwardly with respect thereto and a fifth portion extending upwardly from the upper end of the fourth portion generally parallel to the first and third portions;
the fifth portion of each side piece being positioned over the first portion thereof and being curved inwardly to conform to the calf of the patient;
each side member further including a layer of foam padding secured to the inside surface thereof and extending upwardly along the inner surfaces of the second and third portions of the metal ankle stay and the thermoplastic ankle piece; and
fastening means for securing the shoe and the side members to the foot and the calf of the patient, respectively.

4,378,794
SURGICAL DRAPE

Robert F. Collins, Barrington, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Jan. 7, 1981, Ser. No. 223,189
Int. Cl.³ A61F *13/00*
U.S. Cl. 128—132 D **7 Claims**

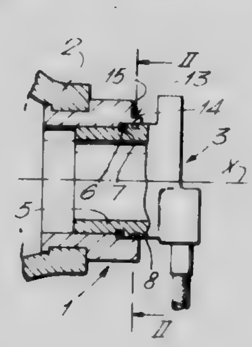


1. A surgical drape, comprising:
a main sheet of flexible material having a pair of side edges, a pair of end edges connecting said side edges, a fenestration, an opening located intermediate said fenestration and one of said end edges, and a pair of generally aligned fold lines extending between said side edges and defining a flap secured to an underlying portion of the main sheet, with a lower edge of the opening being located adjacent a lower portion of the flap such that the flap overlies a lower portion of the opening, with the flap having an upper edge and defining a cavity facing toward the fenestration, and with an upper portion of the opening being located intermediate the upper edge of the flap and the fenestration; and
a fluid pervious screen covering said opening.

4,378,795
FLUID CONNECTOR ASSEMBLY

Leonard J. Feathers, Henfield, and Peter M. Ely, Pulborough, both of England, assignors to Chubb Panorama Limited, Sussex, England

Filed Apr. 13, 1981, Ser. No. 253,627
Claims priority, application United Kingdom, Apr. 16, 1980, 8012581
Int. Cl.³ A62B *7/00*
U.S. Cl. 128—202.27 **5 Claims**



1. A fluid connector assembly comprising a first fluid-conducting member defining a tubular spigot; a second fluid-conducting member defining a socket for said spigot and into which said spigot fits in fluid-tight manner; the second fluid-

conducting member including a pair of passages extending chordwise through said second fluid-conducting member on opposite sides of said socket with a portion of each said passsage intersecting the socket; and a generally U-shaped locking clip having a pair of legs joined by a base portion; said legs being received respectively within said passages and being arranged to be slid longitudinally through the passages between a first position in which a portion of each leg lies within the aforesaid portion of the respective said passage so as to intrude chordwise into said socket, and a second position in which the legs are withdrawn from such intrusion; said spigot being configured externally with recessed portions which are juxtaposed to the said portions of said passages when the spigot is inserted into the socket so as to receive said portions of the legs of the locking clip to prevent withdrawal of the spigot from the socket when said legs are slid from said second to said first position; and the second fluid-conducting member being further provided with a formation extending generally perpendicularly to said passages which formation presents an inclined face followed by a recess so as to be engaged by the base portion of the locking clip with a snap action when said legs are slid from their second to their first position, thereby to retain the legs in their first position.

4,378,796

ENDO-TRACHEAL OR TRACHEOTOMIC TUBE WITH SHIELD FOR ANAESTHESIA

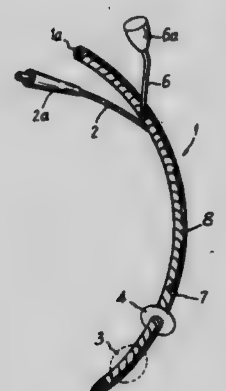
Alain Milhaud, Amiens, France, assignor to PORGES Societe Anonyme, Paris, France

Filed Jan. 15, 1982, Ser. No. 339,488

Claims priority, application France, Apr. 17, 1981, 81 07820

Int. Cl.[3] A61M *25/00*

U.S. Cl. 128—207.15 2 Claims



1. A tracheal device for anesthesia comprising:

a flexible tubular assembly having a distal end adapted to be positioned within the trachea of a patient and a proximal end positioned outside the body of said patient;

an inflatable balloon carried on and encircling said tubular assembly adjacent its distal end, said balloon being adapted to be extended by fluid pressure into sealing contact with the trachea;

a thermal shield adapted to be positioned within the trachea, said shield comprising a flexible generally circular heat-resisting disc substantially coaxial with and transversely affixed to said tubular assembly at a point adjacent said balloon between said balloon and said proximal end, said shield having a diameter only slightly smaller than that of the trachea, thereby effectively shielding said balloon from damage caused by radiant heat energy directed toward said balloon;

first conduit means in said assembly for conveying anesthesia and ventilation gases from said proximal end to said distal end;

second conduit means in said assembly for conveying a fluid under pressure from said proximal end to said balloon; and

third conduit means in said assembly for conveying a stream of inert gas from said proximal end to and through an opening in said assembly at a point adjacent said shield between said shield and said proximal end.

4,378,797

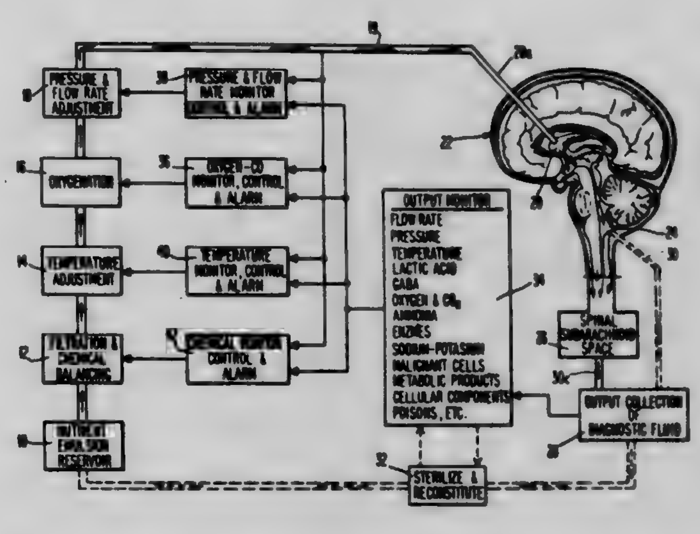
EXTRAVASCULAR CIRCULATION OF OXYGENATED SYNTHETIC NUTRIENTS TO TREAT TISSUE HYPOXIC AND ISCHEMIC DISORDERS

Jewell L. Osterholm, Radnor, Pa., assignor to Thomas Jefferson University, Philadelphia, Pa.

Filed Apr. 14, 1980, Ser. No. 139,886

Int. Cl.[3] A61K *31/00;* A61M *5/14*

U.S. Cl. 604—24 7 Claims



1. An apparatus for treating hypoxic-ischemic neurologic tissue, comprising:

(a) a reservoir containing synthetic oxygenatable nutrient liquid for treating hypoxic-ischemic neurologic tissue;

(b) oxygenator means for oxygenating said liquid, to produce an oxygenated liquid;

(c) cerebrospinal injection means for injecting said oxygenated liquid into an extra-vascular cerebrospinal body pathway; and

(d) cerebrospinal withdrawal means for withdrawing fluid from said extra-vascular cerebrospinal pathway to create, in combination with said injection means, a circulation of said oxygenated liquid within said cerebrospinal pathway.

4,378,798

SINGLE SHOT STOCK OF ANIMAL SEMEN FOR ARTIFICIAL INSEMINATION OF BIRDS, ESPECIALLY TURKEYS, HENS, AND GUINEA FOWL

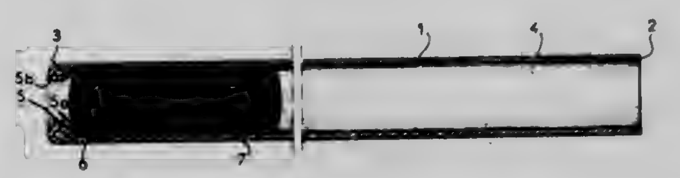
Betrand Cassou, Saint Symphorien les Bruyeres; Maurice Cassou, and Robert Cassou, both of Rue Clemenceau, all of 61300 L'Aigle, France

Filed Jun. 22, 1981, Ser. No. 276,401

Claims priority, application France, Jan. 8, 1981, 81 00196; May 18, 1981, 81 09864

Int. Cl.[3] A61M *1/00*

U.S. Cl. 604—275 11 Claims



1. A single-shot semen stock for artificially inseminating poultry, comprising a flexible tube having a hollow cylindrical portion of diameter small enough to contain semen by capillarity and presenting an inner diameter substantially greater than its wall thickness, and a reentrant brim at an open end of said tube and integral with said cylindrical portion, wherein said

brim presents a free edge in direct contact with the inside of said cylindrical portion of the tube.

4,378,799

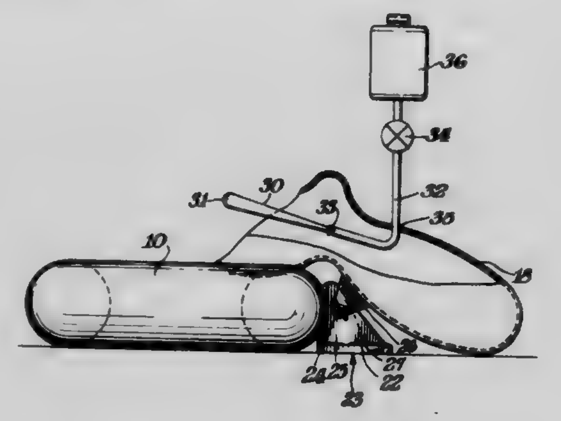
APPARATUS FOR VAGINAL HYGIENE

Elizabeth C. Bernacky, 1011 Dettling Rd., Woodland Heights, Wilmington, Del. 19805

Filed Aug. 12, 1981, Ser. No. 292,217

Int. Cl.³ A61M *7/02*

U.S. Cl. 604—32 6 Claims



1. A vaginal hygiene apparatus comprising in combination: an annular cushion having a resilient inner core and an outer fluid repellant skin and a cut-away portion;

a movable base adjacent said cushion and said cut-away portion, a fluid container mounted on said base, at an adjustable, predetermined angle, said container having a first, shaped orifice and a movable elongated fluid injection member extending through said shaped orifice having fluid conduit means connected to said fluid injection member and directed through a second opening in said fluid container.

4,378,800

DISPOSABLE DIAPER

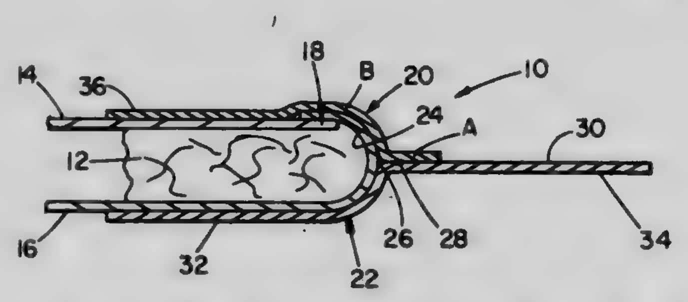
Charles H. Schaar, Lake Zurich, Ill., assignor to Colgate-Palmolive Company, New York, N.Y.

Division of Ser. No. 410,375, Oct. 29, 1973, Pat. No. 4,100,921. This application Feb. 17, 1977, Ser. No. 769,547

The portion of the term of this patent subsequent to Jul. 18, 1995, has been disclaimed.

Int. Cl.³ A61F *13/16*

U.S. Cl. 604—390 10 Claims



1. A tape fastener system in combination with a disposable diaper of the type which comprises an absorbent core interposed between a fluid-pervious body-contacting cover sheet and a fluid-impervious backing sheet, said tape fastener system comprised of a composite tape formed from two strips of flexible sheet material coated with pressure-sensitive adhesive on one surface and a release coating on the other surface, said strips being longitudinally aligned and joined to each other at a narrow zone of overlap with the adhesive surfaces of the overlapped strips being in contact at the zone of overlap to form a permanent bond, one end portion of the composite tape adjacent the overlap zone having its adhesive disposed on the face of the composite tape opposite from that face of the composite tape on which the adhesive of the other end portion is disposed, the first end portion of said composite tape being secured by said adhesive to the cover sheet of said diaper at one corner adjacent the diaper edge, and the second end portion of said composite tape being adapted to extend beyond the edge of the diaper for use in fastening the diaper around the waist.

4,378,801

ELECTROSURGICAL GENERATOR

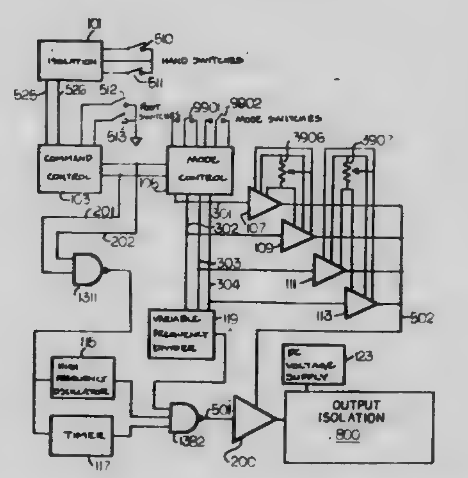
Roger L. Oosten, New Port Ritchey, Fla., assignor to Medical Research Associates Ltd. #2, Clearwater, Fla.

Continuation-in-part of Ser. No. 104,692, Dec. 17, 1979, Pat. No. 4,318,409. This application Dec. 10, 1980, Ser. No. 215,046

The portion of the term of this patent subsequent to Mar. 9, 1999, has been disclaimed.

Int. Cl.³ A61B *17/39*

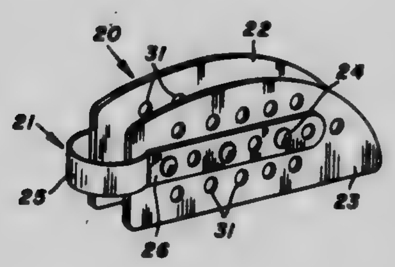
U.S. Cl. 128—303.14 14 Claims



1. A generator for electrosurgery comprising first and second command switches for selecting command status of operation; a command control means coupled to said first and second command switches for preventing simultaneous activation of said first and second command switches; a first mode switch for selecting a mode of operation when the first command switch is activated; a second mode switch for selecting a mode of operation when the second command switch is activated; a mode control means coupled to said first and second mode switches for determining the mode of operation indicated by said first and second command switches and said first and second mode switches, said command control means being coupled to said mode control means by first and second command lines; first, second, third and fourth voltage amplifiers, each said voltage amplifier being coupled to said mode control means so that one of said voltage amplifiers corresponding to the mode of operation indicated by said first and second mode switches and said first and second command switches is activated by said mode control means; a first NAND gate having two inputs, the inputs of said first NAND gate being coupled respectively to the said first and second command lines; high frequency oscillator means and low frequency oscillator means coupled to the output of said first NAND gate so that said high and low frequency oscillator means are activated by said first NAND gate when either command line is activated; a three-input NAND gate, the output of said high frequency oscillator means being coupled to a first input of said three-input NAND gate, the output of said low frequency oscillator means comprising a duty cycle interrupt signal and being coupled to a second input of said three-input NAND gate, variable frequency divider means, the output of said high frequency oscillator means also being coupled to said variable frequency divider means, said variable frequency divider means also being coupled to the output of said mode control means, the output of said variable frequency divider means being coupled to the third input of said three-input NAND gate and comprising a waveform interrupt signal comprised of a high voltage portion and a low voltage portion, the wave-length of said waveform interrupt signal being an integer multiple of the

wave-length of the output of said high frequency oscillator means, the ratio of the length of said high voltage portion to the length of said low voltage portion being altered by said variable frequency divider means corresponding to the mode of operation indicated by said first and second mode switches and said first and second command switches; a voltage controlled main amplifier means, the output of said three-input NAND gate being coupled to the input of said voltage controlled main amplifier means and comprising groups of pulses, said voltage controlled main amplifier means including means for selectively increasing the amplitude of a pulse of each said group of pulses from said three-input NAND gate, said voltage controlled main amplifier means being coupled to said first, second, third and fourth voltage amplifiers so that said voltage amplifiers control the output level of said voltage controlled main amplifier means; a DC voltage supply and an isolation transformer means, the output of said voltage controlled main amplifier means being coupled through the primary winding of said isolation transformer means to said DC voltage supply, said isolation transformer means having first and second secondary windings, the side taps of said first secondary winding being coupled through first and second blocking capacitors, respectively, to first and second output terminals for monopolar operation, one side tap of said second secondary winding being coupled through a third blocking capacitor to a third terminal for bipolar operation, the other side tap of said second secondary winding being coupled directly to a fourth output terminal for bipolar operation.

4,378,802
SEPTAL SPLINT
Robert A. Ersek, 2300 Cypress Point West, Austin, Tex. 78746
Filed May 21, 1981, Ser. No. 265,963
Int. Cl.³ A61B *17/00*
U.S. Cl. 128—346 **2 Claims**



1. A septal splint for post-operative bilateral support of a human nasal septum comprising a resilient clip member, a pair of plate members sized for insertion in a patient's nostrils, and fastening means securing the plate members to the clip member,

said clip member comprising a strip of resilient material formed as a central loop and having a pair of flat parallel struts extending in the same direction from the loop for a distance related to the length of the human nasal septum, and having spaced apposed inner surfaces, said struts being provided with drainage holes,

said plate members being of thin rigid material which is benign and non-adherent to human mucosa, and being formed with fields of drainage holes communicating with said drainage holes in said struts,

said fastening means securing said plate members to the inner faces of said struts,

and the spacing between said plate members and the resilience of said clip member being such that when said plate members are inserted into the nostrils of a patient, said plate members engage the sides of the nasal septum with a continuous pressure less than capillary blood pressure.

4,378,803
PROCESS FOR PRODUCING ANTITHROMBOGENIC VINYL ACETATE POLYMER OR HYDROLYZATE THEREOF
Kunihiko Takagi, Kyoto, and Yasunori Yabushita, Yamatotakada, both of Japan, assignors to Unitika, Ltd., Hyogo, Japan
Continuation of Ser. No. 43,601, May 29, 1979, abandoned. This application Nov. 24, 1980, Ser. No. 209,360
Claims priority, application Japan, May 27, 1978, 53-63660
Int. Cl.³ A61M *25/00;* C08F *8/30, 8/32*
U.S. Cl. 604—280 **29 Claims**

1. A process for producing an antithrombogenic hydrolyzed ethylene-vinyl acetate copolymer containing about 3 to 45 weight % vinyl acetate and about 97 to 55 weight % ethylene which comprises treating a water-insoluble hydrolyzed ethylene-vinyl acetate copolymer containing about 3 to 45 weight % vinyl acetate and about 97 to 55 weight % ethylene in the form of a shaped article with a solution of a fibrinolytic enzyme so as to fix the enzyme to the copolymer wherein the hydrolyzed vinyl acetate copolymer contains a reactive functional group capable of forming a covalent bond with the fibrinolytic enzyme and the enzyme is fixed to the copolymer through covalent bonding,

said reactive functional group being selected from the group consisting of

(A) an isocyanate group which has been introduced thereinto by treating the hydrolyzed ethylene-vinyl acetate copolymer with a polyisocyanate,

(B) an epoxy group which has been introduced thereinto by treating the hydrolyzed ethylene-vinyl acetate copolymer with a polyepoxide,

(C) a formyl group which has been introduced thereinto by treating the hydrolyzed ethylene-vinyl acetate copolymer with a polyaldehyde,

(D) an acid chloride group which has been introduced thereinto by treating the hydrolyzed ethylene-vinyl acetate copolymer with an acid chloride,

(E) a carboxylic acid anhydride group which has been introduced thereinto by treating the hydrolyzed ethylene-vinyl acetate copolymer with a polycarboxylic acid anhydride,

(F) an amino group which has been introduced thereinto by treating the hydrolyzed ethylene-vinyl acetate copolymer with an amino acetal, and

(G) an amino group which has been introduced thereinto by first treating the hydrolyzed ethylene-vinyl acetate copolymer with a polyfunctional reagent having at least two functional groups capable of reacting with both a hydroxy group and amino group and then treating the copolymer with a polyamine, said polyfunctional reagent being selected from the group consisting of a polyisocyanate, a polyepoxide, a polycarboxylic acid anhydride, a polyaldehyde and a polyacid chloride.

8. A process for producing an antithrombogenic hydrolyzed ethylene-vinyl acetate copolymer containing about 3 to 45 weight % vinyl acetate and about 97 to 55 weight % ethylene which comprises treating a water-insoluble hydrolyzed ethylene-vinyl acetate copolymer containing about 3 to 45 weight % vinyl acetate and about 97 to 55 weight % ethylene in the form of a shaped article with a solution of a fibrinolytic enzyme so as to fix the enzyme to the copolymer wherein the hydrolyzed ethylene-vinyl acetate copolymer contains a reactive functional group capable of forming a covalent bond with the fibronolytic enzyme and the enzyme is fixed to the polymer through covalent bonding,

said reactive functional group being selected from the group consisting of an isocyanate group, an epoxy group, a formyl group, an acid chloride group, a carboxylic acid anhydride group and the reactive functional group having been introduced thereinto by treating the hydrolyzed ethylene-vinyl acetate copolymer having an amino group with a polyfunctional reagent, selected from the group consisting of a polyisocyanate, a polyepoxide, a polyaldehyde, a polyacid chloride and a polycarboxylic acid anhy-

dride, having at least two of the reactive functional groups capable of reacting with an amino group, and

the fibrinolytic enzyme is fixed to the polymer through covalent bonding, wherein said amino group has been introduced:

(A) by treating the hydrolyzed ethylene-vinyl acetate copolymer with an amino acetal; or

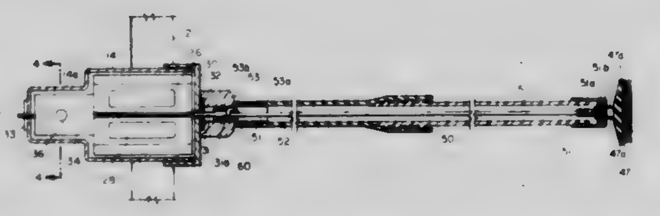
(B) by first treating the hydrolyzed ethylenevinyl acetate copolymer with a polyfunctional reagent having at least two functional groups capable of reacting with a hydroxy group and amino group and then treating the copolymer with a polyamine, said polyfunctional reagent being selected from the group consisting of a polyisocyanate, a polyepoxide, a polycarboxylic acid anhydride, a polyaldehyde and a polyacid chloride.

4,378,804
FACIAL TREATMENT DEVICE

Thomas A. Cortese, Jr., 5411 E. 56th St., Indianapolis, Ind. 46226

Filed Jun. 17, 1981, Ser. No. 274,530
Int. Cl.[3] A61H *7/00, 33/00*

U.S. Cl. 128—355 **5 Claims**



1. A facial treatment device comprising a Venturi tube having the mouth of the converging portion adapted for attachment to a conventional bathroom water faucet, an aperture in the throat portion of said tube and a housing overlying said aperture, a turbine rotor mounted within said housing for rotation on an axis transverse to the longitudinal axis of said Venturi tube, said rotor having vanes extending through said throat aperture whereby said rotor is rotated by water moving through said Venturi tube, a remote facial brush operatively connected to said turbine rotor for rotation thereby, a vacuum controlling rotor of hollow cylindrical configuration within said housing and connected to said turbine rotor for coaxial rotation thereby, said housing having a suction aperture therein, a remote suction head connected by a flexible tube to said housing aperture, a plurality of apertures in said vacuum controlling rotor longitudinally aligned with said vacuum aperture, whereby rotation of said vacuum controlling rotor periodically opens and closes said suction aperture to pulse the vacuum appearing at the suction head caused by the static pressure reduction in said housing produced by the increase in kinetic energy of water flowing past said throat aperture.

4,378,805
ONE PIECE BODICE GARMENT FOR MASTECTOMY PATIENT

D. Jeanie Reichert, W. 620 - 7th Ave., #104, Spokane, Wash. 99204; Carol S. Trottier, N. 320 Blake Rd., Spokane, Wash. 99216, and Cathy Y. Calhoon, N. 904 Wilbur Rd., Spokane, Wash. 99206

Filed Jan. 4, 1982, Ser. No. 336,552
Int. Cl.[3] A41C *1/06*

U.S. Cl. 128—450 **10 Claims**

1. A one piece bodice garment for mastectomy patients, comprising:

an inner garment panel extending between a neckline and a waistline;

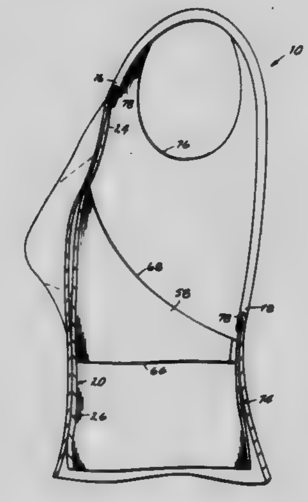
said inner garment panel having an intermediate front breast cup structure in which the structure has at least one breast cup adapted to receive a breast prosthesis;

said inner garment panel having an upper panel extending between the breast cup structure and the neckline for engaging the patient's chest;

said inner garment panel having a lower section extending between the breast cup structure and the waistline for engaging the patient's abdomen;

said inner garment panel having back sections adapted to extend to the back of the patient to engage the patient's lower back with the back sections having means for being interconnected to enable the inner garment panel to snugly encircle the patient;

shoulder strap members having one end operatively connected to the breast cup structure and an opposite end operatively connected to a respective back section of the inner garment panel and adapted to extend over the shoulders of the patient to provide upward-lateral support of the breast cup structure to secure the breast cup structure firmly to the patient's body;



waist strap members having one end operatively connected to the breast cup structure and an opposite interconnecting end which is adapted to extend downward from the breast cup structure and around the patient's waist to provide downward-lateral support to the breast cup structure to secure the breast cup structure firmly to the body;

an outer garment layer affixed to the inner garment layer along the neckline and draped downward over the under garment panel to the waistline; and

a front neckline tension strap operatively interconnecting the shoulder straps and supporting the upper section of the inner garment panel and the outer garment panel along the neckline to maintain a front portion of the neckline of the inner garment panel and the outer garment layer taut and to provide upward support to the breast cup structure intermediate the shoulder strap members.

4,378,806
GAPPED RESONANT MICROWAVE APPARATUS FOR PRODUCING HYPERTHERMIA THERAPY OF TUMORS

Julian L. Henley-Cohn, 60 Lincoln St., New Haven, Conn. 06005

Filed Aug. 12, 1980, Ser. No. 177,388
Int. Cl.[3] A61N *5/04*

U.S. Cl. 128—504 **31 Claims**

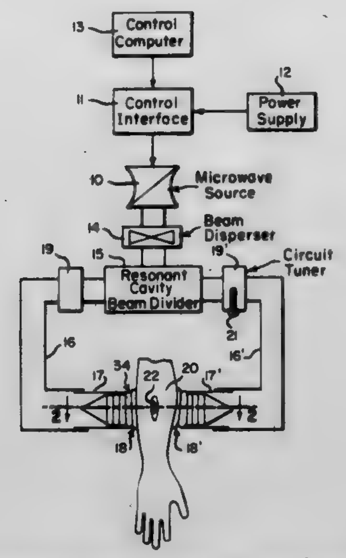
1. An apparatus for treating biological tissue by microwave induced hyperthermia comprising:

(a) a primary resonant source of microwave energy,

(b) a resonant microwave circuit including a pair of resonant waveguide means coupled to said primary resonant source to form a resonant loop having a gap between spaced ends of said waveguide means, and wherein a dielectric loading comprising the biological tissue to be treated is adapted to be located within said gap, and

(c) layered dielectric means at each of said spaced ends providing an interface between said tissue and said waveguide means for optimally coupling said microwave en-

ergy in opposite directions, said layered dielectric means including a plurality of dielectric media with each dielec-



tric medium providing a gradual increase in intrinsic impedance in the direction of propagation of said microwave energy.

4,378,807

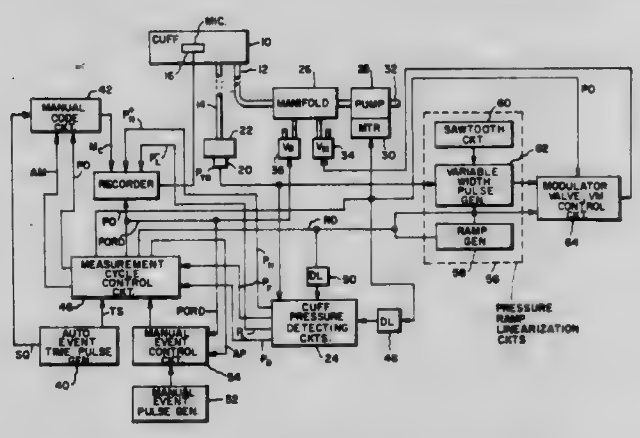
BLOOD PRESSURE MEASUREMENT APPARATUS

Ronald T. Peterson, and Israel M. Stein, both of Brookline, Mass., assignors to Clinical Data, Inc., Brookline, Mass.

Filed Dec. 3, 1980, Ser. No. 212,764

Int. Cl.³ A61B *5/02*

U.S. Cl. 128—677 **21 Claims**



1. Blood pressure measurement apparatus using an inflatable cuff which constricts an appendage of a subject whose blood pressure is to be measured, said apparatus comprising means for changing the pressure in the cuff, means for sensing the auscultatory sounds from the appendage while the pressure in the cuff is changing, means for producing a signal having an amplitude which corresponds with the pressure in the cuff, valve means for modulating the pressure in the cuff as the pressure changes during the sensing of said auscultatory sounds, and means for controlling said valve means to linearize the change in pressure in said cuff which comprises means for generating a reference, linear ramp signal, which starts prior to the sensing of said auscultatory sounds, means for comparing said reference signal with said pressure signal to produce a first output corresponding to the difference in amplitude therebetween, means for generating a train of repetitive triangular waves each having a period much less than the duration of said ramp signal, means for comparing such repetitive triangular waves with said first output to produce a train of pulses, the durations of the pulses varying in accordance with the magnitude and sense of deviation of said pressure signal from said linear ramp signal, and means for applying said variable duration pulses to said valve means for opening and closing said valve means in accordance with the duration of the pulses in said pulse train such that the pressure in said cuff changes linearly in amplitude, correspondingly with said ramp signal.

4,378,808

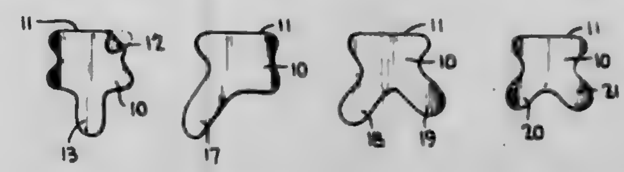
LIQUID CRYSTAL INFILTRATION SENSING SYSTEM

Joseph Lichtenstein, Colonia, N.J., assignor to Whitman Medical Corporation, Clark, N.J.

Filed Apr. 7, 1980, Ser. No. 137,741

Int. Cl.³ A61B *6/10*

U.S. Cl. 128—736 **11 Claims**



1. A device for detecting infiltration of infusion fluid in human body tissue surrounding a point of infusion into a body vessel of a patient, said device comprising a flexible patch of liquid crystal material, said patch having an underside which conforms to the patient's skin at a location proximate said point of infusion, said liquid crystal material having a variable color versus temperature characteristic wherein the material remains at one color when at normal human skin temperature, said patch having a straight edge positioned closest to said point of infusion and having corners which are all rounded, said liquid crystal material further including an integral prescribed area located within the confines of the patch permanently colored at said one color.

4,378,809

AUDIO-TELEMETRIC PRESSURE SENSING SYSTEMS AND METHODS

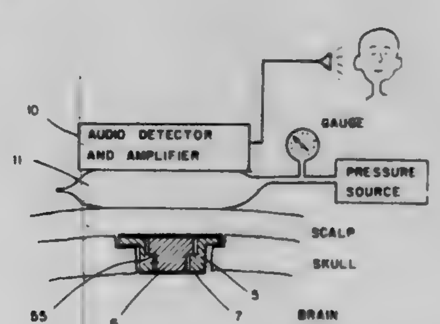
Eric R. Cosman, Belmont, Mass. 02178

Continuation-in-part of Ser. No. 895,953, Apr. 13, 1978, Pat. No. 4,281,666, and Ser. No. 895,954, Apr. 13, 1978, Pat. No. 4,281,667, and Ser. No. 908,615, Jun. 12, 1981, abandoned. This application Jun. 19, 1980, Ser. No. 161,098

The portion of the term of this patent subsequent to Oct. 10, 1997, has been disclaimed.

Int. Cl.³ A61B *5/00*

U.S. Cl. 128—748 **10 Claims**



1. A method for detecting an in-vivo differential pressure, said method comprising the steps of:

(a) implanting beneath the skin in a living body a differential pressure sensor comprising:

(1) a flexible-diaphragm means having a first side and a second side, the differential pressure sensor being so adapted that when implanted in the living body the first side of the flexible diaphragm means is in mechanical pressure communication with a first bodily medium and the second side of said flexible diaphragm means is in mechanical pressure communication with a second bodily medium, so that changes in the difference in the pressures in said two bodily regions will cause movement of said flexible diaphragm means;

(2) means located within said differential pressure sensor and at least in part cooperatively connected to said flexible diaphragm means having a detectable characteristic response to movement of said flexible diaphragm means, said detectable characteristic response being detectable by external detection apparatus which

is located outside the living body, said external detection apparatus being so adapted to convert said detectable characteristic response to an audible acoustic signal that is an audible representation of the changes in the difference in pressures on said two sides of said flexible diaphragm means;

(b) detecting said audible acoustic signal in order to detect variations in the difference in said two pressures on said flexible diaphragm means and;

(c) applying an external pressure on the skin above said implanted sensor with a controllable pressure source while detecting said audible audio signal, and varying said external pressure on the skin until said audible audio response indicates that said diaphragm means is at a stop position, at which point the value of said external pressure is in a known pressure relationship to said internal bodily pressure to be measured.

4,378,810

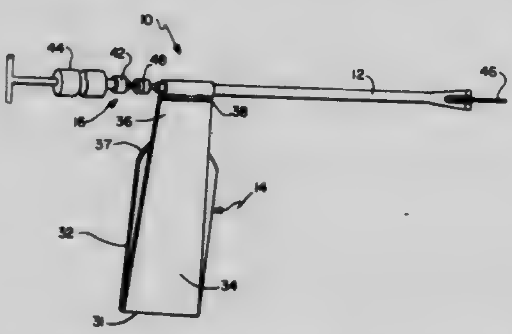
ASSEMBLY FOR PERFORMING BIOPSIES USING A COMBINATION PROBE-GUIDE

Goro Ishizaki, and Harold R. Parker, both of Davis, Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Filed Mar. 26, 1981, Ser. No. 247,791

Int. Cl.³ A61B *10/00*

U.S. Cl. 128—754 8 Claims



1. An assembly especially suitable for performing biopsies on living organs or tissue, comprising: a straight, open-ended hollow tubular member serving as a combination probe and guide, said tubular member including a front end section having a substantially flat exterior surface substantially parallel with and on one side of the longitudinal axis of the tubular member for palpating the surface of the organ or tissue being biopsied to detect irregularities, spaced finger-like segments on the opposite side of said axis from said flat surface and extending outwardly away from said flat surface substantially perpendicular thereto for holding said organ or tissue in an immobile position while a biopsy specimen is collected and an opening into said tubular member on said opposite side and between said finger-like segments for gaining access through said tubular member to the organ or tissue held between said segments; handle means connected with said tubular member for holding the latter during performance of said biopsy; and means including a needle which is positionable through said tubular member for collecting said specimen.

4,378,811

SURGICAL DEVICE

Ronald Levitan, Transvaal, South Africa, assignor to Accurette (Pty) Ltd., Johannesburg, South Africa

Filed Dec. 3, 1980, Ser. No. 212,568

Int. Cl.³ A61B *10/00, 17/22*

U.S. Cl. 128—757 4 Claims

1. A collapsible curette capable of accurate sampling of the uterine endometrium for the investigation and diagnosis of a variety of gynaecological conditions, said curette comprising:

A. a tubular sleeve formed of flexible synthetic plastic material, said sleeve having a uniform inner and outer diameter throughout its length;

B. a piston inserted in the sleeve having a length greater than that of the sleeve and a diameter slightly smaller than the inner diameter of the sleeve, said piston being axially slidable in the sleeve and being rotatable therein;

C. a collapsible sampling element which normally has a diamond-shaped configuration, one apex of which is integral with one end of the piston, said element being formed of four branches, at least one of which has a cross-sectional shape defining a cutting edge to derive samples of endometrium when the piston is rotated, the element being collapsed into a substantially linear form and being

retractable into said sleeve when the piston is axially withdrawn relative thereto, said piston and said element being molded of a resilient acetal resin material which maintains said cutting edge long after the time of molding and which imparts to said element sufficient memory to cause it to fully recover its normal diamond shape when the collapsed element is axially extended by said piston; and

D. a collar slidably mounted on said sleeve to adjust the extent to which the sleeve is inserted in the cervical canal of a patient under investigation.

4,378,812

DEVICES FOR SAMPLING BLOOD

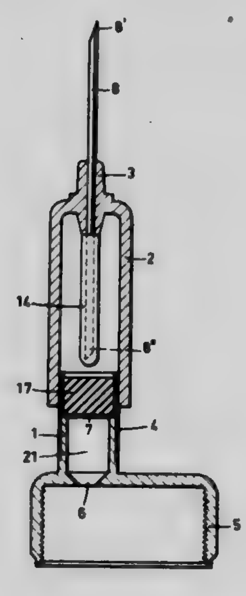
Walter Sarstedt, Nümbrecht, Fed. Rep. of Germany, assignor to Kunststoff-Spritzgubwerk, Nümbrecht, Fed. Rep. of Germany

Filed Dec. 2, 1980, Ser. No. 212,151

Claims priority, application Fed. Rep. of Germany, Dec. 4, 1979, 2948653

Int. Cl.³ A61M *5/00*

U.S. Cl. 128—765 13 Claims



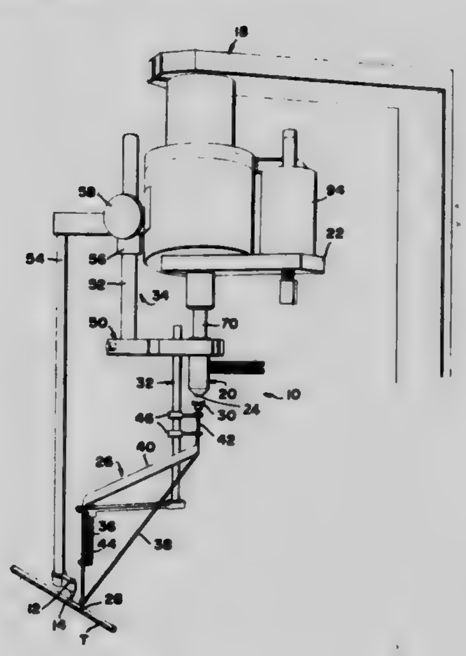
1. A blood sampling device comprising:

a cylindrical sampling tubule having front and rear ends;

a piston displacable in air tight manner in said sampling tubule;

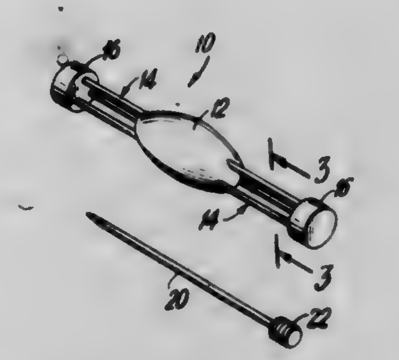
a closure cap having a circumference, said closure cap being removably fitted to said front end of said cylindrical sampling tubule;
an axially projecting tubular extension provided on said cap;
a passage in said closure cap in communication with said extension;
a piercable, self-sealing closure plug inserted in said extension;
a guide sleeve having a diameter with an open end and a closed end, said guide sleeve being axially movable on said extension, a space separating a portion of said guide sleeve from said closure cap;
a cannula having sharpened front and rear ends mounted in the closed end of said guide sleeve and axially aligned with said guide sleeve, said sharpened front end projecting forwardly from said guide sleeve for introduction into a patient and said sharpened rear end projecting rearwardly into said guide sleeve so that it can puncture said closure plug during relative axial movement between said guide sleeve and said extension; and
means for venting the space between said guide sleeve and said extension.

4,378,813
SYSTEM AND METHOD FOR MOVING A PROBE TO FOLLOW MOVEMENTS OF TISSUE
Alan M. Lovelace, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Cyril Feldstein, late of Sierra Madre, Calif.; Thomas W. Andrews, Pasadena, Calif.; Donald W. Crawford, and Mark A. Cole, both of Long Beach, Calif.
Filed May 15, 1981, Ser. No. 263,957
Int. Cl.^{3} A61B *5/10*
U.S. Cl. 128—774 **8 Claims**



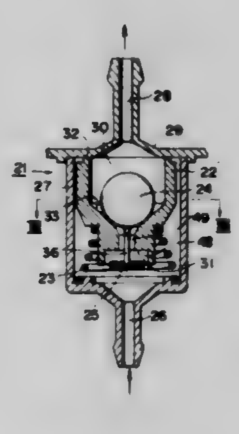
1. Apparatus for use with a probe, to move the probe to follow moving tissue, comprising:
a servo positioner which includes a frame, a servo member moveably positioned on said frame, a distance sensor means for sensing change of distance to a sensed object and which generates a signal indicating change of distance to said sensed object, said sensor means mounted on said servo member to move with it, and means responsive to said sensor means for moving said servo member to maintain a substantially constant distance from the sensed object;
a follower assembly which includes a follower having a sensed object near said distance sensor means to be sensed by said sensor means and having a tissue engaging member positioned remote from said sensed object to engage tissue, so that the servo member is directed to follow movements of remotely located tissue, and guide means for guiding movement of said follower toward and away from said sensor means; and
a probe holder having an inner end mounted on said servo member to move with it, and having an outer end for holding the probe at the tissue.

4,378,814
HAIR CURLING DEVICE
Humberto Quevedo, 323 W. 43rd St., New York, N.Y. 10036
Filed May 28, 1981, Ser. No. 267,861
Int. Cl.^{3} A45D *2/00*
U.S. Cl. 132—40 **8 Claims**



1. A device for imparting curls to a strand of hair comprising:
a longitudinally extending body around which said strand of hair may be wrapped, said body having a non-uniformed cross section along its length, said body including an intermediate member having a generally oblate spheroid configuration, and a pair of generally cylindrical portions extending axially away from the opposed ends of said intermediate member, said generally cylindrical portions each having a cross sectional diameter less than the cross sectional diameter of said intermediate member; and
means for maintaining said strand of hair in a fixed position relative to said body, whereby in use said strand of hair is wound around said body in a helical manner along the length of said body, said hair being affixed to said body by said maintaining means such that the diameter of successive turns of said strands varies and such that when said maintaining means is released and said strand is unwound from said body, curls having various curvatures will be formed along the length of said strand.

4,378,815
PRESSURE CONTROL DEVICE WITH A FLUID DISCHARGE PREVENTION MECHANISM
Haruo Mochida, and Michiaki Sasaki, both of Yokohama, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan
Filed Apr. 1, 1981, Ser. No. 250,001
Claims priority, application Japan, Apr. 7, 1980, 55-44638
Int. Cl.^{3} F16K *17/36*
U.S. Cl. 137—43 **5 Claims**

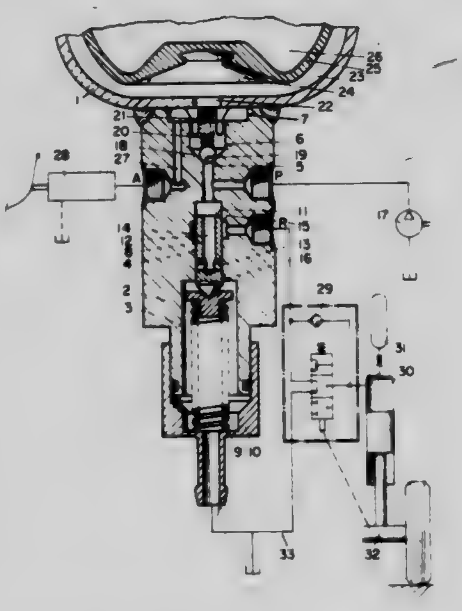


1. A pressure control device with a fluid discharge prevention mechanism, which comprises:

(a) a vessel body having a tank-communicating port;
(b) a lid having an atmosphere-communicating port, said lid being fixed to said vessel body to define a valve housing chamber;
(c) a valve body having a weight housing chamber opening upwards to form a conical surface valve seat and a fuel discharge prevention valve housing chamber opening downwards to provide a flat valve seat, both valve seats being communicated with each other through a through hole, the top circumferential surface of said valve body being brought into contact with the inner surface of said lid when the pressure in the tank rises above a predetermined value, and is kept apart from the inner surface thereof to introduce atmospheric pressure thereinto when the pressure falls below a predetermined value;
(d) a weight housed in the weight housing chamber formed in said valve body so as to be brought into contact with the conical valve seat when the pressure in the tank is below a predetermined value and be kept apart therefrom against its weight when the pressure therein is above a predetermined value;
(e) a fuel discharge prevention valve housed in the fuel discharge prevention valve housing chamber formed in said valve body; and
(f) a connecting member connecting said weight and said fuel discharge prevention valve integrally, said connecting member being placed through the through hole formed in said valve body, said fuel discharge prevention valve being urged against the flat valve seat formed in said valve body to prevent fluid from being discharged when said weight is moved on said conical seat formed in said valve body by action of gravity on said weight in case the pressure control device is inclined or overturned, or centrifugal force is applied to the device,

whereby the pressure within the tank is regulated within a predetermined range and fuel discharge is prevented even in abnormal conditions.

4,378,816
HYDRAULIC PRIORITY VALVE
Joachim Peiffer, Meerbusch, Fed. Rep. of Germany, assignor to Integral Hydraulik & Co., Dusseldorf, Fed. Rep. of Germany
Filed Dec. 19, 1980, Ser. No. 218,406
Claims priority, application Fed. Rep. of Germany, Dec. 24, 1979, 2952369
Int. Cl.[3] G05D *16/10*
U.S. Cl. 137—116 **7 Claims**



1. In a hydraulic priority valve for preferential feeding of a low consumption primary loop in fluid communication with a hydraulic accumulator which is chargeable from a pressure medium source via a flow control means, against a non-preferential secondary loop which can be switched in with the aid of said priority valve when said primary loop is sufficiently pressurized, said hydraulic priority valve having protecting means for protecting both loops from excess pressure comprising a pressure-limiting valve which functions to make an outlet flow path available when pressure is excessive;

the improvement wherein the priority valve is a sequence valve in a structural module with the pressure-limiting valve, having a valve element means with a hydraulic fluid interface surface which valve element means acts against the force of a resistance means, said valve element means being permanently pressurized from the pressure medium source,

whereby when a first given pressure is attained a first pressure medium flow path is opened from a pressure connection which is upstream of the flow control means to a first consuming device connection which is linked to the secondary loop, said first pressure medium flow path being activated by the movement of the valve element means,

whereby when a second higher given pressure is attained a second pressure medium flow path is opened by a valve member acted upon by the pressure medium, to direct the pressure medium to an outlet connection and back to the tank, said second pressure medium flow path being activated by a further movement of the valve element means in the same direction, and

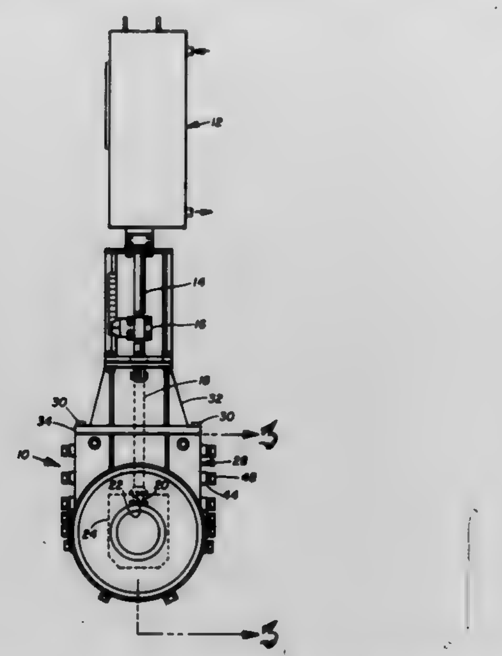
whereby after at least the first given pressure is attained, the valve element has been moved sufficiently to permit a permanent link between the pressure medium source and the first consuming device connection so that when the second given pressure is attained the secondary loop is linked to said outlet connection in addition to being linked to the primary loop; and

wherein the flow control means is a check valve, the valve element means is a slideable control piston having an end face opposite to the resistance means which is a return spring, the hydraulic interface surface comprising at least said end face in the control piston, and the pressure medium is hydraulic fluid; whereby when the first given pressure is attained, the end face passes a first control edge and as a result opens up a flow path from a second bore hole which accommodates the control piston and a third bore hole which is connected to the pressure medium source, to a ring-shaped groove located in the second bore hole which is linked to a first consuming-device connection; whereby an inner blind hole extending inwardly from the end face into the control piston is linked via transverse hole means to the outer surface of the control piston at the bottom of the inner blind hole, so that when the second given pressure is attained, the transverse hole means moves into fluid communication with a first bore hole which is linked to the outlet connection.

4,378,817
SLIDE VALVE ASSEMBLY
James L. Houston, Broken Arrow, Okla., assignor to Superior Valve Corporation, Tulsa, Okla.
PCT No. PCT/US81/00379, § 371 Date Jul. 6, 1981, § 102(e) Date Jul. 6, 1981, PCT Pub. No. WO82/03258, PCT Pub. Date Sep. 30, 1982
PCT Filed Mar. 20, 1981, Ser. No. 310,233
Int. Cl.[3] F16K *3/16, 25/00*
U.S. Cl. 137—315 **6 Claims**

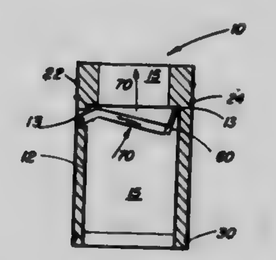
1. A slide valve comprising:
a body having a throat allowing fluid passage therethrough,
an annular shoulder within the body including passage means communicating with the throat,
a side portion extending transversely from the body and having an interior space communicating with the throat,
a valve seat member removably positionable upon the shoulder,
a guide member removably positionable within the body adjacent the shoulder, extending into the side portion,
a closure member positionable slidably upon the guide member for opening and closing the passage means, and

a wedge member positionably adjustable between a portion of the seat member and the guide member and slidably upon the seat member portion and the guide member to maintain close critical adjustment of the closure member



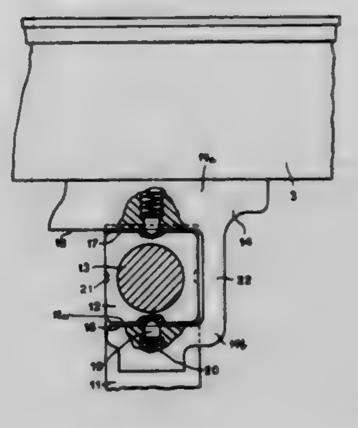
in reference to the seat member, as well as the adjustment of the guide member, and wherein the wedge member is adjustable from exteriorly of the valve body without disassembling the valve elements.

4,378,818
WELL DRILLING FLOAT VALVE
Arthur J. Cormier, Jr., 122 Downing, Lafayette, La. 70506
Filed Dec. 17, 1980, Ser. No. 217,566
Int. Cl.³ F16K *21/04*
U.S. Cl. 137—523 11 Claims



1. A float valve comprising:
a. a valve body having a flow bore therethrough;
b. a valve seat on said valve body at said bore;
c. a flapper valve pivotally mounted on said valve body between fully open flow and fully closed flow positions, with said flapper valve sealing said seat in the fully closed position;
d. spring means cooperatively connected to the valve body and flapper valve for urging the flapper valve toward the fully closed position;
e. pre-settable catch means carried by and movably mounted upon the flapper valve between engaged and disengaged positions for preventing movement of the flapper valve to the fully closed position when the catch means desirably occupies the engaged position as so pre-set, the flapper valve thus assuming a partially open position responsive to both urging of the spring means and the pre-set engaged positioning of the catch means; and
f. biasing means associated with the catch means for biasing the catch means to the disengaged position when the flapper valve moves from the partially open position to the fully open position, the flapper valve being movable to the fully closed position when the catch means is disengaged.

4,378,819
DETACHABLE CONNECTION ARRANGEMENT FOR A SHED FORMING DEVICE OF A LOOM
Helmut Macho, Constance, Fed. Rep. of Germany, assignor to Aktiengesellschaft Adolph Saurer, Arbon, Switzerland
Filed Sep. 8, 1980, Ser. No. 184,939
Claims priority, application Switzerland, Sep. 26, 1979, 8670/79
Int. Cl.³ D03C *9/06*
U.S. Cl. 139—88 7 Claims

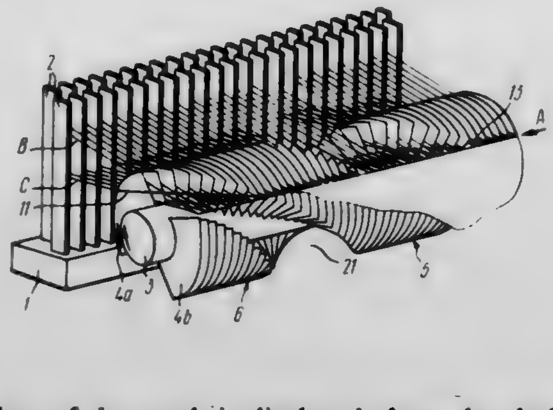


1. A detachable connection arrangement between a harness and a harness lever arrangement of a shed forming device of a loom, comprising:
a lifter means hingedly connected with the harness lever arrangement;
a coupling element supported at an end of said lifter means located at the region of the harness;
a counter coupling element provided at the harness with which form-lockingly engages said coupling element;
said coupling element comprises a connection block having at least two substantially parallel surfaces;
means for supporting said connection block at the lifter means;
said counter coupling element comprising a substantially C-shaped claw member fixedly connected with the harness;
said claw member having inner leg surfaces defining support surfaces for the connection block;
resiliently-biased latching means provided for said claw member; and
said resiliently-biased latching means releasably retaining the connection block in the claw member and being effective in a predetermined direction of force application.

4,378,820
APPARATUS FOR BEATING-UP WEFT THREAD IN TRAVELLING WAVE SHEDDING LOOMS
Valerian P. Lileev, ulitsa Nagornaya, 46/48, korpus 20, kv. 2; Eduard A. Onikov, ulitsa Panferova, 5, korpus 2, kv. 106, and Alexandr A. Zabotin, ulitsa Profsojuznaya, 96, kv. 85, all of Moscow, U.S.S.R.
Filed Oct. 10, 1980, Ser. No. 195,985
Int. Cl.³ D03D *47/26*
U.S. Cl. 139—436 5 Claims

1. An apparatus for beating-up weft thread in a traveling wave shedding loom, comprising: a stationary reed for dividing warp threads; a rotary shaft; plates secured to said shaft; combs defined by said plates and arranged helically along said shaft; said plates of at least one comb being made and arranged

relative to plates of other combs in such a manner that, during rotation of the shaft, the plane of revolution of at least a portion



of each plate of the comb is displaced along the shaft away from the plane of revolution of plates of other combs.

4,378,821

WEFT DETAINING DEVICE OF SHUTTLELESS LOOM

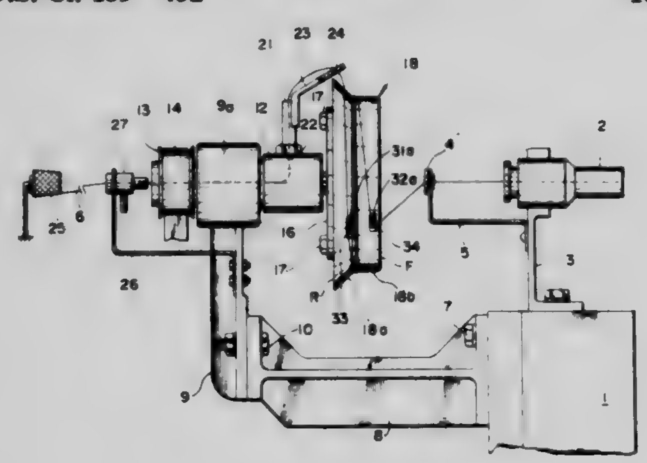
Hidetsugo Umezawa, Narahashi, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Jun. 22, 1981, Ser. No. 275,714

Claims priority, application Japan, Jun. 27, 1980, 55-86497; Aug. 15, 1980, 55-111776

Int. Cl.³ D03D *47/36*

U.S. Cl. 139—452 16 Claims



1. A weft detaining device of a shuttleless loom having a weft inserting nozzle for picking a weft yarn from a weft source, comprising:

a stationary drum formed on its peripheral surface with first and second holes, said first hole being located farther from the weft inserting nozzle than said second hole in the axial direction of said drum;

a weft wind-guide member located near the peripheral surface of said drum and rotatable around the drum peripheral surface in timed relation to the operational cycle of the loom to guide the weft yarn between the weft inserting nozzle and the weft source to be wound around the peripheral surface of said drum;

first and second hook levers located outside of said drum and formed respectively with first and second hook sections which are capable of projecting respectively into said first and second holes of said drum to catch the weft yarn on the drum peripheral surface so as to prevent the weft yarn from moving, a predetermined length of the weft yarn for each weft picking being detained between said projected first and second hook sections; and

means for causing said first and second hook sections to project respectively into the first and second holes of the drum at predetermined timings in timed relation to the operational cycle of the loom.

4,378,822

SPIRAL BINDING MACHINE FOR SPIRALLY FEEDING A SPIRAL BINDING ELEMENT

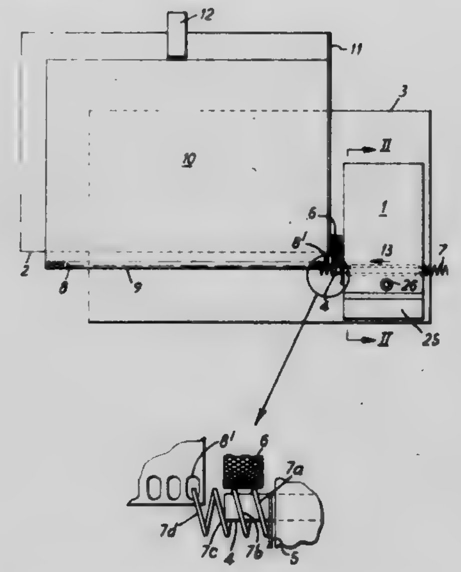
Leslie J. Morris, Farnham, England, assignor to Morris Brothers (Aldershot) Limited, Aldershot, England

Continuation of Ser. No. 129,702, Mar. 12, 1980, abandoned. This application Jun. 23, 1982, Ser. No. 391,449

Claims priority, application United Kingdom, Mar. 19, 1979, 7909603; Aug. 24, 1979, 7929491

Int. Cl.³ B21F *45/16*

U.S. Cl. 140—92.3 13 Claims



1. A spiral binding machine for spirally feeding a spiral binding element, said machine comprising: a fixed structure, a stationary mandrel supported on said fixed structure for supporting a spiral binding element received thereon; a driving wheel mounted in said machine for rotating a spiral binding element on said mandrel by gripping said element between the periphery of said driving wheel and said mandrel, the periphery of said driving wheel being frictionally engagable with said element; a single support pin connected to said mandrel and by which the mandrel is supported on said fixed structure, said mandrel having a plain ungrooved cylindrical external surface, said pin extending between adjacent turns of the spiral binding element for, in operation of the machine, being in direct contact with a turn of the element and providing the entire axial reaction contact of the machine with the element; said machine having an open unobstructured space on the opposite side of said pin from said driving wheel for accommodating different size spiral binding elements; and means for rotating said driving wheel.

4,378,823

METHOD AND APPARATUS FOR UNTWISTING AND CUTTING TWISTED CABLE

Richard W. Normann, Otego, and Paul D. Niles, Bainbridge, both of N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed Apr. 4, 1980, Ser. No. 137,167

Int. Cl.³ B21F *1/02*

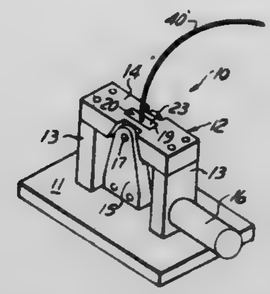
U.S. Cl. 140—139 25 Claims

1. An apparatus for untwisting and shearing a length of twisted conductive strands, the apparatus comprising:

first and second strand receivers having front and rear surfaces and guide bores for receiving the strands, each of the guide bores being sized to receive one conductive strand and having an opening on the front surface of its respective strand receiver with the guide bores in said first strand receiver converging from their openings to a common point sized to receive the twisted conductive strands and the guide bores in said second strand receiver diverging from their openings, said bores and openings being in alignment when the strand receivers are located in a first position;

means for locating the front surfaces of said strand receivers in spaced facing relationship and disposing the bores in their first position; and

means for displacing one strand receiver with respect to the other strand receiver so as to displace the bore openings from their first position to a second position where the bore openings are nonaligned, said twisted conductive strands being constrained into said bores upon being urged against said common point, untwisted when passed through the bores radiating outwardly therefrom and into the bores in the other receiver and sheared when the receivers are moved.



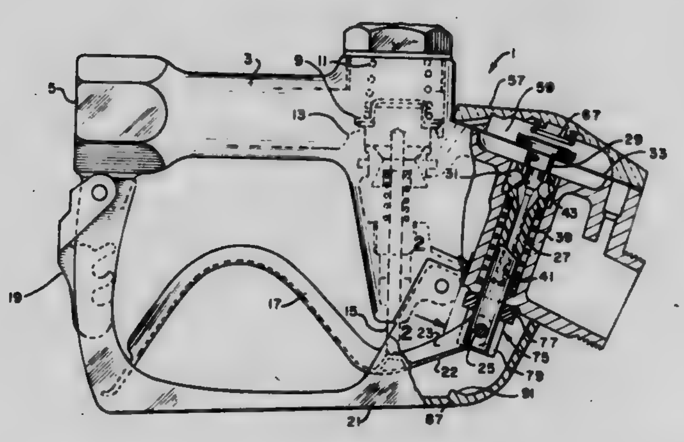
4,378,824
FLUID DISPENSING NOZZLE

Mervin L. Carder, Sr., Fenton, Mo., assignor to M. Carder Industries, Incorporated, Fenton, Mo.

Filed Feb. 9, 1981, Ser. No. 232,817

Int. Cl.³ B65B *57/04*

U.S. Cl. 141—206 16 Claims



10. A fluid dispensing nozzle including a casing defining a flow passage having an inlet and an outlet; a main valve in said casing for selectively opening and closing said flow passage, said main valve including a valve stem slidably mounted in said casing; an automatic high-level shut-off means for shutting said main valve in response to filling of a tank or the like with said fluid, said shut-off means including a plunger slidably mounted in said casing, a hole extending transversely through said plunger at a lower end thereof; a manually operable lever engaging said valve stem for operating said main valve, said lever including a pair of side walls straddling said lower end of said plunger; openings extending through said pair of side walls of said lever in register with said hole in said plunger; a pivot pin extending through said hole in said plunger and said openings in said lever, said pivot pin pivotally mounting said plunger to a forward end of said lever; and a hand guard, side walls of said hand guard extending around each end of said lever on both transverse sides of said lever, characterized by a yoke, said yoke including a pair of legs extending between said side walls of said lever and said side walls of said hand guard, said yoke being constructed and arranged to prevent application to said plunger, adjacent said hole through said plunger, of a substantial bending moment sufficient to break said plunger by transverse motion of said lever.

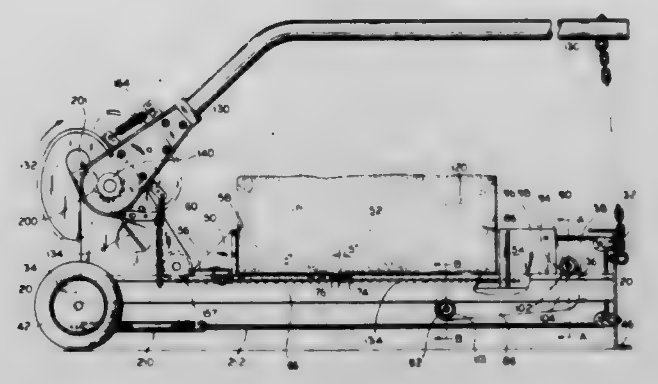
4,378,825
LOG SPLITTER

Edward M. Schroeder, R.R. Box 158, Chapin, Ill. 62628

Filed Dec. 5, 1980, Ser. No. 213,305

Int. Cl.³ B27L *7/00*

U.S. Cl. 144—193 R 18 Claims



1. A log splitter comprising:

(a) a frame which supports the parts of said log splitter;

(b) means for penetrating a log which exerts force against said log;

(c) means for holding said log against the force exerted upon said log by said means for penetrating said log;

(d) a handle pivotally mounted at a first end to said frame and manually moved in an arcuate path at a second end;

(e) a sheave rotatably mounted on said frame and driven in rotational motion by said handle when said handle is manually moved in said arcuate path;

(f) a drive cable attached at a first end to said sheave so that said drive cable is wound onto said sheave as said sheave is driven in said rotational motion, thereby providing said force between means for penetrating said log and said means for holding said log;

whereby arcuate motion of said handle rotates said sheave causing said drive cable to wind about the exterior surface of said sheave and said winding causes the distance between said means for penetrating said log and said means for holding said log to decrease, thereby exerting compressive force upon said log and causing said means for penetrating said log to penetrate said log and split said log.

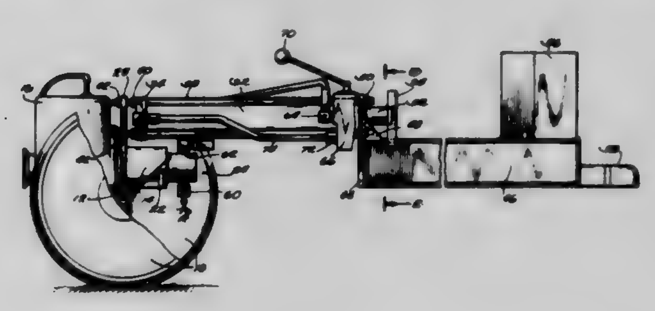
4,378,826
HYDRAULIC LOG SPLITTER

Michael E. Beach, East Troy, Wis., assignor to Didier Corporation, Franksville, Wis.

Filed Aug. 31, 1981, Ser. No. 297,954

Int. Cl.³ B27L *7/00*

U.S. Cl. 144—193 A 2 Claims



1. A log splitter comprising,

a beam,

a splitting wedge mounted at one end of the beam,

a butt plate fixed on the other end of the beam,

a hydraulic ram including a tie rod cylinder in which tie rods interconnect the cylinder head and the piston rod end head,

the piston rod end of said ram being mounted on said plate by said tie rods with the cylinder head projecting away from the beam,

a push plate connected to the piston rod of said ram to push logs resting on the beam against said wedge.

4,378,827

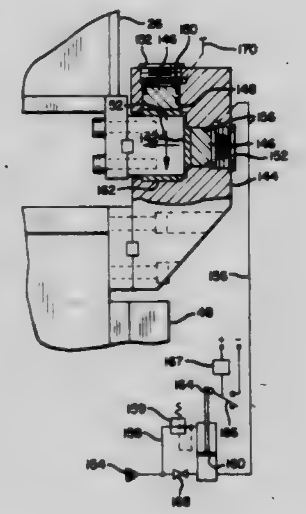
VENEER LATHE LUG CHARGER SYSTEM HAVING ENHANCED ACCURACY AND RATE OF PRODUCTION

Kenneth L. Shrum, Glide, and Donald L. Trax, Roseburg, both of Oreg., assignors to Sun Studs, Inc., Roseburg, Oreg.

Filed May 28, 1981, Ser. No. 268,017

Int. Cl.³ B27L *5/02*

U.S. Cl. 144—209 A **3 Claims**



1. A charger for a veneer lathe comprising:
(a) scanning means for sensing the shape of a log for determining the location of the longitudinal axis of the log for optimum production of veneer;
(b) adjusting means responsive to said scanning means for moving said log so as to align said longitudinal axis of said log with a reference axis;
(c) said adjusting means including a frame and slidable means for sliding with respect to said frame so as to move said log, further including bearing means interposed between said frame and said slidable means for guiding said slidable means relative to said frame, said bearing means being movable with respect to said frame toward said slidable means in a transverse direction relative to the sliding direction of said slidable means; and
(d) means for exerting a predetermined fluid pressure on said bearing means for forcing said bearing means against said slidable means in said transverse direction.

4,378,828

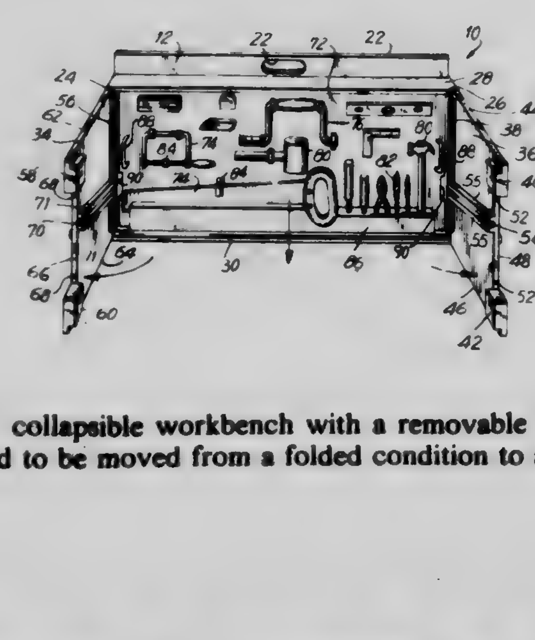
COMBINED COLLAPSIBLE WORKBENCH AND REMOVABLE TOOL CARRIER

James Shiminski, Sheffield, Mass., assignor to Stanley Zilka, Monterey, Mass., a part interest

Filed Apr. 6, 1981, Ser. No. 251,507

Int. Cl.³ B65D *85/54*

U.S. Cl. 144—285 **8 Claims**



1. A collapsible workbench with a removable tool carrier adapted to be moved from a folded condition to an unfolded condition comprising a top wall for providing a work surface when the workbench is in its unfolded condition; side walls extending downwardly from said top wall when the workbench is in its unfolded condition; leg panels movable from an open position for supporting the workbench in its unfolded condition to a closed position when the workbench is in its folded condition; a tool carrier movable from a storage position when said workbench is in its folded condition to an operative position when said workbench is in its unfolded condition; a storage space for maintaining said tool carrier in its storage position when said workbench is in its folded condition, said storage space defined by said top wall, side walls and leg panels; and means for maintaining said tool carrier in its operative position, when said workbench is in its unfolded condition.

4,378,829

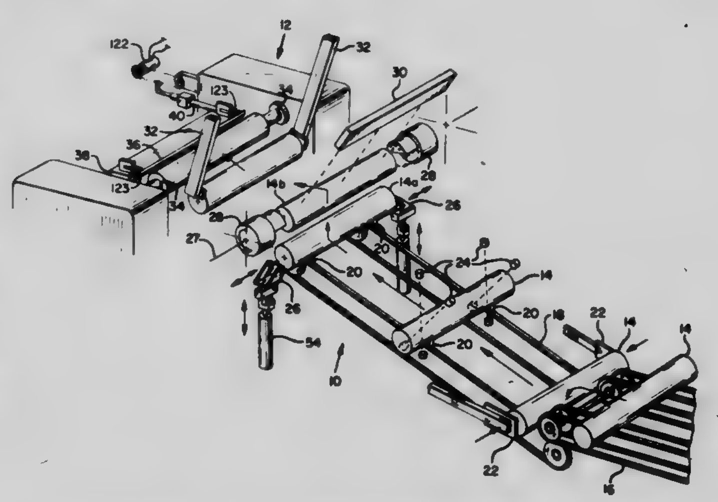
VENEER LATHE LOG CHARGER SYSTEM HAVING ENHANCED ACCURACY AND RATE OF PRODUCTION

Fred Sohn, Roseburg, Oreg., assignor to Sun Studs, Inc., Roseburg, Oreg.

Filed May 28, 1981, Ser. No. 267,711

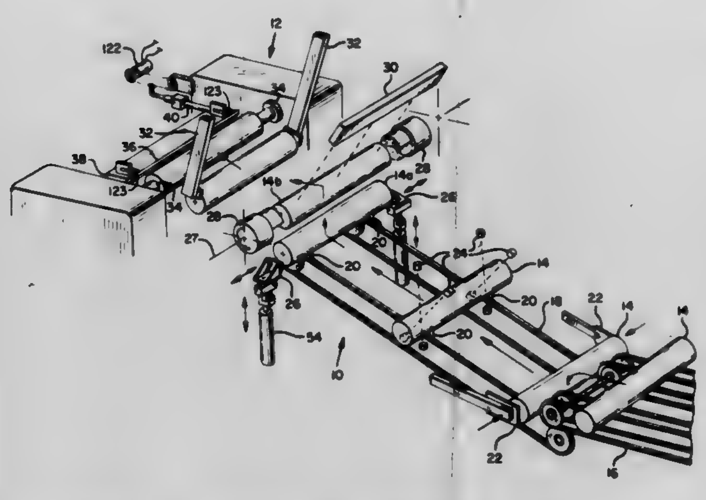
Int. Cl.³ B27L *5/02*

U.S. Cl. 144—357 **8 Claims**



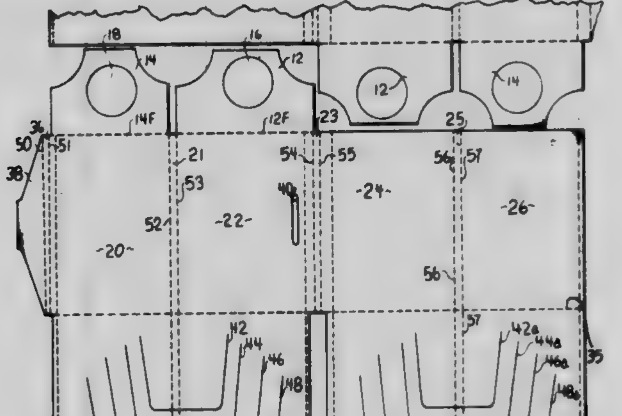
1. A charger for a veneer lathe comprising:
(a) log engagement means for engaging opposing ends of an elongate log;
(b) final scanning means for sensing the shape of said log while it is engaged by said log engagement means for determining the location of the longitudinal axis of the log for optimum production of veneer;
(c) transfer means for transferring said log from said log engagement means to a position wherein said longitudinal axis of said log is aligned with the rotational axis of said veneer lathe;
(d) preliminary scanning means for sensing the shape of said log for determining the location of a preliminary longitudinal axis of said log for optimum production of veneer; and
(e) final scanner loading means responsive to said preliminary scanning means for transferring said log from said preliminary scanning means to a position wherein said preliminary longitudinal axis of said log is in a predetermined alignment with respect to said log engagement means.

4,378,830
VENEER LATHE LOG CHARGER SYSTEM HAVING ENHANCED ACCURACY AND RATE OF PRODUCTION
David E. Itkin, Eugene, Oreg., assignor to Sun Studs, Inc., Roseburg, Oreg.
Filed May 28, 1981, Ser. No. 268,018
Int. Cl.³ B27L *5/02*
U.S. Cl. 144—357 **6 Claims**



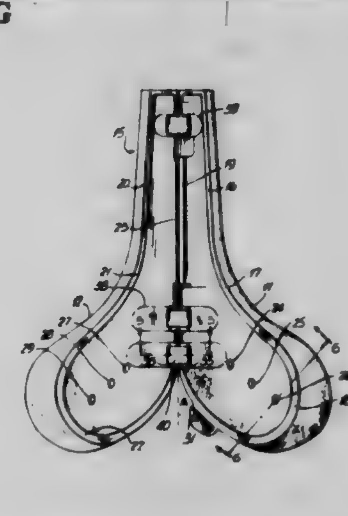
1. A charger for a veneer lathe comprising:
(a) scanning means for sensing the shape of a log for determining the location of the longitudinal axis of the log for optimum production of veneer;
(b) transfer means for transferring said log from said scanning means to a position wherein said longitudinal axis of said log is aligned with the rotational axis of said veneer lathe;
(c) said veneer lathe including a peeling knife and means for moving said knife in a reciprocating motion toward and away from said rotational axis of said veneer lathe;
(d) said transfer means including means responsive to said motion of said knife for advancing said log toward said rotational axis of said veneer lathe simultaneously with and in proportion to the movement of said knife toward said rotational axis.

4,378,831
COUPON WALLET AND ATTACHMENT DEVICE
Irving M. Koltz, 1329 Steeles Ave. T.W 4, Willowdale, Ontario, Canada (M2R 3N2)
Filed Oct. 24, 1980, Ser. No. 200,331
Int. Cl.³ A45C *11/18*
U.S. Cl. 150—39 **16 Claims**



1. A blank capable of being folded into a closable coupon holder, comprising:
(a) a first set of four contiguous panels, each of said panels of said first set being separated from at least one other panel by first fold means;
(b) a second set of two contiguous panels, each panel of said second set of panels being separated from at least one other panel by second fold means;
(c) a third set of two contiguous panels, each of said panels of said third set being separated from at least one other panel by third fold means;
(d) closure means, said closure means including a tab panel separated from said first set of contiguous panels by a forth fold means and a tab panel receiving slot in one panel of said first set of panels;
(e) fifth fold line means between said second set of panels and two panels of said first set of panels;
(f) sixth fold line means between said third set of panels and two panels of said first set of panels.

4,378,832
GOLF CLUB COVER
Albert N. Thompson, Winnipeg, Canada, assignor to M.H.A. Enterprises Ltd., Manitoba, Canada
Filed Mar. 20, 1981, Ser. No. 245,760
Claims priority, application Canada, Mar. 21, 1980, 348172
Int. Cl.³ B65D *65/04, 65/06;* **A63B** *53/00*
U.S. Cl. 150—52 G **2 Claims**



1. A golf club head cover comprising a pair of generally mirror-imaged rigid half-shells, each of said half-shells being provided with an internal padding, hinge means extending along a stem portion and a rear part of a head portion of a rim of each half-shell for hingedly securing the pair of half-shells together, and releasable latch means for releasably maintaining the half-shells in a closed state wherein an enclosed cavity, of a shape having a bulbous head portion merging with an elongate stem portion, is defined for covering a head and adjacent shank of a single golf club; wherein a series of vent passages are provided extending through each half-shell and the internal padding thereof for communicating said cavity with the exterior of the head cover; and wherein a shank end of each of the half-shells has an inwardly directed flange with a golf club shank centering recess therein, said recesses defining together, in said closed state of the half-shells, an end opening which, in end view, is drop-shaped, having a rounded portion directed toward the portion of the rim along which the hinge means extends and a covergent portion converging in a direction transversely away from the hinge means, whereby a partly offset shank of a club will be pushed to a centered position as the half-shells are brought from an open state into said closed state.

4,378,833

ANTI-SKID DEVICE FOR VEHICLES

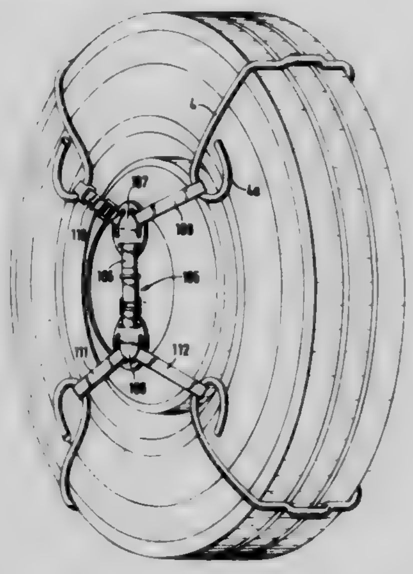
Lennart Lindblad, Hedasgatan 16, S-440 20 Vargarda; Karl-Erik Lindblad, Annelundsvägen 22, S-441 00 Alingsas; Sven-Olof Lindblad, Köpmansgatan 60, S-441 00 Alingsas, and Hans Lindblad, Hjälmared, S-441 00 Alingsas, all of Sweden

PCT No. PCT/SE79/00222, § 371 Date Jul. 3, 1980, § 102(e) Date Jul. 3, 1980, PCT Pub. No. WO80/00945, PCT Pub. Date May 15, 1980

PCT Filed Nov. 1, 1979, Ser. No. 198,103

Int. Cl.³ B60C *27/00*

U.S. Cl. 152—226 **5 Claims**



1. An anti-skid device for a wheel of a vehicle, comprising: at least two gripping elements, each gripping element being made from a continuous wire of resilient material and having two gripping portions which, when the anti-skid device is mounted on the wheel occupy positions spaced from each other circumferentially across the tread of the wheel, each gripping element also having two pairs of frame portions respectively connected to said gripping portions and when mounted on the wheel extending towards the center of the wheel on opposite sides thereof, each gripping element also having a connecting portion interconnecting the frame portions on one and the same side of the wheel while the frame portions on the other side of the wheel remain free and spaced apart from each other, and flexible strap means interconnecting all free frame portions, said flexible strap means including a central strap, and pairs of straps respectively connected to said central strap and extending therefrom to said free frame portions, whereby said free frame portions are free to move towards each other and towards the center of the wheel but are restrained from moving away from each other and radially outwardly from said center.

4,378,834

WHEEL ASSEMBLY MACHINE AND METHOD

Ronald L. Satzler, Princeville, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US81/00486, § 371 Date Apr. 13, 1981, § 102(e) Date Apr. 13, 1981, PCT Pub. No. WO82/03603, PCT Pub. Date Oct. 28, 1982

PCT Filed Apr. 13, 1981, Ser. No. 278,497

Int. Cl.³ B60C *25/06*

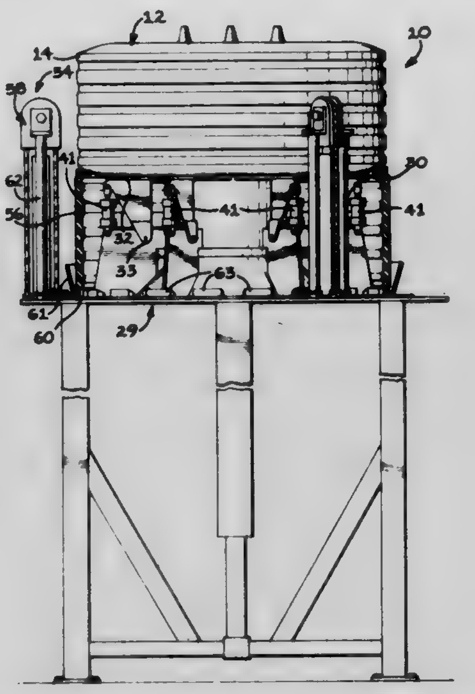
U.S. Cl. 157—1.1 **27 Claims**

6. A machine (10) adapted for assembling first and second rim halves (20) and a closed torus tire (14), said tire (14) having a rim abutting surface (22), said rim abutting surface (22) having a first portion (24) abuttable with a first rim half, and a second portion (26) abuttable with said second rim half (20), comprising:

a base (29);

support means (30) for supporting said tire (14) and locating said tire (14) axially on said machine (10), said support means (30) being mounted on said base;

means (28,42) for controllably drawing said second rim half (20) into abutting relationship with said second portion (26), said drawing means (28,42) being mounted on said base (29); and



expander means (34) adapted for restraining said first portion (24) of said tire (14) from substantial radial movement relative to said drawing means (24,42), said expander means being mounted on said base (29) and adapted for abutment with said first portion (24).

4,378,835

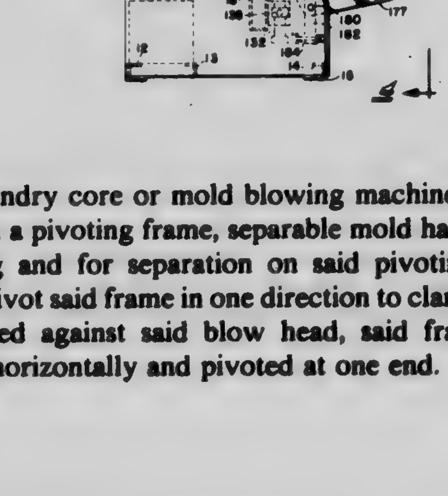
FOUNDRY CORE OR MOLD MAKING MACHINE

Gilbert J. Janke, Parma, Ohio, assignor to The Osborn Manufacturing Corporation, Cleveland, Ohio

Filed Jul. 28, 1980, Ser. No. 173,176

Int. Cl.³ B22D *13/12*

U.S. Cl. 164—183 **45 Claims**



1. A foundry core or mold blowing machine comprising a blow head, a pivoting frame, separable mold halves supported for closing and for separation on said pivoting frame, and means to pivot said frame in one direction to clamp such halves when closed against said blow head, said frame extending generally horizontally and pivoted at one end.

4,378,836

MANIPULATION METHOD AND DEVICE FOR A FOUNDRY

Robert Moussault, 92, rue du Maréchal Joffre, 78380 Bougival, France

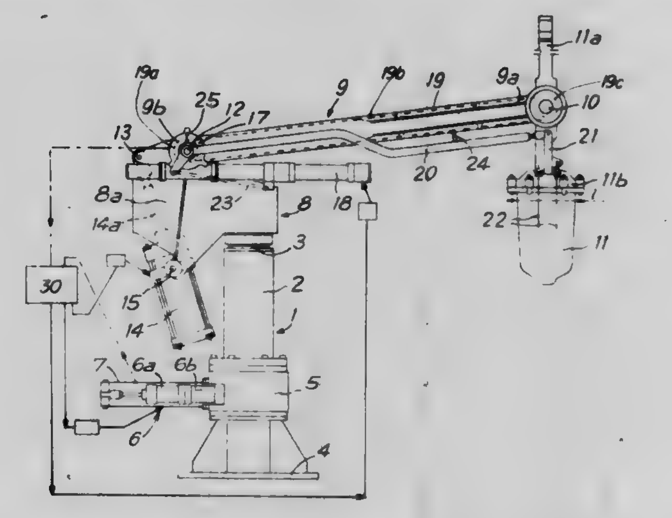
PCT No. PCT/FR79/00054, § 371 Date Feb. 22, 1980, § 102(e) Date Feb. 15, 1980, PCT Pub. No. WO80/00136, PCT Pub. Date Feb. 7, 1980

PCT Filed Jun. 22, 1979, Ser. No. 193,941

Claims priority, application France, Jun. 22, 1978, 78 18729

Int. Cl.^{3} B22D ***41/12***

U.S. Cl. 164—336 **9 Claims**



1. A transfer device comprising a frame including a fixed part and a mobile part rotatable relative to said fixed part about a vertical shaft, an arm hinged at one end thereof to the top of said mobile part about a horizontal pin and provided at its other end with means for attaching a load, means for rotating the mobile part of the frame relative to its fixed part, means for driving the arm about said horizontal pin, said driving means arranged between the mobile part of the frame and said arm in such a manner that the arm can rotate through approximately 180° and wherein said arm is arranged such that the attachment means is driven along a substantially vertical semicircle above a horizontal plane passing through said horizontal pin and said vertical semicircle including the axis of said vertical shaft, and means for controlling said rotating means, said control means being operative when said attachment means is directly above the axis of said vertical shaft.

4,378,837

HEAT EXCHANGER

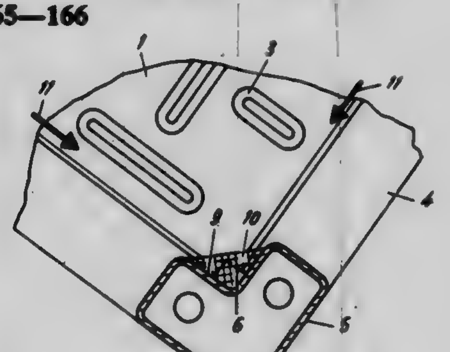
Gustav Ospelt, Vaduz, Liechtenstein, assignor to Hoval Interliz AG, Vaduz-Neugut, Liechtenstein

Filed Feb. 11, 1980, Ser. No. 120,161

Claims priority, application Fed. Rep. of Germany, Feb. 15, 1979, 2905732

Int. Cl.^{3} F28F ***3/10***

U.S. Cl. 165—166 **1 Claim**



1. In a heat exchanger having a exchanger pack which comprises a plurality of individual foil-type rectangular plates spaced from one another, said plates define edges and at their corners at corner pack edges thereof have triangular corner notches between which marginal strips of said plates extend, said plates in pairs at two oppositely-lying plate edges flatly lie one upon the other with said marginal strips extending between said corner notches forming alternately crossing flow-through passages between said plates and at said marginal strips the plates are connected with one another, a frame housing surrounding the exchanger pack, said frame housing comprising two covers which are disposed adjacent outer plates of the exchanger pack and four struts connecting the covers at their corners, said struts being operatively connected in sealing fashion with the corner pack edges of the exchanger pack which corner pack edges contain the corner notches of the plates,

the struts, on sides thereof facing the corner pack edges of the exchanger pack which corner pack edges contain the corner notches of the plates, being formed with a triangular recess the improvement wherein said triangular recess having a depth greater than the depth of the corner notches,

said corner pack edges with the corner notches as well as with the end of the respectively connected said marginal strips, adjacent to the corner notches, of the plates, project into said recesses, respectively, and

a sealing filling fills up said recesses on said struts up to beyond said corner notches, said triangular recess constitutes a mold form for sealing said sealing filling both to said struts and to said corner pack edges with the corner notches as well as with the ends of the respectively connected said marginal strips when said exchanger pack is mounted in said frame housing, said sealing filling consisting of a molding resin which is poured into the mold form with the exchange pack mounted in the frame housing.

4,378,838

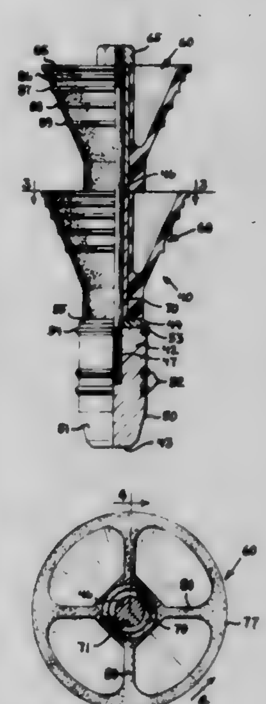
PIPE WIPERS AND CUPS THEREFOR

James D. Ogden, Carrollton, and Pat M. White, Lewisville, both of Tex., assignors to Otis Engineering Corporation, Dallas, Tex.

Filed Mar. 6, 1981, Ser. No. 241,080

Int. Cl.^{3} E21B ***33/08***

U.S. Cl. 166—153 **10 Claims**



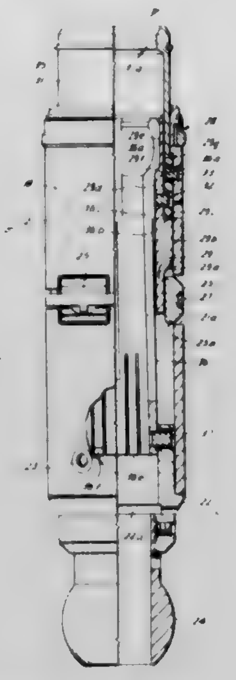
1. A pipe wiper, comprising:

a. a body;

b. at least one resilient external annular cup-like flange on said body extending outwardly and rearwardly; and

c. a plurality of radially disposed, longitudinally extending webs integral with said body and said flange for strengthening said flange to better resist being turned wrong side out.

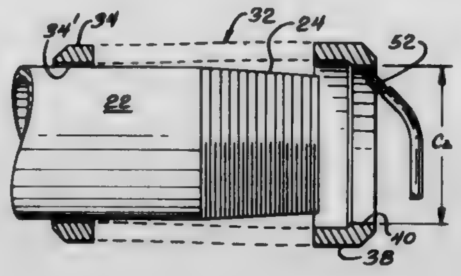
4,378,839
WELL TOOL
Ernest P. Fisher, Jr., Carrollton, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.
Filed Mar. 30, 1981, Ser. No. 249,189
Int. Cl.³ E21B *23/00*
U.S. Cl. 166—217 **11 Claims**



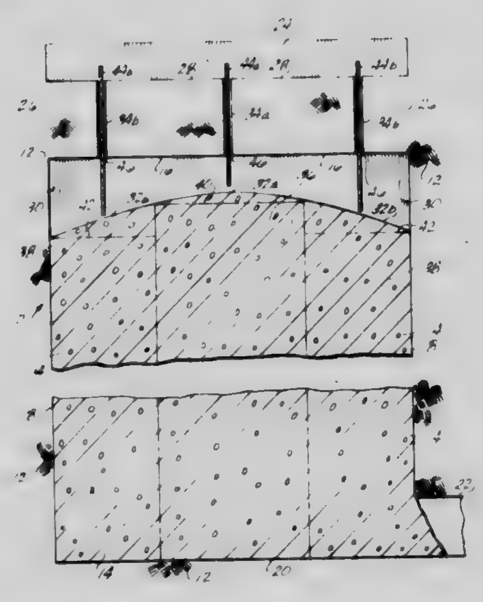
1. A locking mandrel comprising:
a body;
locking dogs carried by the body and extensible radially to lock the mandrel in a landing nipple;
prop-out means slidable in the body between an upper out-of-the-way position permitting the dogs to retract,
an intermediate position propping said dogs in extended position, and
a lower out-of-the-way position permitting said dogs to retract;
a setting sleeve movable downwardly from an upper running position to a lower setting position and moving said prop-out means from its upper out-of-the-way position to its intermediate dog extending position;
means between said body and said setting sleeve preventing movement of said setting sleeve below said lower setting position;
a release sleeve carried by said prop-out means and movable from an upper position to a lower position and moving said prop-out means to its lower out-of-the-way position to release said dogs;
means releasably securing said setting sleeve to said body in its upper running position; and
means releasably securing said release sleeve to said setting sleeve.

4,378,840
BIMETALLIC WELL SCREEN USE IN INJECTION WELLS AND METHOD OF MAKING SAME
James A. Lilly, Minneapolis, Minn., assignor to UOP Inc., Des Plaines, Ill.
Filed Apr. 28, 1981, Ser. No. 258,360
Int. Cl.³ E21B *43/08*
U.S. Cl. 166—233 **2 Claims**

1. A bimetallic well screen assembly for use in an injection well at elevated temperatures comprising a pipe base member having a perforated portion intermediate its ends and unperforated portions adjacent thereto, a well screen member having a slotted portion overlying said perforated portion and unslotted end ring portions overlying said unperforated portions, said well screen member having a temperature coefficient of expansion which is greater than the temperature coefficient of expansion of the pipe base member, said well screen member having one of said end ring portions welded to the underlying pipe base member, the other of said end ring portions having a radially compressed shrink fit connection to the underlying pipe base member at atmospheric temperatures, but being either slightly out of contact with said pipe base member or at least substantially unstressed at elevated operational temperatures, any spacing between said other end ring and said pipe base member at said elevated operational temperatures being less than the maximum width of the slot openings in the slotted portion of the screen member.

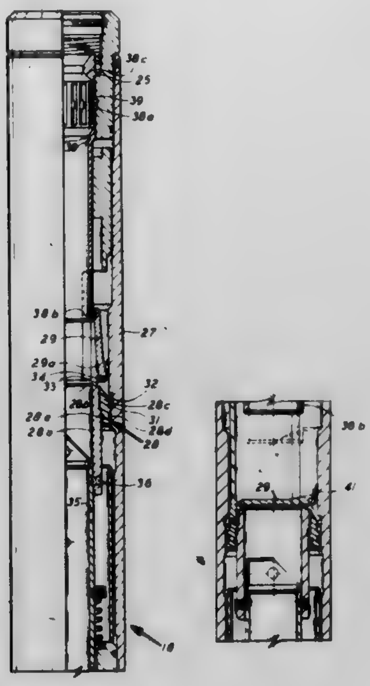


4,378,841
IGNITION TECHNIQUE FOR AN IN SITU OIL SHALE RETORT
Chang Y. Cha, Golden, Colo., assignor to Occidental Oil Shale, Inc., Grand Junction, Colo.
Filed Dec. 29, 1980, Ser. No. 220,787
Int. Cl.³ E21B *43/243*
U.S. Cl. 166—261 **39 Claims**



1. A method for igniting a fragmented permeable mass of formation particles containing oil shale in an in situ oil shale retort formed in a subterranean formation containing oil shale, comprising the steps of:
(a) establishing a combustion zone at about the top surface of a first region of the fragmented permeable mass of formation particles, the top surface of the first region located at a first elevation in the retort;
(b) introducing a retort inlet mixture comprising an oxygen-supplying gas into the retort for advancing the combustion zone downwardly through the first region of the fragmented permeable mass of formation particles to a second elevation in the retort below the first elevation; and then
(c) igniting the top surface of a second region of the fragmented permeable mass of formation particles at about the second elevation, the second region being spaced apart laterally from the first region for spreading the combustion zone laterally across the fragmented permeable mass of formation particles at about the second elevation in the retort.

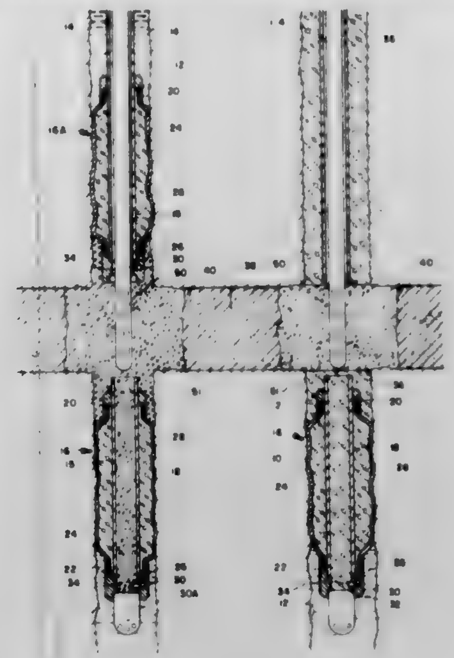
4,378,842
VALVE
Dhirajlal C. Patel, Carrollton, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.
Filed Feb. 9, 1981, Ser. No. 232,710
Int. Cl.³ E21B ***34/14***
U.S. Cl. 166—278 **3 Claims**



1. A valve comprising,
a body having a bore therethrough,
a valve opener carried by said body in said bore,
a valve seat slidable in said bore,
shear means releasably positioning said seat in said bore,
a check valve rotatable about pivot means carried by said seat and cooperable with said valve seat for preventing flow through said bore from its first end to its second end,
means urging said check valve toward seated position,
means urging one of said valve seat and valve opener toward a position in which said valve opener engages said check valve and holds it in open position, and
means for shearing said shear means to release said seat from said body.

4,378,843
METHOD FOR COMPLETION OF WELLS
George O. Suman, Jr., 4200 Westheimer Rd., Ste. 211, Houston, Tex. 77027
Filed Feb. 11, 1981, Ser. No. 233,449
Int. Cl.³ E21B ***33/13, 43/04***
U.S. Cl. 166—278 **8 Claims**

1. In a well having an open borehole with a formation which is to be isolated from a lower portion of open borehole, the method comprising:
running a string of pipe into the open borehole with an inflatable packer releasably attached to the lower end of the string;
positioning the packer at a desired depth below said formation to be isolated;
the packer having a radially expansible resilient sleeve sealingly connected at its ends to an interior mandrel and having passage means for permitting flow of fluid to the exterior of the mandrel into the interior of the sleeve;
preventing flow through the mandrel into the open borehole below said packer prior to passing cement through the pipe;
then passing cement down through the pipe string and into the mandrel with flow into the open borehole therebelow prevented through said passage means into said sleeve in an amount and under a pressure sufficient to expand the sleeve in an amount and under a pressure sufficient to expand the sleeve outwardly into tight gripping engagement with the wall of the borehole to anchor the packer to the wall of the borehole above said open borehole; and permitting the cement within the sleeve to set, and detaching



the running string from the packer and removing the running string of pipe from the borehole leaving the packer in position therein to act as a plug to isolate said formation from the open borehole below the packer.

4,378,844
EXPLOSIVE CUTTING SYSTEM
David D. Parrish, and John A. Barton, both of Spring, Tex., assignors to NL Industries, Inc., New York, N.Y.
Filed Jun. 29, 1979, Ser. No. 53,298
Int. Cl.³ E21B ***29/02***
U.S. Cl. 166—297 **17 Claims**

1. Apparatus for cutting tubular members comprising:
a. a generally elongate distribution of explosive material having first and second ends;
b. a first non-electric detonator for communication with said first end of said distribution of explosive material for initiating said explosive material;
c. a second non-electric detonator for communication with said second end of said distribution of explosive material for initiating said explosive material;
d. an electrical blasting cap;
e. first mild detonating fuze means for communication between said blasting cap and said first detonator whereby

detonation of said blasting cap effects initiation of said first detonator; and

f. second mild detonating fuze means for communication between said blasting cap and said second detonator whereby detonation of said blasting cap effects initiation of said second detonator;

g. wherein said first and second mild detonating fuze means are mutually equal in length and equal in velocity of detonation, whereby initiation of said blasting cap to simultaneously initiate said first and second mild detonating fuze means effects simultaneous initiation of said first and second ends of said generally elongate distribution of explosive material.

4,378,845

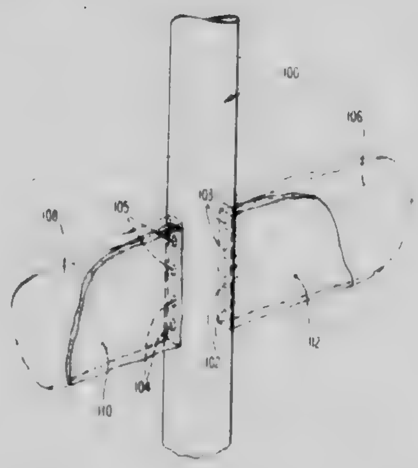
SAND CONTROL METHOD EMPLOYING SPECIAL HYDRAULIC FRACTURING TECHNIQUE

William L. Medlin, Dallas; Lynn D. Mullins, De Soto, and Gary L. Zumwalt, Dallas, all of Tex., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 30, 1980, Ser. No. 221,478

Int. Cl.³ E21B *43/04, 43/119, 43/267*

U.S. Cl. 166—297 **4 Claims**



1. A sand control method for use in a borehole having a loosely consolidated or unconsolidated pay zone which is otherwise likely to introduce substantial amounts of pay sand into the borehole, comprising the steps of:

(a) providing a borehole casing through said pay zone;

(b) perforating said casing at preselected intervals therealong to form at least one set of longitudinal, in-line perforations;

(c) pumping high consistency index fracturing fluid containing a gravel pack sand through said perforations at the highest practical rate to form a fracture height and width contiguous to said perforations which exceeds the height and width of said set of said perforations;

(d) gradually increasing the sand concentration during step (c) to approach sand-out at shut in;

(e) shutting in the well to permit said fracturing fluid to decompose;

(f) flowing the well back slowly to reduce the well head pressure to about the reservoir pressure; and

(g) producing from the well at a gradually increasing production rate without any sudden pressure changes,

said steps (c), (d), (e), (f) and (g) being performed in a manner which ensures that the sand fill of the fracture formed adjacent to said set of perforations exceeds the height and width of said set of perforations and is not washed out above the topmost perforation before fracture closure has occurred, whereby sand production from said pay zone is controlled.

4,378,846

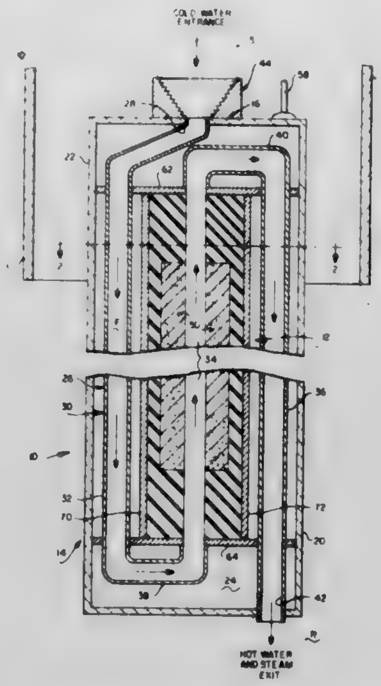
ENHANCED OIL RECOVERY APPARATUS AND METHOD

Kurtis B. Brock, 6870 E. 11th St., Long Beach, Calif. 90815

Filed Dec. 15, 1980, Ser. No. 216,425

Int. Cl.³ E21B *43/24*

U.S. Cl. 166—303 **7 Claims**



1. Apparatus for heating hydrocarbons in an underground reservoir and facilitating flow of the hydrocarbons, comprising, in combination:

(a) flow channel means disposable in a reservoir of hydrocarbons for forming a flow path for a working fluid; and

(b) heating means associated with the flow channel means for heating the working fluid prior to discharging the heated working fluid from the flow path and into a reservoir of hydrocarbons to be heated, the flow channel means including, in combination:

(1) a housing having an exterior and defining a hollow chamber; and

(2) conduit means arranged in the chamber of the housing and communicating with the exterior of the housing for forming the flow path, the conduit means including a fluid inlet to the chamber, a restricted fluid flow circuit through the chamber and a fluid outlet from the chamber, the housing being provided with connector means for attaching the housing to a lower end of a pipe string, the fluid inlet and fluid outlet being respectively located in the maximum spaced portions of the housing, and the fluid flow circuit of the conduit means forming a tortious path, substantially "S" shaped, between the fluid inlet and fluid outlet and arrangeable relative to an associated pipe string to form three substantially parallel, vertically disposed legs, the working fluid being a liquid, and the heating means including a pair of series connected electrodes at least partially forming a middle one of the legs, the latter being arranged forming an upwardly directed flow path means passing between the pair of electrodes for assuring that the liquid of the working fluid completely fills the associated one of the legs.

6. A method for facilitating the recovery from wells of hydrocarbons having relatively high viscosities, comprising the steps of:

(a) arranging a heating unit at the bottom of a pipe string in a reservoir of hydrocarbons;

(b) passing through the heating unit a fluid heat transfer medium;

(c) heating the fluid as it passes through the heating unit;

(d) injecting the heated fluid into the reservoir of hydrocarbons for reducing viscisity of the hydrocarbons;

(e) recovering by conventional techniques the reduced vis-

cosity hydrocarbons; the step of heating the fluid including the step of passing the fluid between a plurality of pairs of series connected electrodes and using the fluid as part of an electrical circuit connecting the pairs of electrodes; and

(f) maximizing a resistance in a path through the working fluid between the electrodes in relation to a total resistance of the associated circuit for causing a maximum voltage to occur in the working fluid.

4,378,847
VALVE

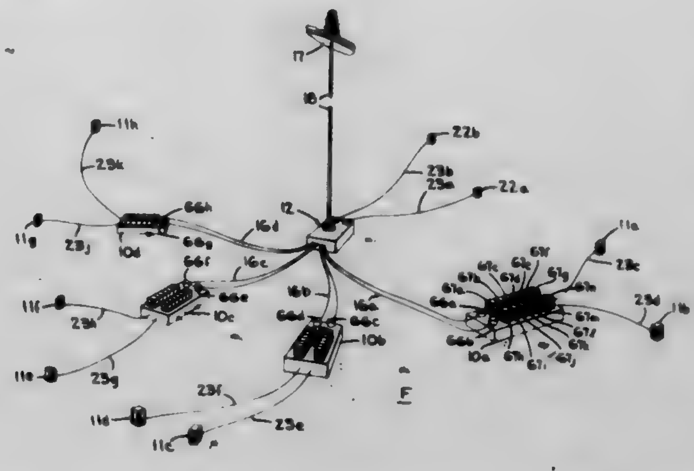
Dhirajlal C. Patel, and Robert B. Wheeler, both of Carrollton, Tex., assignors to Otis Engineering Corporation, Dallas, Tex.
Filed Feb. 9, 1981, Ser. No. 232,711
Int. Cl.^{3} E21B *34/14*
U.S. Cl. 166—317 **3 Claims**

1. A valve comprising,
a body having a bore therethrough,
a downwardly facing shoulder in said body bore,
a land in said body bore below said shoulder,
a groove in said body bore below said land,
an annular valve seat in said body bore having a tubular extension,
a valve opener telescoped in said tubular extension,
shear means releasably connecting said tubular extension and valve opener,
resilient means urging said valve opener upward to hold said valve seat against said downwardly facing shoulder,
seal means between said valve seat and said land,
a check valve carried by said valve seat,
resilient means urging said check valve toward closed position,
and a prop-out sleeve removably held in said body bore and propping said valve member in open position.

4,378,848
METHOD AND APPARATUS FOR CONTROLLING SUBSEA WELL TEMPLATE PRODUCTION SYSTEMS

Lionel J. Milberger, Spring, Tex., assignor to FMC Corporation, Chicago, Ill.
Filed Sep. 25, 1980, Ser. No. 191,046
Claims priority, application United Kingdom, Oct. 2, 1979, 7934106
Int. Cl.^{3} E21B *34/04, 43/017*
U.S. Cl. 166—362 **24 Claims**

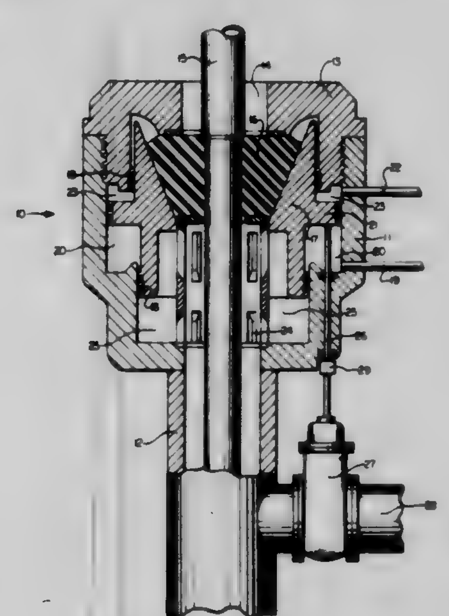
1. A system for control of subsea template production systems for use with a surface control unit, a riser positioned in the open sea terminating at a riser base, a template remote from said riser base and having attached subsea trees, and a plurality of satellite wells having attached operators, said system comprising:
a power source coupled to said surface control unit;
a base control module mounted on said riser base;
means for coupling said base control module to said power source and to said surface control unit;
a plurality of template control modules mounted on said template;



means for coupling said surface control unit and said power source to said satellite wells to control said operators in said satellite wells;
means for coupling said surface control unit and said power source to said template control modules; and
means for coupling said template control modules to said subsea trees for supplying control signals to said subsea trees from said template control modules.

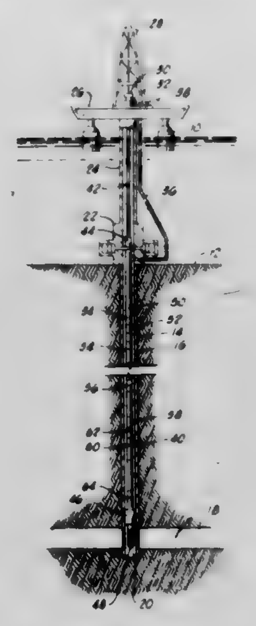
4,378,849
BLOWOUT PREVENTER WITH MECHANICALLY OPERATED RELIEF VALVE

Joe A. Wilks, P.O. Box 45085, Baton Rouge, La. 70895
Filed Feb. 27, 1981, Ser. No. 238,829
Int. Cl.^{3} E21B *33/06*
U.S. Cl. 166—369 **9 Claims**



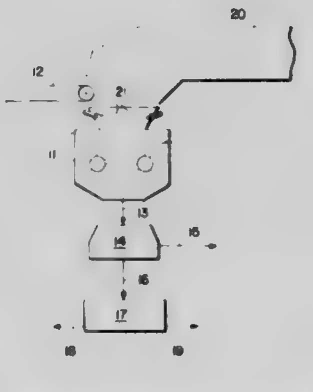
9. A method for preventing blowouts in a well comprising:
a. attaching a blowout preventer having a movable flow restricting means therein to a well casing pipe;
b. connecting a pressure relief pipe to the casing pipe between the blowout preventer and the bottom of the well, said pressure relief line having a valve therein; and
c. mechanically linking said movable internal flow restricting means of the blowout preventer to said valve so that said valve is opened when said blowout preventer is actuated.

4,378,850
HYDRAULIC FLUID SUPPLY APPARATUS AND METHOD FOR A DOWNHOLE TOOL
Burchus Q. Barrington, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.
Filed Jun. 13, 1980, Ser. No. 159,304
Int. Cl.³ E21B *34/64*
U.S. Cl. 166—373 **17 Claims**



1. A hydraulic fluid supply apparatus for a downhole tool, comprising:
a first zone adapted to be filled with hydraulic fluid;
a second zone adapted to be filled with a pressurized second fluid, said second zone being completely defined within a container means adapted to be placed downhole;
floating piston means, separating said first and second zones, for transmitting pressure from fluid in one of said zones to fluid in the other of said zones; and
control valve means, connected between said first zone and a hydraulically powered component of said downhole tool, for directing hydraulic fluid under pressure from said first zone to said hydraulically powered component of said downhole tool.

4,378,851
METHOD FOR INHIBITING EXPLOSIONS
Egbert deVries, Kettering, Ohio, assignor to Quad Environmental Technologies Corporation, Highland Park, Ill.
Filed Sep. 8, 1980, Ser. No. 185,024
Int. Cl.³ A62C *1/00*
U.S. Cl. 169—45 **7 Claims**



6. A method for suppressing or attenuating explosions within processing equipment having an entrance and an exit in which flammable mixtures of air with gas, dust or vapor are at least occasionally produced which comprises introducing into said equipment a sufficient quantity of aqueous microdroplets having a diameter less than about 20 microns to provide a droplet concentration in the air throughout the equipment including at the equipment exit sufficient to quench an incipient gas, dust or vapor explosion and the droplet concentration is such that the spacing between individual micro droplets is such that the passages or pathways throughout the mass of said microdroplets are sufficiently narrow to prevent flame progagation in said flammable mixtures.

4,378,852
WEDGE LOCK STABILIZER
William R. Garrett, 24 Palmer Dr., Conroe, Tex. 77302
Filed Apr. 9, 1981, Ser. No. 252,471
Int. Cl.³ E21B *17/10*
U.S. Cl. 175—325 **14 Claims**

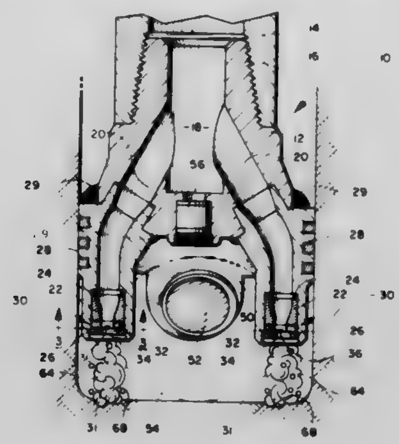
1. A drill string stabilizer for accommodating and retaining a plurality of replaceable wear elements thereabout for contacting the surface of the borehole during drill string operation,
said stabilizer having a body including a plurality of longitudinal slots of substantially uniform width, each of said slots being undercut to either side so that the width dimension at the surface of the stabilizer body is narrower than the undercut width,
at least one wear element fitting into each of said slots and conforming, on the underneath side thereof, at least on one side, with the undercut portion thereof,
the underneath side of said wear element also including a surface at a non-parallel angle with respect to the sides of said slot, said non-parallel angled surface including an undercut surface along at least a portion thereof, and
at least one tapered wedge bearing against said angled surface for holding said element in said slot and fitting at least in part within the undercut surface of said non-parallel angled surface and lying beneath the wear surface of said wear element.

4,378,853
CAVITATION NOZZLE PLATE ADAPTER FOR ROCK BITS
Weng-Kwen R. Chia, Irvine, and Robert S. Forrest, Tustin, both of Calif., assignors to Smith International, Inc., Newport Beach, Calif.
Filed Aug. 31, 1981, Ser. No. 297,793
Int. Cl.³ E21B *10/18*
U.S. Cl. 175—340 **6 Claims**

1. In a rock bit of the type that utilizes drilling mud directed through a drillstring and through said rock bit, said rock bit comprising:
a bit body having a first pin end and a second cutting end, said bit body further forming a chamber therein, said chamber being in direct communication with said drilling mud in said drillstring,
one or more non-cavitating nozzles in said bit body in com-

munication with said chamber to direct said drilling mud in a borehole bottom, and

one or more separate flow cavitation nozzle restriction means adapted to be positioned adjacent said one or more non-cavitating nozzles, said one or more flow cavitation restriction means comprises a substantially circular flow cavitation disc positioned adjacent said separate non-



cavitating nozzle body, said disc forming a central nozzle orifice thereby, a flow cavitating restriction means is positioned within said nozzle orifice, said flow cavitation restriction means being attached to said disc, to cause said drilling mud to exit said nozzle openings in a turbulent flow and to cavitate as said drilling mud passes through said one or more separate nozzle flow restriction means.

4,378,854

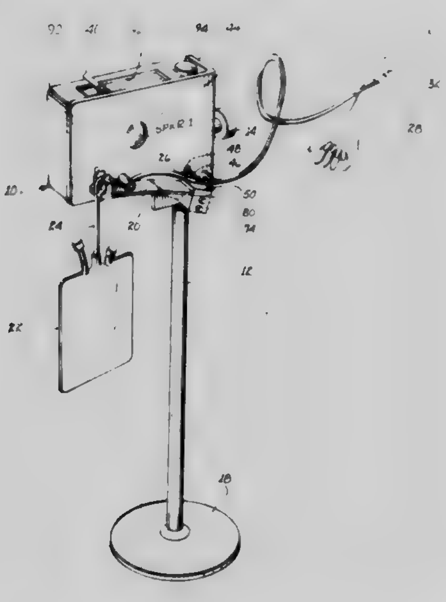
BLOOD COLLECTION BAG WEIGHING DEVICE

Evan W. Rosen, Tucson, Ariz., assignor to Engineering & Research Associates, Inc., Tucson, Ariz.

Continuation-in-part of Ser. No. 81,164, Oct. 2, 1979. This application Oct. 26, 1981, Ser. No. 314,586

Int. Cl.[3] G01G *13/02, 3/08, 23/00*

U.S. Cl. 177—118 **8 Claims**



1. A blood collection bag weighing device for filling a blood collection bag with a predetermined weight of blood flowing from a tube extending from the vascular system of a donor, said device comprising in combination:

(a) means for clamping the tube, said clamping means including a member for embodying stored energy when positioned in a retained state and for clamping the tube when positioned in a clamped state, said member including a planar surface and means for exerting a first magnitude of force against retention in the retained state and a second magnitude of force for clamping the tube in the clamped state;

(b) a permanent barium ferrite magnet for overcoming the first magnitude of force to magnetically capture and retain said member in the retained state, said magnet including a straight edge and movable mounting means for accommodating realignment of said magnet to position said straight edge of said magnet in aligned contacting relationship with said planar surface of said member and maximize the magnetic coupling therebetween;

(c) means for momentarily disrupting the magnetic field of said magnet to a value insufficient to overcome the first magnitude of force and independent of the magnitude of the second magnitude of force and permit repositioning of said member from the retained state to the clamped state in response to said exerting means;

(d) means for sensing achievement of the predetermined weight by the blood collection bag during the filling of the blood collection bag; and

(e) means for generating an electrical signal in response to said sensing means to energize said disrupting means;

whereby, the energy level of said barium ferrite magnet and of said generated electrical signal may be unrelated to the level of energy of the second magnitude of force to clamp the tubing.

4,378,855

MULTI-SPEED DRIVE WITH FORWARD/REVERSE LOCKOUT

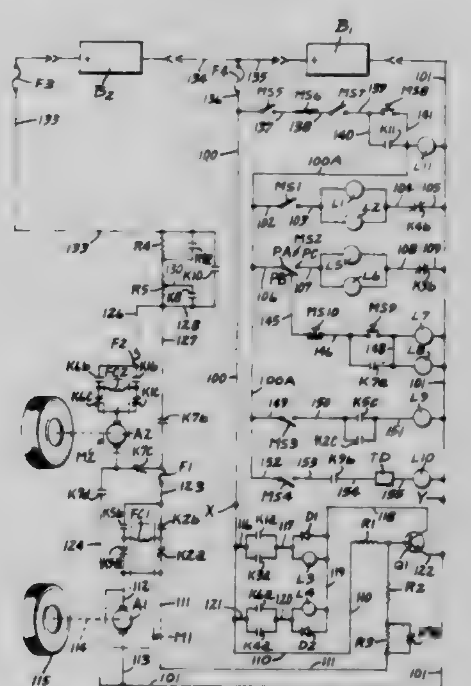
Donald J. Haub, Champlin; Neil T. Brown, Minneapolis; Keith N. Krier, Tonka Bay; Raymond C. Hawkins, Minneapolis, and Howard N. Seim, Columbia Heights, all of Minn., assignors to Tennant Company, Minneapolis, Minn.

Filed Aug. 20, 1979, Ser. No. 68,160

The portion of the term of this patent subsequent to Dec. 21, 1999, has been disclaimed.

Int. Cl.[3] B60K *1/02*

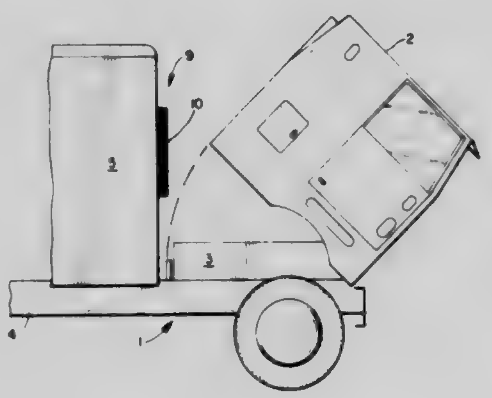
U.S. Cl. 180—65 R **11 Claims**



1. A floor maintenance vehicle comprising in combination a body, a plurality of wheels for supporting said body, means for steering said vehicle, means for maintaining floor surfaces, a plurality of reversible electric drive motors, each of said motors having a field coil and an armature coil, said motors being adapted for driving said wheels, a power source, means for selectively changing the electrical connection between said plurality of motors from series to parallel and parallel to series, reversing means for reversing the flow of current through each of said field coils while leaving unchanged the flow of current through the corresponding armatures to reverse the direction of said motors, means for preventing reversing direction of said drive motors until said vehicle has slowed to a predetermined speed; said preventing means including a circuit for sensing the rotation of said motors in a coasting state wherein said motors are rotating without voltage applied to said field coil and for

preventing the application of voltage to said field coils which would reverse the direction of said motors until said motors have slowed to a predetermined rotational velocity, said circuit including; voltage detecting means powered by said power source, said detecting means including means for amplifying a detected voltage, said detecting means being connected in parallel with said armature coils and having one pole of said armature coils and one side of said detecting means at the same electrical potential at all times for detecting voltage generated therein when said motor is in said coasting state and amplifying said voltage, and preventing means responsive to said detecting means for preventing application of said reversing voltage to said motor while said detecting means is sensing said generated voltage.

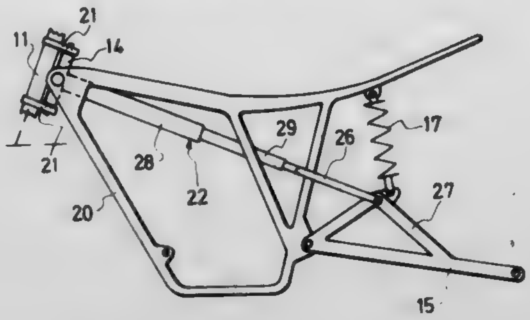
4,378,856
PASSAGEWAY FOR TRUCK CAB AND SLEEPER UNIT
Ray S. Miller, Shipshewana, Ind., assignor to Double Eagle Industries, Inc., Shipshewana, Ind.
Filed Feb. 24, 1981, Ser. No. 237,627
Int. Cl.³ B62D *25/00*
U.S. Cl. 180—89.14 **7 Claims**



1. An arrangement including a passageway connection for interconnecting the interior of a vehicle driver's cab, of a cab-over engine tractor having a driver's cab carried by a frame and upwardly swingable for providing engine access, and the interior of a sleeper unit mounted to said frame separately from and behind said cab, comprising:
(a) an outer accordian seal mountable perimetically continuously surrounding an external side of an opening in a wall of said sleeper unit and a facing opening in an exterior wall of said cab at respective opposite ends thereof, said accordian seal being fastened at one end to said sleeper unit and at the other end to said cab, the mounting of at least one of said ends of the accordian seal being by an easily demountable fastening means; and
(b) an inner boot member mountable about an inner side of said openings at respective opposite ends thereof, in a manner extending from the inner side of the opening in the wall of the sleeper unit, through said outer accordian seal and through the opening in the facing wall of the cab, to the inner side thereof, said inner boot being fastened at one end to said sleeper unit and at the other end to said cab, the mounting of at least one of the ends of the boot member being by an easily demountable fastening means.

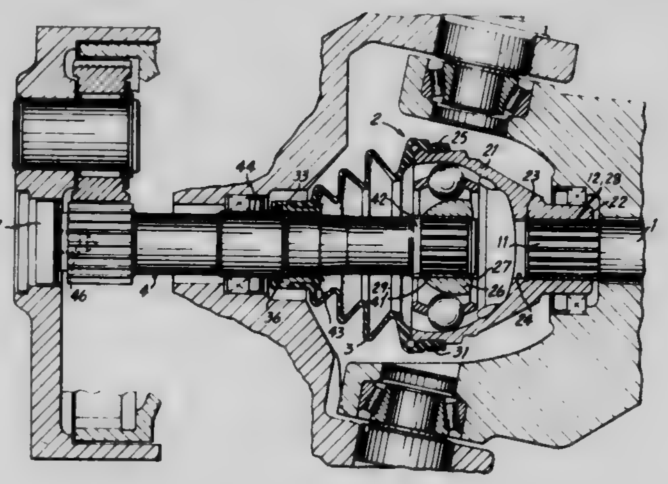
4,378,857
MOTOR-CYCLE FRAME
Erland Andersson, Hageryd 2923, Kullavik, Sweden (43041)
Filed Jan. 16, 1981, Ser. No. 225,664
Int. Cl.³ B62D *61/02;* **B62K** *25/04*
U.S. Cl. 180—227 **9 Claims**

1. A motor-cycle having a frame including a main frame member with a front end and a rear end, means at said front end for mounting a steering head supporting a front fork rotatable about a substantially vertical pivot axis, a rear fork swingably supported at the rear end of said main frame member, and spring means at said front and said rear forks, said frame further including horizontal pivot means for carrying said steering head mounting means at the front end of said main frame,



and movement transfer means connecting said rear fork with said horizontal pivot means.

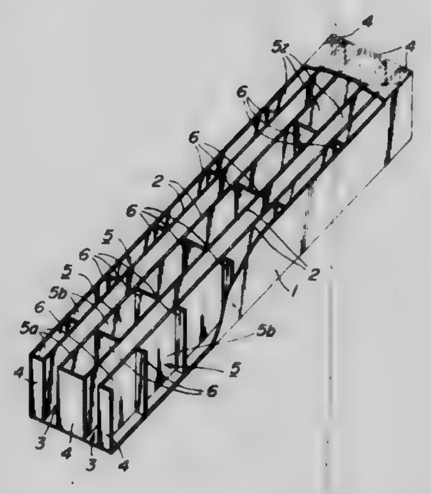
4,378,858
DRIVEN STEERING SHAFT ASSEMBLY
Manfred Göft; Dieter Maurer, both of Friedrichshafen, and Erich Aucktor, Offenbach, all of Fed. Rep. of Germany, assignors to Löhr & Bromkamp GmbH, Offenbach, Fed. Rep. of Germany
Filed Jul. 31, 1980, Ser. No. 174,174
Claims priority, application Fed. Rep. of Germany, Aug. 4, 1979, 2931764
Int. Cl.³ B60K *17/30;* **F16D** *3/84*
U.S. Cl. 180—259 **7 Claims**



1. A driven steering shaft assembly especially for a planetary steering shaft comprising: a universal joint interposed between a first and a second shaft coupled therethrough; said universal joint including an outer joint member coupled with said first shaft and an inner joint member coupled with said second shaft; means interconnecting said inner joint member and said second shaft in rotative driving engagement while permitting assembly and disassembly therebetween by axial movement of said second shaft relative to said inner joint member; a resilient sealing boot mounted to seal therein said universal joint, said sealing boot having at one end thereof a neck portion mounted in sliding engagement with said second shaft and, at an opposite end, means releasably fastening said sealing boot to said outer joint member of said universal joint; a cylindrical sealing face on said second shaft having said neck portion of said sealing boot engaged thereabout; a sleeve arranged between said cylindrical sealing face and said neck portion of said sealing boot, said neck portion being structured to create an inherent resilient spring force about said sleeve for holding said sleeve in tight sliding engagement on said cylindrical sealing face; a shoulder formed on said second shaft on the outside of said sealing boot adjacent said neck portion, said shoulder having a radially extending end face facing toward said sealing boot in sealing engagement with at least one of said sleeve and said neck portion; said sealing boot having an inherent resiliency in the axial direction of said assembly enabling adjustment to its greatest axial length and permitting assembly and

disassembly between said second shaft and said universal joint together with said sealing boot by axial movement relative thereto of said second shaft without detachment of said fastening means of said sealing boot; said resiliency in the axial direction of said sealing boot operating to maintain said sealing engagement between said end face and said at least one of said sleeve and said neck portion.

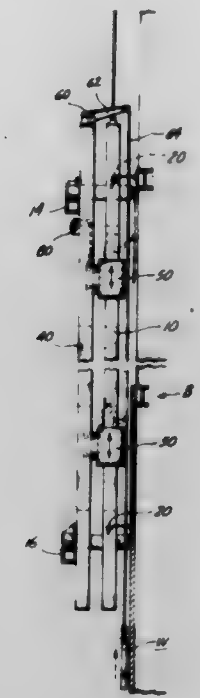
4,378,859
SILENCER FOR INTAKE/EXHAUST GAS DUCT
Seigo Satomi, and Masanosuke Ikai, both of Nagoya, Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan
Filed Jun. 8, 1981, Ser. No. 271,100
Claims priority, application Japan, Dec. 13, 1979, 54-172822
Int. Cl.³ E04F *17/04;* **F01N** *1/02*
U.S. Cl. 181—224 **4 Claims**



1. A silencer for an intake/exhaust gas duct having a duct casing wall defining an inside space over the entire length thereof with inlet and outlet openings, said silencer comprising noise-absorbing partition means extending through said inside space over the entire length of said gas duct in parallel with but spaced from said duct casing wall, said noise-absorbing partition means comprising a plurality of porous ceramic plates assembled side by side, said ceramic plates being provided with a plurality of minute apertures extending across the thickness of said plates; gas passage means extending in said inside space from said inlet opening to said outlet opening, said gas passage means having a sidewall, at least a major portion of said sidewall being said ceramic plates; noise-absorbing space means defined in said inside space adjacent said gas passage means with said noise-absorbing partition means disposed therebetween, said noise-absorbing space means being free of noise-absorbing material; noise-shielding plates disposed at inlet and outlet openings of said gas duct so as to close said noise-absorbing space means; and a plurality of gas chambers defined in said noise-absorbing space means by a plurality of noise-shielding sectional walls disposed in said noise-absorbing space means.

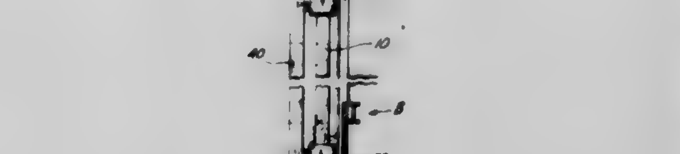
4,378,860
MOVABLE STAGING SCAFFOLD SYSTEM FOR BUILDING CONSTRUCTION
Claude C. Newberry, P.O. Box 1111, Silverdale, Wash. 98383
Filed Apr. 24, 1981, Ser. No. 257,329
Int. Cl.³ E04G *3/10, 3/16*
U.S. Cl. 182—38 **15 Claims**

1. A building construction work staging scaffold system comprising a pair of transversely spaced, elongated parallel frame members, a pair of elongated transversely spaced track members extending transversely between said frame members and interconnecting the same to form an open staging area framework, means for suspending said framework alongside a building structure and adapted to permit shifting the suspended positioning of said framework as the work progresses, at least one elongated traverse track extending transversely between said track members, a first set of carriage means movably engaging the respective track members and movably supporting the traverse track thereon for translational movement along said track members, at least one worker car movably



mounted on said traverse track, and means operable to move said car along said traverse track.

4,378,861
ESCAPE SLIDES
Philip M. Burrough, Liss, and David V. Edwards, Loxwood, both of England, assignors to RFD Inflatables Limited, Surrey, England
Filed Oct. 17, 1980, Ser. No. 198,222
Claims priority, application United Kingdom, Oct. 19, 1979, 7936453
Int. Cl.³ A62B *1/20;* **B64C** *1/22;* **B64D** *1/08*
U.S. Cl. 182—48 **13 Claims**

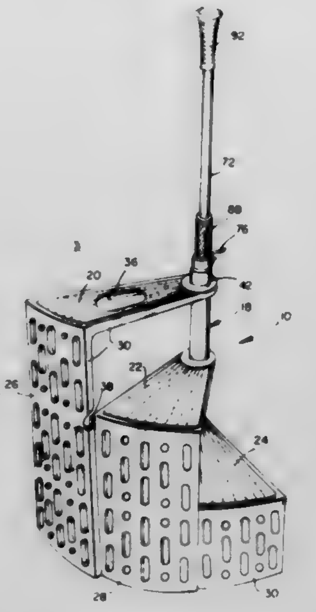


1. An escape slide arranged to provide an inclined descent path for evacuees, the slide comprising support structure and a slideway supported thereby, the slideway comprising a first sheet of flexible material provided with holes through which water drains and a second sheet of a woven fabric arranged in such spaced relation beneath the first sheet as to permit drainage of water through the first sheet while serving as a support therefor when the first sheet distends under load during use of the slide by evacuees.

4,378,862
PORTABLE SPIRAL STAIRCASE
A. Peter Carmel, Peekskill, N.Y., assignor to Modular Industries Ltd., New York, N.Y.
Filed Oct. 21, 1980, Ser. No. 199,338
Int. Cl.³ E06C *1/383;* **A47C** *9/12;* **E04F** *11/12*
U.S. Cl. 182—106 **11 Claims**

1. A portable spiral staircase in the form of a free-standing structure comprising a plurality of step means for providing horizontal support surfaces, said step means being hingedly mounted to a pintel post for swingable movement and angularly displaceable about a common vertical axis from a nested

non-operative mode into an open operative mode, coupling means for releasably securing the steps in the open mode, said



pintel post having means adapted for supporting elongate handle means.

4,378,863

AUTOMATIC ADJUSTER FOR HYDRAULIC BRAKE ACTUATOR

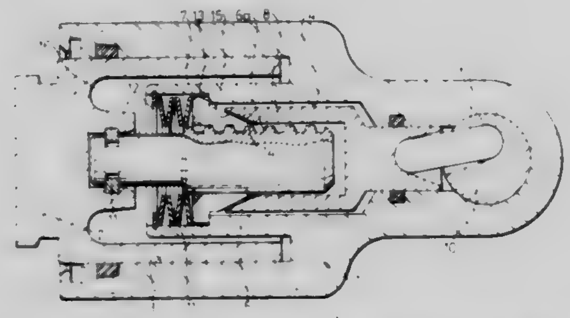
Heinz W. Baum, Saarbrucken-Dudweiler, Fed. Rep. of Germany, assignor to Lucas Industries Limited, Birmingham, England

Filed Aug. 25, 1980, Ser. No. 180,948

Claims priority, application United Kingdom, Aug. 30, 1979, 7930119

Int. Cl.^{3} F16D *65/40*

U.S. Cl. 188—71.8 **6 Claims**



1. An automatic adjuster for a hydraulic actuator for a vehicle brake comprising a housing, a clutch mechanism in said housing operative between a piston of the actuator and an auxiliary mechanical actuator, the clutch mechanism comprising a threaded rod and slit nut, the rod being threadedly engaged with said slit nut and one end of the rod being rotatably secured to the actuator piston for axial movement therewith at all times, said slit nut being biassed towards a rest position in which the slit nut engages a fixed stop, the threaded rod being freely rotatable and axially movable relative to said slit nut when the slit nut is in said rest position, said slit nut and threaded rod being constructed to grip together only upon actuation of the auxiliary mechanical actuator.

4,378,864

RAILWAY VEHICLE BRAKE BLOCK HOLDER

Anders O. G. Stjärne, Löddeköpinge, Sweden, assignor to SAB Nife AB, Landskrona, Sweden

Filed Apr. 17, 1980, Ser. No. 141,047

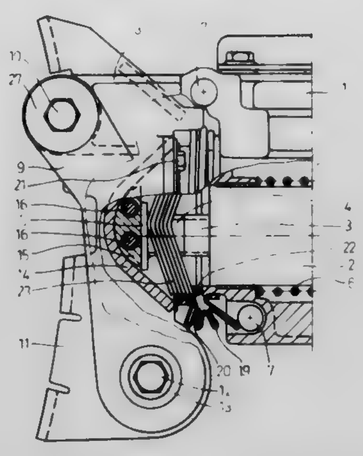
Claims priority, application Sweden, Apr. 20, 1979, 7903480

Int. Cl.^{3} B60T *11/04*

U.S. Cl. 188—153 R **9 Claims**

1. A railway vehicle brake block assembly with means for its suspension including brake block hanger means pivotally attached to a fixed part and to a brake block holder, and with means for connection to a brake force applying such rod, comprising in combination,

said brake block hanger means including structure extending from its pivotal attachment position on the fixed part



considerably past the center of the brake block holder to a single pivoted position on the brake block holder,

and means engaging said push rod with the brake block holder near the center thereof in a position intermediate the pivot positions of the hanger means.

4,378,865

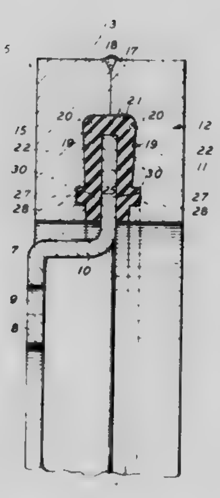
RUBBER AND VISCOUS/RUBBER TORSIONAL DAMPERS AND METHOD OF MAKING THE SAME

Ronald L. McLean, Tonawanda, N.Y., assignor to Houdaille Industries, Inc., Fort Lauderdale, Fla.

Filed Dec. 10, 1980, Ser. No. 215,111

Int. Cl.^{3} F16F *7/10*

U.S. Cl. 188—379 **19 Claims**



1. In a torsional damper assembly including a rotor disk having a radially outer annular body portion and an annular inertia mass having an annular chamber with a radially inwardly directed annular opening through which said annular body portion is received into said chamber, and elastic ring means of substantial width having substantially planar radially extending surfaces at least one of which is fixedly secured to said body portion and another such surface pressing against a substantial radial width of axially inwardly facing surface area within said chamber of the inertia mass under preload compression between said surface area and said body portion, the improvement comprising:

and annular groove of minor width in the radially inner side portion of said surface area and close to said annular opening;

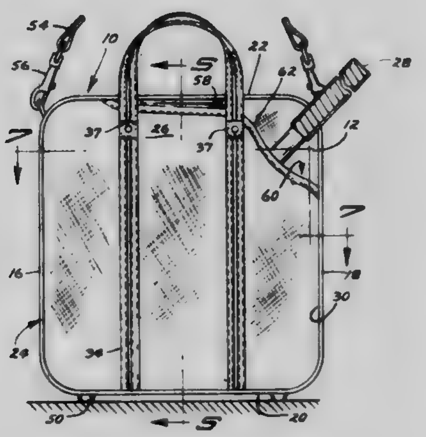
an abrupt substantially right-angular radially outwardly facing annular shoulder at the radially inner side of said groove;

an annular rib protruding from said another radially extend-

ing surface of said elastic ring means of minor radial extent relative to the radial extent of said ring means adjacent to the radially inner diameter of said elastic ring means and complementary to and fitting in said groove and having a substantially right-angular radially inwardly facing shoulder engaging said groove shoulder;

said shoulders cooperating for restraining said elastic ring means against radially inward extrusion flow displacement toward said opening, so that said preload compression is maintained radially outwardly relative to said rib.

4,378,866
COMPARTMENTED SPORT BAG
Joseph Y. Pelavin, North Bergen, N.J., assignor to CPG Products Corp., Minneapolis, Minn.
Filed Mar. 6, 1981, Ser. No. 241,341
Int. Cl.[3] B65D *30/22;* **A45C** *3/00, 13/26*
U.S. Cl. 190—52 **10 Claims**



1. A compartmented sport bag for a racquet and associated wearing apparel comprising a case formed by a pair of opposed side panels, a pair of opposed end walls, a bottom wall, and a top wall, said end, bottom and top walls forming a gusset which surrounds the sport bag, said bag having an inner surface, said top wall being provided with a first opening, closure means for closing said first opening, one of said side panels being provided with a second opening proximate the bottom wall, closure means for closing said second opening, an elongated, flexible hanging compartment within the sport bag which forms a first compartment therin, said hanging compartment having a top edge and being substantially the same length as the length of the sport bag, said compartment including a pair of elongated side panels and a pair of opposed end panels, means for joining the bottom edges of said side panels together, means for joining said end panels to the ends of the side panels, and means for securing the top ends of said side panels to the top wall of the sport bag whereby said hanging compartment is suspended within the sport bag, the top edges of said end panels remaining unattached to the top wall of the bag, the bottom of said hanging compartment being spaced a predetermined distance from the bottom wall of the sport bag whereby a second compartment is formed within the sport bag, said first opening permitting articles to be placed in said first or hanging compartment and said second opening permitting articles to be placed in said second compartment.

4,378,867
CLUTCH DRUM RETAINER
Luciano Pasqualucci, 6183 Shady Side Rd., Shady Side, Md. 20867
Filed Oct. 2, 1980, Ser. No. 193,075
Int. Cl.[3] F16D *13/56, 13/69*
U.S. Cl. 192—70.13 **12 Claims**

1. An antigrab clutch assembly for motorcycles and the like comprising:

(a) drive means including a sprocket and chain,

(b) a clutch housing secured to said sprocket and rotatable therewith,

(c) clutch hub means movable mounted in said sprocket,

(d) throwout assembly means secured to said clutch hub means,

(e) friction clutch disc means mounted on said hub means,

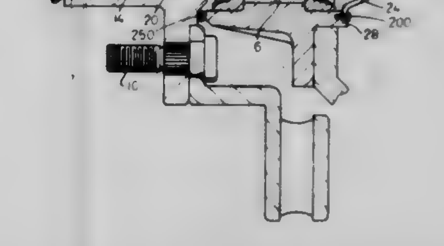
(f) engageable clutch disc means mounted on said clutch housing and cooperating with said friction clutch disc means,

(g) support shaft means mounted in said throwout assembly means,

(h) said throwout assembly means rotatable on said support shaft means, and

(i) means engageable with said clutch housing and mounted on said support shaft means for preventing axial movement of said clutch housing.

4,378,868
LIVE SPINDLE WHEEL ASSEMBLY WITH TORQUE RESPONSIVE DRIVE ENGAGEMENT MEANS
Harry A. Petrak, Boulder, Colo., assignor to Tenneco Inc., Bannockburn, Ill.
Filed Apr. 24, 1980, Ser. No. 143,197
Int. Cl.[3] F16D *11/00, 43/20*
U.S. Cl. 192—93 A **13 Claims**



1. In a wheel assembly having a live spindle, said spindle having a central aperture and said spindle being mounted for rotation in a bore of a mounting member, a drive axle extending into said aperture in said spindle, wherein the improvement comprises:

a substantially annular space between said drive axle and a surface defining said central aperture in said spindle;

a passive member within said annular space and in a radially spaced relationship from each said aperture defining sur-

face and said axle and means for preventing said passive member from rotating; and

clutch means engaged with said passive member and said axle whereby when said axle is forced to rotate said clutch means is operated.

4,378,869

CLUTCH DISC

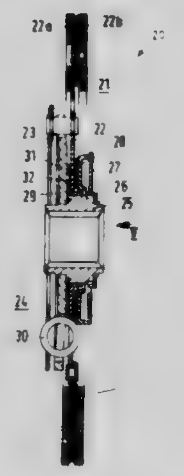
Oswald Friedmann, Buhl, Fed. Rep. of Germany, assignor to LuK Lamellen und Kupplungsbau GmbH, Buhl, Fed. Rep. of Germany

Filed Jan. 18, 1980, Ser. No. 113,305

Claims priority, application Fed. Rep. of Germany, Jan. 20, 1979, 2902188

Int. Cl.^{3} F16D *3/14*

U.S. Cl. 192—106.2 **14 Claims**



1. A clutch disc, especially for use in friction clutches of motor vehicles, comprising a first subassembly including a rotary hub; a second subassembly coaxial with said first subassembly, including at least one friction lining and being rotatable within limits relative to said first assembly; energy accumulator means interposed between and arranged to oppose at least some of the limited angular movement of said subassemblies relative to each other; and friction generating means interposed between said subassemblies and including a substantially washer-like axially stressed part which reacts against one of said subassemblies and establishes a form fitting connection with the other of said subassemblies, said other subassembly including at least one additional part which establishes said connection with said washer-like part, one of said parts including at least one contour which tapers in the axial direction of said subassemblies and the other of said parts having a countercontour in engagement with said contour to hold such parts against angular movement with reference to one another.

4,378,870

VEHICLE TORQUE CONVERTER

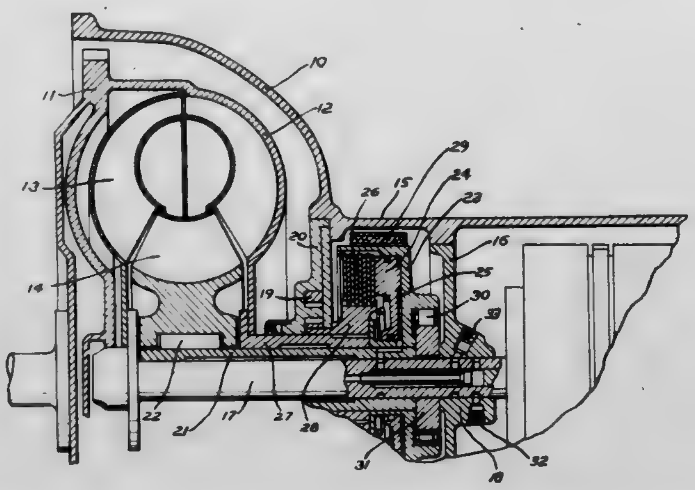
Edwin C. McRae, Box 922, Cusseta, Ala. 36852

Filed Nov. 23, 1979, Ser. No. 96,907

Int. Cl.^{3} B60K *41/28*

U.S. Cl. 192—3.24 **3 Claims**

1. In a motor vehicle torque converter having impeller and turbine and stator members mounted to define a fluid circuit, a turbine shaft having one end fixed to said turbine with its other end connected to the driving wheels of the vehicle when said vehicle is operating at highway speeds, means disposed between said stator member and said turbine shaft for preventing the stator member from overrunning the turbine shaft in a forward direction, and an engageable-disengageable mechanical drive connection between said impeller and said stator which is effective in one operational mode to mechanically lock said impeller to said stator and which co-operates with said means to thereby mechanically lock said impeller to said turbine shaft to thereby eliminate at highway speeds of the



vehical all of the slippage that would otherwise occur between said impeller and turbine.

4,378,871

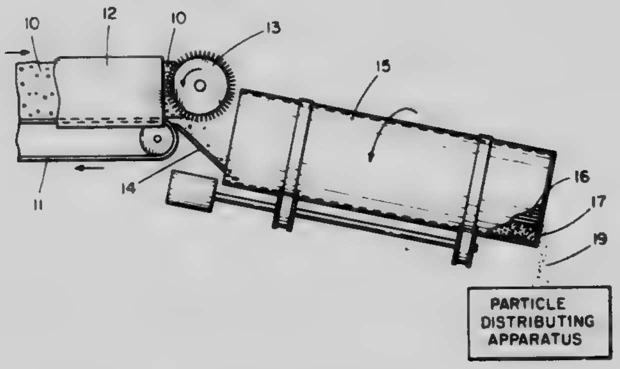
METHOD OF PRODUCING SMOOTH-UNIFORM STREAMS OF SEMI-POURABLE FIBROUS PARTICLES

James d'A. Clark, Chuckanut Point, Bellingham, Wash. 98225

Continuation of Ser. No. 839,195, Feb. 6, 1978, abandoned. This application Apr. 23, 1979, Ser. No. 32,700

Int. Cl.^{3} B65G *11/16*

U.S. Cl. 193—2 R **7 Claims**



1. In the process of feeding semi-pourable fibrous particles in the form of wood wafers, plates or shavings which tend to cling together as clumps or clusters to apparatus that serves to form the particles into a structure, the steps of obtaining a more uniform structure by continuously feeding the particles into the upper portion of a downwardly inclined conveyor, and under the influence of gravitational force and the motion of the conveyor agitating the particles during downward movement through the conveyor to cause clusters of particles to be broken up and spaced longitudinally, thus causing the particles to issue from a lower portion of the conveyor in the form of a smooth, continuous uniform stream, and feeding said smooth, continuous, uniform stream directly to said apparatus.

4,378,872

ARTICLE HANDLING APPARATUS

William L. Brown, Easton, Pa., assignor to SI Handling Systems, Inc., Easton, Pa.

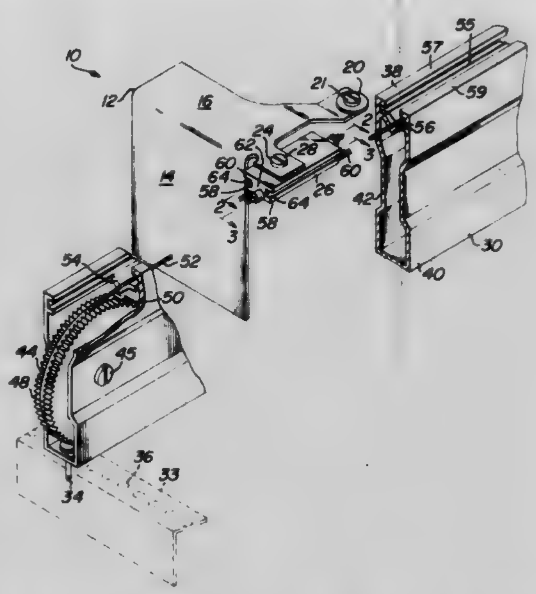
Continuation of Ser. No. 781,617, Mar. 28, 1977, abandoned. This application Dec. 13, 1978, Ser. No. 968,931

Int. Cl.^{3} B65G *37/00*

U.S. Cl. 198—570 **6 Claims**

1. Article handling apparatus for pushing articles comprising a horizontally disposed shelf, spaced dividers on said shelf dividing the upper surface of said shelf into parallel lanes, said dividers having a rear end portion and a forward end portion, pusher means having a vertically disposed face for pushing

articles along one of said lanes, said face extending generally perpendicular from the divider adjacent the lane in which the face is disposed, endless means supported by said divider for reciprocating said face along the lane in which it is disposed between a rear position adjacent said divider rear end position and a forward position, connecting means for connecting one end of said pusher means to a top run of said endless means so that said pusher means is pivotable about a vertical axis passing through said connecting means, a wheel supported by each end portion of said divider, at least the wheel at the rear end portion of said divider having a peripheral driving surface which



is at least partially exposed so that it may be contacted by a drive means, said endless means extending around a portion of each wheel, said pusher means being pivotable only in its rear position from an article contacting position in its associated lane to a loading position wherein a major portion of said face projects beyond the longitudinal end of said divider and is generally parallel to a vertically disposed plane passing through the lengthwise dimension of said divider, and means to prevent said face from pivoting out of contact with an article when said face is in its associated lane and spaced from its rear position.

4,378,873

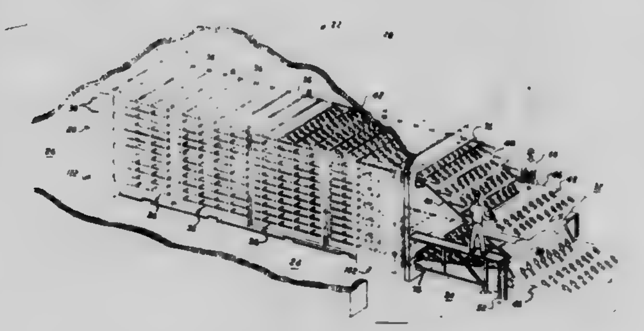
CONTINUOUS LINEAR CHAIN CONVEYOR SYSTEM OPERATING THROUGHOUT MULTIPLE TIERS WITH DUAL SPACED CHAINS MOVING DIRECTLY ATTACHED MULTIPLE ADJACENT TRAYS WHICH LEVEL TO SUPPORT THE CONVEYED PRODUCT

Westley R. Cloudy, Edmonds, Wash., assignor to Cloudy & Britton Inc., Mountlake Terrace, Wash.

Filed Oct. 1, 1980, Ser. No. 192,932

Int. Cl.³ B65G *17/18, 47/94*

U.S. Cl. 198—796 **13 Claims**



1. A continuous positive travel essentially linear like path dual spaced chain conveyor and temperature treatment system, utilizing essentially standard components of like coefficients of expansion and contraction, operating throughout multiple horizontal tiers to transport on identical horizontally supported movable trays except for possible products discharge, products which are being either cooled, frozen, warmed, heated, or dried, during a retention time within the enclosure, comprising:

(a) a large temperature treatment enclosure with an access end wall, having an air circulation system,

(b) a long supporting frame having multiple vertical spaced horizontal linear tier frame components disposed within the enclosure,

(c) a pair of transversely oppositely spaced uniformly driven chain sprockets arranged at each end of each horizontal linear tier of the conveyor, being mounted on shafts rotatably supported on bearings secured to the supporting frame,

(d) a cooperating transversely oppositely spaced standard idler chain sprocket which matches each driven chain sprocket and is longitudinally spaced a short distance from the driven sprockets at the end of each horizontal linear tier of the conveyor, the idler sprockets also being mounted on shafts rotatably supported on bearings secured to the supporting frame and driven at the same speed as the driven chain sprockets,

(e) continuous positive travel essentially linear like path dual spaced chain drive assembly with a chain at each side of the frame, each of which extends throughout the multiple tiers and respectively passes around all of the driven chain sprockets on that one side of the tier,

(f) multiple, spaced trays pivotally secured at a pivot connection at one of their corner ends on each side to the respective opposite links of the continuous dual spaced chains and at their other corner ends having a cross rod end to engage the idler sprockets,

(g) a horizontal longitudinal slide on support secured to and extending along the supporting frame at each tier to keep the trays level during their linear travel along their respective tier,

(h) the idler chain sprockets being mounted in horizontal alignment and longitudinally spaced from the driven chain sprockets by a distance equal to the dimension between the tray pivot connection and the cross rod end,

(i) the enclosure end wall being positioned close to the supporting frame and having a first horizontal opening adjacent the uppermost tier and a second horizontal opening adjacent the lowermost tier for permitting the dual spaced chains and their associated trays to pass therethrough,

(j) a pair of take-up sprockets located outside the end wall of the enclosure and aligned with the drive and idler sprockets and around which the dual chains pass and which constitute the loading and unloading portion of the conveyor system,

(k) the idler chain sprockets of each tier adjacent the end wall being closer to the end wall and disposed outside of the driven chain sprocket while the idler chain sprockets at the other end of the tiers are disposed inside the driven chain sprockets,

(l) the pivoted end of each of the trays being disposed further away from the end wall when such trays are within the enclosure, so that such trays can pivot downwardly to unload when the tray pass through the second opening in the end wall, and

(m) support means associated with each idler sprocket, and with the exterior portion of the dual spaced chains for supporting the tray horizontally when moving from one elevation to another.

4,378,874

PALLET ELEVATOR FOR A SHIP

Randall J. Schwab, Portland, Oreg., assignor to Transco Northwest, Inc., Portland, Oreg.

Filed Mar. 24, 1981, Ser. No. 247,168

Int. Cl.³ B65G *17/16*

U.S. Cl. 198—802 **9 Claims**

1. In an elevator,
an endless chain;
a drive sprocket and an idler sprocket, each of the sprockets

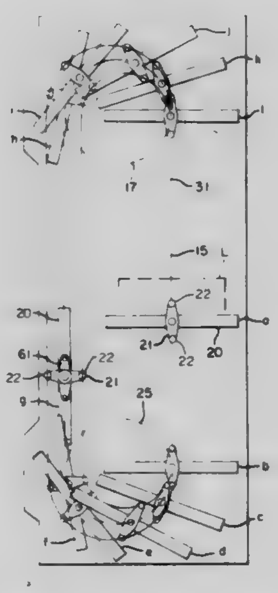
meshing with the chain and adapted to reverse the direction of travel thereof;

a symmetrical follower pivotally mounted at its center on the chain;

a pair of follower rollers symmetrically mounted on the follower, one roller of the pair being mounted at each end of the follower;

a symmetrical carrier tray carried by the follower, the center line of the tray being coincident with the center of the follower, the plane of the tray being perpendicular to the line joining the centers of the follower rollers; and

an endless guide track for guiding the rollers on the follower, the track comprising a single race adjacent one flight of the chain, a pair of parallel races adjacent the other flight of the chain, and a pair of outer cam tracks means for guiding the rollers adjacent the sprockets,



the outer cam track means merging the single race and the parallel races along generally arcuate paths,

the follower rollers being guided substantially vertically one above the other when they are in the single race, thereby to place the carrier tray in a horizontal load-carrying position when it is adjacent the one flight of the chain,

the follower rollers being guided one in each of the parallel races with the line joining their centers being substantially horizontal, thereby to place the carrier tray in a generally vertical position when it is adjacent the other flight of the chain,

the follower rollers passing from the single race to the parallel races and vice versa as they are guided by the outer cam track means, whereby the carrier tray is rotated ninety degrees as the follower is guided from the single race adjacent the one flight of the chain to the parallel races adjacent the other flight of the chain and vice versa.

4,378,875

SLING BELT BULK MATERIAL CONVEYOR

Kenneth N. Allan, Menomonee Falls; Thomas J. Worringer, Wauwatosa, and Robert T. Baugh, Brookfield, all of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

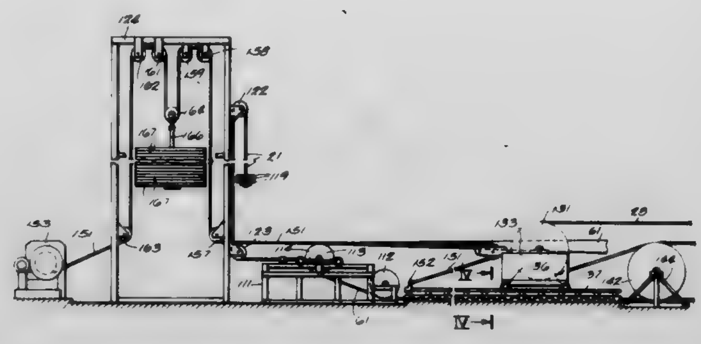
Filed Dec. 18, 1980, Ser. No. 217,587

Int. Cl.[3] B65G ***15/08***

U.S. Cl. 198—815 **11 Claims**

11. A conveyor including a pair of endless support cables each having a forwarding run and a return run between longitudinally spaced tail and head ends of said conveyor, said forwarding runs being substantially coextensive and situated at substantially the same elevation and support means supporting said support cables for respective movement along endless paths described by said support cables, said conveyor characterized by

a plurality of transverse slings arranged at longitudinally spaced intervals along said endless support cables, each sling including an intermediate flexible transverse strap and a pair of rigid hangers with first corresponding ends connected, respectively, to the opposite transverse ends of said strap and second corresponding ends pivotally connected, respectively, to fixed transversely aligned points on said support cables by pivot means for pivotal movement about axes generally transverse to the axes of said cables, and



an endless flexible conveyor belt having a working run and a return run, said working run being supported by said straps without attachment thereto in the forwarding run of said support cables.

4,378,876

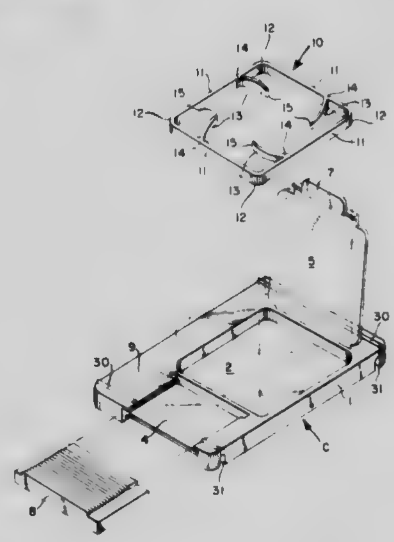
DISPLAY COIN HOLDER ASSEMBLIES

Bela G. Szabo, 109 Park Rd., Rosslyn Farms, Carnegie, Pa. 15106, and Dean J. Hirschfield, 261 Trotwood Dr., Pittsburgh, Pa. 15241

Filed Aug. 7, 1981, Ser. No. 291,085

Int. Cl.[3] B65D ***25/10***

U.S. Cl. 206—45.34 **6 Claims**



1. A display or shipping box of transparent plastic material, for a small valuable disk-like object, comprising

(a) a base having a substantially square recess in the upper surface thereof for seating the disk-like object therein,

(b) a cover for said base overlying said recess,

(c) a substantially square insert of molded plastic material with rounded corners, said insert having thin boundary walls and an external perimetrical outline conforming to the boundaries of said recess, and

(d) four thin integral yieldable tongues projecting inwardly from said boundary walls and spaced equidistantly therein relative to the corners of the insert, for resilient engagement with the periphery of said object at a plurality of equidistant points, said tongues being of uniform length, and of a height conforming to the height of said boundary walls, curved along their length, and of rectangular cross-section diminishing from the junctions with said walls.

4,378,877

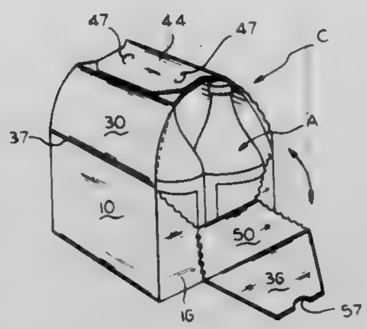
REUSABLE ENCLOSED CARRIER CARTON

David L. Botterman, and Natalie A. Wolff, both of Arlington, Tex., assignors to Container Corporation of America, Chicago, Ill.

Filed Apr. 13, 1981, Ser. No. 253,250

Int. Cl.[3] B65D *65/28, 75/08, 5/54*

U.S. Cl. 206—141 **4 Claims**



1. A fully enclosed article carrier carton, formed of a unitary blank of foldable paperboard, and having removable portions to provide access to the contents of the carton without destroying the integrity of the carton for reuse with empty bottles, said carton comprising:

(a) opposed pairs of side and end wall panels foldably joined to each other to form a tubular structure open at the top and bottom;

(b) said side and end wall panels including upper and lower sections separated from each other by horizontally disposed fold lines;

(c) bottom closure flaps foldably joined to said lower sections of said side wall panels and secured to each other in at least partially overlapped relation closing the bottom of said structure;

(d) top closure flaps foldably joined to said upper sections of said side wall panels and secured to each other in at least partially overlapped relation closing the top of said structure; and

(e) portions of said end wall upper and lower sections forming detachable portions being joined to the remaining portions thereof by weakened lines of tear permitting said detachable portions to be detached from said remaining portions to provide access to the contents of the carton without destroying the integrity of the center so that it can have limited reuse.

4,378,878

CROWN SUPPORT CARRIER

Earl J. Graser, Monroe, La., assignor to Manville Service Corporation, Denver, Colo.

Filed Aug. 19, 1981, Ser. No. 294,109

Int. Cl.[3] B65D *25/22, 5/50*

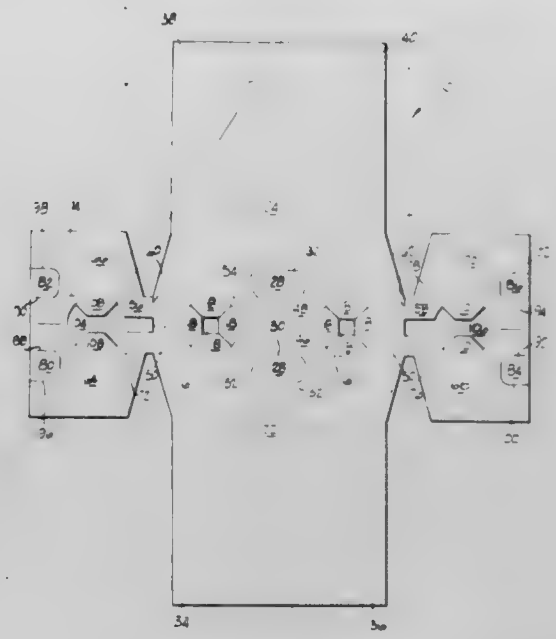
U.S. Cl. 206—153 **1 Claim**

1. The production blank for a crown support carrier comprising:

(a) a pair of central panels hingedly attached together, the central panels having positioned therein at least two bottle receiving openings, each bottle receiving opening having formed thereon a plurality of sunburst neck receiving tabs;

(b) an elongated panel hingedly attached to each central panel, each elongated panel having formed thereon handle means for carrying the erected container; and

(c) a pair of top reinforcing panels, hingedly attached on opposite ends of each pair of central panels for folding beneath the central panels whenever the carrier is erected, each top reinforcing panel having formed thereon on opposite sides thereof a side reinforcing panel hingedly attached to the top reinforcing panel and having formed thereon partial handle openings formed by a handle tab and positioned adjacent the handle means formed on the elongated panels, each top reinforcing panel also having formed thereon bottle receiving openings having formed thereon sunburst neck receiving tabs formed adjacent to the bottle receiving openings and the neck receiving tabs



formed on the central panels of the crown support carrier production blank.

4,378,879

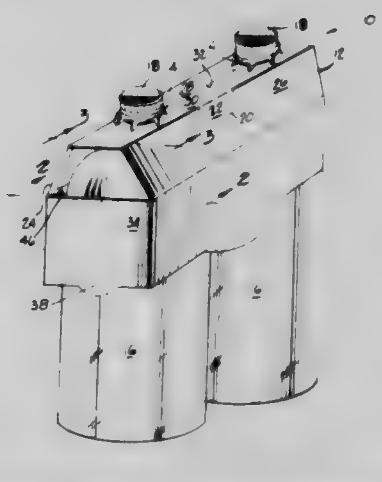
CROWN SUPPORT BEVERAGE CARRIER

Earl J. Killy, Monroe, La., assignor to Manville Service Corporation, Denver, Colo.

Filed Feb. 5, 1981, Ser. No. 231,703

Int. Cl.[3] B65D *85/62*

U.S. Cl. 206—158 **5 Claims**



1. The production blank for a crown support beverage carrier, comprising:

(a) a first side wall panel having formed thereon a handle opening;

(b) a first outer top wall panel hingedly attached to the first side wall panel;

(c) a second outer top wall panel hingedly attached to the first outer top wall panel, the first and second outer top wall panels having formed therein at least two sun burst bottle neck receiving openings;

(d) a second side wall panel hingedly attached to the second outer top wall panel and having formed therein a handle opening;

(e) a first end wall panel hingedly attached to one side of the second side wall panel and having formed thereon on one side thereof a glue flap;

(f) a second end wall panel hingedly attached to the other side of the second side wall panel and having formed thereon a glue flap on one side thereof;

(g) a first inner top wall panel hingedly attached to one side of the first outer top wall panel;

(h) a second inner top wall panel hingedly attached to one

side of the second outer top wall panel and also hingedly attached to the first inner top wall panel, the first inner top wall panel and the second inner top wall panel having formed thereon a sun burst bottle neck receiving opening;

(i) a first inner side wall panel hingedly attached to the first inner top wall panel;

(j) a second inner side wall panel hingedly attached to the second inner top wall panel;

(k) a third inner top wall panel hingedly attached to the other side of the first outer top wall panel;

(l) a fourth inner top wall panel hingedly attached to the other side of the second outer top wall panel, the third inner top wall panel and the fourth inner top wall panel hingedly attached to the outer side of the first outer top wall panel and second outer top wall panel having formed thereon a sun burst bottle neck receiving opening;

(m) a third inner side wall panel hingedly attached to the third inner top wall panel formed on the other side of the first outer top wall panel; and

(n) a fourth inner side wall panel hingedly attached to the fourth inner top wall panel hingedly attached to the other side of the second top wall panel.

4,378,880

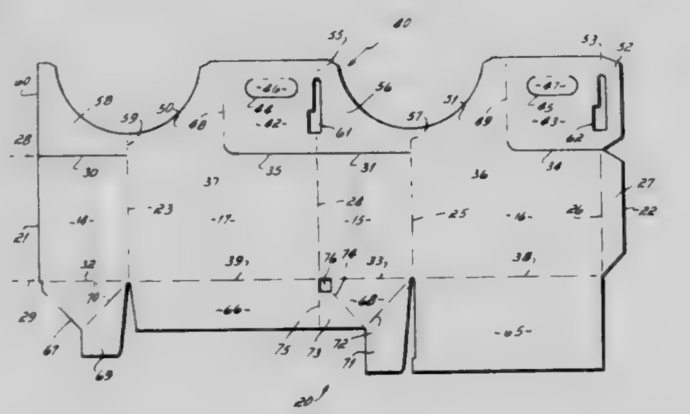
BASKET CARRIER

Gus E. Summers, Cincinnati, Ohio, assignor to The C. W. Zumbiel Co., Cincinnati, Ohio

Division of Ser. No. 105,535, Dec. 20, 1979. This application Jan. 12, 1981, Ser. No. 223,995

Int. Cl.³ B65D *75/00*

U.S. Cl. 206—170 **8 Claims**



1. A basket carrier movable from a flattened knock-down position to an erected position, said carrier comprising opposed side walls and opposed end walls,

a primary floor foldably connected to one side wall along a bottom edge thereof, and a secondary floor foldably connected to the other side wall along the bottom edge thereof,

a floor support panel foldably connected to one end wall along the bottom edge thereof,

a glue flap foldably connected to said floor support panel, the inside face of said glue flap being glued to the outside face of said primary floor panel, and

a gusset flap foldably connected to said floor support panel and foldably connected to said secondary floor, said gusset flap cooperating with both said primary and secondary floors to minimize sag of said carrier floor when said carrier is loaded, and to automatically unfold said primary floor into its set-up position as said carrier is erected from its knock-down position.

4,378,881

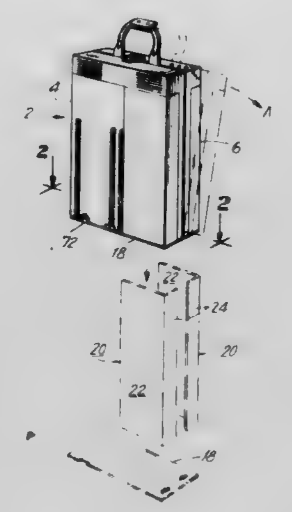
PORTABLE SECURING ASSEMBLY FOR AN ELECTRIC MUSICAL INSTRUMENT

Paul de Vries, 38 W. 10th St., New York, N.Y. 10011

Continuation of Ser. No. 95,437, Nov. 19, 1979, abandoned. This application Nov. 12, 1981, Ser. No. 320,197

Int. Cl.³ A45C *11/00*

U.S. Cl. 206—314 **7 Claims**



1. In an electric keyboard musical instrument having a plurality of actions including keys, reeds and pickup means in spaced relation to said reeds for generating an electric oscillation signal from the vibrations of said reeds and control components therefor, a hand protable protective and securing assembly, comprising:

a protective and supporting assembly including two housing members being hingably connected to each other, whereby said members are adapted to be positioned in a longitudinally aligned configuration and a folded adjacent configuration,

each member having an open portion along a first longitudinal section thereof through which said keys extend, said open portions being adapted to be in longitudinally aligned configuration; and

removable panel members adapted to overlie the keys and interconnect with said members to form a protective casing for said keys when the members are in a folded configuration, said housing members have bottom, back and top walls which enclose the actions, reeds and pick-up means except along the open portion, and said panel members and said housing members interconnect with an end member to complete the casing when the housing members are in a folded configuration.

4,378,882

STORAGE DEVICE FOR FISHING REELS

James A. Miller, 204 E. Diamond St., Kendallville, Ind. 46755

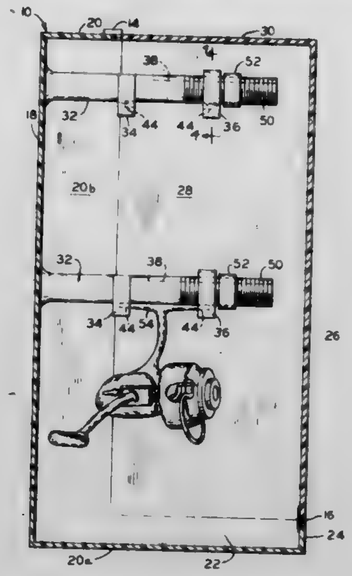
Filed Sep. 21, 1981, Ser. No. 303,932

Int. Cl.³ B65D *85/00, 85/62, 81/00;* **A63B** *55/00*

U.S. Cl. 206—315 R **10 Claims**

1. A storage device for fishing reels comprising an enclosure having an access opening and a first wall, a plurality of spaced supporting posts secured at one end to said wall and projecting outwardly therefrom, each of said posts having two spaced reel-retaining keepers thereon, one of said keepers being se-

cured against movement and the other being movable longitudinally of the respective post, and first means for holding said movable keeper against movement away from said secured keeper.



4,378,883

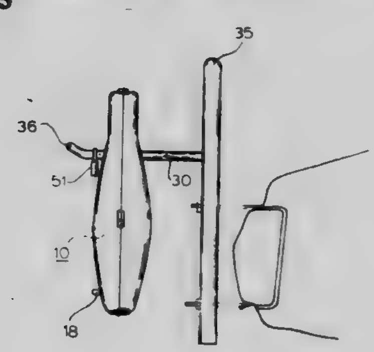
BICYCLE CARRYING CASE

Joseph G. Profeta, 16810 5th Ave. East, Spanaway, Wash. 98387

Filed Dec. 29, 1980, Ser. No. 220,467

Int. Cl.^{3} B60R *9/10*

U.S. Cl. 206—335 **4 Claims**



1. A bicycle container comprising:

a container body dimensioned to hold a bicycle therein including a closure openable to allow the introduction of a bicycle into said container body and closable to secure the bicycle therein;

said container body including an aperture therethrough positioned to coincide with an open region of the frame of the bicycle contained therein;

whereby said bicycle container may be carried by engagement therewith through said opening; and

wherein said aperture is of sufficient size to allow the container to be carried on the shoulder with a person's arm extending therethrough.

4,378,884

APPARATUS AND SYSTEM FOR THE DISPLAY AND SELECTION OF MERCHANDISE

David N. Anderson, 16210 Meadowcrest, Sherman Oaks, Calif. 91403

Filed Mar. 27, 1981, Ser. No. 248,515

Int. Cl.^{3} B65D *73/00;* A47F *7/00*

U.S. Cl. 206—459 **8 Claims**

1. In apparatus for the display and selection of merchandise, said merchandise having a plurality of identifying characteristics and including:

a display surface for displaying merchandise;

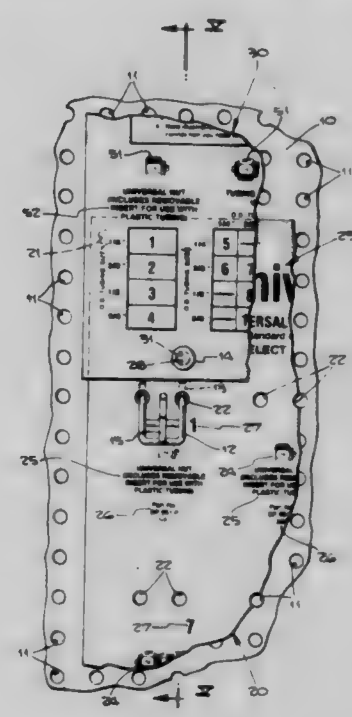
multiple merchandise carrying means mounted to said display surface for carrying displayed merchandise, each of said merchandise carrying means carrying merchandise having common characteristics;

multiple merchandise identifying indicia located on said merchandise said identifying indicia being associated with said common characteristics; and

an identifying placard mounted to said display surface and having indicia generally identifying the merchandise displayed by said display surfaces; the improvement in selection means carried by said placard comprising:

a matrix of indicia, said matrix having a first axis comprising requirement indicia associated with one characteristic of the displayed merchandise,

a second axis comprising requirement indicia associated with another characteristic of the displayed merchandise; and



a body comprising selection indicia aligned with said requirement indicia and corresponding with said merchandise identifying indicia;

whereby merchandise of predetermined characteristics can be selected from the displayed merchandise by locating the requirement indicia corresponding with each of said predetermined characteristics along the respective axis of said matrix determining the selection indicia of said matrix associated with said requirement indicia, and the selecting the merchandise identified by the merchandise identifying indicia corresponding with said selection indicia of said matrix.

4,378,885

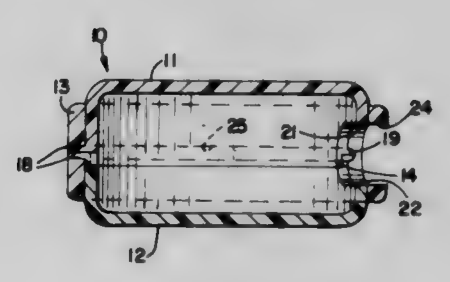
PILL BOX

Norbert Leopoldi, Chicago, and William P. Heinrich, McHenry, both of Ill., assignors to Cloverline, Inc., Chicago, Ill.

Filed Apr. 16, 1981, Ser. No. 254,921

Int. Cl.^{3} B65D *83/04, 85/56, 43/14*

U.S. Cl. 206—540 **3 Claims**



1. A pill box of circular form comprised of a top box member, a bottom box member, and an enclosure surrounding the top and bottom box members and having relative sliding move-

6

ment around the box parts to control the loading and discharge of pills from the pill box, said box members each have an outstanding rim forming a track upon which the enclosure is mounted, a guideway in the enclosure embracing both said outstanding rims, said guideway overlapping said rims to maintain said top and bottom box members in assembled relation, said bottom box member having an annular bearing seat around the inner periphery thereof, said top box member formed with an annular depending flange fitting into said bearing seat, said outstanding rim members on the top and bottom box members limiting entry of said depending annular flange into said bearing seat, said top and bottom box members each having an opening disposed in opposite relation which when aligned form a pill discharge opening in the assembled pill box members, said enclosure being formed with an opening adapted to register with said opposed openings in the top and bottom boxes when the enclosure is rotated to align the opening therein with the opposed openings in the box members, a keyway formed in a facing edge of one of said box members, and a key formed in an opposing edge of the other box member, said key and keyway being engaged to interlock the box members against relative rotation.

4,378,886

DECOMPOSITION APPARATUS WITH REVERSIBLE REMOVAL CONVEYOR

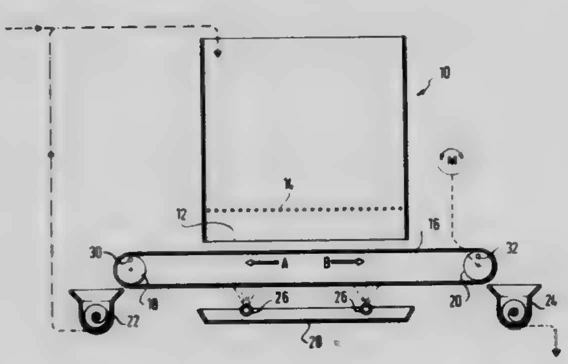
Hanns Roediger, Stuttgart, Fed. Rep. of Germany, assignor to Techtransfer GmbH & Co. KG, Stuttgart, Fed. Rep. of Germany

Filed Sep. 11, 1980, Ser. No. 186,068

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1979, 2937965

Int. Cl.³ B07C *5/36*

U.S. Cl. 209—606 **8 Claims**



1. Apparatus for the aerobic decomposition of garbage, sludge, and similar organic waste materials, said apparatus including a reaction container (10) for the material to be decomposed having vertical walls and a lower discharge opening with discharge elements (14) extending over the entire area of the discharge opening, and a removal device located below the discharge opening and extending at least across its entire width, characterized by: the discharge opening (12) extending over the entire cross-section of the container, a first receptacle (22) for material that has not been adequately purified, a second receptacle (24) for purified material spaced from said first receptacle, and the removal device comprising a reversible direction conveyor belt (16) disposed between said first and second receptacles for transporting material removed from the discharge opening (12) to either said first or second receptacles.

4,378,887

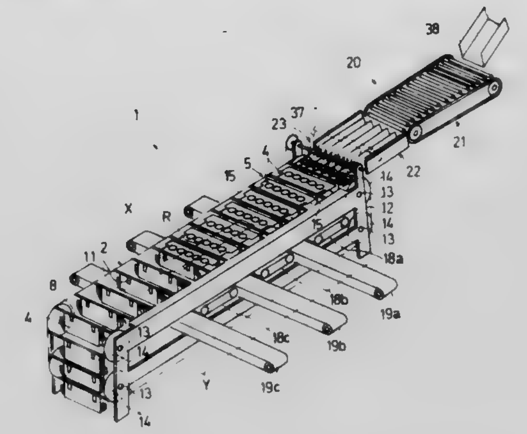
SPHERICAL FRUIT ASSORTING INSTRUMENT

Toru Ishii, 14-Go, 3-Ban, 4-Chome Takehata-Cho, Matsuyama-shi, Ehime-Prefecture, Japan (790)

Filed May 7, 1981, Ser. No. 261,641

Int. Cl.³ B07C *5/06*

U.S. Cl. 209—622 **5 Claims**



1. A spherical fruit assorting instrument comprising:
(a) an endless conveyor;
(b) a plurality of spaced shafts carried by the conveyor;
(c) a plurality of assorting plates pivotally carried by each shaft, with the assorting plates being provided with throughholes which decrease in diameter from the uppermost assorting plate to the lowermost assorting plate when the assorting plates are collectively disposed in a horizontal disposition;
(d) means for maintaining the assorting plates in the horizontal disposition;
(e) guide means for permitting the assorting plates of each shaft to sequentially pivot downwardly about the shaft during movement of the conveyor;
(f) a receiving plate pivotally carried by each shaft and disposed beneath the lowermost assorting plate for releasing fruits from the assorting plates;
(g) shock absorbing means carried by each receiving plate and aligned with the throughholes of its corresponding assorting plate; and
(h) stopper means carried by each shaft for limiting the pivotal movement of the receiving plate and maintaining same in a vertical disposition.

4,378,888

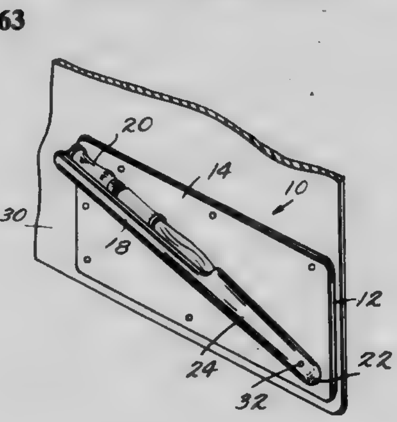
UMBRELLA SUPPORT FOR USE IN VEHICLES

Judson D. Reed, 9110 Wire Ave., Silver Spring, Md. 20901

Filed Jul. 18, 1980, Ser. No. 170,002

Int. Cl.³ A47G *25/12*

U.S. Cl. 211—63 **17 Claims**



1. An umbrella support for use in vehicles, comprising:
a mounting plate defining first and second substantially planar and parallel sides;
a trough member projecting from a first side of said mounting plate for receiving and supporting a folded umbrella;

said trough member enclosed at and adjacent to a first end thereof to form a tubular receptacle for said umbrella substantially along one-half the length of said trough member;

said trough member defining an upwardly opening open portion at and adjacent to a second end thereof, said open portion extending substantially along one-half the length of said trough member; and

said tubular receptacle defining a drain hole in fluid communication between said first and second sides of said mounting plate for enabling water to drain from said receptacle.

4,378,889

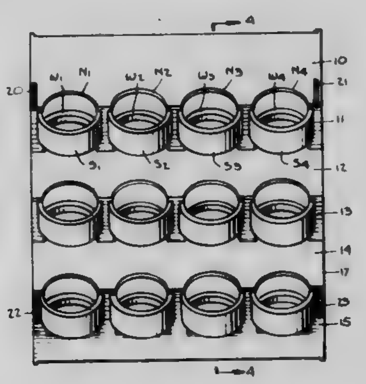
SPICE RACK AND BRACKET ASSEMBLY

Sam Lebowitz, New York, N.Y., assignor to Copco, Inc., Secaucus, N.J.

Filed Mar. 26, 1981, Ser. No. 247,853

Int. Cl.[3] A47F *7/28*

U.S. Cl. 211—75 **8 Claims**



1. A rack and bracket assembly whose rack is adapted to hold an array of bottles containing different spices or other products, said assembly comprising:

(A) a rack constituted by a staircase frame having a series of steps, each formed by a landing and a wall normal thereto, each landing having a row of semi-circular notches therein, each notch lying in registration with a semi-circular well projecting rearwardly from the associated wall to define one half of a bottle-receiving socket which is completed by a semi-circular shield projecting forwardly from the wall; and

(B) a bracket operatively coupled to the rack to support it at a desired position.

4,378,890

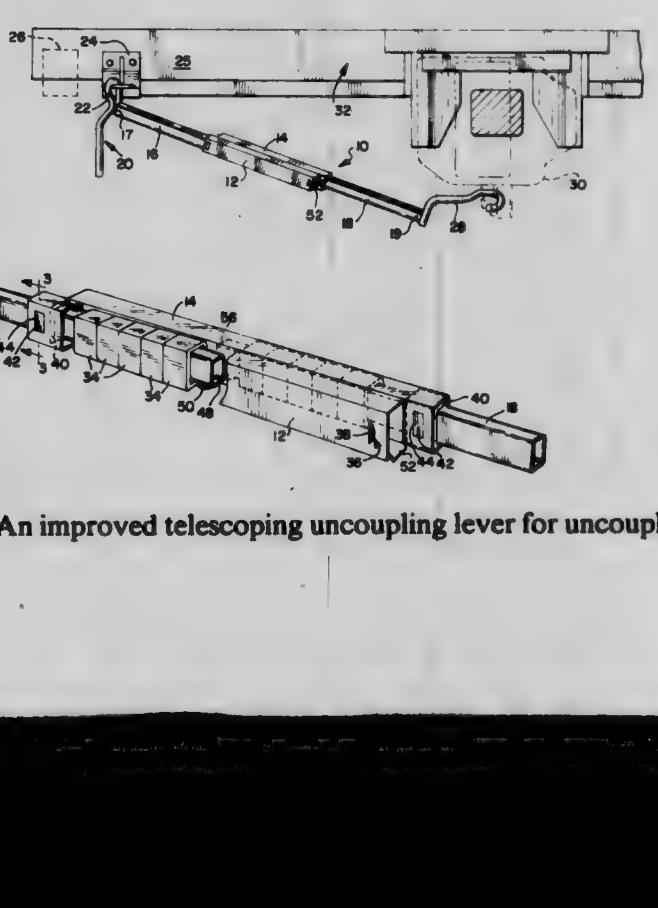
TELESCOPING UNCOUPLING LEVER FOR RAILROAD CARS

Kenneth G. Empson, 470 N. Broadway, Aurora, Ill. 60507

Filed May 18, 1981, Ser. No. 264,681

Int. Cl.[3] B61G *3/08*

U.S. Cl. 213—166 **18 Claims**



1. An improved telescoping uncoupling lever for uncoupling railroad cars having a coupler and a support bracket mounted to the endsill thereof, said lever including first and second adjacent longitudinal housings, first and second telescoping members slidably received by said first and second housings, respectively, each telescoping member having a distal end and a proximal end, a handle member connected to the distal end of said first telescoping member including a handle portion for being pivotally supported by said support bracket, an uncoupling arm connected to the distal end of said telescoping member for engaging said coupler, the improvement comprising:

(a) first bearing disposed between said first telescoping member and said first housing;

(b) second bearing disposed between said second telescoping member and said second housing, said first and second bearings slidable with respect to the telescoping member and the housing associated therewith, said bearings dimensioned to prevent axial rotation of each telescoping member relative to its associated housing thereby transmitting torque from one telescoping member to the other telescoping member; and

(c) means for captivating said first and second bearings within said first and second housings, respectively, said first and second bearings cooperating with said captivating means to allow the proximal end of each telescoping member to extend beyond its associated housing without restriction due to said bearings.

4,378,891

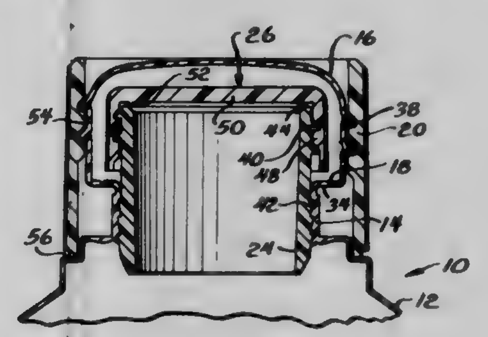
BOTTLE CLOSURE

Thomas A. Fowles, McHenry; Glenn L. Slater, Ingleside, both of Ill., and David A. Winchell, Twin Lakes, Wis., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Sep. 29, 1981, Ser. No. 306,604

Int. Cl.[3] B65D *1/02*

U.S. Cl. 215—32 **6 Claims**



1. In a hermetically sealed plastic container having a neck, a top integrally formed with the neck, a frangible line of weakness defined between the neck and top and a threaded jacking ring operable upon rotation to exert axial force on the top to sever it from the neck along the line of weakness, the improvement comprising, in combination:

a separately-formed closure interior of said container, said closure comprising a tubular member retained in fluid-tight position within the neck and defining a dispensing outlet for the container, and means normally closing said dispensing outlet, whereby said interior closure may be maintained in sterile condition within the hermetically sealed plastic container until the top thereof is removed for dispensing.

4,378,892

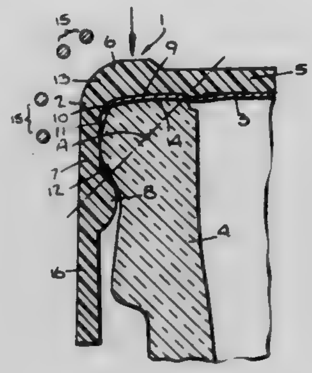
CLOSURE CAP WITH METALLIC INNERSEAL AND SEALED PACKAGE

Charles S. Ochs, Lancaster, and Carl E. Koontz, Thornville, both of Ohio, assignors to Anchor Hocking Corporation, Lancaster, Ohio

Filed Apr. 27, 1981, Ser. No. 257,749

Int. Cl.³ B65D ***41/18***

U.S. Cl. 215—232 **13 Claims**



1. A closure cap for sealing a container having a sealing finish including a rounded corner and a closure retaining bead at its rim comprising a molded plastic shell with a cover and a depending skirt, a stacking ring at the outer edge of said cover, a retaining bead on the inside of said skirt, a metallic innerseal positioned within said plastic shell at the underside of said cover, said cover and said skirt being relatively thin and readily deformable under pressure, said retaining bead on said closure skirt being on the upper portion of said skirt for engaging the container bead, said innerseal extending into the corner between said closure cover and said skirt for wrapping around the container finish corner and the distance between said closure cap retaining bead and a portion of the closure cap cover above the inner edge of the container rim being proportioned to stretch the closure cap plastic at the corner between the closure cap cover and skirt for locking the cap onto the container.

4,378,893

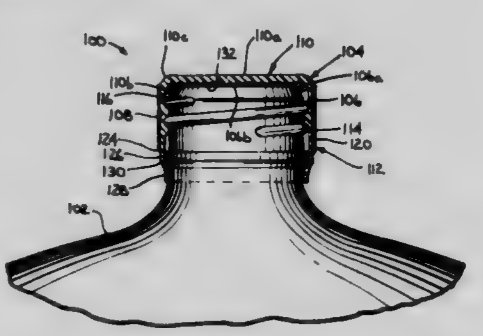
COMPOSITE CLOSURE

Sheldon L. Wilde; Thomas J. McCandless, both of Crawfordsville, and Robert M. Saunders, Ladoga, all of Ind., assignors to H-C Industries, Inc., Crawfordsville, Ind.

Continuation-in-part of Ser. No. 77,566, Sep. 21, 1979, abandoned. This application Jun. 4, 1981, Ser. No. 270,241

Int. Cl.³ B65D ***53/04***

U.S. Cl. 215—246 **74 Claims**



1. A composite closure for a container, such as a bottle, having a neck and a finish about the mouth of said container, comprising:

a plastic cap formed of spirally orientated molecules for enhanced strength, said plastic cap having a top wall portion with an underside, an internally threaded annular skirt depending from said top wall portion and a heat-shrinkable pilfer band detachably connected to said skirt, said top wall portion having a plurality of liner-engaging pedestals extending from its underside in generally normal relation thereto in an area bounded by said skirt, each of said pedestals having a free end spaced from said top wall portion, said free ends being spaced from each other to define liner-receiving spaces therebetween, said pilfer band having an internal diameter at least as large as the internal diameter of said skirt for insertion onto said container; and

a plastic liner disposed in said cap and connected to and retained within said cap by said pedestals, said plastic liner having a resilient annular sealing bead adjacent said skirt for resiliently sealing against the finish of said container and a centrally disposed disc-shaped portion extending substantially across and connected to said annular sealing bead, said centrally disposed disc-shaped portion extending from a position adjacent said top wall portion to a position spaced from the free ends of said pedestals in a direction generally away from said top wall portion, said disc-shaped portion providing a generally planar surface for substantially covering the mouth of said container;

wherein said cap has an internal annular lip extending inwardly of said skirt providing a retainer for engaging and retaining said plastic liner and for providing a seal during the liner-forming process.

4,378,894

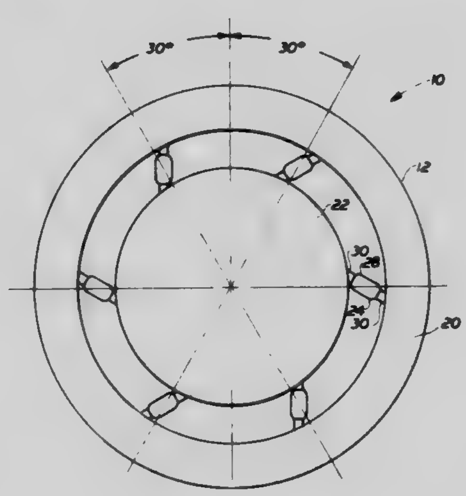
TAMPER-EVIDENT CLOSURE

W. Coy Willis, Hagerstown, and Leman P. Albrecht, Richmond, both of Ind., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Jun. 19, 1981, Ser. No. 275,306

Int. Cl.³ B65D ***41/34***

U.S. Cl. 215—252 **5 Claims**

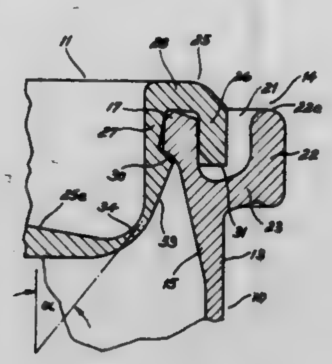


1. A tamper-evident closure assembly for engaging and closing the open mouth of a container by rotation of the closure with respect to the container and comprising:

a cap portion having a skirt wall including means thereon for engaging closure retaining means on the outer surface of a container mouth and an integral portion located centrally of the top of said skirt wall and connected thereto by frangible bridge means;

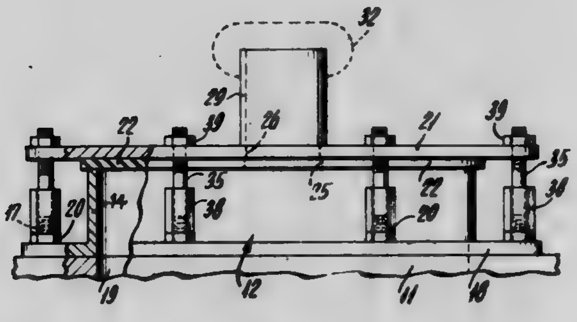
a rigid disc liner underlying said integral portion and affixed thereto, said liner having sufficient radial extent for disposition of an outer edge portion thereof against a container wall around the container mouth and being adapted to seal the same against the container mouth to an extent sufficient to prevent separation of the seal during at least a first portion of rotational movement of the closure in effecting a disengagement of the closure from the container and thereby said liner and said integral portion are restrained from being rotated with the closure during at least a first portion of removal of the closure from the container to cause fracture of at least a portion of said bridge means.

4,378,895
CONTAINER-CLOSURE ARRANGEMENT
Peter A. Woinarski, Woollahra, Australia, assignor to Innovative Design Company Pty. Limited, Woollahra, Australia
Filed Dec. 21, 1981, Ser. No. 332,561
Claims priority, application Australia, Jan. 27, 1981, PE7371
Int. Cl.³ B65D *41/16, 41/18*
U.S. Cl. 220—306 **13 Claims**



1. A container-closure arrangement comprising a plastics material container and a plastics material closure therefor; the container having a lip incorporating a radially inwardly directed bead which defines an opening to the container, and the closure comprising a central portion which locates within the container opening and a rim portion which engages the container lip when the closure is fitted to the container; the rim portion of the closure including an inner skirt which locates within the lip of the container, the inner skirt having a radially outwardly projecting ledge which normally engages with an undercut below the container bead, and the inner skirt being formed with a portion which depends below the ledge and which flares downwardly and radially inwardly to merge with the central portion of the closure; the flared portion of the closure incorporating a zone having a section thickness which is less than that of the adjacent portions of the closure whereby the closure will tend to deform predominatly in such zone in the event that the closure is subjected to an impact force, and the zone of reduced section thickness being disposed generally on an imaginary line which extends upwardly and outwardly at an acute angle to the longitudinal axis of the container.

4,378,896
REMOVABLE HATCH LID
Claude M. Begnaud, Houma, La., assignor to Texaco Inc., White Plains, N.Y.
Filed Jun. 19, 1981, Ser. No. 275,098
Int. Cl.³ B65D *45/00*
U.S. Cl. 220—327 **6 Claims**



1. A removable hatch lid for attaching suction means to degas fumes from a large tank, wherein said tank has at least one hatch with a coaming integral therewith,

said coaming having a flange on one edge only for bolting to said tank,

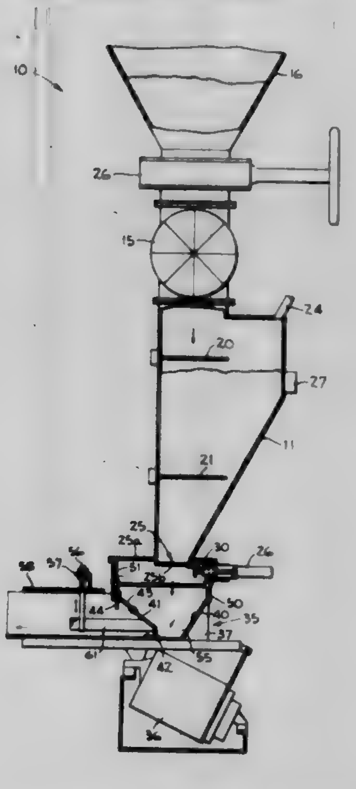
said hatch lid comprising

impervious planar means for contacting said flangess edge of said coaming to close said hatch,

means for fastening said planar means in sealing relation with said flangless edge of said coaming, and

gas tight means for coupling said suction means to said planar means for degasing said large tank.

4,378,897
VOLUMETRIC FEEDING APPARATUS FOR MATERIALS IN BULK FORM
Harry R. Kattelmann, Oakland, Calif., assignor to Fabricated Metals, Inc., San Leandro, Calif.
Filed Jun. 20, 1980, Ser. No. 161,510
Int. Cl.³ B67D *5/08*
U.S. Cl. 222—56 **9 Claims**



1. Apparatus for volumetric feeding of bulk material comprising:

(a) a hopper;

(b) inlet means disposed above said hopper for controlling the deposit of bulk material into said hopper;

(c) discharge means disposed below said hopper for controlling the discharge of bulk material from said hopper;

(d) an upper level sensor mounted on said hopper and activated in response to the bulk material in said hopper reaching a predetermined height;

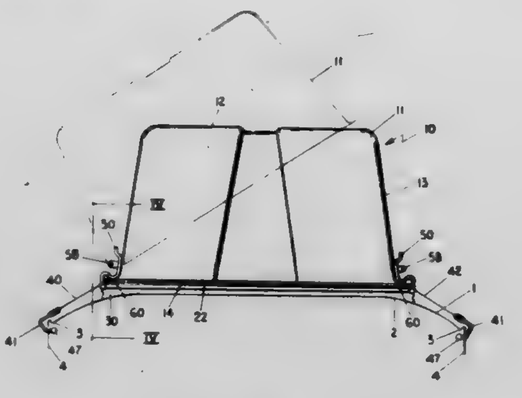
(e) a lower level sensor mounted on said hopper and activated in response to the bulk material in said hopper falling below a predetermined height;

(f) control means responsive to the activation of said upper level sensor for closing said inlet means to interrupt the deposit of bulk material into said hopper and for opening said discharge means for the discharge of bulk material from said hopper, said control means being responsive to the activation of said lower level sensor for closing said discharge means to interrupt the discharge of bulk material from said hopper and for opening said inlet means for the deposit of bulk material into said hopper;

(g) a vibrator feeder disposed below said discharge means in communication with said discharge means for controlling the rate at which bulk material is discharged from said apparatus, said vibrator feeder comprising a cavity to receive the bulk material from said hopper, said cavity being of a volumetric capacity to hold a sufficient quantity of bulk material to continue the flow of bulk material from said apparatus during the intermittent periods in which said discharge means are closed; and

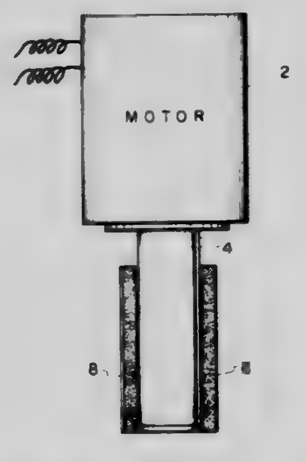
(h) a vacuum conduit connected to said hopper for providing a vacuum for said hopper to aerate the bulk material in said hopper and to reverse air flow in said hopper for inhibiting an uncontrolled flow of bulk material from said hopper when said discharge means are opened.

4,378,898
CARGO CARRIER
Paul A. Smeenge, 7955 Shadybrook, SE., Ada, Mich. 49301, and George Smeenge, A-3977 Beeline Rd., Holland, Mich. 49423
Filed Dec. 24, 1980, Ser. No. 219,597
Int. Cl.³ B60M *9/04*
U.S. Cl. 224—328 **17 Claims**



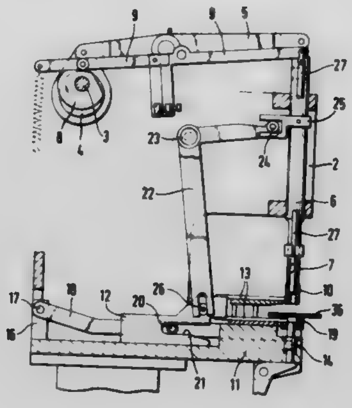
1. A cargo carrier comprising:
a tray-shaped base cargo container having a generally horizontal bottom portion and continuous generally vertical side walls with a continuous flange extending outwardly in a horizontal direction from the lower edge of the side walls, the exterior of said walls being tapered inwardly;
means for mounting the base to the roof of a vehicle;
continuous resilient base sealing means for preventing the entry of air into the space between the bottom of the base and the roof of the vehicle;
an inverted tray-shaped removable cover having a generally horizontal top portion and downwardly extending continuous side walls with a continuous flange extending outwardly in a horizontal direction from the lower edge of the side walls, the inside dimensions of the cover being larger than the outside dimensions of the base such that when placed over the base, the cover side walls surround the base side walls and the bottom surface of the cover flange rests flatly on the top surface of the base flange; and
means for attaching the cover to the base to permit said cover to be opened in a clamshell fashion from either side.

4,378,899
TAPE DRIVE CAPSTAN
Herbert F. Sanford, Littleton, Colo., assignor to Honeywell, Inc., Minneapolis, Minn.
Filed Sep. 2, 1981, Ser. No. 298,850
Int. Cl.³ B65H *17/22*
U.S. Cl. 226—188 **6 Claims**



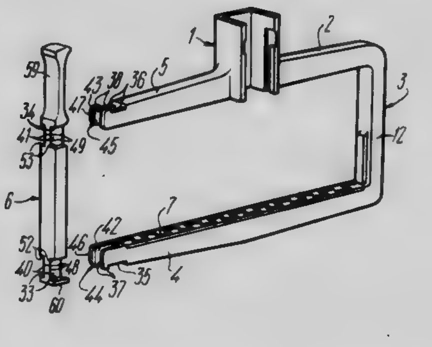
1. A capstan comprising
a matrix of ceramic particles forming a network of interstitial interconnected pores and
an elastomer material substantially filling said pores to provide a surface on said matrix having a tape driving capability.

4,378,900
MACHINE WITH FINGERGUARD
Otto Sauermilch, Stolberg, Fed. Rep. of Germany, assignor to William Prym-Werke KG, Stolberg, Fed. Rep. of Germany
Filed Apr. 3, 1980, Ser. No. 136,965
Claims priority, application Fed. Rep. of Germany, Apr. 14, 1979, 2915327
Int. Cl.³ B21J *15/10, 15/28*
U.S. Cl. 227—8 **7 Claims**



1. Machine, comprising a workpiece support for a workpiece; a lower tool and a cooperating upper tool; movable first means mounting said upper tool for downward movement prior to and during a working step towards said lower tool and workpiece support; a fingerguard surrounding said upper tool; fingerguard moving means operating as a function of said first means and mounting said fingerguard for downward movement prior to a working step toward said lower tool and said workpiece support so that said fingerguard moves downwardly ahead of said upper tool; second means mounting said lower tool with limited freedom of receding during the working step from the approaching downwardly moving first means; biasing means for resiliently resisting the receding of said lower tool during the working step; and third means mounting said workpiece support, said third means being connected to said first means for displacing said workpiece support between at least an upper and a lower end position as a function of the movement of said first means.

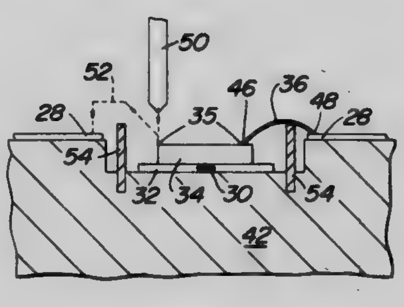
4,378,901
APPARATUS FOR APPLYING A STAPLE SUTURE
Ernest M. Akopov, Alexeevsky studentchesky gorodok, 6b proezd, dom 5a, kv. 28, and July G. Shaposhinikov, ulitsa Chaikovskogo, 18, kv. 6, both of Moscow, U.S.S.R.
Filed May 22, 1980, Ser. No. 153,625
Int. Cl.³ B25C *5/00*
U.S. Cl. 227—19 **6 Claims**



1. A surgical instrument for applying a staple suture comprising:
a body constituted by a substantially ∩-shaped frame having a side and a pair of legs extending therefrom, said legs having respective free ends which are capable of moving toward each other due to resilience of said ∩-shaped frame;
a rod detachably carried by said free ends of said legs at respective areas of interaction to impart rigidity to said frame, said

rod being formed with a pair of inwardly facing stop surfaces, each of which embraces an outwardly facing surface formed on a respective one of said free ends so as to define a lock joint therewith;
retaining means formed on said free ends for fixing said rod in position when said lock joint is defined, said retaining means including a retainer shoulder formed on each of said free ends, each shoulder extending outwardly beyond a respective one of said outwardly facing surfaces formed on said free ends, and wherein the extent of movement of said free ends toward each other is determined by the size of said retainer shoulders;
said rod and said free ends of the frame legs being formed with respective flat spots at said areas of interaction, said flat spots being located in planes which are substantially parallel to the plane on which said frame is situated, said flat spots formed on said rod being contiguous with said flat spots formed on said free ends;
one of said legs and said rod being receivable within the other of said free legs and said rod in the direction defined by said legs;
a die having recesses formed therein mounted on one of said legs;
a staple head carrying a staple magazine slidably mounted in said frame;
ejection means mounted on said frame for driving staples from said magazine;
means for actuating said staple head; and
means for actuating said ejection means.

4,378,902
APPARATUS FOR PREVENTING WIRE SAG IN THE WIRE BONDING PROCESS FOR PRODUCING SEMICONDUCTOR DEVICES
Tibor Fedak, Huntingdon Valley, Pa., assignor to The Jade Corporation, Huntingdon Valley, Pa.
Filed Feb. 17, 1981, Ser. No. 235,327
Int. Cl.³ H05K *1/04*
U.S. Cl. 228—6 A **1 Claim**



1. In an apparatus for the assembly of microcomponent semiconductor devices wherein there is accomplished a step in which thin conductor wires are bonded between bonding pads on a semiconductor chip and leads for connecting the semiconductor or device to an external circuit, wherein a capillary tube from which the wire is drawn articulates between positions above a bonding pad of the chip and above a corresponding lead, and wherein a lower anvil reciprocates upward to a position underneath and supporting the chip during the bonding step and then downward away from the semiconductor chip after the bonding step, the improvement comprising a vertical wall projecting upwardly from the upper surface of the lower anvil and surrounding the chip between the bonding pads and the leads during the bonding step, the vertical height of the wall being greater than the vertical height of the chip and the leads so that the wires, after being bonded to the bonding pads, are supported by the wall as the wires are withdrawn from the capillary tube and bonded to the leads.

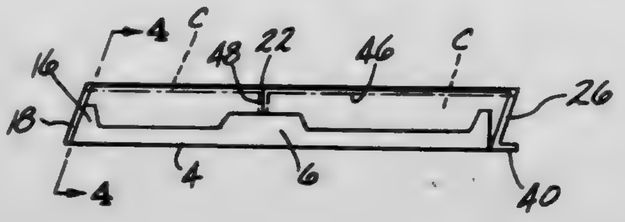
4,378,903
HANGING TAB WITH SINGLE LINE OF ADHESIVE AND HANGING HOLE CLEAR OF ADHESIVE
Irvin W. Sherwood, Downers Grove, Ill., assignor to Champion International Corporation, Stamford, Conn.
Filed Sep. 25, 1981, Ser. No. 305,493
Int. Cl.³ B65D *5/46*
U.S. Cl. 229—6 R **4 Claims**

1. A hanging assembly connected to an end of a paperboard container wall, said hanging assembly comprising:
(a) a first panel foldably connected to said end of said container wall, said first panel being provided with a through hole, and said first panel being folded about a first fold line into face-to-face contact with a surface of said container wall;
(b) a second panel foldably connected to said first panel, said second panel being provided with a cut score line defining a plug conforming to the shape of said through hole, and said second panel being folded about a second fold line into face-to-face contact with said first panel with said plug being contiguous to said through hole;
(c) adhesive means disposed between said first and second panels to adhesively secure said panels together to form a compound hanging tab, said adhesive means extending across said plug and being operative, via said through opening, to adhesively secure said plug and said hanging tab to said container wall;
(d) said score line being operable to rupture when said hanging tab is pivoted to an operative position away from said container wall about said first fold line thereby leaving said plug adhered to said container wall and, forming a compound opening through said hanging tab; and
(e) said container wall includes an embossed portion projecting into said through opening to provide a limited area for securement of said plug to said container wall.

4,378,904
COLLAPSIBLE OPEN SIDE CARTON
Duane R. Mode, Edina, Minn., assignor to Champion International Corporation, Stamford, Conn.
Filed Sep. 2, 1981, Ser. No. 298,590
Int. Cl.³ B65D *5/36*
U.S. Cl. 229—41 B **4 Claims**

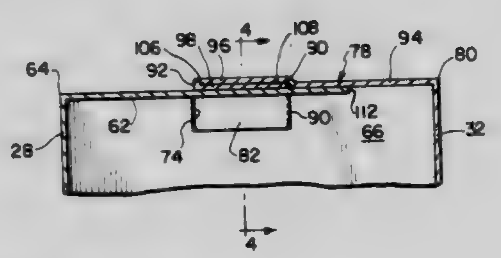
1. A collapsible paperboard carton comprising:
(a) opposed front and back panels;
(b) opposed end panels foldably connected to opposite ends of said front and back panels; and
(c) opposed side panels foldably connected to opposite sides of one of said front and back panels, said side panels being free of connection with said end panels and the other of

said front and back panels, said side panels being folded inwardly into the confines of said carton in face-to-face engagement with said front and back panels when said carton is in a flattened collapsed form, and said side panels, due to the inherent springiness of the paperboard,



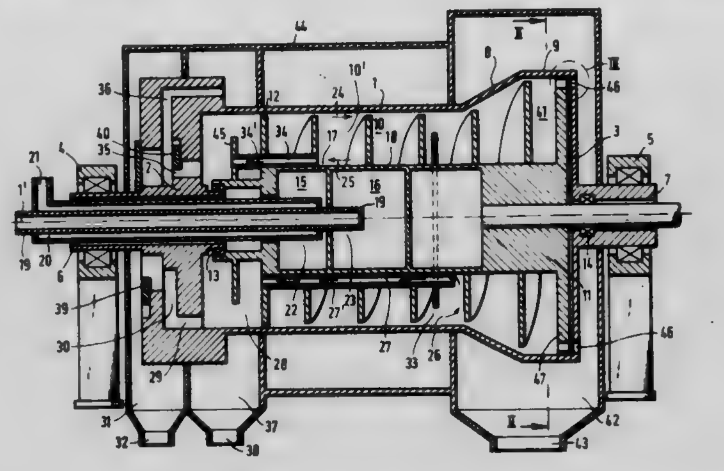
being operable to swing to a position disposed at an acute angle with respect to said one of said front and back panels, when said carton is in an expanded form and at least one end edge of each of said side panels being disposed in engagement with at least one of said end panels to retain said carton in said expanded form.

4,378,905
CARTON WITH STRAP HANDLE AND BLANK FOR FORMING SAME
Harry I. Roccaforte, Western Springs, Ill., assignor to Champion International Corporation, Stamford, Conn.
Continuation-in-part of Ser. No. 253,011, Apr. 10, 1981, abandoned. This application Sep. 8, 1981, Ser. No. 299,659
Int. Cl.³ B65D *5/46, 25/28*
U.S. Cl. 229—52 B **3 Claims**



1. A carton, comprising
top and bottom walls;
front, back and side walls connecting said top and bottom walls;
said top wall having inner and outer panels extending from said front and back walls, respectively, and being overlapped and secured together;
first and second side flaps extending from opposite side edges of said outer top panels and secured to the inside of said side walls;
inner and outer elongated handle panels foldably connected together and formed from portions of said outer top panel and said side flaps, extending substantially parallel to and equally spaced from the top edges of said front and back walls and substantially perpendicular to said side walls, said outer handle panel being defined by a perforated score line formed in said outer top panel which extends entirely across the length of said outer top panel and substantially parallel to said top edges of said front and back walls and only partially across each of said side flaps and by a handle fold line formed in said outer top panel and extends parallel to said score line and across the entire length of said outer top panel and said side flaps and is located between said score line and the top edge of said front panel, said inner handle panel being defined between said handle fold line and by said perforated score line, when severed, of said outer top panel and underlying and being secured to said outer handle panel.

4,378,906
SOLID JACKET CENTRIFUGE FOR MATERIAL EXCHANGE BETWEEN LIQUIDS
Wolfgang Epper, Bergheim, and Theodor Paschedag, Beckum, both of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany
Filed Jul. 16, 1981, Ser. No. 283,941
Claims priority, application Fed. Rep. of Germany, Jul. 17, 1980, 3027020
Int. Cl.³ B04B *1/20*
U.S. Cl. 494—54 **10 Claims**

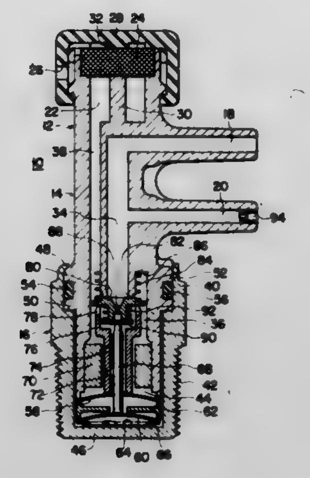


1. A jacketed centrifuge for exchanging material between liquids, at least one of which contains suspended solids, comprising:
a housing,
a drum mounted for rotation within said housing,
a conveyor worm mounted for rotation coaxially with said drum,
inlet and outlet means for introducing a relatively light liquid into said drum and withdrawing it from said drum,
inlet and outlet means for introducing a heavier liquid having solids suspended therein into said drum and out of said drum, and
discharge means for discharging solids from said drum,
said drum having a larger cross-sectional area at said discharge means than at either inlet means, and said discharge means being located at the area of greatest radius of said drum.

4,378,907
DUAL FUNCTION THERMAL VALVE
Nobuyuki Hashimoto, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan
Continuation of Ser. No. 98,752, Nov. 30, 1979, abandoned. This application Jun. 8, 1981, Ser. No. 271,693
Claims priority, application Japan, Dec. 6, 1978, 53-151754
Int. Cl.³ G05D *23/10*
U.S. Cl. 236—48 R **6 Claims**

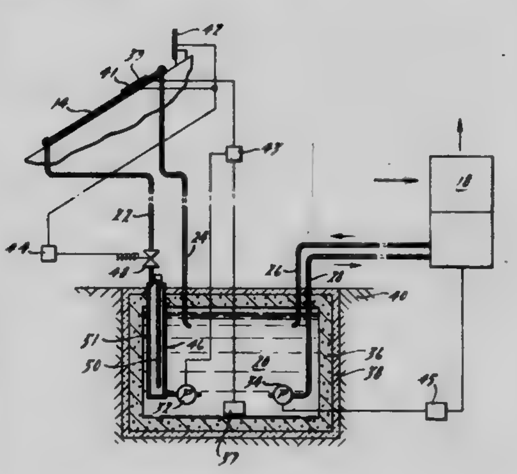
6. A thermally responsive valve assembly comprising two paths, a first valve mechanism, a second valve mechanism, said first and second valve mechanisms being interposed between the two paths to provide for two parallel passages joining the first and second paths, the second valve mechanism including an orifice and a valve and seat assembly for closing the orifice or opening the orifice to permit throttled flow between said two paths, and said first valve mechanism, when open, permitting full flow between said two paths, said assembly further comprising a cavity disposed remotely from the valve mechanisms, a first bimetallic element, a second bimetallic element, the first and second bimetallic elements being of different thermal responsive character and held in the cavity, two motion transfer members respectively operatively connecting the first and second bimetallic elements to the first and second valve mechanisms, and isolating means for isolating the cavity from the first and second valve mechanisms, whereby the first

and second paths are fluidly connected through said orifice when in an open position, and whereby said orifice is bypassed by the first valve mechanism when said first valve mechanism is in an opened position, wherein said first valve mechanism comprises a seat formed in a portion of said body and a first



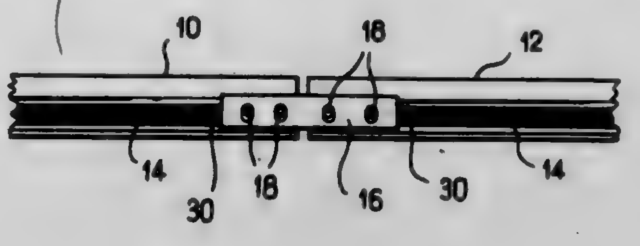
valve disposed adjacent to the seat, wherein said first valve mechanism further comprises first spring means biasing said first valve against said first bimetallic element and said second valve mechanism further comprises second spring means anchored between said first and second valves to thereby normally urge said second valve to said second bimetallic element.

4,378,908
REVERSIBLE SOLAR ASSISTED HEAT PUMP
Robert A. Wood, 59425 10 Mile, Apt. 6B, South Lyon, Mich. 48178
Filed Dec. 10, 1979, Ser. No. 101,687
Int. Cl.³ F25D 23/00
U.S. Cl. 237—2 B 7 Claims



2. In a solar assisted heating system comprising at least one solar collector panel in fluid communication with a storage tank in fluid communication with a heat pump, a heat transfer package located in said storage tank, said package comprising a container having a lower chamber, a middle chamber, and an upper chamber, and wherein said lower chamber has a main pump therein for selectively effecting the transfer of fluid into said middle chamber under pressure and wherein said middle chamber is connected to a conduit communicating with said panel and to a conduit communicating with said heat pump.

4,378,909
FISH-PLATES FOR ELECTRICALLY CONDUCTING RAILWAY RAILS
Rene Oger, Ville D'Avray, France, assignor to C. Delachaux, Gennevilliers, France
Filed Oct. 22, 1980, Ser. No. 199,618
Claims priority, application France, Nov. 6, 1979, 79 27304
Int. Cl.³ B60M 5/00; E01B 11/04; H01R 3/06
U.S. Cl. 238—244 5 Claims

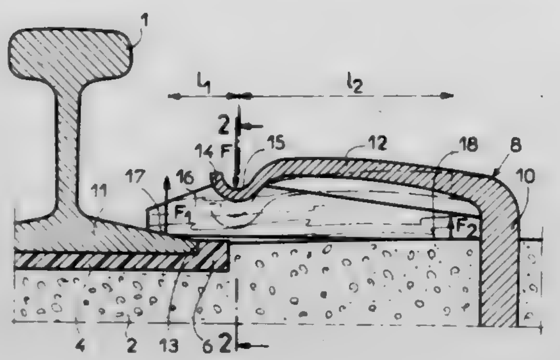


1. A fish-plate for joining together two electrically conducting railway rails, each railway rail comprising a conventional rail including a foot, a head and a web extending between the head and the foot, and two conducting sections extending along the entire length of the conventional rail, between the foot and the head thereof, and forming the side walls of the rail, said fish-plate comprising:
two fish-plate sections for location one on each side of adjacent ends of the two electrically conducting railway rails to be joined,
a surface on each of said two fish-plate sections for contacting co-operating surfaces of the conducting sections forming the side walls of the two electrically conducting railway rails,
teeth on each said surface of each of said two fish-plate sections, said teeth extending parallel to the length of the electrically conducting railway rails for engagement with complementary teeth formed on said co-operating surfaces of the conducting sections,
at least two bolts for passing through the two fish-plate sections, the conducting sections and the conventional rails to draw the two fish-plate sections towards one another and against the electrically conducting railway rails with the teeth on the surfaces of the fish-plate sections in engagement with the teeth of the co-operating surfaces of the conducting sections of the electrically conducting railway rails, and
means for allowing relative vertical adjustment between the electrically conducting railway rails and the two fish-plate sections to enable the fish-plate to be located at various heights relative to each of the electrically conducting railway rails such that the electrically conducting railway rails may be joined with their upper surfaces in alignment even though they may be of a different height.

4,378,910
ELASTICALLY YIELDABLE DEVICE FOR FIXING A RAIL ON A SUPPORT
Roger P. Sonneville, 1507 Gordon Cove Rd., Annapolis, Md. 21403
Continuation-in-part of Ser. No. 179,880, Aug. 20, 1980, abandoned. This application Aug. 4, 1981, Ser. No. 290,055
Claims priority, application France, Jun. 30, 1980, 80 14523
Int. Cl.³ E01B 9/00, 9/48
U.S. Cl. 238—349 14 Claims

1. An elastically yieldable device in combination with a rail and a support for fixing the rail on the support, said device comprising a spring which has a first branch rigid with the support at a first end of the spring, a bent portion and a second branch which is connected to the first branch by the bent portion and extends from the bent portion towards the rail, the second branch having a thickness which progressively decreases in the direction of the rail to a thin end portion of the

spring adjacent a second end of the spring opposed to said first end thereof and a length less than a distance between the curved portion of the spring and the flange of the rail, and a compensating block which bears at one end of the block on the



flange of the rail and at an opposite end of the block on the support and is clamped by the thin end portion of the spring at an intermediate point of the block in the vicinity of the edge of the flange of the rail but outside the rail.

4,378,911

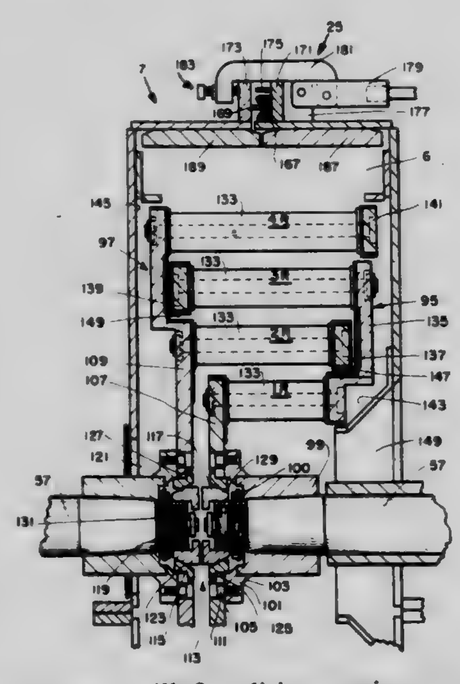
CAGE MILL

Thomas O. Adams, Lawrenceburg, and Jim A. Henke, Aurora, both of Ind., assignors to Wean United, Inc., Pittsburgh, Pa.

Filed Jul. 3, 1980, Ser. No. 165,517

Int. Cl.[3] B02C *13/22*

U.S. Cl. 241—187 **21 Claims**



1. In a cage mill for disintegrating or reducing material comprising:

a housing forming a material reducing chamber,

two axially opposed shafts each having their one end extended in said chamber,

each said shaft includes a hub having a bore for mounting on a complimentary portion of said extended end,

cooperating cage assemblies connected to and for rotation with a different one of said hubs,

means for maintaining each said hub and its respective cage assembly on their respective shaft comprising:

a split ring arranged concentrically with said extended end portion of said shaft and having inner peripheral and outer peripheral load transmitting surfaces, said latter surfaces engaging with an associated cage assembly in a manner to oppose movement of the hub axially towards the end of the shaft,

a nut threadably mounted on the outer end of said shaft having an outer peripheral load transmitting surface for engaging said inner surface of said split ring in a manner to oppose movement of the ring axially toward the end of the shaft,

said nut having a central opening including a restricting surface,

locking means threadably insertable through said opening of said nut into the end of said shaft having a holding member which said nut in the tendency to rotate is caused to engage to prevent rotation thereof.

4,378,912

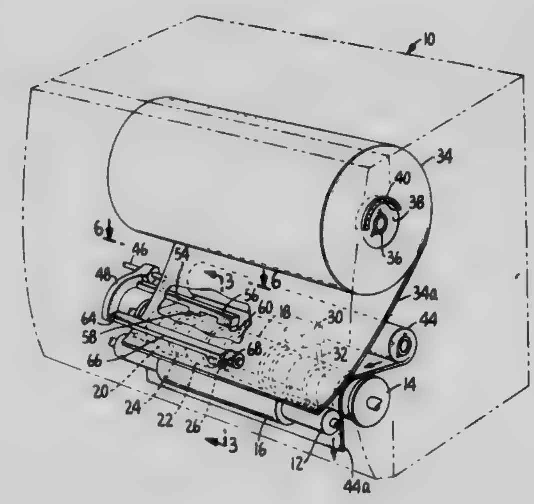
SHEET MATERIAL DISPENSER APPARATUS

Jack L. Perrin, Los Angeles; Council A. Tucker, Glendale, and Oliver B. Gains, Arcadia, all of Calif., assignors to Crown Zellerbach Corporation, San Francisco, Calif.

Filed Nov. 12, 1981, Ser. No. 320,257

Int. Cl.[3] B65H *19/04;* **G03B** *1/58*

U.S. Cl. 242—55.3 **4 Claims**



1. In a dispenser cabinet for sequentially dispensing sheet material from a primary roll and a reserve roll, the improvement comprising:

a plurality of selectively rotatable rollers, at least two of said rollers defining a nip and at least one of said rollers having at least one depression formed therein;

sensing means in registry with said depression and urged theretoward, said sensing means engageable with sheet material being dispensed from said primary roll along a predetermined path between the sensing means and depression and prevented by said primary roll sheet material from entering said depression;

tucker means for engaging sheet material from said reserve roll and introducing said reserve roll sheet material into said nip responsive to the absence of said primary roll sheet material between the sensing means and depression and to the subsequent entry of said sensing means into said depression; and

mounting means, said sensing means and said tucker means being mounted for joint pivotal movement about said mounting means.

4,378,913

DEVICE FOR SECURING AGAINST AXIAL DISPLACEMENT

Artur Föhl, Schorndorf, Fed. Rep. of Germany, assignor to Repa Feinstanzwerk GmbH, Alfdorf, Fed. Rep. of Germany

Continuation of Ser. No. 917, Jan. 4, 1979, abandoned. This application Sep. 21, 1981, Ser. No. 303,925

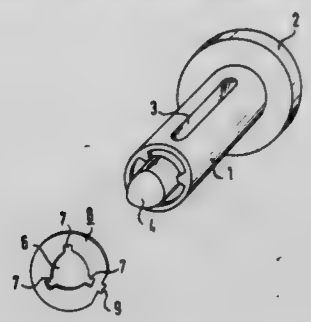
Claims priority, application Fed. Rep. of Germany, Jan. 5, 1978, 2800497

Int. Cl.[3] F16B *21/02*

U.S. Cl. 242—74 **2 Claims**

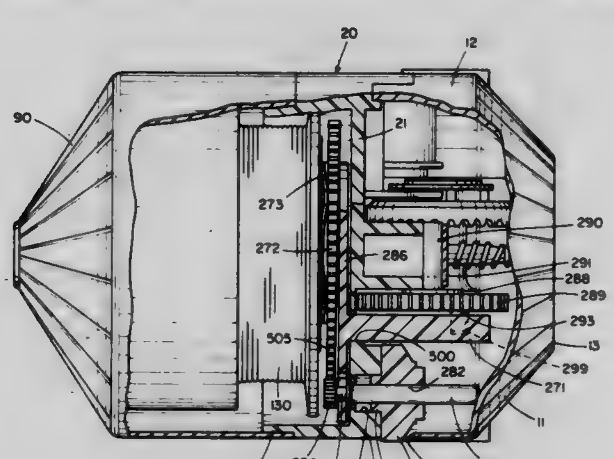
1. Device for securing an element projecting through an opening against axial displacement of the element comprising a first end of the element projecting through the opening being formed with a noncircular cross-section and with a peripheral slot, a closed substantially circular perforated disc mounted on said projecting first end for rotating therewith and having at

least a part thereof formed of material harder than that of the element, said perforated disc having an inner contour corresponding to the cross-section of said projecting first end, slot-shaped recesses interrupting said inner contour, at least one projection formed at an outer peripheral region thereof within the substantially circular periphery thereof for facilitating turning thereof and, after being mounted on said projecting first end, said perforated disc being turnable relative to the element to an extent that at least said part thereof formed of



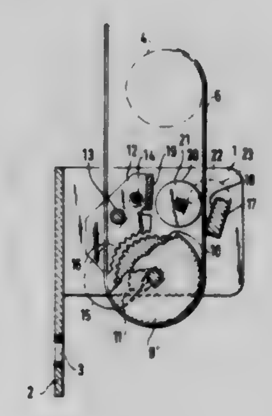
said harder material engages in said peripheral slot, a U-shaped bearing bracket having said opening formed therein and another opening formed therein, said perforated disc being disposed outside said bracket, said element having a second end and being a shaft rotatably projecting through said openings and having another slot formed therein between said ends for securing the end of a safety belt, and another projection larger than said other opening being integral with said second end outside said bracket.

4,378,914
UNIFORM DRAG SYSTEM FOR SPIN CAST REELS
John T. Shackelford, Littleton, Colo., and Robert L. Carpenter, Tulsa, Okla., assignors to Brunswick Corporation, Skokie, Ill.
Filed Jul. 31, 1981, Ser. No. 289,067
Int. Cl.³ A01K *89/01*
U.S. Cl. 242—84.21 A 16 Claims



1. In a spinning reel including a cylindrical reel body having a deck plate, a forwardly extending hub affixed to the deck plate and having an opening therethrough, a spool carried by the hub forwardly of the deck plate, a center shaft extending axially through the opening in the deck plate and the hub, a crank drive mechanism mounted in the reel body for rotating the center shaft, the improvement including:
(a) rotatable shaft means extending through the deck plate along an axis lying parallel to the axis of the center shaft;
(b) a clutchwheel affixed on said shaft means and having a portion extending outward beyond the surface of the reel body, said shaft means being rotated by said clutchwheel and being movable transversely of said clutchwheel;
(c) a gear affixed on said shaft means;
(d) second gear means rotatably mounted about said hub and located between said spool and said deck plate, said second gear means being in meshing relationship with said first named gear; and
(e) means for moving said second gear means toward and away from said spool upon turning said clutchwheel.

4,378,915
BRAKING DEVICE FOR SAFETY BELTS
Artur Föhl, Schorndorf, Fed. Rep. of Germany, assignor to Repa Feinstanzwerk GmbH, Alfdorf, Fed. Rep. of Germany
Filed Dec. 9, 1980, Ser. No. 214,758
Claims priority, application Fed. Rep. of Germany, Dec. 14, 1979, 2950443
Int. Cl.³ A62B *35/02;* B65H *75/48*
U.S. Cl. 242—107.2 12 Claims

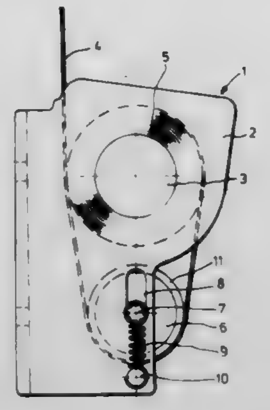


1. Braking device for safety belts, especially safety belts for motor vehicles, which have a locking system ahead of the braking device, comprising a bracket, a movable brake roller partly wrapped around by the belt rotatably supported in the bracket, means sufficient to retain said brake roller in position during normal operation but insufficient to prevent movement of said brake roller out of position when activated by a belt pull which exceeds a predetermined force, a stationary clamping bar disposed adjacent one side of the belt near said brake roller, a movable arresting element having one portion near said movable brake roller and another portion disposed on the side of the belt opposite the side on which said stationary clamping bar is disposed , said arresting element including means for arresting rotation of said brake roller when said arresting element and brake roller are in contact, whereby, upon activation of a belt pull in excess of said predetermined force movement of said brake roller out of its normal position and against said arresting element which latter moves toward the stationary clamping bar to cause clamping of the belt and which also arrests the brake roller by contact therewith, and wherein braking friction between the roll surface of said brake roller and said belt partly wrapped around said brake roller is great enough so that a force moment is transferred to said arresting element which is sufficient to clamp the belt by means of the arresting element without slippage.

4,378,916
WIND-UP DEVICE FOR SAFETY BELTS
Franz Keinberger, Wolfsburg, Fed. Rep. of Germany, assignor to Volkswagenwerk AG, Wolfsburg, Fed. Rep. of Germany
Filed Jun. 17, 1981, Ser. No. 274,447
Claims priority, application Fed. Rep. of Germany, Jun. 20, 1980, 3023028
Int. Cl.³ A62B *35/02;* B65H *75/48*
U.S. Cl. 242—107.2 6 Claims

1. In a wind-up device for a vehicle safety belt, which device includes a housing, a winding system composed of a winding drum mounted in the housing for automatically winding up the belt so that a portion of the belt is wound around the drum, the drum being blocked in the direction of unwinding when a given operating state occurs, and a belt braking device which includes a rotatably mounted brake roller partially surrounded by the belt and mounted for displacement between a normal

position in which it is free to rotate and, when the winding drum is blocked, a braking position in which it opposes movement of the belt, movement into the braking position being effected by the tension forces acting on the belt, the braking



device further including a bias spring mounted to urge the brake roller into its normal position, the improvement wherein said brake roller is mounted to be displaced under the force of the belt tension to brakingly contact the outer turn of the belt portion wound on said drum.

4,378,917

TAPE-END DETECTING DEVICE

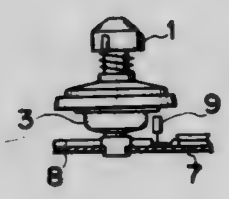
Tokuji Negishi; Yukio Ito, and Satoshi Takagi, all of Toda, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan

Filed Nov. 5, 1980, Ser. No. 204,148

Claims priority, application Japan, Nov. 12, 1979, 54-155830[U]

Int. Cl.^{3} B65H *59/38;* **G03B** *1/04*

U.S. Cl. 242—186 **2 Claims**



1. In a tape-end detecting device for use in a tape recorder, said tape recorder having a chassis and a reel turntable spaced from and supported for rotation with respect to said chassis, which comprises a magnet member supported on a lower portion of said reel turntable so as to rotate conjointly therewith and detector means for detecting variation in a magnetic field caused by rotation of said magnet member, wherein the improvement comprises: a printed circuit board disposed on said chassis, said detector means being fixed to said chassis through said printed circuit board.

4,378,918

QUASI-STABILIZATION FOR LINE OF SIGHT GUIDED MISSILES

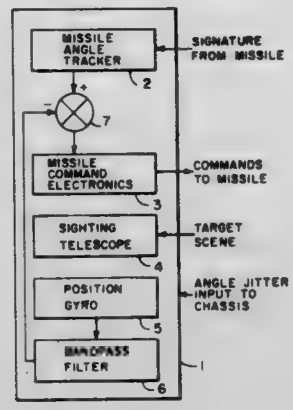
Walter E. Miller, Jr., and James W. McKelvy, both of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 9, 1981, Ser. No. 223,863

Int. Cl.^{3} F41G *7/20*

U.S. Cl. 244—3.11 **6 Claims**

1. In a system wherein a sighting device is aimed with unwanted angle jitter at a target, a missile is guided towards said target along a boresight of said sighting device by a control device which sends guided control signals to said missile to bring said missile into the boresight line of said sighting device, the improvement comprising a gyro mounted to a chassis and having an output signal at its output which is a measure of movement of said chassis; a bandpass filter having an input and an output; the output signal of said gyro being connected to the input of said bandpass filter; the output of said bandpass filter being connected to said control device so as to subtract the signal output of the bandpass filter from the guided control signals to be sent to said missile; said bandpass filter blocks the passing of low frequency signals from the output signal of said gyro such as those produced in tracking a target; said bandpass



filter further blocking high frequency output signals from said gyro such as those generated by electronic noise; and said bandpass filter allowing to pass signals from said gyro which are in the angle jitter frequency range so as to eliminate from the guidance of the missile most unwanted angle jitter input.

4,378,919

APPARATUS FOR CONTROLLING ORIENTATION OF A SUSPENDED LOAD

Harlan B. Smith, Canby, Oreg., assignor to Erickson Air Crane Co., Hillsboro, Oreg.

Filed Jul. 19, 1977, Ser. No. 817,058

Int. Cl.^{3} B64D *9/00*

U.S. Cl. 244—118.1 **7 Claims**

1. Apparatus for controlling orientation of a load suspended from the fuselage of a helicopter by a cable comprising:

spreader bar means connected to the cable for supporting a load connected thereto; and

frame means mounted on the fuselage for transmitting helicopter yaw movement to said spreader bar means and for simultaneously permitting the load to be suspended substantially isolated from helicopter pitch and roll, said frame means including a first assembly mounted on the fuselage for pivotal movement relative to the fuselage about a first pivot axis including a first pair of strut members pivotally connected adjacent one set of their ends to the fuselage and a second pair of strut members pivotally connected adjacent one set of their ends to the fuselage opposite to said first pair, each pair defining a generally triangular plane which is inclined toward the cable, each strut member of said first pair being connected to a strut member of said second pair, said frame means also includ-

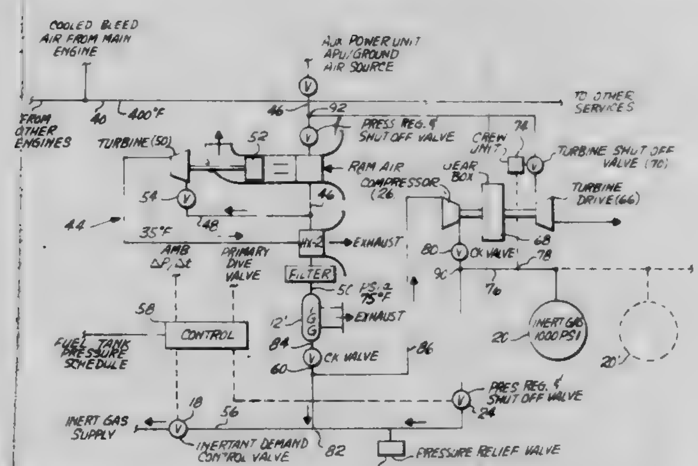
ing a second assembly connected to said first assembly for pivotal movement about a second pivot axis extending transversely to said first pivot axis, said second assembly also being provided with guide means for receiving said spreader bar means and for transmitting yaw movement of the helicopter thereto.

4,378,920

COMBUSTIBLY INERT AIR SUPPLY SYSTEM AND METHOD

Joe N. Runnels, Bellevue, and Kenneth R. Fagerlund, Federal Way, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Jul. 15, 1980, Ser. No. 169,140
Int. Cl.³ B64D *37/32*
U.S. Cl. 244—135 R **12 Claims**



1. A combustibly inert gas supply system, comprising:
a first source of combustibly inert gas comprising an inert gas generator, said generator including an inlet for compressed atmospheric air, an outlet, and flow-through means between the inlet and outlet for converting the compressed air into combustibly inert gas;
first conduit means for delivering compressed air to the inlet;
second conduit means for delivering inert gas to a utilization
a second source of combustibly inert gas comprising storage means for storing inert gas at a high pressure;
third conduit means leading from the outlet to the second conduit means;
fourth conduit means leading from the storage means to the second conduit means;
fifth conduit means leading from the third conduit means to the fourth conduit means. and including a compressor for charging the high pressure storage means;
regulator means for switching between said first and second sources and for supplying said second source from said first source.

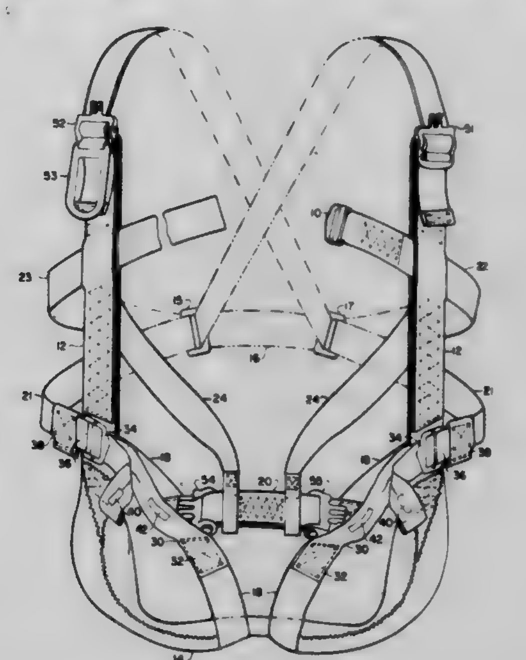
8. A method of supplying combustibly inert gas at both low and high flow rates with a substantial saving in equipment weight, comprising the steps of:
providing a noncombusting, inert gas generator sized to meet low system flow rate demand;
using said inert gas generator to produce a nitrogen enriched, combustibly inert gas by withdrawing oxygen from flowing, compressed, atmospheric air;
delivering the inert gas, as it is produced by the generator, directly to the utilization site during system flow rate demand periods that are less than or equal to said low system flow rate;
providing at least one high pressure inert gas storage container;
compressing some of the inert gas from the generator and storing it in the storage container at a high pressure; and
selectively delivering inert gas to the utilization site from the container during system flow rate demand periods that are higher than said low system flow rate.

4,378,921

NEGATIVE ROTATION CINCH STRAP

Ronald E. Allen, Fleet Post Office, N.Y.; Robert J. Hudson, Ridgecrest, and Marshall W. Hager, China Lake, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 17, 1981, Ser. No. 293,559
Int. Cl.³ B64D *17/30;* **A62B** *35/00;* **B68B** *5/00*
U.S. Cl. 244—151 R **6 Claims**



1. An improved parachute torso harness having a unitary construction utilizing a single fastening means across the front of the torso, said construction including a pair of vertically oriented main lift webbings, a saddle strap attached to the bottom ends of said main lift webbings, a pair of groin straps connected to said saddle strap and passing slidably through said main lift webbing, a lap strap connected to each groin strap, a pair of diagonal backstraps connected to said groin straps terminating in said fastening means at the front of said torso, wherein the improvement comprises:
a pair of webbed straps each attached to each of said groin straps, forward of said main lift webbing; and
means for tightening said webbed strap pair operably attached to one of said diagonal back straps and said pair of webbed straps;
a pair of adjustable buckles through each of which one of said pairs of webbed straps is threaded;
a pair of strap retainers slidably mounted about each of said diagonal backstraps aft of each of said main lift webbings; and
a pair of buckle straps each attached at the end of each of said strap retainers at one end and to each of said buckles at the other end.

4,378,922

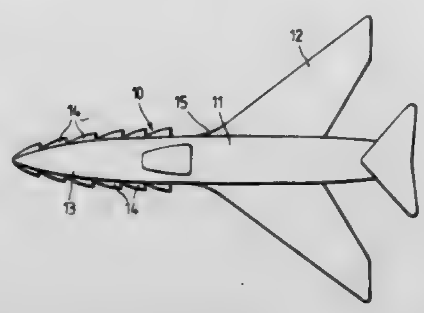
AIRCRAFT HAVING IMPROVED STRAKE CONFIGURATION

Donald Pierce, Aldershot, England, assignor to The Secretary of State for Defence in Her Brittannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Apr. 8, 1981, Ser. No. 252,102
Claims priority, application United Kingdom, Apr. 18, 1980, 8012872
Int. Cl.³ B64C *1/26, 23/06*
U.S. Cl. 244—199 **3 Claims**

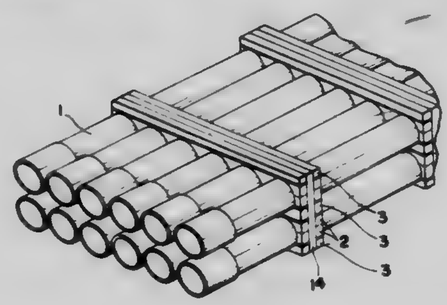
1. An aircraft having a longitudinal axis, a nose, and a series of laterally projecting barbs extending longitudinally rearwards from and on each side of the nose without adjacent

barbs in the series vertically overlying one another, each of said barbs being in the form of a low aspect ratio semi-delta



type aerofoil, and each barb lying substantially parallel to the aircraft longitudinal axis.

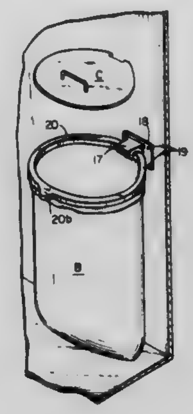
4,378,923
BINDING DEVICE FOR ELONGATED PIPES
Isao Takei, Yokohama, Japan, assignor to Nippon Kokan Kabushiki Kaisha, Chiyoda and Nichiei Distribution Systems, Inc., Kawasaki, both of, Japan
Filed Jul. 9, 1981, Ser. No. 281,569
Int. Cl.³ F16L *3/22*
U.S. Cl. 248—68 R **6 Claims**



1. A binding device for a plurality of elongated pipes, comprising:
a pair of pipe reception blocks, each block being formed in a first region thereof with a plurality of concavities, the concavities of one block cooperating with those of the other block so that successive pairs of concavities, each pair consisting of one concavity formed in one block and a cooperating concavity formed in the other block, define a plurality of spaces for respectively receiving side by side an associated plurality of elongated pipes, adjacent ones of said spaces being equally spaced apart, each space having substantially the same curvature as that of the outer surface of the pipe associated therewith, and each block having a second region spaced apart from said first region thereof, said two regions of each block being made of different materials;
first and second sleepers which respectively support and rest on a pair of said pipe reception blocks, one of said sleepers being in contact with said second region of one of said blocks and the other of said sleepers being in contact with said second region of the other of said blocks; and
bundling strap means for tightly encircling and fastening said blocks and sleepers.

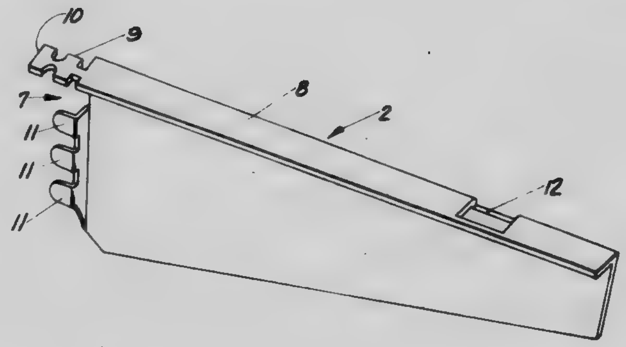
4,378,924
BAG HOLDER
James H. Christensen, 2736 Ensign Ave. North, Minneapolis, Minn. 55427
Filed Jun. 8, 1981, Ser. No. 271,523
Int. Cl.³ B65B *67/04*
U.S. Cl. 248—101 **2 Claims**

1. A bag holder comprising
a generally cylindrical mounting ring adapted to be connected at its rear portion to a suitable supporting structure,
a clamping member made from resilient, integrally moulded material with an underlying generally inverted U-shaped cross section defining an inner and an outer clamping arm with an opening therebetween which has an interfering fit with the outside of the mounting ring when the ring is received therein to securely clamp the upper portion of a bag to said mounting ring,
a forwardly extending protuberance formed at the outer portion of said clamping member to provide a grip for removing the clamp from the ring and for substantially reinforcing the outer portion of the clamping member to insure a positive lock around the outer portion of the mounting ring when the bag is in clamped position, and



the outer arm of the U-shaped clamping member is substantially thicker than the inner arm thereof to reinforce the outer arm portion and provide a secure clamping action around substantially the entire circumference of the ring and at least the outer peripheral portion of the clamping member extending around a substantial cross sectional portion of the mounting ring with the thickened outer arm forming a lip which underlies a substantial portion of the front underlying cross sectional portion of the mounting ring to positively lock at least the forward circumferential portion of the clamping member onto the mounting ring.

4,378,925
T-BRACKET SHELF ASSEMBLY
Charles E. Griffin, Florence, Ky., assignor to Lingo Manufacturing Company, Florence, Ky.
Filed Mar. 10, 1981, Ser. No. 242,367
Int. Cl.³ A47G *29/02*
U.S. Cl. 248—242 **7 Claims**



1. A shelf supporting assembly comprising:
a vertical channel having a plurality of T-shaped vertically spaced openings therein, said T-shaped openings each being defined by a horizontally disposed upper slot and a vertically disposed lower slot projecting downwardly from and in communication with said upper slot centrally thereof;
an elongated shelf supporting bracket comprising a body having a horizontally disposed upper edge and a vertically disposed base at one end thereof adapted to be seated against said vertical channel;
a plurality of projections extending rearwardly from said body for selective engagement with the T-shaped openings in said channel;

a first of said projections comprising a horizontally disposed pair of T-shaped elements lying in tandem relation to each other and extending in prolongation of the upper edge of said body, said T-shaped elements each having a top and a centrally disposed leg, the tops of said T-shaped elements each being of a width to be selectely passed through the upper slots of said T-shaped openings when the body of said shelf supporting bracket is vertically disposed, the legs of said T-shaped elements being of a width to be received in the lower slots of said T-shaped openings, the tops of said T-shaped elements being wider than said lower slots, whereby said T-shaped elements may be selectively passed through one of said T-shaped openings and the shelf supporting bracket moved downwardly so as to engage the corresponding leg of the T-shaped element in the lower slot of said opening with the outer ends of the top of the T-shaped element engaging the channel on opposite sides of said lower slot, the shelf supporting bracket extending horizontally outwardly from said channel when the innermost of said T-shaped elements is engaged in said T-shaped opening, and said shelf supporting bracket is inclined downwardly relative to said channel when the other of said T-shaped elements is engaged in said T-shaped opening; and

at least one lower projection extending rearwardly from the base of said shelf supporting bracket, said lower projection being connected to said vertical base by a connecting member disposed at right angles to said vertical base and engaging in one of the T-shape openings underlying the T-shaped opening in which said first projection is engaged.

4,378,926

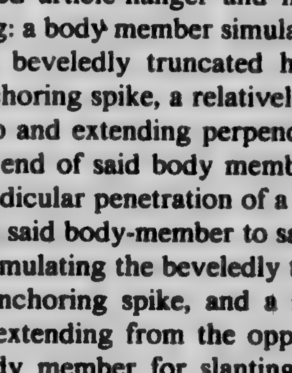
ARTICLE-HANGER AND ILLUSION-AMUSEMENT DEVICE

Robert J. Hodack, 2132 Holmes Ave., Springfield, Ill. 62704

Continuation-in-part of Ser. No. 901,614, May 1, 1978, abandoned. This application Jun. 25, 1980, Ser. No. 162,797

Int. Cl.³ A47G ***1/16***

U.S. Cl. 248—489 **4 Claims**



1. A combined article-hanger and illusion-amusement device, comprising: a body member simulating in size, shape and appearance the beveledly truncated head-end portion of a railroad-rail-anchoring spike, a relatively small rod-like screw element fixed to and extending perpendicularly from the opposite-the-head end of said body member for relatively non-defacing perpendicular penetration of a wall-like structure for slantingly fixing said body-member to said structure, a second body member simulating the beveledly truncated point end of a railroad-rail-anchoring spike, and a second small rod-like screw element extending from the opposite-the-point end of said second body member for slantingly fixing said second body member in alignment with said first-mentioned body member and on the opposite side of a door, partition or similar structure.

4,378,927

VEHICLE SEAT MOUNTING DEVICES

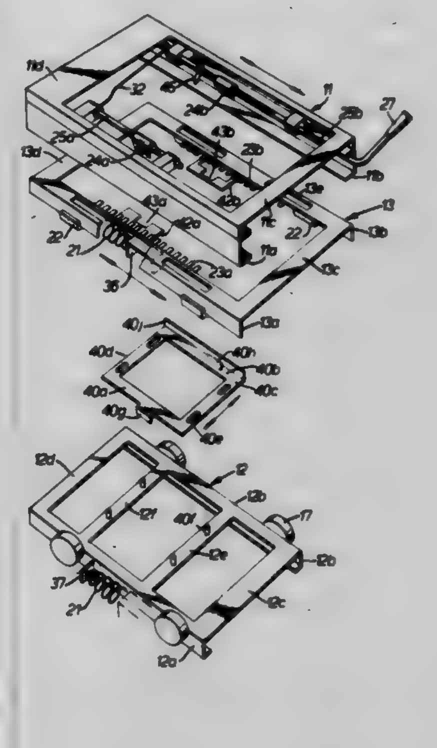
Kevin J. Graves, Cogenhoe, England, assignor to UOP Inc., Des Plaines, Ill.

Filed May 12, 1980, Ser. No. 149,206

Claims priority, application United Kingdom, May 16, 1979, 7916983

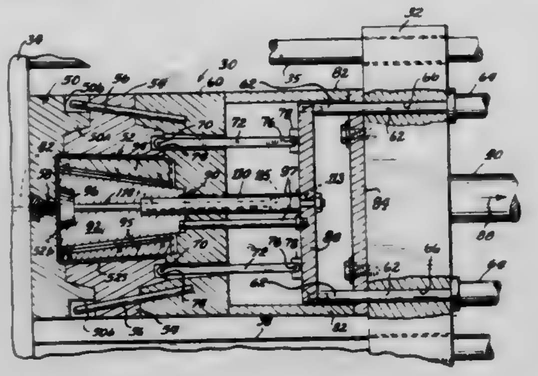
Int. Cl.³ F16M ***13/00***

U.S. Cl. 248—561 **8 Claims**



1. A vehicle seat mounting device comprising two frames (11, 12), means mounting said frames one above the other for connection to the floor of a vehicle and to the underside of a vehicle seat, said mounting means comprising spaced-apart guide rails (11*a*, 11*b*) on one of said frames (11) and rollers (17) on the other frame (12), said rollers engaging in the guide rails (11*a*, 11*b*) to permit relative sliding movement between the two frames, a third or intermediate frame (13), a position-adjusting device (15) including means for selectively connecting said intermediate frame (13) to a first one of the frames (11) and spring means (21) interposed between the intermediate frame (13) and the second frame (12), to allow a predetermined amount of relative movement therebetween, the position-adjusting device including a first actuator (24*b*, 24*a*) movable into and out of an engaged-state in which it locks the position-adjusting device (15) in any one of a plurality of selected static positions of the first frame (11) relative to the intermediate frame (13), lock-out means (16) including a second actuator (40*h*) movable into and out of an engaged state in which it causes the lock-out means (16) to lock the intermediate frame (13) to the second frame (12) thereby rendering the spring means (21) inoperative, characterised by a common operating member (27 or 127) and coupling means (25*b*, 34, 35) connecting the operating member (27) to said first actuator (24*b* or 124*b*) and to said second actuator (40*h* or 140*b*) and movable between a first mode 'A' in which the first actuator (24*b*) is in its engaged state and the second actuator (40*h*) is in its disengaged state so that the first and third frames (11, 13 or 111, 113) are secured together but movable relative to the second frame (12 or 112) under the restraint of the spring means (21 or 121), a second mode 'B' in which both first and second actuators are in their engaged state so that relative movement between the first, second and third frames is prevented, and a third mode 'C' in which the first actuator is in its disengaged state and the first frame is movable relative to the second and third frames to change their selected relative positions.

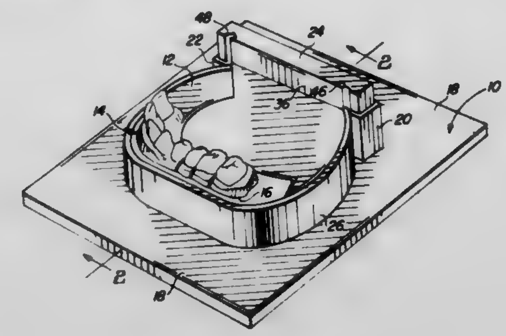
4,378,928
MOLDING APPARATUS
Edward J. Kopp, Elmhurst; Leon J. Iwinski, Westchester; Frank Guzzo, Melrose Park; Ronald F. Speechley, Westchester, and Frank Femali, Hillside, all of Ill., assignors to Beatrice Foods Company, Chicago, Ill.
Continuation of Ser. No. 161,758, Jun. 23, 1980, abandoned. This application Feb. 10, 1982, Ser. No. 347,732
Int. Cl.[3] B29F *1/14;* **B29C** *7/00*
U.S. Cl. 249—63 **10 Claims**



1. Apparatus for injection molding a hollow plastic tub having an open end, a closed end and an uninterrupted interior side wall surface of circular transverse cross-section, said interior side wall surface diverging toward said closed end whereby the tub has a smaller radius at said open end than at said closed end, said apparatus comprising:
mold core means for molding an interior surface of said plastic tub, including central core segment means defining a polygonal transverse cross-sectional outer envelope with polygon faces and a plurality of peripheral core segment means surrounding said central core segment means, said outer envelope defined by said polygon faces diverging in a direction toward said closed end of said tub;
said peripheral core segment means being mutually contiguous and having respective outward faces collectively defining a continuous circular transverse cross-sectional shape with each individual peripheral core segment means defining a continuous, uninterrupted outer surface diverging in a direction toward said closed end for molding said interior surface of said side wall of said plastic tub;
the divergence of the outer envelope of said central core segment means being greater than the divergence of the uninterrupted outer surface of said peripheral core segment means;
core collapsing means for causing relative movement between said central core segment means and said peripheral core segment means during a tub extraction phase of operation;
said means for causing said relative movement including means for imparting at least a component of motion to said peripheral core segment means which is in a radially inward direction relative to said central core segment means and the plastic tub, whereby to reduce the transverse diameter of said mold core means and to provide clearance during said tub extraction phase for said continuous, uninterrupted diverging surfaces of said peripheral core segment means.

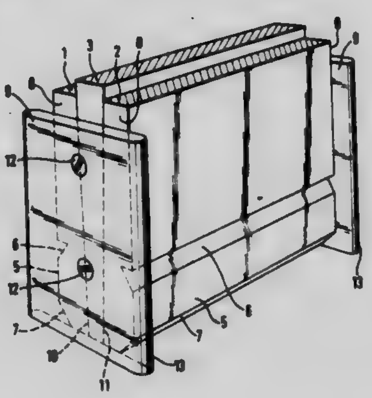
4,378,929
MOLD FOR DENTAL MODELS BASE
Ronald E. Huffman, Tucson, Ariz., assignor to KV33 Corporation, Tucson, Ariz.
Filed Feb. 2, 1981, Ser. No. 230,330
Int. Cl.[3] B29C *1/14, 1/02*
U.S. Cl. 249—124 **17 Claims**

1. A disassembleable mold for forming the tooth die supporting base of a dental model upon curing of a pourable hardenable compound deposited therein, said mold comprising in combination:
(a) a substructure having guide means attached thereto;
(b) a sidewall member defining a portion of the perimeter of said mold;
(c) a removable insert member cooperating with said guide means, said insert member cooperating with said sidewall member to define with said substructure a mold cavity therebetween;



(d) said insert member having a projection extending within the mold cavity at a height substantially that of said sidewall member and suitable for forming a recess within the base and for delineating a platform for supporting the tooth die of the dental mold; and
(e) means for indexing the base.

4,378,930
NOVEL APPARATUS
Jürgen Rabe, Aurachtal, Fed. Rep. of Germany, assignor to INA Walzlager Schaeffler KG, Herzogenaurach, Fed. Rep. of Germany
Filed Apr. 13, 1982, Ser. No. 368,040
Claims priority, application Fed. Rep. of Germany, Apr. 25, 1981, 3116526
Int. Cl.[3] B29C *1/00;* **B29F** *1/00*
U.S. Cl. 249—160 **2 Claims**

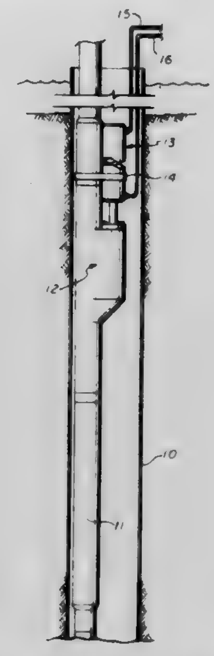


1. An apparatus for producing a cage made of castable or injection moldable material for cylindrical rollers, the pockets of the cage being defined by webs which have projections projecting into the pockets at their longitudinal sides for radially retaining the rollers comprising slide plates radially moveable for forming the roller pockets, each slide plate being formed of several partial slide plates, the end faces of the slide plates having cover plates arranged thereon to cover the connection juncture between the partial slide plates and secured to one of the partial slide plates.

4,378,931
VALVE AND ACTUATOR THEREFOR
James B. Adams, Jr., Lewisville, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.
Filed Jun. 3, 1980, Ser. No. 156,200
Int. Cl.[3] F16K *31/122*
U.S. Cl. 251—58 **6 Claims**

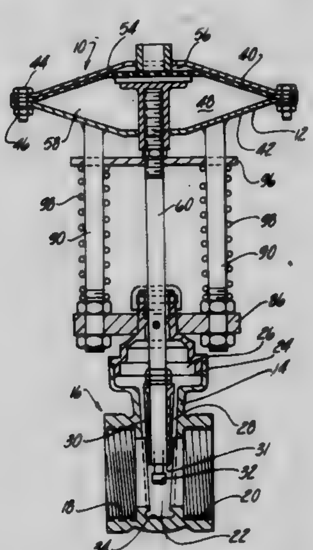
1. A valve comprising,
a housing,
a valve member and valve seat controlling flow through said housing,

an actuator moving said valve member between open and closed positions with reciprocation of said actuator,
a crosshead slidably mounted on said actuator and adapted for attachment to the reciprocating rod of a reciprocating motor,
spaced stops on said actuator, and



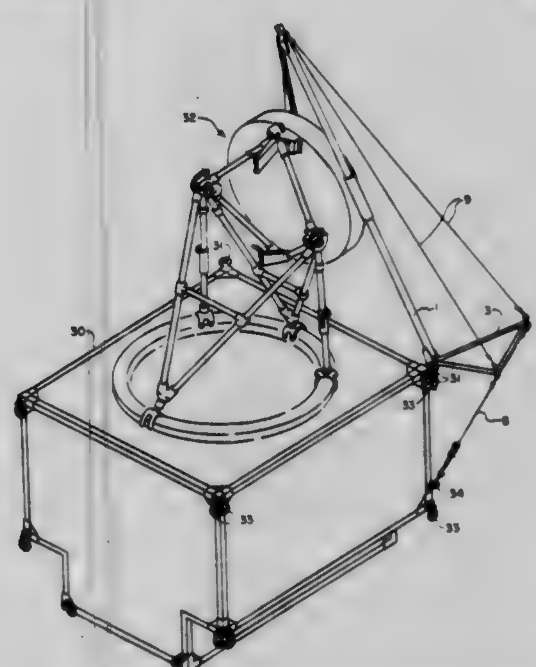
resilient means on said actuator on opposite sides of said crosshead, said resilient means confined between said crosshead and said stops and transmitting movement of said crosshead in opposite directions to said actuator, said resilient means permitting the crosshead to slide along said actuator and prevent excessive force from being applied to said actuator by said crosshead during normal operation of the valve.

4,378,932
PRESSURE RESPONSIVE VALVE ASSEMBLY
Alfred J. Avery, Flushing, Mich., assignor to Good News Unlimited Incorporated, Dryden, Mich.
Filed Jul. 20, 1981, Ser. No. 284,543
Int. Cl.³ F16K *31/126*
U.S. Cl. 251—61.4 **4 Claims**



1. A valve assembly for use with an external pressure source, said valve assembly comprising a housing having a fluid coupling formed at one end, said fluid coupling having an inlet, an outlet and a fluid passageway extending therebetween,
a gate slidably mounted in said housing and movable between a closed position in which said gate extends across said passageway and blocks fluid flow from said inlet and to said outlet and an open position in which said gate opens at least a portion of said passageway,
means responsive to the external pressure source for moving said gate from said closed position to said open position only when the pressure at the pressure source falls below a predetermined level,
wherein said moving means comprises an elongated rod secured at one end to said gate, a diaphragm, means for communicating said pressure source to one side of said diaphragm and wherein the other end of the rod abuts against the other side of the diaphragm, and resilient means for urging said gate towards said open position,
wherein said housing comprises an upper part defining a chamber in which said diaphragm is contained, a lower part which includes said coupling, and at least two elongated supports extending between and secured to said housing parts,
wherein said moving means further comprises a first spring retainer secured to said lower housing part and a second spring retainer secured to said rod and axially slidably mounted to said supports, and wherein said resilient means comprises a pair of compression springs, one compression spring being disposed around each support and entrapped between said spring retainers,
wherein said rod and said supports are substantially aligned and parallel to each other and wherein each spring retainer comprises an elongated flat bracket, and
wherein said lower housing part includes an annular, reduced diameter upper portion formed around said rod, and said first spring retainer bracket includes an aperture adapted to receive said upper portion of said lower housing to prevent excentric application of forces by said springs on said lower housing.

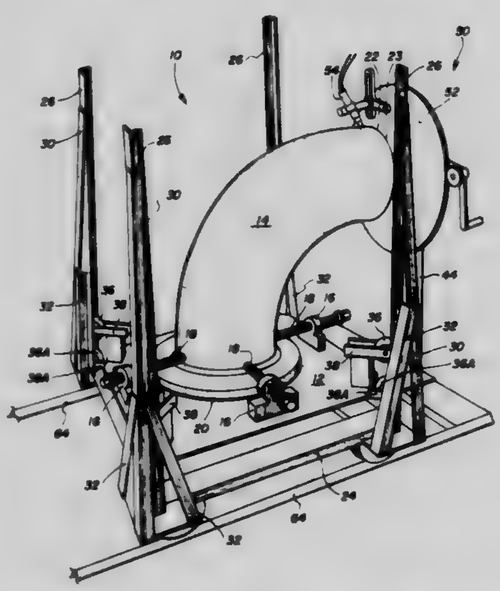
4,378,933
CRANE ASSEMBLY
Robert E. Holston, Moorestown, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Jul. 7, 1980, Ser. No. 166,720
Int. Cl.³ B66D *3/04*
U.S. Cl. 254—399 **3 Claims**



1. A crane assembly for use with a structure having a mounting hole and an attachment point, with the mounting hole located vertically above the attachment point; said crane assembly comprising:
a rigid mast having upper and lower ends;
a spreader having three rigid sides joined at first, second and third corners, with the first corner attached to the lower end of said mast;
a pivot post for insertion in said mounting hole, the pivot post being attached to the lower end of the mast by a hinge pin;
a lower cable assembly comprising two cables attached respectively to the second and third corners of said

spreader, and attached at the other ends to connecting means, which in turn is attached to said attachment point;
an upper cable assembly comprising two cables attached respectively to the second and third corners of said spreader, and attached at the other ends to the upper end of said mast;
and hoisting means including at least one pulley attached to the upper end of said mast.

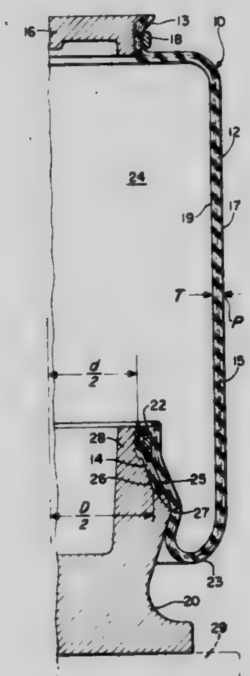
4,378,934
METHOD AND APPARATUS FOR SALVAGING LARGE PIPE ELBOWS
George W. Tucker, Rt. 13, Box 276, Fort Worth, Tex. 76119
Filed Jun. 5, 1980, Ser. No. 156,592
Int. Cl.³ B23K *7/04*
U.S. Cl. 266—55 **10 Claims**



1. Apparatus for refinishing the circular openings of relatively large tube turns, comprising:
(a) a platform adapted to securely hold a tube turn such that a first end is supported in a cantilevered manner and the circular opening of said first end lies in a generally vertical plane;
(b) a circular track which is positionable to support a cutting torch for rotative movement around the track in a plane that is near and parallel to the cantilevered end of the tube turn, whereby the cutting torch may be caused to operate on the cantilevered end;
(c) means for centering said circular track with respect to the cantilevered end of the tube turn, and said means being adapted to be positioned with respect to the interior surface of the cantilevered tube end; and
(d) means for selectively positioning the tube turn with respect to the circular track, such that the tube turn and the circular track may be moved to and from a cutting position.

4,378,935
ROLLING LOBE AIRSPRING
Paul R. Brown, Tallmadge, and Henry D. Fresch, Cuyahoga Falls, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Continuation of Ser. No. 18,400, Mar. 8, 1979, abandoned. This application Apr. 20, 1981, Ser. No. 255,627
Int. Cl.³ F16F *9/04*
U.S. Cl. 267—64.27 **3 Claims**

1. A rolling lobe fluid spring comprising:
a mounting member;
a piston having a radially extending mounting end, and an axially and circumferentially extending piston surface, the surface including circumferentially extending serrations axially adjacent the piston mounting end, a circumferentially extending working area axially away from the piston mounting end and serrations, and a circumferentially extending recess extending axially between the serrations and the working area, the recess having a circumferentially extending blunt end axially adjacent the working area and axially away from the mounting end and serrations; and
a flexible, tubular member having a first end and a second end with a leading edge, the tubular member being of substantially uniform thickness throughout the second end to the leading edge, such that the second end is a taper free, blunt end, and the leading edge is a blunt leading edge, the first end of the tubular member being mounted and secured in a fluid tight manner to the mounting member, and the second end of the tubular member being mounted and secured to the piston in a fluid tight manner about the serrations, (a) such that a circumferentially extending area of securement is defined in the second end of the tubular member, (b) such that a rolling lobe is

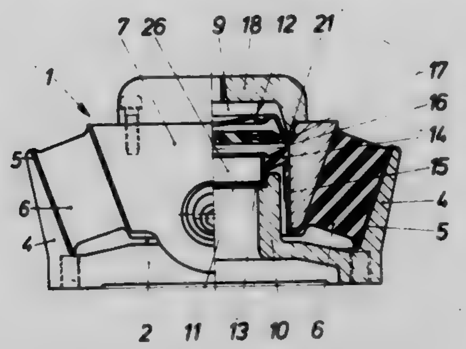


formed in the tubular member between the area of securement and the first end of the tubular member which extends longitudinally, past the piston recess to the working area, and (c) such that the non-tapered, blunt tail including the blunt leading edge is formed in the second end of the tubular member;
the blunt tail extending from the securement area in a direction within the tubular member away from the rolling lobe and first end;
the blunt tail being in the recess and thereby being between the rolling lobe and piston; and
the blunt tail substantially filling the recess both axially and radially such that the blunt leading edge of the tail lies at the blunt end of the recess without a substantial gap between the blunt leading edge and blunt end of the recess, and further such that the tail has a radially outer surface which, with the working area, presents a substantially continuous surface over which the rolling lobe may roll.

4,378,936
ENGINE MOUNTINGS FOR TRUCKS, MOTOR COACHES OR THE LIKE UTILITY VEHICLES
Heinz Brenner, Neuenahr-Ahrweiler, Fed. Rep. of Germany, assignor to BOGE GmbH, Eitort, Fed. Rep. of Germany
Filed May 15, 1981, Ser. No. 264,098
Claims priority, application Fed. Rep. of Germany, Jun. 27, 1980, 3024090
Int. Cl.³ F16F *1/36, 13/00*
U.S. Cl. 267—140.1 **8 Claims**

1. An engine mounting for trucks, motor coaches or the like utility vehicles, comprising a first relatively rigid member for attachment to the vehicle frame, a second relatively rigid member for attachment to the engine, main elastomer spring

means disposed relatively outwardly from the axis of the mounting and extending between said first and second members for carrying the major proportion of the engine mounting shear load, generally annularly shaped elastomer spring means located relatively radially inwardly of said main elastomer spring means and at least part of the second rigid member and extending between parts of said first and second members for carrying a comparatively small proportion of the engine mounting load, said annularly shaped elastomer spring means being connected to a main body portion of a damping means supported by said part of said first member, said annular spring means extending from said main body portion to connect with said part of said second member, a generally plate shaped



folded bellows connected to and extending across said second member opposite said generally annularly shaped spring means and said main body portion such that said bellows, said main body portion and said generally annularly shaped spring means define a closed volume, an elastic separating wall extending across and carried by said second member and subdividing said closed volume into a chamber filled with damping fluid on the side facing said main body and annularly shaped spring means, and a compensating chamber on the side facing said bellows, a throttle aperture in said elastic separating wall for fluidly communicating said chambers, and said bellows being substantially unrestrained such that said compensating chamber can receive damping fluid through said throttle aperture without appreciable pressure.

4,378,937

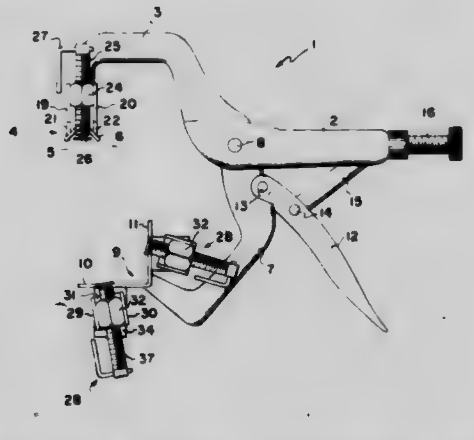
PIPE ALIGNING TOOL

Timothy C. Dearman, P.O. Box 937, Pearland, Tex. 77581

Continuation-in-part of Ser. No. 83,175, Oct. 9, 1979, abandoned. This application May 9, 1980, Ser. No. 148,416

Int. Cl.³ B23K *37/04*

U.S. Cl. 269—6 **20 Claims**



1. A clamp for use in welding first and second pipe members to one another in end to end relation, said clamp comprising first and second clamp jaws; means mounting said jaws for relative movement toward and away from one another into and out of clamping engagement with one of said pipe members and adjacent one end thereof; a plurality of elongate supports carried by said jaws and extending therefrom a distance to project beyond said one end of said one pipe member when said jaws are in clamping engagement with said one pipe member and support said second pipe member in end to end confrontation with said one pipe member; and means mounting a selected number of said supports on said jaws for rotation relative thereto about substantially parallel axes.

4,378,938

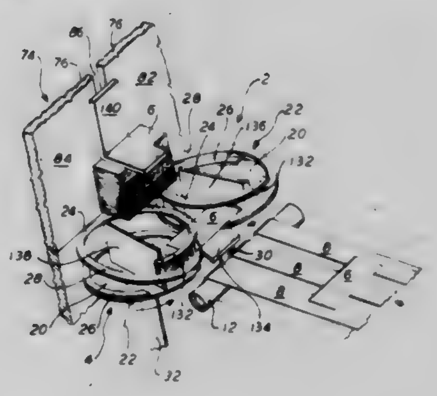
DOCUMENT STACKING DEVICE

Tadeusz Staniszewski, Budd Lake, N.J., assignor to Sweda International, Inc., Paramus, N.J.

Continuation of Ser. No. 82,459, Oct. 9, 1979, abandoned. This application May 26, 1981, Ser. No. 267,153

Int. Cl.³ B65H *31/04, 29/42*

U.S. Cl. 271—179 **9 Claims**



1. A document stacking device for stacking documents comprising:

a document stacker member mounted for rotation about an axis of rotation; and

means for rotating said stacker member about said axis of rotation;

said stacker member including a portion extending obliquely to said axis of rotation and effective upon rotation of said stacker member to move said documents along the direction of said axis of rotation;

said stacking device including means for gripping said documents and moving them in a given direction away from said said stacker member;

said given direction extending transversely to said axis of rotation;

said gripping means being mounted on said stacker member and contacting said obliquely extending portion, whereby said documents are gripped between said gripping means and said obliquely extending portion.

4,378,939

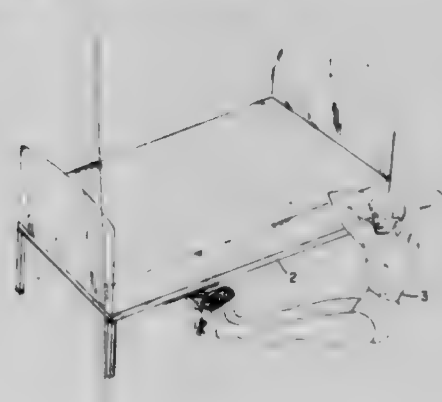
BED FRAME SIT-UP EXERCISER

Norman W. Wild, 3762 Locust Ave., Long Beach, Calif. 90807

Filed Oct. 22, 1980, Ser. No. 153,441

Int. Cl.³ A63B *23/02*

U.S. Cl. 272—93 **6 Claims**



1. A sit-up exercise device to be utilized in conjunction with a bed having a frame, said device comprising:

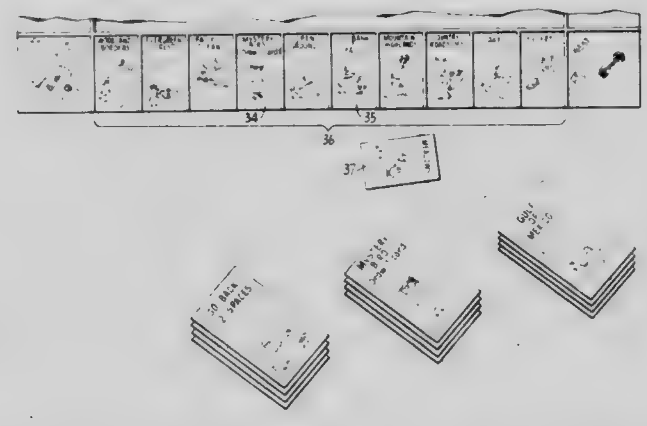
(a) a mounting plate;

(b) means for detachably securing said mounting plate to the bed frame;
(c) a mounting arm pivotally connected to said mounting plate at one end thereof so as to be movable from a position substantially parallel to said mounting plate to an angular position relative thereto;
(d) a foot engaging loop located at the other end of said mounting arm;
(e) means for pivotally connecting said loop to said other end of said mounting arm, said pivotal connecting means including means for permitting said loop to pivot about a vertical and horizontal axis relative to said mounting arm; and
(f) spring means for connecting said one end of said mounting arm to said mounting plate to permit said mounting arm to be placed into one of a plurality of angularly oriented use positions and to retract said mounting arm to a position substantially parallel to said mounting plate in a nonuse position.

4,378,940
ELECTRONIC DEVICE FOR PLAYING BINGO, LOTTO AND ALLIED CARD GAMES
Jacob Gluz, 799 Pitcairn Dr., Foster City, Calif. 94404, and Benjamin Poku, P.O. Box 1494, New Haven, Conn. 06506
Filed Dec. 11, 1980, Ser. No. 215,351
Int. Cl.³ A63F *3/06*
U.S. Cl. 273—237 **11 Claims**

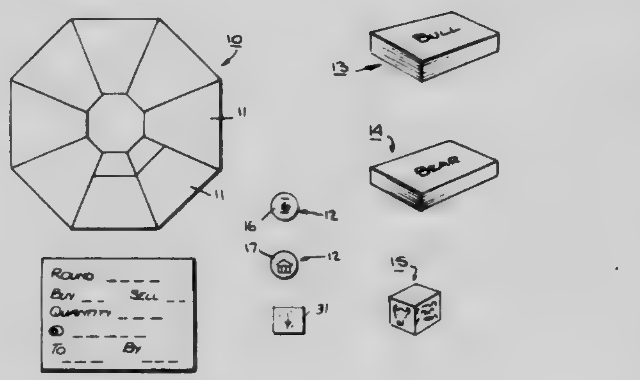
1. An electronic game, such as a bingo, a lotto and the like, comprising
a plurality of data cards each including a set of numbers for a single card;
means for successively reading numbers on said data cards and subsequently storing a plurality of card images each consisting of the respective set of said numbers;
means for submitting by a player and storing a configuration pattern specifying sets of named positions on said card images which are considered to be winning;
means for successive inputting by a player a plurality of further numbers introduced by a dealer, comparing each of said thusly inputted further numbers with each number of each of said stored card images, and recording the numbers which coincide with said further inputted numbers;
displaying means including first means for determining and displaying the numbers of each card image on which the further numbers inputted by said inputting means have coincided with said set of positions specified by the configuration pattern submitted by said submitting means and which thereby is a winning card image; and
start game means operative for switching off said reading means and said submitting means and switching on said inputting means and said determining means.

4,378,941
BIRDING GAME METHOD
Paul A. Derby, 555 Glen Dr., San Leandro, Calif. 94577
Continuation of Ser. No. 85,854, Oct. 18, 1979, abandoned. This application Mar. 5, 1981, Ser. No. 240,758
Int. Cl.³ A63F *3/00*
U.S. Cl. 273—273 **1 Claim**



1. A game for the matching of bird species and their geographical habitats comprising providing a plurality of tiles bearing on their faces habitat identification information, providing a plurality of playing cards bearing on their faces bird species identification information, arranging said tiles collectively in face-up position so that each of the players may choose his own make-up of tiles for the play of the game, selectively apportioning tiles among the players in accordance with their respective choices whereby each player is responsible for a selection of habitat descriptions to be matched with the bird species of said cards, displaying the selectively apportioned tiles in face-up position adjacent the players who chose them, distributing a predetermined number of said cards as card hands in face-down condition to each of the players, and sequentially comparing said card hands with predetermined displayed tiles to discern species and habitat matchings.

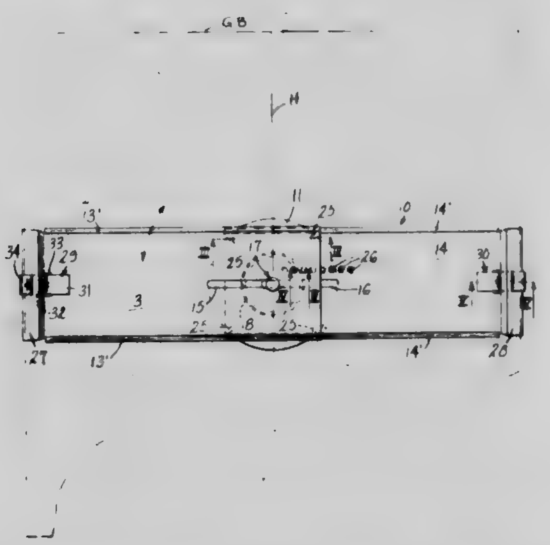
4,378,942
TRADING GAME
Paul J. Isaac, P.O. Box 456, Tuckahoe, N.Y. 10707
Filed Dec. 19, 1980, Ser. No. 218,178
Int. Cl.³ A63F *3/00, 1/00*
U.S. Cl. 273—278 **10 Claims**



1. A trading game, consisting of
a plurality of tokens, each said token having a numbered indicia on one side selected from a given numerical range whereby a randomly selected number of said tokens establishes a first component of a final settlement price;
a first set of "Bull" designated cards, each said card having an indicia of an event on one side and an indicia of a numerical weight for the respective event to establish a second component of the final settlement price;

a second set of "Bear" designated cards, each said card having an indicia of an event on one side and an indicia of a numerical weight for the respective event to establish a third component of the final settlement price;
a die having an indicia of a "Bull" or "Bear" on each of a selected number of faces thereof;
a plurality of transaction tickets, each said ticket having indicia thereon for recording a round number, one of a "buy" or "sale" transaction, a quantity of the transaction, a price of the transaction, a purchaser and a seller;
a plurality of trader's tally sheets, each said sheet having indicia for determining one of a profit and loss for each transaction of a player in a given round; and
at least one broker's tally sheet having columnar indicia for itemizing and totaling the profits and losses of all players in a given round.

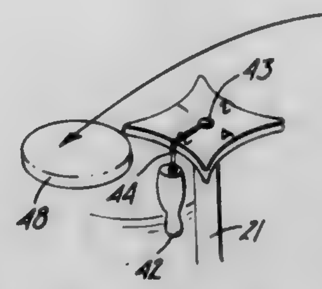
4,378,943
TURNTABLE FOR FOLDING GAME BOARDS
Meigs W. Newberry, 29 Martin St., Sprinfield, Mass. 01108
Filed Jan. 12, 1981, Ser. No. 224,010
Int. Cl.³ F16M *11/08*
U.S. Cl. 273—280 **2 Claims**



1. A rotatable support for a substantially flat game board comprising a base portion adapted to rest on a table or the like, and being provided with an upwardly directed annular ridge, a platform portion, and a pivot pin mounting the platform portion rotatably on the base portion, the platform portion being constituted by upper and lower relatively slidable marginally flanged flat rectangular plates adapted to support a game board, two board engaging spring clamps mounted at opposite ends of the, respective plates, and means for adjusting the distance between the clamps, each plate being longitudinally slotted and the slots overlapped to provide an aperture to receive the pivot pin, the lower plate being provided with a plurality of downwardly projecting elements adapted to stabilize the adjusted position of said plate in relation to the pivot pin.

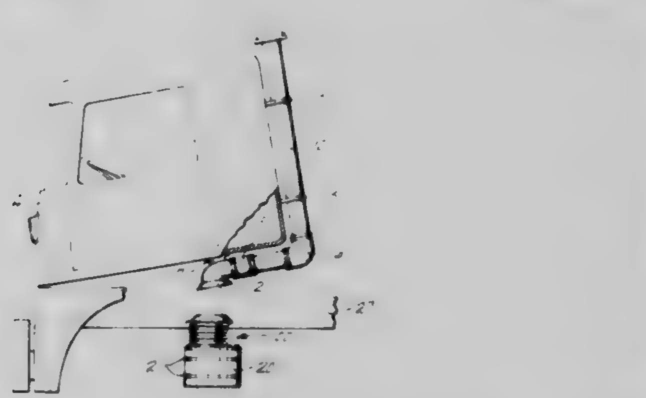
4,378,944
PROJECTILE AND TETHERED TARGET GAME APPARATUS
Robert J. Johnston, 2705 Cherrywood Rd., Minnetonka, Minn. 55343
Filed Jun. 11, 1981, Ser. No. 272,495
Int. Cl.³ F41J *7/02;* A63F *9/02*
U.S. Cl. 273—393 **9 Claims**

1. A game apparatus comprising:
a stand having an elevated platform with a generally horizontal top surface and a plurality of discrete sides;
point value indicia associated with each of said sides;
a target object supportable on the platform;
tether means connecting the target object to the stand;
said sides being concave in shape;
a projectile throwable by a game participant to attempt to knock the target object from the platform whereby it hangs over one of said sides suspended by the tether



means with the tether means giving a point value indication.

4,378,945
BELLOWS-TYPE SPRING SEAL
Gregory J. Trautman, Seattle, Wash., assignor to PACCAR Inc., Bellevue, Wash.
Filed Jan. 29, 1981, Ser. No. 229,731
Int. Cl.³ F16L *37/10*
U.S. Cl. 277—200 **12 Claims**



1. A bellows-type spring seal to connect between a cab-mounted air intake pipe and a frame-mounted air cleaner canister while providing an effective breakaway joint when the cab tilts from over the engine in a cab-over-engine truck, comprising:
a bellows extending upwardly from the canister top, having an upper, deformable sealing end, and being capable of providing self-alignment between the air intake pipe and the canister;
means for attaching the lower end of the bellows to the canister; and
means encircling the bellows for biasing the sealing end of the bellows away from the canister toward the intake pipe and for providing a positive preload for the seal.

4,378,946
STROLLER CANOPY STRUCTURE
Charles L. Voytko, and Robert J. Boudreau, both of Bedford, Pa., assignors to Brown Group Recreational Products, Inc., Bedford, Pa.
Filed Jan. 22, 1981, Ser. No. 227,155
Int. Cl.³ B62B *11/00*
U.S. Cl. 280—642 **6 Claims**

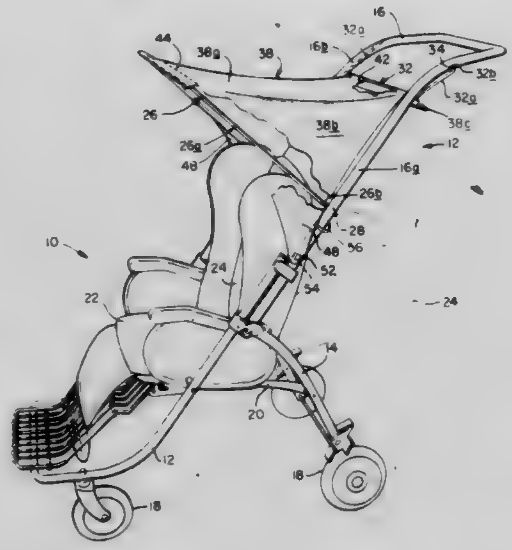
1. In a collapsible baby vehicle of the type including a front wheeled frame member, a rear wheeled frame member, a seat-supporting frame member and a pusher handle all being pivotally connected to permit the seat-supporting frame member to be moved from an elevated location above the ground to a collapsed position wherein the seat-supporting frame member is located adjacent the ground, the improvement comprising
A. a generally U-shaped bail whose bight is shorter than the distance between the arms of the pusher handle,
B. first means for pivotally connecting the free ends of the bail arms to the pusher handle arms at the inboard walls

thereof at locations spaced above the seat-supporting frame member,

C. a second generally U-shaped bail shallower than the first whose bight is longer than the distance between the pusher handle arms,

D. second means for pivotally connecting the free ends of the second bail arms to the pusher handle arms at the outboard walls thereof at locations spaced above the first connecting means,

E. a flexible fabric body having a leading edge connected to



the bight of the first bail and a trailing edge connected to the bight of the second bail, the length of the fabric body being such that when the first bail is in a lower position wherein it lies in a substantially horizontal plane, the second bail bight engages the pusher handle and the fabric body is in a taut condition, said first bail being swingable between said lower position and a raised position wherein it is swung behind and below the pusher handle and reposes on the now depending second bail, thereby to maintain the fabric body in a folded out-of-the-way position behind and below the plane of the pusher handle.

4,378,947

REFLECTION FITTING FOR THE SAFETY BELT OF RESTRAINING SYSTEM

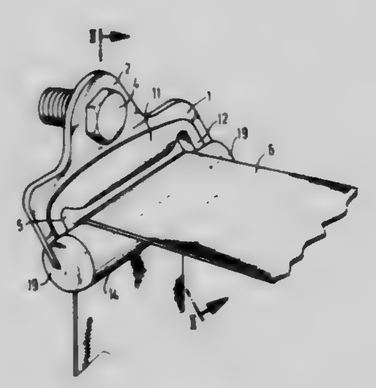
Artur Föhl, Schorndorf, Fed. Rep. of Germany, assignor to Repa Feinstanzwerk GmbH, Alfdorf, Fed. Rep. of Germany

Filed Nov. 4, 1980, Ser. No. 203,890

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1979, 2945174

Int. Cl.³ A62B *35/02*

U.S. Cl. 280—808 **10 Claims**



1. Deflection fitting for a safety belt of a restraining system, especially for motor vehicles, comprising a fitting plate, a guide slot in the fitting plate for passage of the safety belt therethrough, a cross bar of the fitting plate for support of the safety belt, a sleeve-like deflection element with a rounded roll-off surface for the safety belt and having at least one longitudinal slit to permit sliding the deflection element onto the cross bar and, after said deflection element is pushed onto the cross bar, the deflection element is rotated in such a manner that its longitudinal slit is positioned at a side of the cross bar which is away from the guide slot of the fitting plate, at least one plug-like locking part with one side of the locking part having a longitudinal slot fitting the cross bar, and the other side of the locking part having a longitudinal key which fits in the longitudinal slit of the deflection element, said plut-like locking part when pressed form- or force fittingly into the sleeve opening of the sleeve deflection element locks the deflection element to the cross bar.

4,378,948

SAFETY CLOSURE LATCH

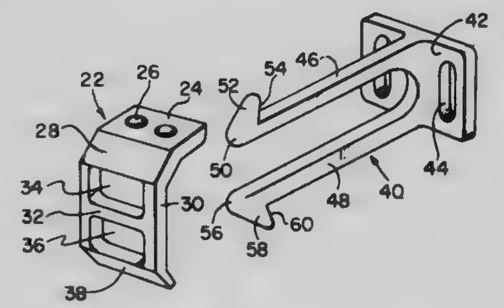
Anthony Chrones, Warwick, R.I., assignor to Reliance Products Corporation, Woonsocket, R.I.

Filed Jun. 15, 1976, Ser. No. 696,486

The portion of the term of this patent subsequent to Dec. 5, 1994, has been disclaimed.

Int. Cl.³ E05C *7/00*

U.S. Cl. 292—19 **2 Claims**



1. A safety closure latch for a drawer or the like comprising a stop member and a complimentary latch member for releasably retaining said drawer in partially open position,

said stop member comprising a base for mounting in the drawer opening and an elongated downwardly depending frame integrally from said base, said frame provided with at least one opening defining an upper edge and a lower edge forming upper and lower shoulders respectively for engaging said latch member,

said latch member comprising a base for mounting to the inner face of the front drawer wall, with a pair of resilient arms extending horizontally inward from said base in alignment with the opening in said stop member, said arms being in vertically spaced parallel relation, the outer ends of said arms provided with hooked portions, the hooked portion on the upper of said arms facing upwardly to engage the upper shoulder of said stop member and the hooked portion on the lower of said arms facing downwardly to engage the lower shoulder of said stop member.

4,378,949

PRODUCTION OF SHALE OIL BY IN-SITU RETORTING OF OIL SHALE

J. Blaine Miller, Englewood, Colo., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 59,321, Jul. 20, 1979, abandoned. This application Apr. 27, 1981, Ser. No. 257,626

Int. Cl.³ E21C *41/10*

U.S. Cl. 299—2 **18 Claims**

1. A method of producing shale oil from an in-situ retort in an underground oil shale deposit comprising:

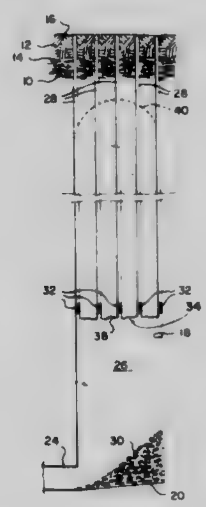
(a) excavating a room in the shale deposit, said room conforming in cross section to the retort and having a volume at least as large as the minimum void space in a mass of rubblized oil shale blasted from the oil shale deposit and random free falling to fill open volume the size of the desired retort;

(b) drilling a plurality of substantially vertical shot holes through the oil shale overlying the room, said shot holes

extending upwardly through the shale overlying the room at least to approximately the upper end of the desired retort;

(c) after completion of step (a), initiating rubblization of the shale by detonating an explosive charge in the shot holes near the lower end thereof to fragment oil shale overlying and adjacent the room and cause random free fall of the fragments into the room to form a random-filled rubblized mass of oil shale therein with an open space between the rubble and overlying unfragmented shale;

(d) repeating the detonation of explosive charges at successively higher levels in the shot holes to fragment the shale adjacent the open space and cause random free fall of



fragments of oil shale formed by each detonation through open space onto rubblized oil shale in the room underlying the unfragmented oil shale until a random-filled rubblized in-situ retort of the desired height is formed, the time between successive detonations being adequate to allow movement of shale broken by a detonation sufficiently to avoid interference by particles of shale broken by a later or earlier detonation whereby there is random free fall of the shale particles onto the upper surface of the shale in the room;

(e) passing a retorting gas downwardly through the in-situ retort to heat oil shale in the retort and release shale oil therefrom; and

(f) delivering shale oil from the in-situ retort to the surface.

4,378,950

INSHOT VALVE ARRANGEMENT FOR RAILWAY BRAKE CONTROL APPARATUS EMPLOYING COMBINED AIR RESERVOIR/BRAKE CYLINDER DEVICE

James E. Hart, Trafford, Pa., and Robert J. Zahradnik, Farmington, N. Mex., assignors to American Standard Inc., Wilmerding, Pa.

Filed Dec. 19, 1980, Ser. No. 217,969

Int. Cl.[3] B60T *15/22*

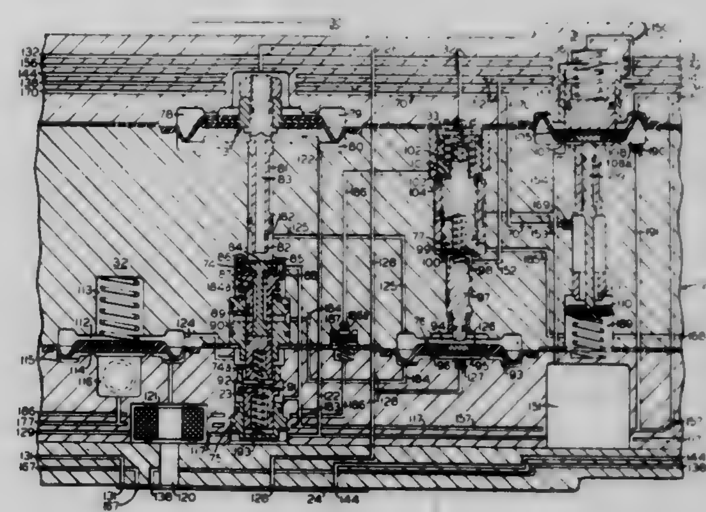
U.S. Cl. 303—36 **12 Claims**

1. An inshot valve device comprising:

(a) first valve means having an open and a closed position for conducting and interrupting, respectively, the venting of brake control fluid pressure in response to which venting a brake application is established;

(b) a control piston having first and second positions in which said control piston is engageable with said first valve means to control operation thereof to said open and closed positions, respectively, said control piston having opposing pressure chambers formed on the respective sides thereof subject to said brake control pressure, said brake control pressure of one of said opposing chambers acting on a first pressure area of said control piston and said brake control pressure of the other of said opposing chambers acting on a second pressure area of said control piston;

(c) means for biasing said control piston in said first position, in which position said brake control pressure in said one of said opposing chambers is trapped during an emergency brake application, so that said venting of said brake control pressure during said emergency application establishes a pressure differential across said control piston to overcome said bias and force said control piston to said second position; and



(d) said control piston further having a third pressure area on the same side thereof as said first pressure area, such that said first and third pressure areas combined are a predetermined percentage greater than said second pressure area, said third pressure area being defined by a vented pressure chamber, said control piston further including second valve means operative in said second position of said control piston for connecting said trapped brake control pressure to said vented pressure chamber so as to be effective on said first and third pressure areas of said control piston and thereby prevent said control piston from resetting to said first position for a predetermined duration.

4,378,951

TRAVELING WAVE COUPLED TYPE OPTICAL WAVE CIRCULATORS

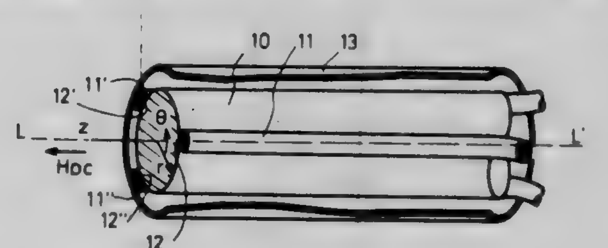
Tsukasa Nagao, 4-75, Mabori, Yokosuka-shi, Kanagawa-ken, Japan

Filed Jun. 19, 1980, Ser. No. 161,075

Claims priority, application Japan, Jun. 27, 1979, 54-81180

Int. Cl.[3] G02B *5/172*

U.S. Cl. 350—96.15 **16 Claims**



1. A traveling wave coupled circulator comprising a magneto-optic circular-cylindrical-transmission-line structure made of magneto-optic material having optical anisotropy under biasing magnetic field to act magneto-optic Faraday rotation, said magneto-optic structure being arranged on the common axis, and said magneto-optic structure being optically shielded, plural numbers of optical waveguiding couplers, each coupler being positioned against an opening formed on a given area on said magneto-optic structure in rotational symmetry around said common axis,

and means for magnetically biasing said magneto-optic structure in the direction parallel to said common axis.

4,378,952

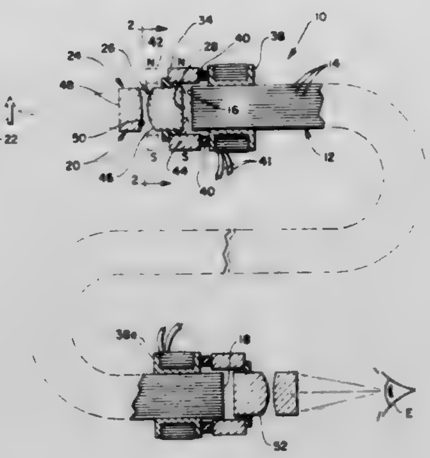
DYNAMIC IMAGE ENHANCER FOR FIBERSCOPES

Walter P. Siegmund, Woodstock, Conn., assignor to Warner Lambert Technologies, Inc., Southbridge, Mass.

Filed Aug. 15, 1980, Ser. No. 178,318

Int. Cl.^{3} G02B *5/17*

U.S. Cl. 350—96.25 **8 Claims**



1. In a dynamic image enhancing system for fiberscopes, the improvement comprising:
- a distal image-forming objective having first and second lenses, the first of said lenses being fixed in aligned spaced relationship with one end of an image-transporting fiber bundle of a fiberscope incorporating said image-enhancing system and the second of said lenses being positioned between said first lens and fiber bundle;
- means permitting pivoting of said second lens relative to said one end of said fiber bundle; and
- means for effecting said pivoting in controlled oscillating fashion for causing images produced by said objective to repeatedly scan across said one end of said fiber bundle.

4,378,953

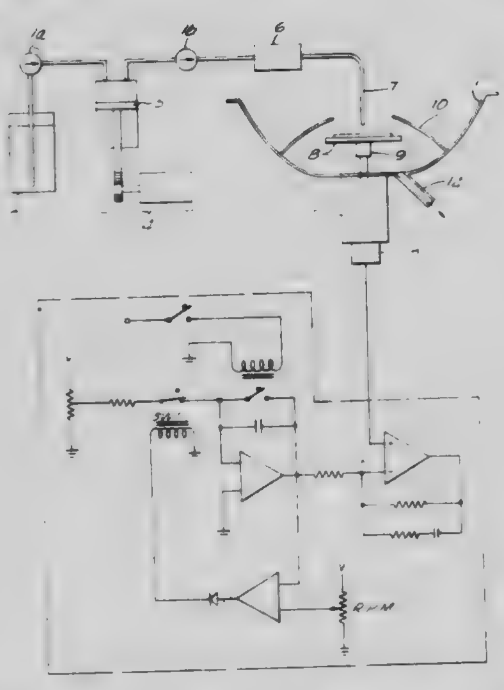
THIN, OPTICAL MEMBRANES AND METHODS AND APPARATUS FOR MAKING THEM

Ray Winn, Studio City, Calif., assignor to Advanced Semiconductor Products, Santa Cruz, Calif.

Filed Dec. 2, 1981, Ser. No. 326,489

Int. Cl.^{3} G02B *27/14*

U.S. Cl. 350—171 **37 Claims**



1. An optical membrane capable of being edge-supported and having a predetermined thickness in the range of about 0.5 to about 10 micrometers, with a precision of plus or minus about 2%, edge-to-edge variations in said thickness of less than about 2% over a distance of at least about 2.5 centimeters, and a capacity to transmit an average of at least about 91% of incident light with less than about 2% combined absorption and diffraction losses of said incident light over a span of wavelengths of incident light in the range of about 260 to about 1,000 nanometers.

4,378,954

METHOD OF MAKING OPTICAL FIBER TERMINATION

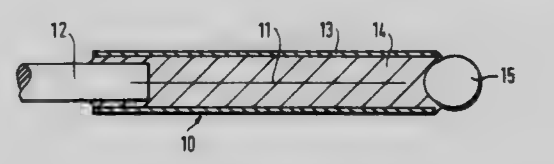
James C. Baker, Highfield, England, assignor to ITT Industries, Inc., New York, N.Y.

Filed Jan. 18, 1980, Ser. No. 113,378

Claims priority, application United Kingdom, Jan. 18, 1979, 7901884

Int. Cl.^{3} G02B *7/26*

U.S. Cl. 350—320 **1 Claim**



1. A method of manufacturing an optical fiber termination comprising the steps of:
- inserting an end of an optical fiber into one end of a tubular ferrule of a transparent material, said ferrule having an inner diameter substantially greater than the diameter of said fiber;
- closing the other end of said ferrule by a lens;
- filling the ferrule with a transparent ultra-violet curing glue before or after said fiber end is inserted into said ferrule;
- passing light via said fiber to said lens;
- adjusting the angular and radial setting of said fiber end with respect to said lens until the light leaving said lens is a collimated beam which is symmetrical with respect to the center axis of said ferrule;
- thereafter curing the glue adjacent to said lens and said fiber end by injecting ultra-violet light into said glue by a beam splitter in the path of said collimated beam to seal said lens and said fiber end into said ferrule so that the collimated beam may be monitored while the glue is curing; and
- curing the remaining glue in said ferrule by exposing the transparent ferrule to ultra-violet light by successively uncovering the outer cylindrical surface of the ferrule commencing from said other end housing said lens.

4,378,955

METHOD OF AND APPARATUS FOR A MULTIMODE IMAGE DISPLAY WITH A LIQUID CRYSTAL LIGHT VALVE

William P. Bleha, Jr.; Eliezer Wiener-Avnear, both of Carlsbad, and Paul F. Robusto, Oceanside, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

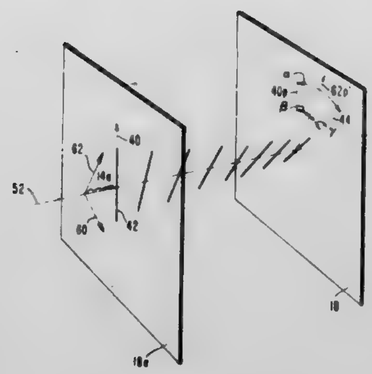
Continuation of Ser. No. 63,649, Aug. 3, 1979, abandoned. This application Jun. 30, 1981, Ser. No. 279,283

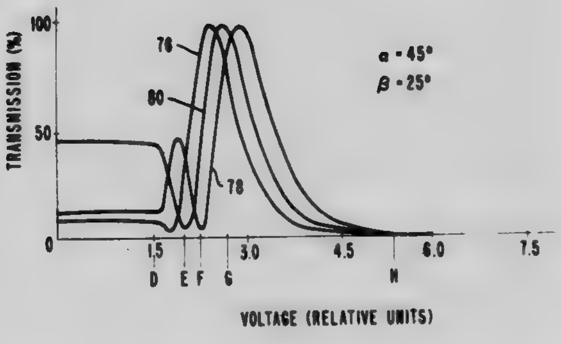
Int. Cl.^{3} G02F *1/133*

U.S. Cl. 350—334 **27 Claims**

1. In a method of displaying an image wherein a writing light input image modulates a polarized projection beam with an electric field driven hybrid field effect liquid crystal light valve, said light valve having a nematic liquid crystal structure helically twisted through an acute angle, the multi-mode field effect improvement comprising the steps of:
- (a) orienting the polarization direction of said projection beam incident on said light valve to fall within said acute angle of said liquid crystal structure; and
- (b) adjusting the magnitude of said electric field applied across said liquid crystal layer so that predetermined intensity levels of said input image modulates said projection beam to produce one of: (a) a simultaneous display of color symbology and achromatic gray scale images and

(b) a separate display of one of them, said orienting of said projection beam polarization being such that, as said mag-





nitude of said electric field is increased beyond a predetermined value, transmission of white light through said light valve is reduced to substantially zero.

4,378,956

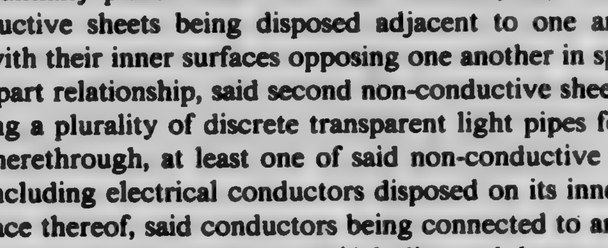
DIRECT IMAGING OF INFORMATION USING LIGHT PIPE DISPLAYS

Robert W. Lester, 46 Abbey Rd., Munsey Park, Manhasset, N.Y. 11030

Filed Jun. 5, 1980, Ser. No. 156,821

Int. Cl.³ G03B *41/00, 27/00*

U.S. Cl. 355—3 R **10 Claims**



1. A light pipe information display, comprising:

a non-conductive, transparent first sheet and a non-conductive substantially opaque second sheet, each having substantially planar inner and outer surfaces, said non-conductive sheets being disposed adjacent to one another with their inner surfaces opposing one another in spaced-apart relationship, said second non-conductive sheet having a plurality of discrete transparent light pipes formed therethrough, at least one of said non-conductive sheets including electrical conductors disposed on its inner surface thereof, said conductors being connected to an electroluminescent display material disposed between said first and second sheets, arranged in discrete character-forming segments, each segment of which is aligned with one of said discrete light pipes.

4,378,957

REDUCTION GEAR OF ELECTRONIC WRISTWATCH WITH STEPPING MOTOR AND SWEEP SECOND HAND

Daniel D. Malkin, ulitsa Junykh Lenintsev, 95/13, Korpus 1, kv. 31; Alexei V. Simbirtsev, 2 Vokzalny Pereulok 5, kv. 45; Boris A. Peredkov, ulitsa Moldagulovoi 16, Korpus 2, kv. 19, and Gennady A. Kruglov, Baltiiskaya ulitsa, 4, kv. 31, all of Moscow, U.S.S.R.

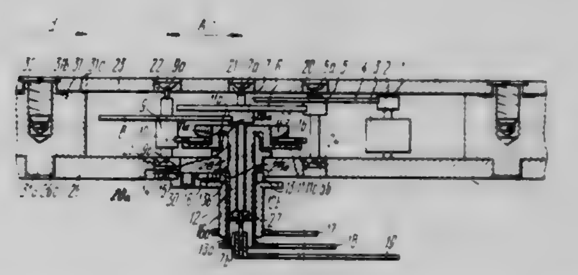
PCT No. PCT/SU79/00028, § 371 Date Apr. 11, 1980, § 102(e) Date Apr. 10, 1980, PCT Pub. No. WO80/00380, PCT Pub. Date Mar. 6, 1980

PCT Filed Apr. 27, 1979, Ser. No. 195,200

Claims priority, application U.S.S.R., Aug. 11, 1978, 2653351

Int. Cl.³ G04B *37/00*

U.S. Cl. 368—300 **9 Claims**



1. A reduction gear of an electronic wristwatch having a stepping motor and a sweep second, comprising three concentric output shafts rotating at different speeds, a first one of the shafts being provided with a bearing in the form of a supporting bush press-fitted in a bore in a wristwatch plate, said first shaft making one revolution per hour and supporting a friction wheel, the shafts being drivingly connected to one another and to a shaft of the stepping motor through gear wheels and a bridge coordinated with respect to the plate and secured thereon by threaded means, wherein the improvement comprises the first shaft freely passing through a bore provided in the supporting bush, the supporting bush being press-fitted in the bore of the plate so that a portion of said supporting bush projects from the plate towards the bridge, said shaft being prevented from unlimited axial displacement in one direction by the end face of the supporting bush and in the other direction by the end face of a gear wheel which is mounted on said first shaft with an interference fit.

4,378,958

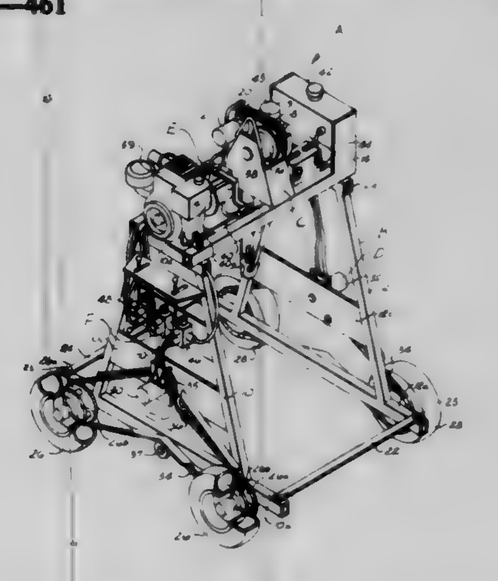
VAULT CADDY

Herbert N. Mauldin, Rt. 7, Viewmont, Dr., Greenville, S.C. 29609

Continuation of Ser. No. 881,709, Feb. 27, 1978, abandoned. This application Oct. 6, 1980, Ser. No. 194,142

Int. Cl.³ B60P *3/28*

U.S. Cl. 414—461 **2 Claims**



1. A self-propelled vault carrying vehicle for transporting

and vertically positioning a vault object and the like comprising:

- a frame including a pair of said frame members carried in spaced opposed relation, and a bridging frame member integrally connecting said side frame members adjacent an upper portion thereof;
- said side frame members converging upwardly to said bridging member;
- lift means carried by said bridging member for raising and lowering said object;
- said frame being open at the ends and bottom thereof intermediate said side frame members enabling said side frame members to straddle said object and provide vertically unobstructed raising and lowering of said object with respect to said frame;
- a pair of driven wheels carried by said frame adjacent each of said side frame members;
- drive means including a first hydraulic powered drive for driving the driven wheels adjacent one of said side frame members and a second hydraulic powered drive for driving the driven wheels adjacent the other of said side frame members affording positive drive traction for each wheel of each said pair; and third hydraulic powered drive for driving said lift means;
- hydraulic power supply means for operating said first, second and third hydraulic powered drives;
- control means carried by said frame disposed for operation by an operator standing on the ground including a separate control for controlling and operation of said first and second powered drives separately and independently of one another to provide a high degree of tractive steering of said vehicle, and including a separate control for controlling operation of said lift means;
- said control means including separate hydraulic control valves connected to respective ones of said first, second, and third hydraulic powered drives; said control valves being connected in series with said hydraulic power supply means providing a live hydraulic circuit by which hydraulic powered drives are simultaneously energized affording a highly responsive control of the movement of said vehicle and said vault object; and
- longitudinally spaced removable load support members carried transversely extending between said side frame members adjacent the front and rear thereof being affixed as a integral structure to said frame for stably supporting said object during transportation and being removable affording said unobstructed vertical movement.

4,378,959

APPARATUS FOR PERFORMING WORK FUNCTIONS

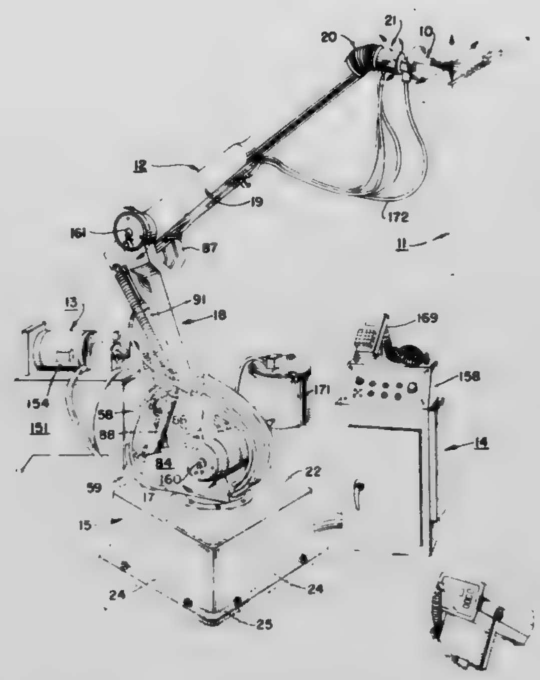
Kenneth J. Susnjara, Santa Claus, Ind., assignor to Thermwood Corporation, Dale, Ind.

Filed Jun. 13, 1979, Ser. No. 48,006

Int. Cl.^{3} B25J *3/04*

U.S. Cl. 414—732 **32 Claims**

1. An apparatus for performing a work function on a workpiece comprising a stationary base, a rotatable base mounted on said stationary base, a means for rotatably displacing said rotatable base relative to said stationary base, a lower arm member pivotally mounted on said rotatable base, hydraulically actuated means for angularly displacing said lower arm member relative to said rotatable base, an upper arm member pivotally mounted on said lower arm member, hydraulically actuated means for angularly displacing said upper arm member relative to said lower arm member, a wrist assembly mounted on said upper arm member, a hand member universally mounted on said wrist assembly, hydraulically actuated means for angularly displacing said hand member relative to said wrist assembly, said stationary and rotatable bases including a rotary fluid slip ring assembly, said fluid slip ring assembly including a rotatable member rigidly secured to said rotatable base, and a means for transmitting fluid between said stationary base and said hydraulically actuated means through



said fluid slip ring assembly for operating said hydraulically actuated means.

4,378,960

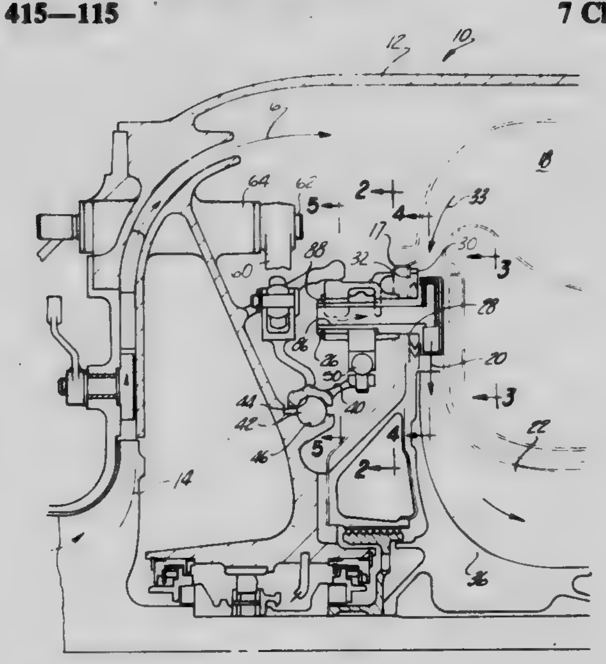
VARIABLE GEOMETRY TURBINE INLET NOZZLE

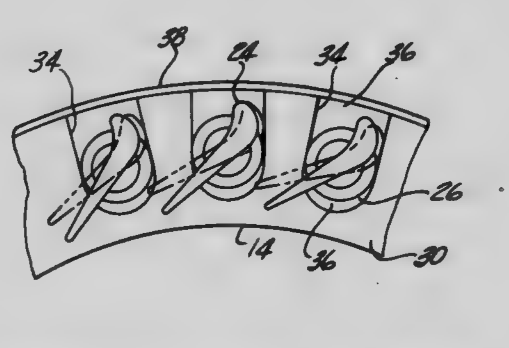
Herman N. Lenz, Lambertville, Mich., assignor to Teledyne Industries, Inc., Los Angeles, Calif.

Filed May 13, 1980, Ser. No. 149,432

Int. Cl.^{3} F01D *5/14*

U.S. Cl. 415—115 **7 Claims**





1. A nozzle assembly for a turbine engine, said engine comprising a housing and an annular gas stream passageway

formed in the housing immediately upstream from one or more turbine stages, said nozzle assembly comprising:

a plurality of vanes, each vane being secured to a shaft,
means for rotatably mounting said shafts to said engine housing so that said vanes are disposed in said gas stream passageway,
means for rotating said shafts in unison with each other;
means for cooling said vanes,
an annular mounting member secured to said housing, said mounting member having a plurality of circumferentially spaced apertures formed through it through which said shafts are rotatably mounted, and means for cooling said mounting member,
wherein said mounting member apertures are greater in cross sectional area than said shafts thus forming an opening therebetween which is open at one end to said gas stream, and
wherein said means for cooling said mounting member further comprises supplying a source of pressurized fluid to the other side of said openings.

4,378,961

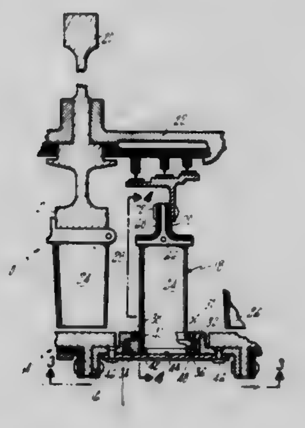
CASE ASSEMBLY FOR SUPPORTING STATOR VANES

Edmund D. Trousdell, Tolland, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Continuation of Ser. No. 2,502, Jan. 10, 1979, abandoned. This application Apr. 27, 1981, Ser. No. 258,066

Int. Cl.³ F01D *25/26*

U.S. Cl. 415—137 **5 Claims**



1. In a gas turbine engine of the type having an engine case assembly and a plurality of vanes extending in a substantially radial direction therefrom, the improvement which comprises:
a case assembly having
a wall element,
a band element extending circumferentially about the wall element and
a plurality of blocks trapped radially between the band element and the wall element by said band element and said wall element wherein each of said blocks is adapted to engage one of said vanes and is slidable in a generally circumferential direction on one of said elements to dissipate vibratory energy in the vane.

4,378,962

LIQUID FUEL INJECTION PUMPING APPARATUS

David J. C. Law, London, England, assignor to Lucas Industries Limited, Birmingham, United Kingdom

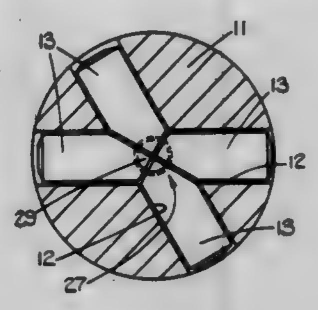
Filed Jun. 16, 1981, Ser. No. 274,191

Claims priority, application United Kingdom, Jul. 18, 1980, 8023516

Int. Cl.³ F04B *19/22, 29/00*

U.S. Cl. 417—462 **4 Claims**

1. A liquid fuel injection pumping apparatus for supplying fuel to an internal combustion engine comprising a rotary distributor member rotatably mounted within a body part and arranged in use to be driven in timed relationship with an associated engine, at least two radial bores formed in the distributor member, said bores being disposed in the same radial plane and meeting each other at their inner ends and having their axes angularly off-set, a passage communicating with the inner ends of the bores, plungers in said bores respectively, port means defined by the distributor member and body part and through which fuel can flow to said bores through said passage to effect outward movement of the plungers, a cam ring surrounding said distributor member and having cam lobes formed thereon which during rotation of the distributor member impart simultaneous inward movement to said plungers, further port means defined by the distributor member and



body part through which fuel displaced from said bores, as the plungers are moved inwardly, can flow to the associated engine, the inner ends of the plungers being shaped so that when the plungers have moved inwardly their maximum extent, substantially the whole of the space of the inner ends of the bores will be occupied by the plungers, each plunger having an axial slot defined therein which extends from the inner end of the plunger, the apparatus including a plate-like member located in the slots in the plungers respectively and acting to retain the plungers against angular movement within the bores.

4,378,963

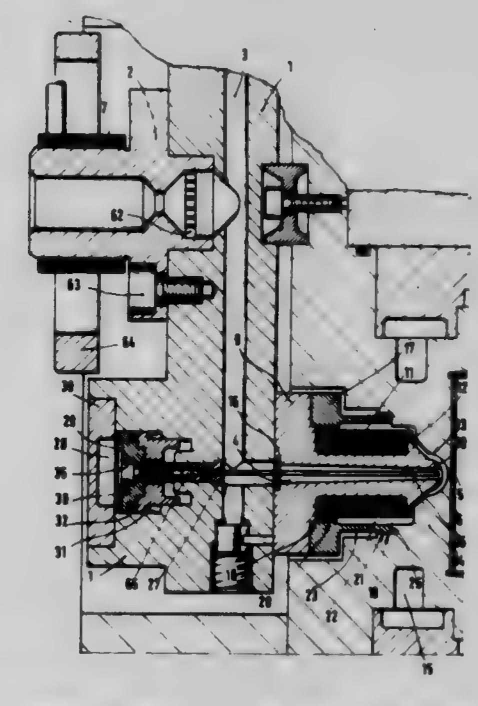
INJECTION MECHANISM FOR MOLDING PLASTICS

Hendrikus J. E. Schouenberg, Burg. Stolklaan 16, 4002 WJ Tiel, Netherlands

Filed Dec. 11, 1980, Ser. No. 215,545

Int. Cl.³ B29F *1/03, 1/05*

U.S. Cl. 425—144 **20 Claims**



1. A mechanism for injecting plastics from an injection molding machine into one or more mold cavities via one or more gates in said one or more mold cavities, said mechanism comprising:
an injection bushing for receiving molten plastic from said injection molding machine;
more than one injection nozzle for injecting molten plastic into said one or more mold cavities, each of said nozzles having one or more nozzle conduits therethrough for

passage of molten plastic, each said nozzle conduit terminating in a nozzle aperture positioned immediately opposite one of said mold cavity gates;

a distributor block for providing flow paths for the molten plastic between said receiving bushing and said injection nozzles, said distributor block including distributor channel means communicating with said nozzle conduits, said injection nozzles being connected to said distributor block;

means for maintaining the molten plastic at an adjusted temperature;

means for injecting the molten plastic from said injection bushing through said distributor channel means and said nozzle conduits into said mold cavity gates;

a needle valve positioned in each of said nozzle conduits for closing each respective mold cavity gate when moved longitudinally outwardly from said nozzle aperture;

a guide bushing slideably mounted for longitudinal movement in said distributor block opposite each said nozzle conduit, each said guide bushing having the end of one of said needle valves remote from said nozzle aperture fixedly mounted therein, each said guide bushing also having a surface area exposed to the molten plastic being injected through said distributor block whereby the pressure of the molten plastic when being injected by said injection means tends to move said guide bushing away from said nozzle aperture thereby moving said needle valve longitudinally and opening said mold cavity gate;

a chamber in said distributor block; and,

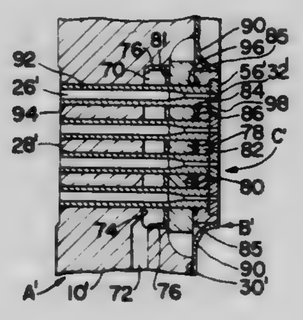
one plunger slideably mounted in said distributor block chamber and connected to several of said guide bushings and thereby to their respective needle valves for moving said needle valves longitudinally outwardly to close their respective mold cavity gates, said plunger being actuated by fluid pressure and being adapted for longitudinal movement in the same direction as said needle valve to which said plunger is connected.

4,378,964

INTERNALLY INSULATED EXTRUSION DIE

John R. Wolfe, Jr., Rogers, Ark., assignor to TRW Inc., Cleveland, Ohio

Filed Jan. 8, 1980, Ser. No. 110,515
Int. Cl.^{3} B29B *1/03*
U.S. Cl. 425—463 **3 Claims**



1. An internally, doubly insulated extrusion die comprising:

a die body constructed from a first material and having a rearward face, an oppositely disposed forward end face, a plurality of extrusion ports extending therethrough between the rearward and forward end faces, a heating fluid flow channel disposed therein adjacent the forward end face in a heat transfer relationship with the extrusion ports whereby a heated fluid passing through the channel is adapted to transfer heat to a material being extruded through the extrusion ports, and heating fluid flow channel having a rearwardly facing wall portion disposed adjacent and generally parallel with the forward end face;

a first layer of a first insulating material disposed on the wall portion in close proximity and generally parallel to the forward end face for reducing heat transfer from the heated fluid toward the forward end face;

a second layer of said first material forming a part of said die body, said wall portion and said forward end face, and said first and second layers having said extrusion ports passing therethrough;

a third layer of second insulating material disposed contiguous to and forwardly of the forward end face to inhibit heat transfer from the die body and a plurality of openings extending through said third layer and disposed in alignment with said extrusion ports to allow communication of the extruded material therethrough;

a subplate forming a fourth layer having an inner face disposed contiguous with the second insulating material third layer and substantially parallel to the forward end face, an outer end face oppositely disposed to the inner face, a plurality of openings extending between the inner and outer faces and disposed in alignment with said extrusion ports to allow communication of the extruded material therethrough, and the subplate being constructed of the first material and being fixedly connected with the die body;

a fifth layer of facing material fixedly secured to the subplate outer face substantially parallel to the die body forward end face at least in an area around the extrusion ports and having holes therein to allow extruded material to pass therethrough, and the fifth layer of facing material being constructed of a second material which is harder than the first material such that the facing material is relatively wear resistant; and

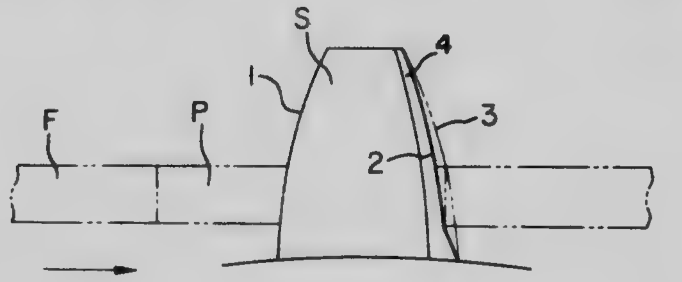
the extrusion die having a layered structure between the heating fluid flow channel and the exterior of the facing which serially includes in a substantially parallel relationship the first insulating material first layer, the second layer of the first material, the second insulating material third layer, the fourth layer of the first material, and the fifth layer of the second material, respectively.

4,378,965

SPROCKET WHEEL FOR PHOTOGRAPHIC CAMERA

Shizuo Ishii, and Saburo Yoneyama, both of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Feb. 22, 1980, Ser. No. 123,510
Claims priority, application Japan, Feb. 28, 1979, 54/25773[U]
Int. Cl.^{3} F16H *19/00*
U.S. Cl. 474—161 **2 Claims**



1. An improved sprocket wheel for substantially planar feeding of a strip of film in a photographic camera by applying a thrust to end edges of two parallel and spaced apart rows of perforations provided along the film strip through penetrating engagement in the perforations, and wherein each of the film strip perforations includes at least a rounded corner, the improvement comprising:

at least a train of film penetrating and feeding teeth on said sprocket wheel, each of said teeth including a curved film thrusting surface confronting the plane along which film is fed in the camera and comprising a base portion having a more gentle slope with respect to the film feeding plane than a corresponding surface of an involute tooth profile and an upper portion having a steeper slope with respect

to the film feeding plane than the corresponding surface of an involute tooth profile,

said sprocket wheel further including a second train of film feeding teeth such that each of said trains is engageable with a respective one of said rows of perforations on the film strip, an outer side surface on each of said teeth, and a ridge defined between said outer side surface and said film thrusting surface of each tooth, said ridge being rounded so as to conform to the rounded corner of each perforation on the film strip and thereby facilitate smooth feeding of film by said sprocket wheel in the camera.

4,378,966

APPARATUS FOR CONTROLLING A PIPE-CUTTING DEVICE

Wilhelm Schumacher, Dusslingen, Fed. Rep. of Germany, assignor to Fa. Christian Majer K.G., Maschinenfabrik, Tuebingen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 911,303, Jun. 1, 1978, abandoned. This application Jan. 10, 1980, Ser. No. 110,929

Claims priority, application Fed. Rep. of Germany, Jun. 2, 1977, 2724899

Int. Cl.^{3} **B31C** *3/00*

U.S. Cl. 493—22 **2 Claims**

1. In a continuous spiral pipe winding machine having a winding spindle for winding a band of sheet material and a cutting member operatively mounted on a sled which is movable reciprocally along said winding spindle which cutting member advances along said winding spindle during operation at the same speed as the advancing movement of the formed pipe, an arrangement for controlling the advancing speed of said cutting member toward said winding spindle in dependence with the feed speed of said band of sheet material, comprising in combination,

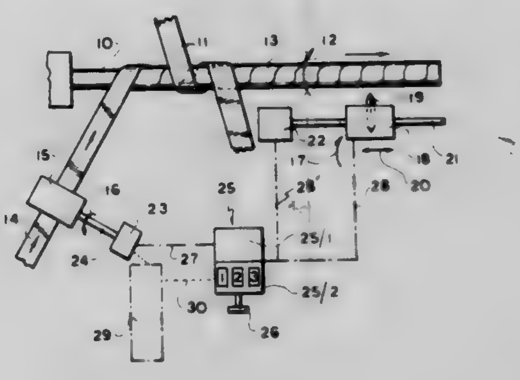
a guide roller rotatably mounted in said machine over which said band of sheet material is guided;

a pulse emitter operatively connected to said guide roller;

drive means mounted in said machine for reciprocally moving said cutting member toward said spindle;

and AND/OR-value-comparator stage having a pulse counter and an AND/OR-comparator, said pulse emitter being operatively connected to said pulse counter;

and said AND/OR-comparator being operatively connected to said drive means, the outpulses of said comparator being conducted to said drive means thereby determining the speed of movement of said cutting member toward said spindle; said AND/OR-value-comparator stage has an OR-value input stage, and computer means being operatively connected to said pulse emitter, on the one hand, and said OR-value input stage, on the other hand; said computer receiving and processing pulse sequences which are being emitted in accordance with the width B of the band and the running-in angle α of the band with respect to the spindle.



4,378,967

PROCESS FOR BLEACHING FIBROUS MATERIAL BY HYDROGEN PEROXIDE

Minoru Yotsuya, Toride; Kiyoshi Mae, Toyonaka; Seikyu Jinnouchi, and Toshio Ochiai, both of Matsudo, all of Japan, assignors to Mitsubishi Gas Chemical Co., Inc., Tokyo, Japan

Continuation of Ser. No. 114,255, Jan. 22, 1980, abandoned. This application Sep. 29, 1981, Ser. No. 306,925

Claims priority, application Japan, Jan. 26, 1979, 54-8068

Int. Cl.^{3} D06L *3/04, 3/14*

U.S. Cl. 8—111 **14 Claims**

1. A process for bleaching a fibrous material by hydrogen peroxide, which comprises bleaching a fibrous material by hydrogen peroxide in a bleaching solution having a weakly acidic state at a pH of 5–7 and at a temperature of 50°–120° C., and then adding an alkaline agent to the bleaching solution by one whole charge or continuously and successively bleaching the fibrous materials at a pH of 8.5–11 by the remaining hydrogen peroxide in a weakly alkaline state.

4,378,968

PROCESS FOR PREVENTING THE REDEPOSITION OF SOIL DURING DRY CLEANING, AND COMPOSITION FOR CARRYING OUT THIS PROCESS

Michel Peignier, Versallies, and Claude Renault, Saint-Remy-Les Chevreuse, both of France, assignors to Chloe Chimie, Puteaux, France

Filed Jun. 17, 1981, Ser. No. 274,546

Claims priority, application France, Jun. 20, 1980, 80 13700

Int. Cl.^{3} D06L *1/02, 1/10;* **C11D** *3/44*

U.S. Cl. 8—142 **9 Claims**

1. Process for reducing soil redeposition onto textile articles made of natural, synthetic or artificial fibers or blends thereof, during dry cleaning operations using stabilized perchloroethylene, wherein a sufficient amount of at least one primary or secondary alcohol of the formula ROH, in which R represents an alkyl or alkenyl radical containing from 4 to 6 carbon atoms, is incorporated as anti-redeposition adjuvant into this perchloroethylene, said alcohol having a boiling point of between 95° and 140° and forming, with the perchloroethylene, an azeotrope having a boiling point of between 80° and 130° C.

4,378,969

FLUID FORMULATIONS OF OXIDATION DYES FOR MINERAL OIL PRODUCTS, FATS AND WAXES

Guenter Hansen, Ludwigshafen; Hans J. Kolbinger, Gruenstadt; Rudolf Senninger, Ludwigshafen, and Georg Zeidler, Dannstadt-Schauernheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

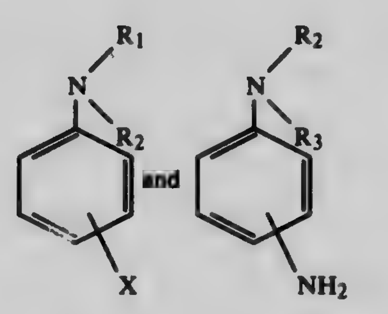
Filed May 6, 1981, Ser. No. 260,273

Claims priority, application Fed. Rep. of Germany, Jun. 2, 1980, 3020891

Int. Cl.^{3} D06P *3/00*

U.S. Cl. 8—521 **7 Claims**

1. A fluid formulation of an oxidation dye which is obtained by oxidizing a compound selected from the group consisting of:



(I) (II)

wherein

R_1 is unsubstituted or hydroxy-, C_1–C_8-alkoxy-, or C_1–C_8-alkanoyloxy-substituted C_2–C_{13}-alkyl,

R_2 is hydrogen or unsubstituted or hydroxy- or C_1–C_8-alkoxy-substituted C_1–C_{13}-alkyl,

R^3 is selected from the group consisting of

C_6H_{13}, C_7H_{15}, C_8H_{17}, $CH_2CH(C_2H_5)C_4H_9$,

C_9H_{19}, $C_{10}H_{21}$, $C_{11}H_{23}$, $C_{12}H_{25}$, $C_{13}H_{27}$, $C_6H_{12}OH$,

$CH(CH_3)$—$(CH_2)_3$—$COH(CH_3)$, $(CH_2)_3OCH_2CH(C_2H_5)C_4H_9$

and $CH_2CH_2OCOC_7H_{15}$; and

X is hydroxy or

$-N(R_1)R_2$

with air in an organic solvent containing an iron tetraaza(14)annulene catalyst.

4,378,970

RED MONOAZO SULPHONIC ACID DYESTUFFS FOR POLYAMIDE

Paul Lienhard, Frenkendorf, and Fabio Beffa, Riehen, both of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

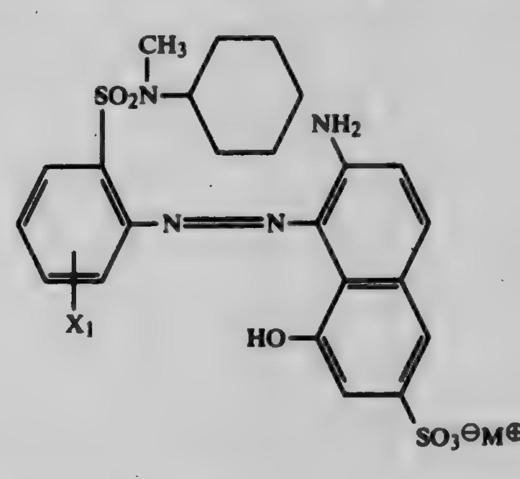
Division of Ser. No. 111,301, Jan. 11, 1980, Pat. No. 4,312,808, which is a continuation-in-part of Ser. No. 720,621, Sep. 3, 1976, abandoned, which is a continuation of Ser. No. 624,883, Oct. 22, 1975, abandoned, which is a continuation of Ser. No. 389,511, Aug. 20, 1973, abandoned, which is a continuation of Ser. No. 102,062, Dec. 28, 1970, abandoned. This application Oct. 15, 1981, Ser. No. 311,595

Claims priority, application Switzerland, Dec. 29, 1969, 19309/69

Int. Cl.^{3} C09B *29/28;* **C07C** *107/04*

U.S. Cl. 8—683 **2 Claims**

1. A process for the dyeing or printing of an organic fiber material selected from the group consisting of a basic modified polyolefin fiber material, polyurethane fiber material and natural or synthetic polyamide fiber material which comprises employing a monoazo dyestuff of the formula:



wherein

X_1 represents hydrogen or the methyl group, and

$M^{\oplus}$ represents a colorless cation.

4,378,971

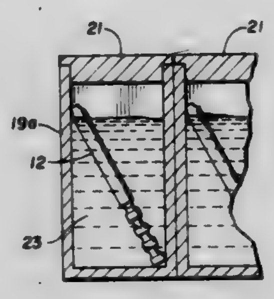
METHOD AND APPARATUS FOR QUANTITATIVELY DETERMINING THE LEVEL OF HEMOGLOBIN IN A BIOLOGICAL SAMPLE

Samuel Schwartz, St. Louis Park, Minn., assignor to Regents of the University of Minnesota, Minneapolis, Minn.

Filed Sep. 24, 1980, Ser. No. 190,399

Int. Cl.³ G01N ***33/72, 33/52;*** **B01L** ***3/00***

U.S. Cl. 436—66 **42 Claims**



1. A method of quantitatively determining the level of hemoglobin in feces, urine or gastric juice comprising the following steps:

preparing a test sample of feces, urine or gastric juice;

converting the heme portion of the hemoglobin in said test sample to porphyrin by combining said test sample with an effective quantity of oxalic acid and a reducing salt selected from the group consisting of ferrous oxalate and ferrous sulfate;

assaying the fluorescence of the converted porphyrin; and

comparing the fluorescence of the converted porphyrin to the fluorescence of a standard.

4,378,972

TITRATION AGENT AND METHOD FOR USING SAME

Eugen Scholz, Garbsen, Fed. Rep. of Germany, assignor to Riedel-De Haen Aktiengesellschaft, Seelze/Hannover, Fed. Rep. of Germany

Filed Nov. 26, 1980, Ser. No. 210,857

Claims priority, application Fed. Rep. of Germany, Mar. 5, 1980, 3008421; Oct. 20, 1980, 3039511

Int. Cl.³ G01N ***33/18***

U.S. Cl. 436—42 **8 Claims**

1. A Karl Fischer titration agent capable of detecting moisture in a substance, said agent containing an amine, sulfur dioxide and iodine, wherein the amine is a five- or six-membered heterocyclic compound having at least two hetero-atoms, at least one of the hetero-atoms being a nitrogen atom and the molar ratio of heterocyclic compound to sulfur dioxide being from 10:1 to 0.3:1.

4,378,973

DIESEL FUEL CONTAINING CYCLOHEXANE, AND OXYGENATED COMPOUNDS

William M. Sweeney, Wappingers Falls, N.Y., assignor to Texaco Inc., White Plains, N.Y.

Filed Jan. 7, 1982, Ser. No. 337,563

Int. Cl.³ C10L ***1/18***

U.S. Cl. 44—56 **7 Claims**

1. A diesel fuel composition comprising a mixture of hydrocarbons boiling in the range of 320° to 700° F. and a particulate-suppressing amount of a mixture of cyclohexane with at least one oxygenated compound selected from the group of aldehydes and ketones having from 3 to 16 carbon; normal alcohols having from 2 to 26 carbon atoms in the chain; ethers or cyclic ethers having from 2 to 16 carbon atoms and mixtures thereof; said compound being present in an amount sufficient to provide from 0.0001 to 1.5 weight percent of oxygen to said fuel.

4,378,974

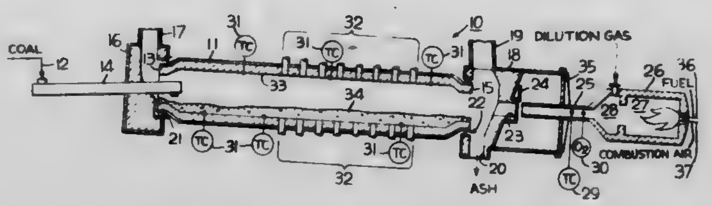
START-UP METHOD FOR COAL GASIFICATION PLANT

Peter J. Petit, Milwaukee, and Khosrow Farnia, Brookfield, both of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Jun. 9, 1982, Ser. No. 386,749

Int. Cl.³ C10J ***3/00***

U.S. Cl. 48—197 R **8 Claims**



1. A method for initiating operation of a plant for the gasification of solid carbonaceous material containing chlorine by heating a gasification reactor having a refractory lining to a temperature profile sufficient to permit autothermic operation of the gasification process wherein said plant includes equipment fabricated in part from materials susceptible to chloride induced stress corrosion cracking in the presence of oxygen; the method comprising:

a. combusting a near stoichiometric mixture of a combustible fuel and an oxygen containing gas to produce an exhaust gas containing essentially no free oxygen;

b. diluting said exhaust gas with a diluent gas containing essentially no free oxygen to produce a product gas of a mixture of diluent gas and exhaust gas;

c. introducing a flow of said product gas at a temperature above 500° F. to said reactor;

d. measuring the temperature of said product gas introduced to said reactor;

e. increasing the temperature of said product gas flowing to said reactor in response to the temperature of said product gas within said reactor to increase the temperature of said product gas within said reactor at a rate sufficiently low to prevent thermal induced cracking of said refractory lining;

f. increasing the temperature of said product gas within said reactor until said reactor achieves said temperature profile;

g. discontinuing said flow of said product gas to said reactor when said reactor achieves said temperature profile; and thereafter,

h. initiating said gasification process whereby said reactor is heated to said temperature profile necessary to permit autothermic operation of said gasification process while abating stress corrosion cracking of said materials by operation of chlorine liberated from said carbonaceous material during said gasification process.

4,378,975

ABRASIVE PRODUCT

Peter N. Tomlinson, 315 Enford Rd., Mondeor, Transvaal, and Aulette Davies, 45 Arend Ave., Randpark Ext. 5, Randburg, Transvaal, both of South Africa

Filed Aug. 12, 1981, Ser. No. 292,124

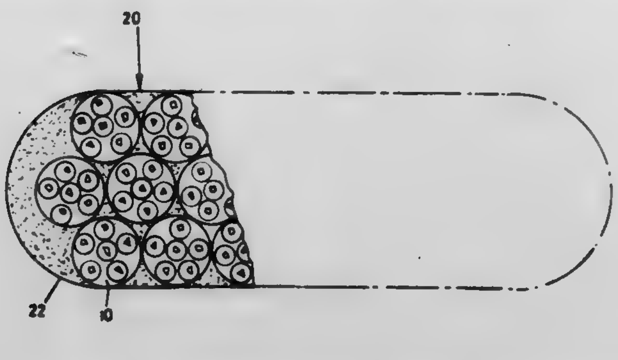
Claims priority, application South Africa, Aug. 14, 1980, 80/4996; Nov. 26, 1980, 80/7383

Int. Cl.³ B24D ***3/02***

U.S. Cl. 51—309 **10 Claims**

1. A tool insert comprising a plurality of discrete chromium-coated diamond particles bonded together by means of a tough wear-resistant bonding alloy having a melting point below 1100° C. and containing 65 to 90 percent by weight nickel and

5 to 15 percent by weight chromium, the concentration of diamond particles being in the range 10 to 40 percent by volume of the insert and the chromium coating being provided in an amount of up to 10 percent by weight coated particle.



4,378,976

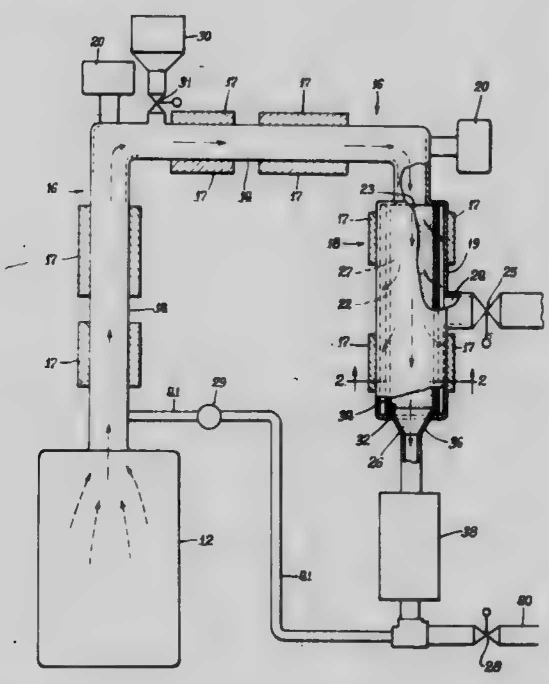
COMBINED SONIC AGGLOMERATOR/CROSS FLOW FILTRATION APPARATUS AND PROCESS FOR SOLID PARTICLE AND/OR LIQUID DROPLET REMOVAL FROM GAS STREAMS

William F. Rush, Tinley Park, Ill., assignor to Institute of Gas Technology, Chicago, Ill.

Filed Aug. 14, 1981, Ser. No. 292,946

Int. Cl.[3] B01D *51/04, 51/08, 46/24*

U.S. Cl. 55—15 32 Claims



1. Apparatus for removing solid particles and/or liquid droplets from gas streams comprising in combination;

at least one sonic agglomerator comprising a gas conduit and a sound source means generating a sonic field within said gas conduit for agglomerating liquid droplets into liquid agglomerates as said gas stream passes through said conduit, said gas conduit having heating means capable of maintaining the temperature of said solid particles above the solidifying temperature of the liquid droplets thereof; and

a cross flow filter comprising a housing and a rigid porous filter element having an input side and an output side within said housing; said filter housing having an input port in communication with the exit of said sonic agglomerator gas conduit and said filter element output side, and an exit port in said filter housing in communication with said filter element input side, said filter element having pore diameters suitable to retain said liquid agglomerates adjacent said input side of said filter element, said filter element being at an angle to the horizontal whereby a portion of said gas stream passes through said clean gas port and a portion of said gas stream and said liquid agglomerates pass through said exit port of said filter housing.

15. A process for removing solid particles and/or liquid droplets from gas streams comprising the steps:

heating and maintaining the temperature of said solid particles above the solidifying temperature of the liquid droplets thereof to form and maintain said liquid droplets thereof; agglomerating at least a substantial portion of said liquid droplets into liquid agglomerates by passing said liquid droplets through at least one sonic field, and removing said liquid agglomerates from said gas stream by passing said gas stream with said liquid agglomerates in contact with the input side of a cross flow filter having a rigid porous filter element, a portion of said gas stream passing through said filter element to an output side and through a clean gas port adjacent said output side and a portion of said gas stream and agglomerates passing through an exit port adjacent said input side, said filter element having pore diameters suitable to retain said agglomerates adjacent said input side of said filter element and being at an angle to the horizontal whereby said liquid agglomerates drip off said input side of said filter element and pass through said exit port.

4,378,977

REMOVAL OF UNDESIRED GASEOUS COMPONENTS FROM HOT WASTE GASES

Gerhard Linde, Gruenwald; Peter Haeussinger, Munich, and Claus Schliebener, Strasslach, all of Fed. Rep. of Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Fed. Rep. of Germany

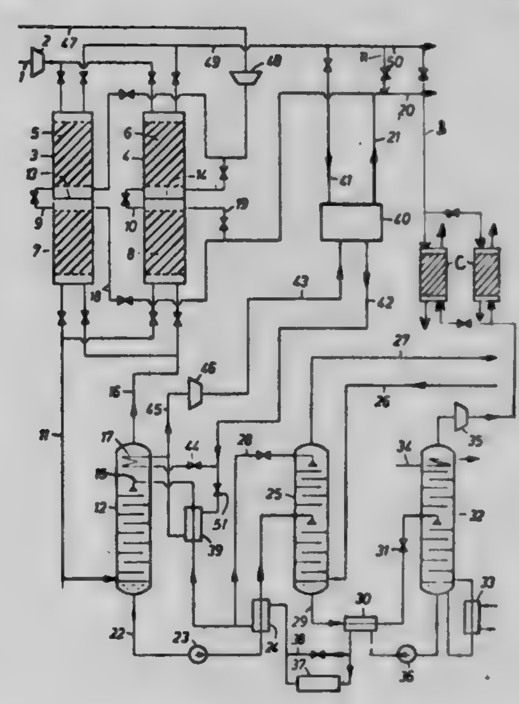
Continuation-in-part of Ser. No. 93,089, Nov. 9, 1979, Pat. No. 4,294,590. This application Oct. 7, 1981, Ser. No. 309,641

Claims priority, application Fed. Rep. of Germany, Nov. 11, 1978, 2848721; Oct. 25, 1979, 2943130

The portion of the term of this patent subsequent to Oct. 13, 1998, has been disclaimed.

Int. Cl.[3] B01D *53/14*

U.S. Cl. 55—48 35 Claims



2. In a process for removing undesired gaseous components from hot combustion gases by scrubbing with a regenerable absorbent, the undesired gaseous components being passed through dessicators prior to removal from the system, and the scrubbed combustion gases being removed through an exhaust stack,

the improvement comprising:

conducting the scrubbing with a liquid physical absorbent at a temperature less than 0° C. and supplying the required cooling of the scrubbing process by means of an absorption-type refrigeration unit, cooling the combustion gases

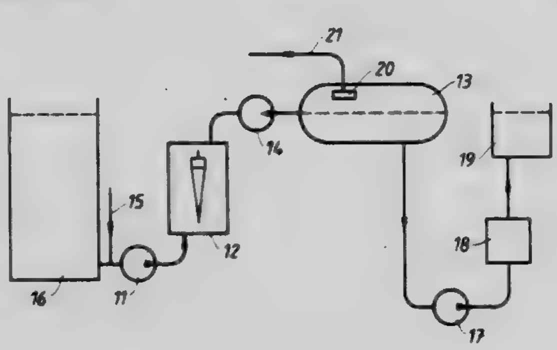
prior to scrubbing, in indirect heat exchange with gas streams to be heated, the indirect heat exchange being performed in an upper temperature range and a lower temperature range, and using air as said gas stream to be heated in the upper temperature range of the indirect heat exchange, resultant heated air being used in part as (a) preheated air of combustion, in part as (b) an energy source for the operation of the absorption-type refrigeration unit, in part as (c) an admixture to the purified combustion gases for increasing the temperature of the purified combustion gas and thus, the draft in the exhaust stack of the system, and for lowering the dew point of water in the flue gas, or in part as (d) a purging gas for regenerating the dessicators arranged for having the stream of products removed from the regenerated absorbent pass therethrough before removal from the system.

4,378,978

DEGASSING OF LIQUID MIXTURES

Nils E. Andersson; Sten Eriksson, and Bengt Sinner, all of Västeras, Sweden, assignors to ASEA Aktiebolag, Västeras, Sweden

Filed Aug. 21, 1981, Ser. No. 295,086
Claims priority, application Sweden, Aug. 25, 1980, 8005927
Int. Cl.[3] **B01D** *19/00*
U.S. Cl. 55—52 **15 Claims**



1. A method of degassing a mixture of a liquid first material and at least one second material, the liquid first material being initially contained in a container means, comprising the steps of withdrawing the liquid first material from the container means and mixing it with each second material to form a mixture, regeneratively pumping the mixture through a mixture cleaning means and into an aeration tank, and maintaining the level of the mixture in the aeration tank substantially even with the level of the liquid first material in the container means.

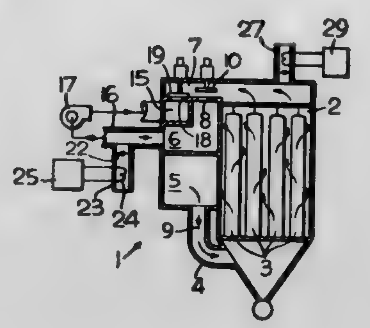
4. In a system for degassing a mixture of a liquid first material and at least one second material which includes a container means for containing the liquid first material, an aeration tank, a mixture cleaning means and pumping and mixing means for mixing the liquid first material with the second material to form a mixture and pump the mixture through the mixture cleaning means into the aeration tank, the improvement wherein the pumping and mixing means includes a regenerative pump located between the mixture cleaning means and the aeration tank, the regenerative pump acting to slow down the mixture flow rate through the mixture cleaning means while permitting a pressure drop thereacross, and wherein the aeration tank, the mixture cleaning means and the pumping and mixing means are positioned to be at substantially the same level as the top of the container means, and such that the level of liquid first material in the container means can be maintained substantially even with the level of the mixture in the aeration tank.

4,378,979

METHOD AND APPARATUS FOR PURGING AND ISOLATING A FILTER COMPARTMENT WITHIN A BAGHOUSE INSTALLATION

S. Michael Dunseith, Louisville, Ky., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Oct. 9, 1981, Ser. No. 310,128
Int. Cl.[3] **B01D** *46/04*
U.S. Cl. 55—96 **10 Claims**



1. In a process for cleaning a dirty gas stream in a gas cleaning system having a plurality of filter compartments wherein hot dirty gases containing corrosive agents are directed into a common inlet manifold at a subatmospheric pressure and drawn through an inlet duct into each of the filter compartments where the dirty gases flow through filter bags supported within the compartments and exit each of the compartments and flow into a common outlet manifold through normally open first damper means in an outlet passage connecting each of the compartments to the common outlet manifold, the system further including a conduit connecting the outlet manifold to a reverse gas manifold including normally open second damper means adapted to regulate a flow of filter gases from the outlet manifold into the conduit, normally closed third damper means in the outlet passage of each of the compartments adapted to regulate a flow of filtred gases from the conduit into the compartments, and normally closed fourth damper means connected to the conduit between the compartments and the second damper means operable to vent the conduit to the atmosphere, the improvement comprising the steps of:

closing said first damper means of one of the compartments to prevent the flow of filtered gases into the outlet manifold;
opening said third damper means on said one compartment to allow filtered gases in the outlet manifold to flow into said compartment through the conduit connecting the outlet manifold to said compartment;
drawing filtered gases from the outlet manifold and directing said gases through the conduit into said one compartment through said third damper means so that they flow through the filter bags countercurrent to the normal flow of dirty gases;
closing said second damper means within the conduit to prevent the flow of filtered gases from the outlet manifold into the conduit;
opening said fourth damper means to vent the conduit to the atmosphere; and
drawing a stream of ambient air through said fourth damper means and directing it through the conduit into said one compartment to purge dirty gases from within said compartment.

9. A baghouse installation for cleaning hot dirty gases containing corrosive agents, comprising:

a plurality of parallel filter compartments, each of said compartments having a gas inlet and a gas outlet, and a plurality of filter bags mounted within each of the compartments adapted to filter dirty gases entering the compartment through the inlets whereafter the resultant filtered gases exit the compartments through the outlets;
a common inlet manifold for the dirty gases connected with

each of said inlets to accommodate the flow of dirty gases into the filter compartments;

a common outlet manifold for the resultant filtered gases connected with each of said outlets for conveying said gases away from the compartments;

blower means connected with the outlet manifold to draw the gases through the compartments at subatmospheric pressure;

first damper means operatively positioned and aligned with each of the outlets of the compartments selectively operable to close off a selected one of the compartments to prevent gases from flowing between said compartment and the outlet manifold;

a conduit connected with the outlet manifold including second damper means operably positioned and aligned with respect to the conduit to selectively close off the conduit;

a reverse gas manifold connected with said conduit and including a reverse gas port opening into each of the compartments;

third damper means operatively positioned and aligned with each of the reverse gas ports selectively operable to provide selective communication between the compartments and the reverse gas manifold;

second blower means connected with the conduit and the reverse gas manifold adapted to draw filtered gases from the outlet manifold and direct said gases into the reverse gas manifold; and

a duct connected with the conduit between said second and third damper means including fourth damper means operatively positioned and aligned with respect to the duct to selectively vent the conduit to the atmosphere through the duct; whereby

upon closing said first and fourth damper means and opening said second and third damper means filtered gases flow through the filter bags countercurrent to the normal flow of dirty gases thereby cleaning the filter bags, and upon closing said first and second damper means and opening said third and fourth damper means ambient air is drawn into the conduit and directed into said compartment to purge dirty gases from within the compartment.

4,378,980

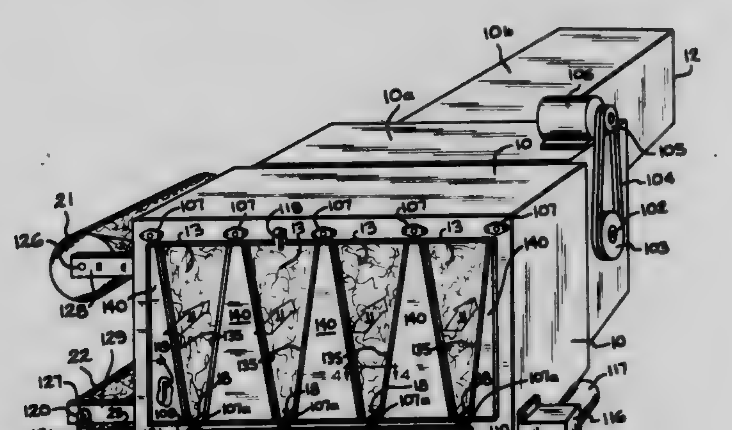
GAS BORNE PARTICLE FILTERING APPARATUS

James Long, Bloomfield Hills, Mich., assignor to James M. Hammond, East Lansing, Mich., a part interest

Filed Nov. 9, 1981, Ser. No. 319,264

Int. Cl.^{3} B03C *3/30;* **B01D** *46/18*

U.S. Cl. 55—103 **14 Claims**



12. In a gas borne particle filtering apparatus including a filter medium (13) having first and second surfaces (13*a* and 13*b*) and a depth (d) between the surfaces, an outer casing (10) having an inlet and an outlet opening (11,12), an endless moveable feed belt (14) in the casing defining rounded tip (15) multiple sawtoothed cross-sectioned projections alternately pointed in two opposite first and second directions (16 and 16*a*) which is located between the inlet and outlet openings, rollers (18) mounted on the casing at the tips of the projections and moveably supporting the filter medium and belt with the first surface of the filter medium adjacent the inlet opening and the second surface of the filter medium in contact with the belt, wherein the inlet and the outlet openings are separated by the filter medium in the casing for filtration and including means for moving the feed belt to remove the filter medium and means for collecting the removed filter medium, the improvement which comprises:

(a) closing the projections pointing in the first direction (16*a*) with a first side of the casing (10) such that the projections pointing in the second direction (16) define inlet openings;

(b) closing the projections pointing in the second direction (16) with a second side of the casing (10) opposite to the first side such that the projections pointing in the first direction (16*a*) define outlet openings;

wherein in use gas flow with the particles is along the first surface (13*a*) of the filter medium towards the sawtoothed projections closed in the second direction (16) on the second side of the casing, then at an angle from the gas flow along the first surface through the filter medium, then through the feed belt and then along the second surface (13*b*) of the filter medium and the belt away from the projections closed in the first direction (16*a*) on the first side of the casing and then out the outlet opening.

4,378,981

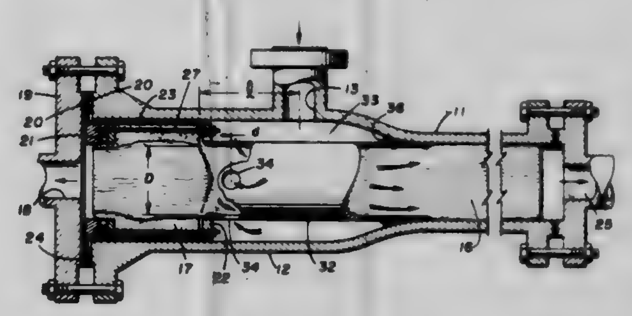
GAS SEPARATION APPARATUS

Roger S. Otstot, and Charles J. Runkle, both of Raleigh, N.C., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 21, 1981, Ser. No. 332,640

Int. Cl.^{3} B01D *53/22*

U.S. Cl. 55—158 **6 Claims**



1. Apparatus for separating one fluid from a mixture of fluids comprising

(a) a cylindrical shell having an enlarged end portion, said end portion having therein an inlet for admitting said fluid mixture;

(b) a bundle of hollow fibers positioned in the shell, said fibers being more permeable to said one fluid than other fluids of the mixture;

(c) a tube sheet secured to the enlarged end of the shell for closing said end portion, said hollow fibers extending through said tube sheet, and

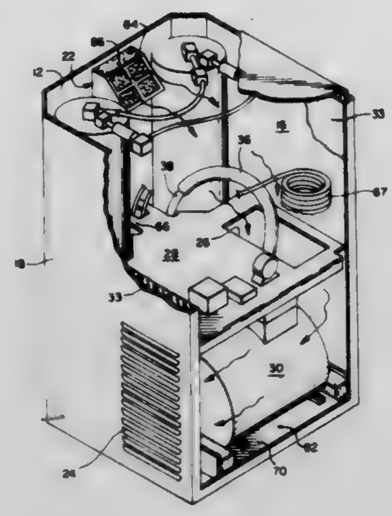
(d) a tubular distribution element mounted in the enlarged end portion of the shell and extending the length of said enlarged end portion, said distribution element cooperating with said enlarged end portion and the tube sheet to form an annular chamber surrounding said element, said element having therein a port so positioned that

$$0.4 \leq l/D \leq 1.3$$

$$0.2 \leq d/D \leq 0.6$$

where d is the distance from the tube sheet to said port, l is the distance from the tube sheet to said inlet and D is the diameter of the bundle of fibers.

4,378,982
COMPACT OXYGEN CONCENTRATOR
Norman R. McCombs, Tonawanda, N.Y., assignor to Greene & Kellogg, Inc., Tonawanda, N.Y.
Filed Aug. 28, 1981, Ser. No. 297,361
Int. Cl.[3] B01D *53/04*
U.S. Cl. 55—162 64 Claims



1. A vessel for an adsorbent bed for use in a PSA machine comprising a first pipe of predetermined length, comprising the body of said vessel, a second pipe of a predetermined length shorter than said first pipe and positioned within said first pipe to create an annular space between said first and second pipes, means to close both ends of said first pipe, one of said end closing means for said first pipe also closing one end of said second pipe, said one end closing means comprising a cap member having a shape corresponding to the cross-sectional shape of said first pipe, means to sealingly mount said cap members on both of said one ends of said first and second pipes, and means to permit a flow of gas in and out of said vessel through said cap member communicating separately and directly with each of said annular space and the space inside said second pipe, whereby the functional length of an adsorbent bed in said vessel is substantially equal to twice the length of said first pipe and the physical length of said vessel is substantially equal to the length of said first pipe.

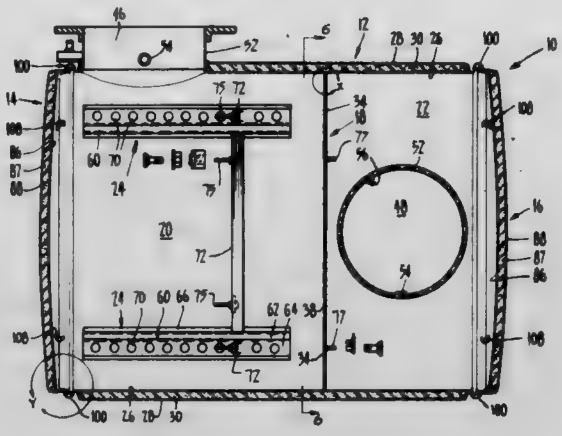
23. In a machine for separating a component gas out of a mixture of gases using a PSA technique, said machine including a gas compressor, means for deadening the sound of the gas intake to said compressor, and said sound deadening means comprising an intake hose having a predetermined length and a predetermined diameter both selected to minimize said sound of said gas being taken into said compressor.

4,378,983
HOUSING FOR MOUNTING HEPA FILTERS
David T. Martin, Essendon, Australia, assignor to The Commonwealth of Australia, Melbourne, Australia
PCT No. PCT/AU80/00078, § 371 Date Jun. 15, 1981, § 102(e) Date Jun. 15, 1981, PCT Pub. No. WO81/01109, PCT Pub. Date Apr. 30, 1981
PCT Filed Oct. 24, 1980, Ser. No. 276,386
Claims priority, application Australia, Oct. 26, 1979, PE1088
Int. Cl.[3] B01D *46/00*
U.S. Cl. 55—357 16 Claims

1. A housing for mounting a HEPA filter in an air flow circuit of a building air-conditioning or ventilation system, including an open ended tubular casing; baffle means formed to define an aperture and disposed to divide the interior of said casing into respective chambers which are accessible from respective open ends of the casing; gas ports for each of said chambers; and a pair of cover members for closing the respective open-ends of the casing, each of which cover members includes a flange complementary to the associated end of the casing; characterized by:

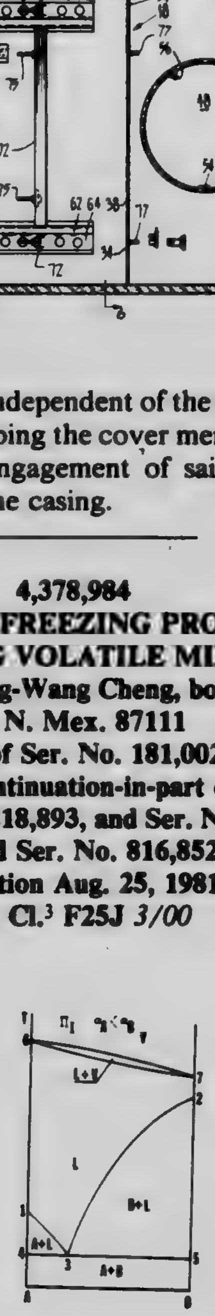
slide structure within one of said chambers for slidably moving a HEPA filter to a position in said one chamber in engagement with said baffle means;

first clamp means for clamping the forward end of the HEPA filter against said baffle means in a gastight engagement about said aperture by pressure applied to the rear end of the filgter; and



second clamp means, independent of the first, and associated seal means, for clamping the cover members to said casing to effect gastight engagement of said flanges with the respective ends of the casing.

4,378,984
DISTILLATIVE FREEZING PROCESS FOR SEPARATING VOLATILE MIXTURES
Chen-Yen Cheng, and Sing-Wang Cheng, both of 9605 La Playa St., NE., Albuquerque, N. Mex. 87111
Continuation-in-part of Ser. No. 181,002, Aug. 22, 1980, abandoned, which is a continuation-in-part of Ser. No. 930,312, Aug. 2, 1978, Pat. No. 4,218,893, and Ser. No. 676,640, Apr. 13, 1976, abandoned, and Ser. No. 816,852, Jul. 18, 1977, abandoned. This application Aug. 25, 1981, Ser. No. 296,130
Int. Cl.[3] F25J *3/00*
U.S. Cl. 62—12 17 Claims



1. A crystallization separation process for separating a multicomponent mixture that is at least partly in a liquid state and includes at least two key volatile components, denoted respectively as A-component and B-component, into a B-enriched portion and a B-lean portion through formation of a B-enriched solid mass, wherein the two components form a binary system

(a) whose characteristic vapor pressure ratio defined as the ratio of the vapor pressure of A-component to that of B-component both evaluated at the triple point temperature of B-component is in the range of 0.1 to 10 and is less than the ratio of the heat of sublimation to the heat of melting of B-component evaluated at the triple point temperature of B-component, and

(b) whose constant pressure phase diagram that includes a three phase (B-enriched solid, liquid and vapor) state has a two phase (B-enriched solid and vapor) region covering a substantial concentration range above the temperature of the three phase state and a two phase (B-enriched solid and liquid) region below the temperature of the three phase state,

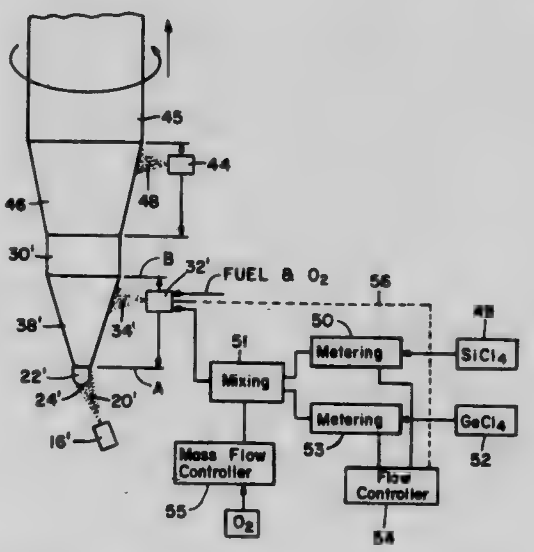
that comprises a first step of forming a first vapor mixture and a first condensed mass that comprises a mother liquor and a solid phase mass enriched in B-component by concurrently vaporizing the two components from the mixture in a first zone under a first temperature and a first pressure that are respectively lower than the triple point temperature and the triple point pressure of the pure B-component.

4,378,985

METHOD AND APPARATUS FOR FORMING AN OPTICAL WAVEGUIDE FIBER

Dale R. Powers, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Jun. 4, 1981, Ser. No. 270,235
Int. Cl.³ C03B *19/06, 37/025, 37/07*
U.S. Cl. 65—3.12 **17 Claims**



12. A method of forming a cylindrically-shaped porous glass preform comprising the steps of
   providing an elongated cylindrical core member,
   directing a first stream of glass particulate material toward a lateral surface of said core member to build up a first coating thereon,
   rotating said core member,
   longitudinally moving said core member, and
   reciprocatingly moving said stream of particulate material with respect to a portion of the length of said core member to deposit a particulate material coating, each cycle of reciprocating movement spanning a different portion of the length of said core member than the preceding cycle, whereby continuous reciprocation of said stream causes a tapered coating to be built up.

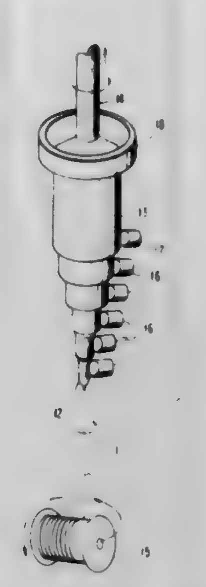
13. In a method of forming a porous glass preform comprising the steps of
   providing a substrate, and
   directing a stream of glass particulate material toward said substrate to form a porous coating thereon, the improvement comprising
   reciprocatingly moving said stream of glass particulate material with respect to a portion of said substrate, the concentration of a dopant constituent within said stream of glass particulate material varying as a function of the position of said stream along the path of its reciprocating movement, the portion of said porous coating along which said stream is being reciprocatingly moved is conically-shaped, the change in concentration of said dopant constituent being such that the refractive index of said particulate material is greatest when said stream is directed toward the region of said conically-shaped coating having the smallest radius.

4,378,986

METHOD OF MANUFACTURING OPTICAL FIBERS

Tomoo Yanase, and Motohiro Arai, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Jun. 30, 1981, Ser. No. 279,093
Claims priority, application Japan, Jul. 1, 1980, 55-89813
Int. Cl.³ C03B *19/06, 37/025*
U.S. Cl. 65—3.12 **19 Claims**



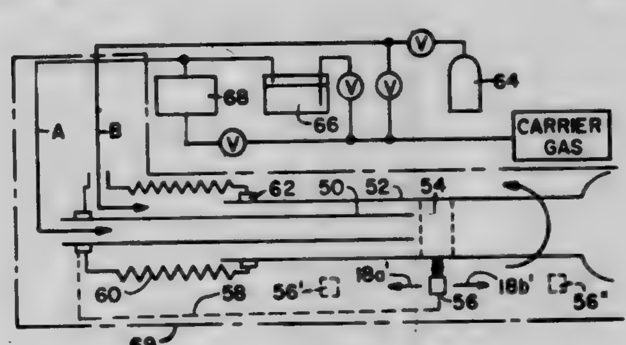
1. A method of manufacturing an optical fiber having core and clad sections, comprising the steps of:
   forming around a thin glass member first porous glass layers which, together with said thin glass member, are to constitute a core section of said optical fiber;
   forming around said first porous glass layers second porous glass layers which are to constitute a clad section of said optical fiber;
   heating and defoaming said first and second porous glass layers to produce a transparent glass preform;
   heating said transparent preform so formed to a drawing temperature thereof; and
   drawing the heated transparent preform to reduce the cross-sectional area of said thin glass member and said first porous glass layers to form a core section of said optical fiber, the reduced cross-sectional area of said thin glass member constituting a part of said core section, the reduced cross-sectional area of said first porous glass layers constituting the remainder of said core section.

4,378,987

LOW TEMPERATURE METHOD FOR MAKING OPTICAL FIBERS

Stephen B. Miller, Corning, and Peter C. Schultz, Painted Post, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Oct. 15, 1981, Ser. No. 311,786
Int. Cl.³ C03B *37/025, 37/07*
U.S. Cl. 65—3.12 **10 Claims**



1. In a method of forming an optical fiber preform comprising
   providing a substrate,
   forming glass precursor particulate material by flowing at least two glass forming reactants into a reaction zone

adjacent to said substrate where they react to form a suspension of particulate reaction product, said at least two reactants being maintained separate until they reach said reaction zone where said reaction product is produced, and

depositing the particulate reaction product on said substrate to yield an optical fiber preform,

the improvement wherein said reaction product is a metal halide, one of said glass forming reactants is a compound containing a cation of the resultant metal halide and an anionic substituent which renders the compound into a volatile state, and another of said reactants is a halogenating agent.

4,378,988

ELEMENTS FOR BENDING PLATES MADE OF A MATERIAL IN THE PLASTIC STATE, USE OF SUCH ELEMENTS FOR BENDING AND HARDENING PLATES AND A DEVICE EQUIPPED WITH SUCH ELEMENTS

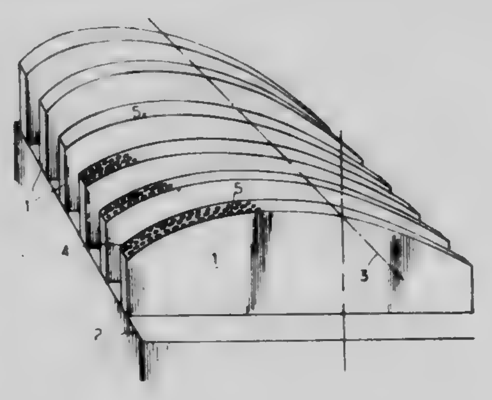
Claude Presta, Courbevoie, France, assignor to Saint Gobain Vitrage, Neuilly-sur-Seine, France

Filed May 28, 1981, Ser. No. 268,054

Claims priority, application France, Jun. 10, 1980, 80 12851

Int. Cl.³ C03B *23/023*

U.S. Cl. 65—182.3 **19 Claims**



1. An element for bending or hardening a movable plate of a material in a plastic state where the element is adapted to be positioned below said movable plate to support the same, characterized in that the surface of said element contacting the plate has a plurality of bending profiles taken in a plane perpendicular to the direction of movement of the plate, in that adjacent bending profiles blend smoothly with one another and in that said surface has a radius of curvature which varies in a continuous manner over the complete length of the surface, and in having adjustment means for relatively moving a plate over different longitudinal portions of said surface.

4,378,989

APPARATUS FOR LASER ASSISTED MACHINING OF GLASS MATERIALS

Carlo F. La Fiandra, New Canaan; Burke E. Nelson, Ridgefield, and Douglas F. Baker, West Reading, all of Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Oct. 9, 1981, Ser. No. 310,176

Int. Cl.³ C03B *29/00, 33/10*

U.S. Cl. 65—271 **8 Claims**

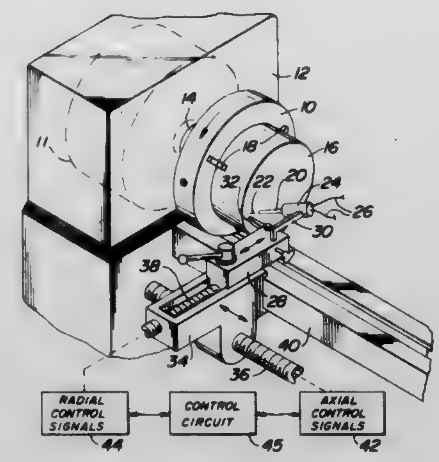
1. A system for removing material from the surface of a glass workpiece comprising:

(a) means for holding and rotating said glass workpiece;

(b) a beam applicator for directing concentrated energy beam towards the surface of said glass workpiece to soften the glass material in the area of impingement of said beam;

(c) a material removal device disposed in close fixed proximity to said beam applicator in physical contact with said glass workpiece and in the path of rotation of said glass workpiece following the softening of said glass material by said beam to remove the material softened by said beam, said material removal device being maintained at substantially the same radial distance as said beam applicator during removal of material; and

(d) means for changing the relative positions of said beam applicator and said material removal device by relatively moving said beam applicator and said material removal device radially with respect to the direction of rotation of said glass workpiece whereby different areas of said glass workpiece are exposed to said beam to permit removal of material therefrom.



4,378,990

HERBICIDAL COMPOSITION

Keiji Endo, Shimada; Tomomi Toriyama, and Kisaku Mori, both of Shizuoka, all of Japan, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

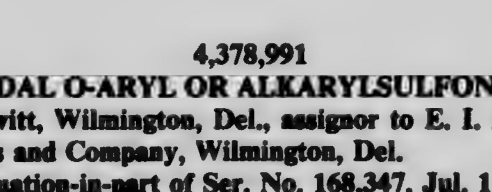
Filed Dec. 3, 1980, Ser. No. 212,679

Claims priority, application Japan, Dec. 3, 1979, 54-156561

Int. Cl.³ A01N *43/02, 31/00*

U.S. Cl. 71—90 **3 Claims**

1. Herbicidal composition consisting essentially of as active components an effective amount of a mixture of 5-(N-phenylcarbamoylamino)-1,2,3-thiadiazole and a diphenyl ether of the formula



wherein the substituents X are chlorine, Y is hydrogen or lower alkoxy, and n is an integer from 1 to 3, in a ratio from about 8:1 to 1:8 parts by weight, and an inert carrier material.

4,378,991

HERBICIDAL O-ARYL OR ALKARYLSULFONYLUREAS

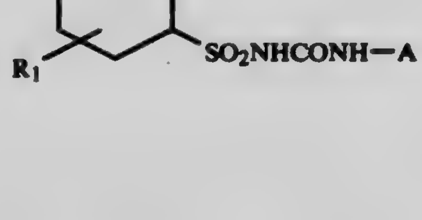
George Levitt, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 168,347, Jul. 11, 1980, abandoned. This application May 26, 1981, Ser. No. 264,331

Int. Cl.³ C07D *251/46, 251/16, 251/22;* A01N *43/66*

U.S. Cl. 71—93 **27 Claims**

1. A compound selected from



I

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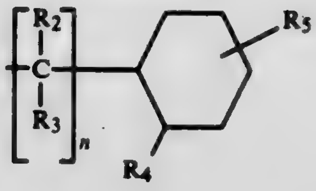
R is 

n is 0 or 1;

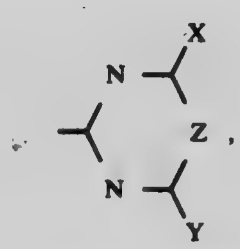
R_1 is H, F, Cl, Br, NO_2, CF_3, C_1-C_4 alkyl, OCF_3 or C_1–C_4 alkoxy;

R_2 and R_3 are selected independently from H and CH_3;

R_4 is H, C_1–C_3 alkyl, F, Cl, Br, CF_3, OCF_3 or C_1–C_3 alkoxy;

R_5 is CH_3, Cl, Br or H;

A is



X is H, CH_3, OCH_3, OCH_2CH_3, OCH_2CF_3, CH_2OCH_3 or Cl;

Y is CH_3, OCH_3 or OCH_2CH_3;

Z is N, and

Q is CH_2 or O;

provided that the total number of carbons in R is less than or equal to nine.

19. A method for controlling the growth of undesired vegetation which comprises applying to the locus to be protected an effective amount of a compound of claim 1.

4,378,992

UREA DERIVATIVES, AND THEIR PRODUCTION AND USE

Ryo Yoshida, Kawanishi; Ichiki Takemoto, Takarazuka; Seizo Sumida, Nishinomiya, and Katsuzo Kamoshita, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

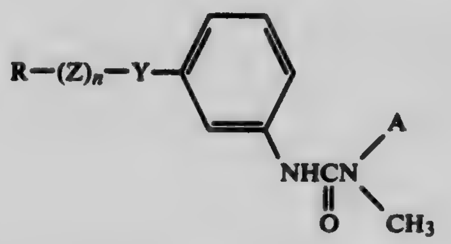
Filed Jan. 24, 1980, Ser. No. 114,746

Claims priority, application Japan, Jan. 30, 1979, 54-9944

Int. Cl.³ A01N *47/30;* **C07C** *69/76, 127/19*

U.S. Cl. 71—120 **11 Claims**

7. A herbicidal composition comprising as an active ingredient at least one of the compounds of the formula:



wherein R is a C_4–C_{10} cycloalkyl group, a C_4–C_{10} cycloalkenyl group, a C_4–C_{10} cycloalkyl group condensed with a benzene ring or substituted with at least one C_1–C_4 alkyl group or a C_4–C_{10} cycloalkenyl group condensed with a benzene ring or substituted with a C_1–C_4 alkyl group, Z is a C_1–C_4 alkylene group which may have an atom of oxygen and/or sulfur at the terminal of the carbon chain, Y is an oxygen atom or a sulfur atom, A is a hydrogen atom, a methyl group or a methoxy group and n is an integer of 0 or 1 with the proviso that in the chain consisting of —$(Z)_n$—Y—, oxygen and/or sulfur atoms are not present in succession, and an inert carrier.

4,378,993

METHOD AND APPARATUS FOR MEASURING HEIGHT LEVEL OF MELTING ZONE IN BLAST FURNACE

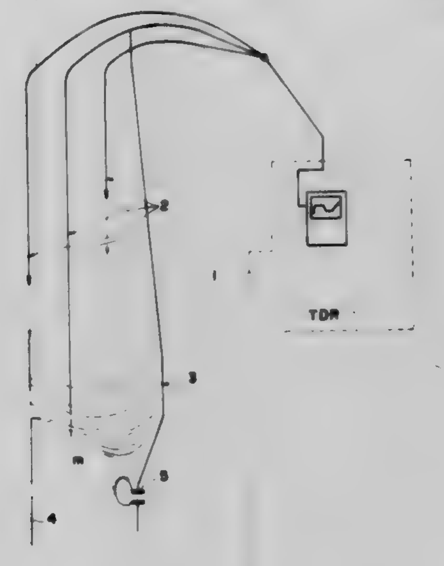
Tsutomu Fukushima; Takeshi Furukawa; Shin-ichi Saito, all of Yokohama; Takashi Kobayashi, Yoyogimachi, and Takeo Yamada, Yokohama, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 7, 1980, Ser. No. 204,843

Claims priority, application Japan, Nov. 9, 1979, 54-144332

Int. Cl.³ C21B *5/00*

U.S. Cl. 75—41 **8 Claims**



1. A method of measuring the height level of the top of a melting zone of a charge within a blast furnace, said method comprising the steps of:

Inserting and lowering at least one coaxial or multi-core cable having an electrically opened forward end into said furnace from the top thereof in such a manner that the forward end of said cable reaching the top of said melting zone is melted and said cable is drawn downward continuously along with a charge falling within said furnace;

applying at predetermined intervals a sharp step voltage to said cable from the furnace top side thereof toward said forward end; and

measuring a response of a reflected wave from said forward end caused by said step voltage,

whereby measuring variation in the length of said cable due to the melting of said cable forward end reaching the top of said melting zone in accordance with the time response of said reflected wave by said step voltage and determining from the result of said measurement the height level of the top of said melting zone.

4,378,994

METHOD FOR ESTIMATING GEOGRAPHICAL DISTRIBUTION OF COHESIVE ZONE IN BLAST FURNACE

Kiichi Narita, Kobe; Shinichi Inaba, Kakogawa; Masakata Shimizu, Kobe; Kenichi Okimoto, Hyogo, and Isao Kobayashi, Miki, all of Japan, assignors to Kobe Steel, Ltd., Kobe, Japan

Filed Jan. 9, 1981, Ser. No. 223,586

Claims priority, application Japan, Jan. 9, 1980, 55-1631

Int. Cl.³ C21B *7/24*

U.S. Cl. 75—41 **5 Claims**

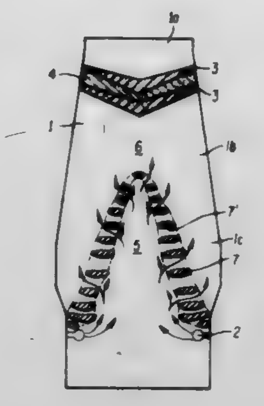
1. A method for estimating the geographical distribution of a fusion belt in a blast furnace which is intermittently charged with an iron ore material to produce molten iron in a continuous manner, said method comprising:

altering at least a part of the composition of the charging iron ore material at a certain time point;

measuring variations in the composition of the produced molten iron ore and slag over a given time period; and

estimating from said measured variations, the shape of said fusion belt in said furnace wherein the shape of said fusion

belt is estimated from a relation of a pattern of variation of at least one selected component of said furnace at a point



downstream from said fusion belt and the speed of gravitational descent of said charged material in said furnace.

4,378,995

IRON BLUE PIGMENT, PROCESS FOR MAKING THE SAME AND USE

Everhard Gratzfeld, Wesseling; Eva Clausen; Helmut Reinhardt, both of Cologne, and Hans Schaefer, Hanau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 6, 1981, Ser. No. 309,425

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1980, 3038328

Int. Cl.³ C09D *11/00;* **C01C** *3/12*

U.S. Cl. 106—15.05 **13 Claims**

1. Iron blue pigment, characterized by a potassium content of 0.5–4.5% by weight, a sodium content of 0.2–1.0% by weight, an ammonium content of 2.0–4.5% by weight, a coloring power in accordance with DIN 53 204 and DIN 53 234 of 5–15% above the Vossen Blue 705 Standard and the following color intervals determined in accordance with DIN 53 204 and DIN 53 234 in conjunction with DIN 6174, in relation to Vossen Blue 705 as standard:

ΔL: -0.7 to -1.5

Δa: -0.5 to 1.5

Δb: -0.6 to -2.3

ΔC: 0.5 to 2.0

4,378,996

METHOD FOR PREPARING BINDER FOR REFRACTORY POWDERS

Dennis Yarwood, Wrexham, England, assignor to Clino Foundry Supplies Limited, England

Filed Jun. 3, 1981, Ser. No. 269,944

Claims priority, application United Kingdom, Jun. 4, 1980, 8018233

Int. Cl.³ B28B *7/34*

U.S. Cl. 106—38.35 **7 Claims**

1. A method of preparing a binding liquid comprising the steps of:

mixing an aqueous acidified silica sol having a silica content of at least 60% with an unhydrolysed alkyl silicate and a mutual solvent for water and the alkyl silicate, the sol containing water in a substantially stoichiometric amount sufficient to hydrolyse the alkyl silicate, thereby providing a binding liquid substantially free of water and with at least 50% by weight of the total silicate present being derived from the sol.

4,378,997

HYDRATION-EXPANSIVE CRUSHING CARTRIDGE

Tsuneo Kasama; Takao Saito, and Makoto Wada, all of Kawagoe, Japan, assignors to Nippon Oil and Fats Co., Ltd., Tokyo, Japan

Filed Oct. 27, 1981, Ser. No. 315,574

Claims priority, application Japan, Oct. 27, 1980, 55-149360

Int. Cl.³ C04B *7/02*

U.S. Cl. 106—89 **10 Claims**

1. A cartridge adapted to be inserted into a bore hole in a monolithic structure and adapted to expand in said bore hole to cause cracks to be formed in said structure, comprising:

a closed, elongated, tubular casing, said casing being filled with a hydration-expansive agent which is capable of volumetric expansion caused by hydration thereof, said casing being permeable to water while being impermeable to said agent so that when said casing is immersed in water, the water will permeate into the interior of said casing and will wet said agent to cause hydration and expansion thereof while said agent is retained inside said casing, said casing being made of a frangible material which is capable of being punctured by a thrusting rod so that the mixture of said agent and water will flow to fill the bore hole and said agent will expand therein during hydration of said agent and the expansion pressure of said agent as it undergoes hydration will cause cracking of the monolithic structure.

4,378,998

PROCESS FOR THE PREPARATION OF OXIDATION PRODUCTS OF ETHYLENE COPOLYMERS, AND THEIR USE

Helmut Korbanka, Adelsried; Karl-Heinz Stetter, Gersthofen; Günther Illmann, Stadtbergen; Rolf Jacob; Otto Malitschek, both of Gersthofen, and Josef Strehle, Augsburg, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 29, 1980, Ser. No. 202,010

Claims priority, application Fed. Rep. of Germany, Nov. 2, 1979, 2944375; Dec. 15, 1979, 2950602

Int. Cl.³ C08F *8/06*

U.S. Cl. 106—270 **4 Claims**

1. A hard, easily processable polar wax with a dropping point above 80° C. and below 110° C., a needle penetration index below $10 \cdot 10^{-1}$ mm and an acid number of up to 200, obtained by oxidation of an ethylene/vinylacetate copolymer having a melt index between 0.01 and 400 g/10 minutes and a vinylacetate content of from about 1 to about 30% by weight, with oxygen or oxygen-containing gases, in the molten state and dispersed in a dispersing agent being inert towards oxygen, at a temperature between the melting point of the copolymer and 100° C. above the melting point, an excess pressure between 0 and 100 bars and with continuous intensive mixing.

4,378,999

PULVERULENT BITUMEN CONCENTRATE AND ITS USE

Karl-Hans Müller, Brochköbel, and Walter Barthel, Langenselbold, both of Fed. Rep. of Germany, assignors to Degussa AG, Frankfurt, Fed. Rep. of Germany

Filed Aug. 6, 1980, Ser. No. 175,742

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1979, 2933339

Int. Cl.³ C08L *95/00*

U.S. Cl. 106—281 R **11 Claims**

1. A powdery bitumen concentrate having 40 to 80% of synthetic silica wherein the synthetic silica is precipitated silica having a BET surface area of 120 to 500 m^2/g or pyrogenically produced silica having a BET surface area of 100 to 400 m^2/g.

4,379,000

PLASTISOLS FOR COATING POLYMERIC MATERIALS

Ian S. Biggin, Cardiff, and Alan S. Wilson, South Glamorgan, both of Wales, assignors to BP Chemicals Limited, London, England

Filed Jan. 16, 1981, Ser. No. 225,604

Claims priority, application United Kingdom, Jan. 22, 1980, 8002130

Int. Cl.[3] **C08K** *5/01, 5/12*

U.S. Cl. 106—311 **6 Claims**

1. A plastisol composition comprising a mixture of a butyl phthalate and at least one alkyl benzene having one or more straight or branched chains containing between 7 and 17 carbon atoms in a ratio by volume of between 90:10 and 40:60 respectively.

4,379,001

METHOD OF MAKING SEMICONDUCTOR DEVICES

Tetsushi Sakai, Sayama; Yoshiji Kobayasi, Tokyo; Yousuke Yamamoto, Musashino, and Hironori Yamauchi, Asaka, all of Japan, assignors to Nippon Telegraph & Telephone Public Corp., Tokyo, Japan

Filed Jul. 18, 1979, Ser. No. 58,417

Claims priority, application Japan, Jul. 19, 1978, 53-87996; Jul. 19, 1978, 53-87997

Int. Cl.[3] **H01L** *21/263, 21/20, 21/22*

U.S. Cl. 148—1.5 **6 Claims**

1. A method of manufacturing a bipolar transistor comprising the steps of:
- selectively oxidizing a semiconductor substrate of a first conductivity type to form a first insulator region extending into said substrate and to simultaneously form a base diffusion window surrounded by said region;
- forming a base region having a second conductivity type through said window;
- forming a polycrystalline silicon layer, and second and third insulating layers having different etching characteristics, on said substrate;
- selectively etching said third insulating layer to form a third insulation region on said base region and near the central portion thereof;
- etching said second insulating layer to form a second insulating region by using said third insulating region as a mask;
- implanting ions of an impurity having the same conductivity type as said base region into said polycrystalline silicon layer by utilizing said second and third insulating regions as masks, thereby separating the same into a region implanted with said ions and a region not implanted with said ions;
- side etching said second insulating region for exposing said non-implanted polycrystalline silicon region;
- etching said non-implanted region to insulate and separate said implanted region from said non-implanted region;
- forming a thermal oxide film on the surface of said substrate and at the same time diffusing an impurity in said ion implanted region contiguous to said base region into the same to form a base contact;
- removing said insulating film to expose said non-implanted polycrystalline silicon region;
- diffusing an impurity of said first conductivity type into said exposed polycrystalline silicon region to form an emitter region of said semiconductor substrate, and
- forming wiring layers in said ion-implanted region and in said regions diffused with said impurity of said first conductivity type.

4,379,002

METHOD AND EQUIPMENT FOR DIVIDING SLABS INTO PREDETERMINED WIDTHS

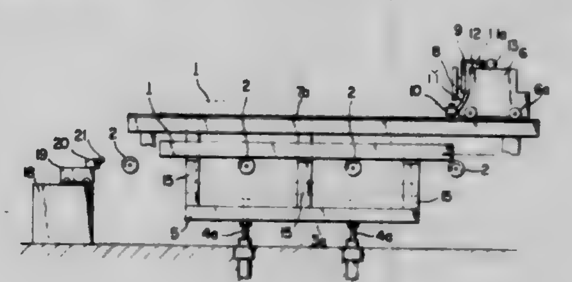
Sadayuki Saito, Yotsukaido; Hiroji Moriwaki, Chiba, and Kazuya Higuchi, Ichihara, all of Japan, assignors to Kawasaki Steel Corporation, Hogyo, Japan

Filed Jan. 25, 1982, Ser. No. 342,448

Claims priority, application Japan, Jun. 22, 1981, 56-95375; Oct. 20, 1981, 56-166306

Int. Cl.[3] **B23K** *7/02*

U.S. Cl. 148—9 R **8 Claims**



1. A slab dividing method comprising the steps of:
- stopping a slab being conveyed by conveyance rollers;
- raising the slab from the conveyance rollers;
- dividing, at the raised position, the slab lengthwise thereof by gas cutting into at least two;
- returning the divided slabs onto the conveyance rollers one after the other; and
- conveying the divided slabs to the downstream, where slags formed on the lower end edges of the cut surface of each slab are removed.

4,379,003

MAGNETIC DEVICES BY SELECTIVE REDUCTION OF OXIDES

Murray Robbins, Berkeley Heights, and Richard C. Sherwood, New Providence, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 30, 1980, Ser. No. 173,641

Int. Cl.[3] **H01F** *1/02*

U.S. Cl. 148—104 **8 Claims**

1. A method of making a magnetic material by steps comprising compacting oxide powder comprising at least one oxide species of a magnetic metal, thereby forming an oxide compact, and heating said compact in a reducing environment, thereby reducing said one oxide species to a metal,

characterized in that said oxide powder further comprises at least one oxide species which does not substantially reduce during said heating, and which oxide species substantially migrates to grain boundaries of said magnetic metal or alloys thereof during said reducing step, thereby rendering the magnetic material obtained after said reducing step substantially insulated so that the macroscopic resistivity of said magnetic material is at least 1.0 ohm-centimeters.

4,379,004
METHOD OF MANUFACTURING AN AMORPHOUS MAGNETIC ALLOY
Yoshimi Makino; Masatoshi Hayakawa; Koichi Aso; Satoru Uedaira; Shigeyasu Ito, and Kazuhide Hotai, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Jun. 19, 1980, Ser. No. 161,077
Claims priority, application Japan, Jun. 27, 1979, 54-80955
Int. Cl.³ H01F *1/02*
U.S. Cl. 148—108 7 Claims

1. A method of manufacturing an amorphous magnetic alloy comprising the steps of:

(a) preparing an amorphous magnetic alloy ribbon; and

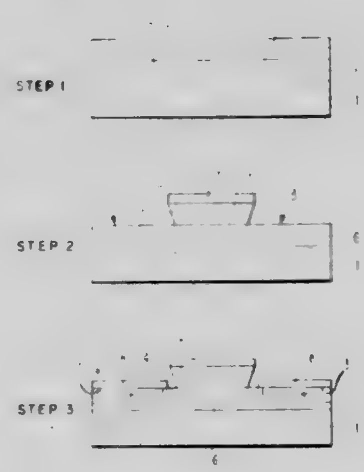
(b) annealing said amorphous alloy ribbon at an elevated temperature, which is lower than the crystallization temperature Tcry of said alloy in a magnetic field, wherein said amorphous magnetic alloy ribbon and the direction of said magnetic field are continuously rotated with respect to one another, the relative rotation being at a velocity which is faster than the thermal diffusion velocity of the atoms forming the amorphous alloy at said elevated temperature.

5. A method of manufacturing an amorphous magnetic alloy having high permeability and high saturation magnetic induction comprising the steps of:

(a) preparing an amorphous magnetic ribbon containing transition metal elements and glass-forming elements, and having a crystallization temperature Tcry lower than the Curie temperature of said alloy; and

(b) annealing said alloy ribbon in an external magnetic field at an elevated temperature which is lower than said crystallization temperature Tcry of the alloy, but higher than 200° C., and wherein said amorphous ribbon and said magnetic field are continuously moved rotationally relative to one another, said relative movement being faster than the thermal diffusion of the atoms composing the amorphous alloy, whereby the formation of induced magnetic anisotropy is prevented.

4,379,005
SEMICONDUCTOR DEVICE FABRICATION
Harold J. Hovel, Katonah, and Jerry M. Woodall, Bedford Hills, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Division of Ser. No. 88,718, Oct. 26, 1979, abandoned. This application Feb. 12, 1982, Ser. No. 348,526
Int. Cl.³ H01L *21/24*
U.S. Cl. 148—187 4 Claims



1. The process of fabrication of semiconductor structures by the steps of providing a semiconductor body having at least two layers;

an exposed first layer having a different solubility in a particular metal than a second underlying layer;

providing a vertical differentiation of semiconductor device elements by selective removal of portions of said first layer thereby exposing regions of said second layer;

applying said particular metal to said regions of said second layer and to the remaining portions of said first layer and fusing said metal and the underlying semiconductor material.

4,379,006
B_2O_3 DIFFUSION PROCESSES
James E. Rapp, Oregon, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Aug. 7, 1981, Ser. No. 291,139
Int. Cl.³ H01L *21/223*
U.S. Cl. 148—189 4 Claims

1. A method of diffusing B_2O_3 from the surface of a glass-ceramic consisting essentially of the following:

Component	Mole Percent
SiO_2	15–60
Al_2O_3	10–30
B_2O_3	20–60
RO	3–25
BaO	0–15

wherein $Al_2O_3/RO = 1.5–4$

wherein RO is selected from BaO, MgO, CaO, SrO and mixtures thereof; and

when SiO_2 is over 40, B_2O_3 is not over 40, RO is not over 20, and BaO is at least 1;

when SiO_2 is not over 40, Al_2O_3 is at least 15, RO is at least 5, MgO is not over 15, CaO is not over 10, SrO is not over 10, BaO is not over 15, La_2O_3 is 0–5, Nb_2O_3 is 0–5 and Ta_2O_3 is 0–5,

which comprises heating said glass-ceramic to a temperature of 700°–1200° C. while flushing the surface thereof with an inert transport or carrier gas comprising at least 60 mol percent helium.

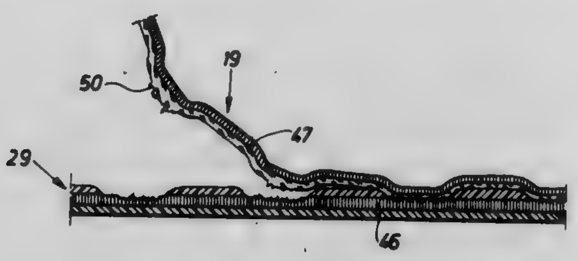
4,379,007
CATALYSTS FOR NITRAMINE PROPELLANTS
Robert A. Fifer, Bel Air, and James E. Cole, Aberdeen, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Mar. 16, 1981, Ser. No. 244,434
Int. Cl.³ C06B *43/00*
U.S. Cl. 149—22 11 Claims

1. A propellant composition, which comprises a particulate organic nitramine propellant and an effective amount for burn rate acceleration of a metal tetrahydridoborohydride of the following formula: $Me(BH_4)_x$, wherein Me represents an alkali metal or an alkaline earth metal and x is 1 when Me is an alkali metal and x is 2 when Me is an alkaline earth metal.

4,379,008
METHOD AND APPARATUS FOR SEALING CARDBOARD CONTAINERS
Helmut Gross, and Hermann Hauck, both of Hochheim, Fed. Rep. of Germany, assignors to AB Akerlund & Rausing, Sweden
PCT No. PCT/SE80/00060, § 371 Date Nov. 3, 1980, § 102(e) Date Oct. 27, 1980, PCT Pub. No. WO80/01789, PCT Pub. Date Sep. 4, 1980
PCT Filed Mar. 3, 1980, Ser. No. 201,402
Claims priority, application Fed. Rep. of Germany, Mar. 3, 1979, 2908397
Int. Cl.³ B29C *27/00*
U.S. Cl. 156—69 3 Claims

1. A method of sealing a container top to a container bottom in which the container top and container bottom are both made of cardboard, at least a sealing surface of the container top

being coated with an ionomer resin and at least a sealing surface of the container bottom to be attached to the sealing surface of the container top being coated with a polyester resin, comprising the steps of preheating the sealing surface of the container bottom so that the polyester resin is brought to a softened state and thereafter sealing the container top to the container bottom while the polyester resin is still in its softened state by heating the sealing surfaces of the container top and the container bottom and simultaneously pressing the sealing



surfaces of the container top and the container bottom together at spaced intervals so that the polyester resin is displaced away from preselected areas on the sealing surface of the container bottom which are pressed against the sealing surface of the container top, whereby the ionomer resin adheres to the sealing surface of the container bottom in the preselected areas thereon, the preselected areas being selected such that substantially all of the ionomer resin will remain with the container top upon separation of the container top from the container bottom.

4,379,009

SEALING METHOD USING HEAT-SHRINKABLE FILM

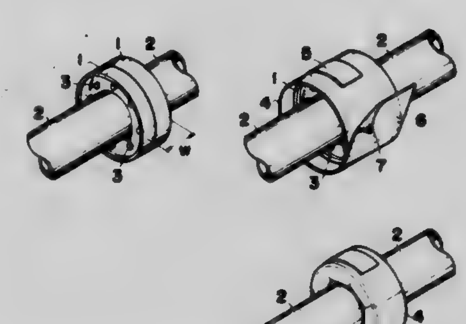
Takaaki Shibata, Nagareyama, and Tetsuhiro Yamamoto, Osaka, both of Japan, assignors to Doryokuro Kakunenryo Kaihatsu Jigyodan, Tokyo, Japan

Filed Jul. 17, 1981, Ser. No. 284,254

Claims priority, application Japan, Sep. 12, 1980, 55-126836

Int. Cl.³ B29C *27/00;* B32B *31/00;* B29C *17/04;* B23P *11/02*

U.S. Cl. 156—86 **9 Claims**



1. A method for indicating tampering of an element positioned in a transmission system, the element having a peripheral surface facing outwardly and spaced from other components of the transmission system and having side surfaces extending inwardly from said peripheral surface, said method using a heat shrinkable film carrying identifying indicia thereon and comprising:

wrapping said peripheral surface with the heat-shrinkable film in such a manner that both side edges of said film extend beyond the side edges of said peripheral surface;

bonding longitudinal edges of said film to each other; and

heating said heat-shrinkable film to permit said film to shrink to thereby seal said peripheral surface and a portion of said side surfaces adjacent to said peripheral surface, the film adapted to shrink to protect the element so that access to the element requires alteration of the film thereby providing an indication of such access.

4,379,010

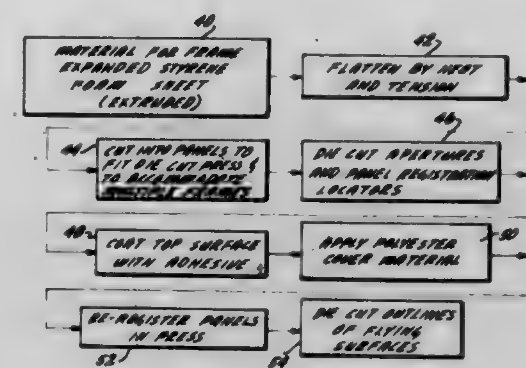
METHOD FOR MAKING FLYING SURFACES

Larry H. Renger, Hawaiian Gardens, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Oct. 30, 1981, Ser. No. 316,623

Int. Cl.³ B60J *1/00;* B32B *31/00;* A63H *27/00*

U.S. Cl. 156—108 **12 Claims**



1. A method of making a plurality of flying surfaces each having a relatively stiff frame of light weight plastic covered with a sheet of thin film material, comprising the steps of:

providing a panel formed of the material of which the frame is to be made, and sufficiently large to accommodate the plurality of flying surfaces, the panel having a first surface;

simultaneously forming a plurality of apertures in the panel to define the interior of multiple frames;

providing the sheet of thin film material having a second surface;

applying an adhesive to one of the first and second surfaces;

laminating said sheet of thin film material over said first surface to cover the panel to form a laminated panel; and

simultaneously forming a plurality of flying surfaces from the laminated panel which each flying surface includes a plurality of apertures defining the interior surface of a frame member.

4,379,011

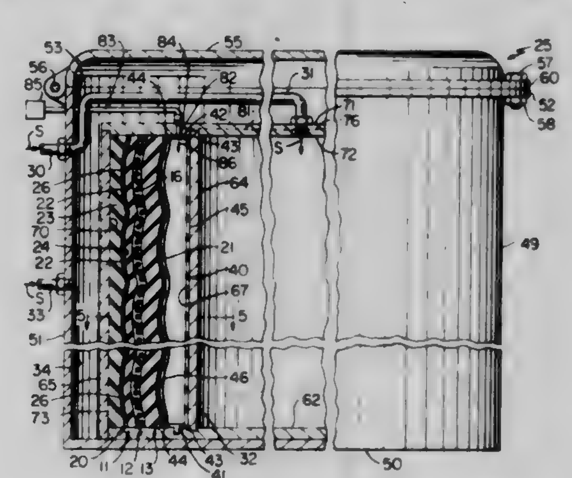
METHOD OF MAKING ARCHED V-BELTS

Dewey D. Henderson, Springfield, Mo., assignor to Dayco Corporation, Dayton, Ohio

Filed Sep. 8, 1981, Ser. No. 263,965

Int. Cl.³ B28H *7/22*

U.S. Cl. 156—140 **10 Claims**



1. In a method of making a plurality of arched, polymeric V-belts comprising the steps of, defining an uncured belt sleeve having an inside and an outside surface, providing a forming member having a plurality of substantially identical axially aligned annular forming surfaces of concave cross-sectional configuration, placing said uncured belt sleeve with one of its surfaces adjacent said forming surfaces, compressing said belt sleeve against said forming member and its forming surfaces to thereby form annular arched portions in said sleeve, each of

said arched portions corresponding roughly in configuration to a forming surface, curing said belt sleeve during said compressing step, and cutting the cured belt sleeve to define a plurality of arched belts corresponding in number to said plurality of annular forming surfaces with each of said arched belts also corresponding roughly in configuration to a forming surface, the improvement in said method in which, said step of providing a forming member comprises providing said forming member as a polymeric member which has said forming surfaces defined as radially inwardly facing polymeric surfaces, said placing step comprises placing said belt sleeve with said one surface being its normal outside surface adjacent said polymeric forming surfaces, said compressing step comprising the step of compressing said belt sleeve by engaging said inside surface thereof and transmitting the same pressure radially outwardly against each unit of area of said inside surface and thereby define each belt portion of said sleeve that will provide one arched belt with a convex surface and an opposite concave surface which are defined with great precision and with all arched belts cut from the cured belt sleeve being substantially identical in configuration, said compressing step comprising the step of compressing said belt sleeve with a single self-contained inflatable polymeric bladder comprised of a pair of annular end walls having inner and outer edges, a cylindrical inner wall extending between said inner edges, and a cylindrical outer wall extending between said outer edges, said walls being highly flexible and said cylindrical outer wall engages said inside surface throughout its entire surface area and transmits said same pressure against each unit area thereof upon inflating said bladder, said curing step comprising the step of providing a steam curing apparatus, said apparatus comprising a housing, a top access opening, and confining walls within said housing, said confining walls comprising, a bottom plate structure fixed to said housing, a first tubular structure fixed to said bottom structure, a second tubular structure fixed to said bottom structure concentrically outwardly of said first structure and defining an annular volume therebetween, and a top plate structure adapted to be detachably fastened to said first and second tubular structures; and said method comprising the further steps of disposing said polymeric forming member through said access opening with an outside surface thereof against said second tubular structure and with said polymeric forming surfaces facing radially inwardly toward said volume; said placing step comprising the step of moving said belt sleeve vertically downwardly through said top access opening within said volume; said compressing step comprising the step of inserting said bladder through said top access opening within said annular volume between said belt sleeve and first tubular structure and confining said end walls between said top and bottom plate structures and said cylindrical inner wall employing said first tubular structure while allowing said cylindrical outer wall to move freely against said entire inside surface area of said belt sleeve upon inflating of said bladder; said curing step comprising the step of sealing a lid over said access opening and introducing steam within said housing to provide curing of said belt sleeve; said cooling step comprising the steps of removing said polymeric forming member and said cured belt sleeve as a unit from between said first and second tubular structures and cooling said polymeric forming member and said cured belt sleeve together as a unit; and separating said cured belt sleeve from said polymeric forming member after the same have been cooled, said separating step being achieved with comparative ease due to the small tendency of said belt sleeve to adhere to said polymeric forming member and its forming surface.

4,379,012

ADHESIVE TAPE FOR AND METHOD OF JOINING WEBS

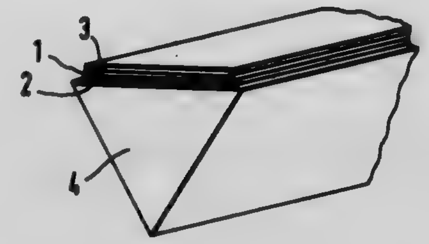
Willi Heymanns, Kaarst, Fed. Rep. of Germany, assignor to Jagenberg Werke AG, Dusseldorf, Fed. Rep. of Germany

Filed Jan. 21, 1981, Ser. No. 226,587

Claims priority, application Fed. Rep. of Germany, Jan. 21, 1980, 3002069

Int. Cl.³ B65H *19/18;* **B32B** *7/06, 7/10;* **C09J** *7/02*

U.S. Cl. 156—157 **3 Claims**



1. An adhesive tape for the joining of webs, consisting essentially of a first tape provided on both its faces with adhesive, a second cover tape adhering to one face of the first tape, a third cover tape adhering to the other face of the first tape, and adhesive on the outside of the second cover tape, the adhesive on the outside of the second cover tape being stronger than the adhesive provided on both faces of the first tape.

2. A method of joining webs, as in a wind-up stand for paper webs, by the use of an adhesive tape according to claim 1, comprising securing the outside face of the second cover tape to a carrier bar having a tear-off edge, removing the third cover tape, adhering the exposed face of the first tape to the tail end of a first web, removing the second cover tape with carrier bar attached from the first tape which continues to adhere to the web, and then adhering the freshly exposed face of the first tape to the head end of a second web.

4,379,013

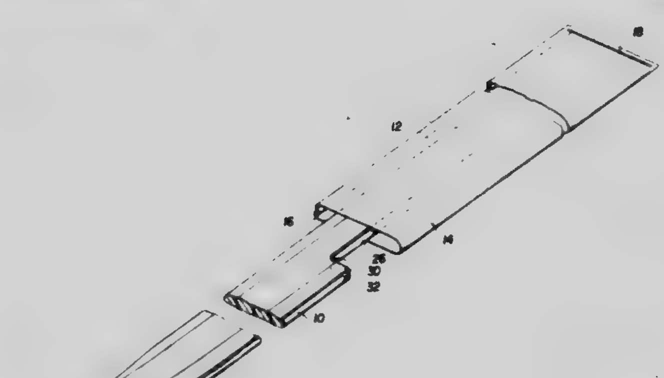
FINE FILM PRESSURE BAGS FORMING COMPOSITE STRUCTURES

William C. Tambussi, Cherry Hill, N.J., assignor to The Boeing Company, Seattle, Wash.

Filed Sep. 30, 1980, Ser. No. 192,571

Int. Cl.³ B32B *31/00*

U.S. Cl. 156—189 **11 Claims**



1. In an apparatus for curing a tubular composite structure of laminated, resin-impregnated fibrous material which includes structure retaining means having a contoured inner surface adjacent the outer surface of the composite structure and pressure bag means disposed within and extending between opposite ends of the composite structure, for applying pressure to the inner surface of the composite structure, the improvement wherein the pressure bag means comprises at least one pressure bag formed of a material having inherent release

characteristics and adapted to be connected to a pressure source, and the pressure bag includes at least one overlapped folded portion extending between the opposite ends of the adjacent composite structure, to allow the pressure bag to expand radially against the inner surface of the composite structure when the pressure bag is connected to the pressure source.

4,379,014
METHOD OF MANUFACTURE OF PACKING CONTAINERS AND PACKING CONTAINERS MANUFACTURED IN ACCORDANCE WITH THE METHOD

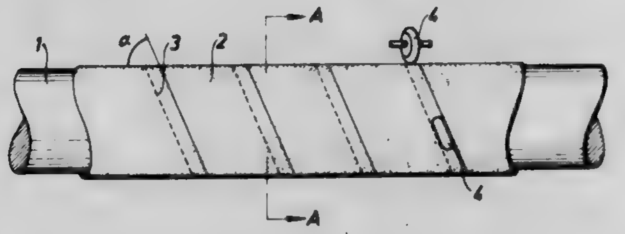
Anders R. Rausing, Lausanne, and E. Ingvar Nilsson, Akarp, both of Switzerland, assignors to Tetra Pak Developpement SA, Pully-Lausanne, Switzerland

Filed Oct. 15, 1980, Ser. No. 197,074

Claims priority, application Switzerland, Oct. 22, 1979, 9466/79

Int. Cl.³ B31C *81/00*

U.S. Cl. 156—191 **9 Claims**



1. A method for the manufacture of packing containers from a striplike film, comprising the steps of coating a polyester strip which is monoaxially molecular-oriented in the strip direction with a layer of a non-molecular-oriented amorphous polyester material, spirally winding the coated polyester strip onto a mandrel to form a tube, overlapping edge zones of successive turns of the strip during winding with the width of the said overlapped zones constituting at the most 15% of the width of said strip, sealing the edge zones together in a continuous joint by applying heat to the edge zones for melting and fusing together of the non-molecular-oriented polyester coating, the width of said strip being 75–150% of the diameter of the tube.

4,379,015
PRODUCTION OF WATERPROOF CORRUGATED PAPERBOARD

Franklyn O. Ware, Danville, Ill., and William S. McDonald, Statesville, N.C., assignors to MPW Tech. Associates, Danville, Ill.

Filed Aug. 13, 1980, Ser. No. 177,666

Int. Cl.³ C09J *3/02;* **C08L** *1/00*

U.S. Cl. 156—205 **7 Claims**

1. In a process for the production of waterproof corrugated board wherein a waterproofing resin is added to a conventional Stein-Hall high performance starch based composite adhesive containing cooked and uncooked starch employed to produce the corrugated board from a paper stock so as to render the corrugated board waterproof, the improvement which comprises employing an amount of resin, from about 225–600 lbs. of the resin per 1,000 gallons of adhesive, which imparts extremely poor stability to the adhesive; adding the resin the adhesive simultaneously with or immediately prior to the application of the adhesive to the paper stock; and applying the resin-containing adhesive to the paper stock at the rate of about 3.5–5 lbs/1,000 sq. ft. of board.

4,379,016
METHOD AND DEVICE FOR APPLYING ELASTIC STRIPS IN SECTIONS ONTO A WEB OF MATERIAL USED FOR MAKING DIAPERS

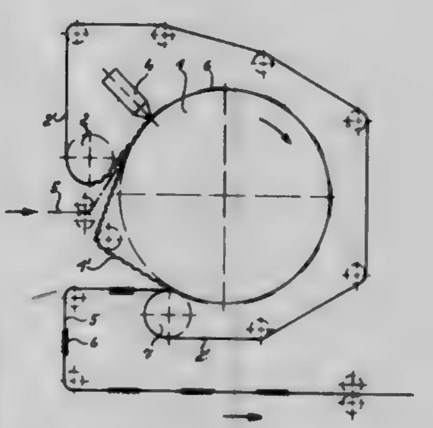
Kurt Stemmler, Neuwied, and Heinrich Metheisen, Rengsdorf, both of Fed. Rep. of Germany, assignors to Winkler + Dunnebier Maschinefabrik und Eisengiesseret GmbH & Co. KG, Neuwied, Fed. Rep. of Germany

Filed Apr. 13, 1981, Ser. No. 254,015

Claims priority, application Fed. Rep. of Germany, Apr. 26, 1980, 3016197

Int. Cl.³ A61F *13/16;* **B32B** *31/04*

U.S. Cl. 156—205 **13 Claims**



1. A method for mounting elastic strips in discrete sections onto a web of material for making diapers, comprising the steps of:

gathering-up a web of material by forming a multiplicity of fine transverse folds therein; and

mounting unstretched elastic strips longitudinally, relative to the web, in discrete sections onto the edge areas of said gathered-up web of material, such that said strips are each affixed at least at discrete points along the total unstretched length thereof to said folds in contact therewith, so as to produce a web having, in the longitudinal direction thereof, alternating relatively continuous, smooth and non-elastic areas and gathered-up, relatively elastic areas.

4,379,017
DECALCAMANIA PICTURE FOR APPLYING DESIGNS OR IMPRINTS TO OBJECTS OF GLASS, CERAMICS OR SUCH—LIKE, PROCESS FOR TRANSFERRING DECALCAMANIA PICTURES OF THAT KIND, AND APPARATUS FOR CARRYING OUT SAID PROCESS

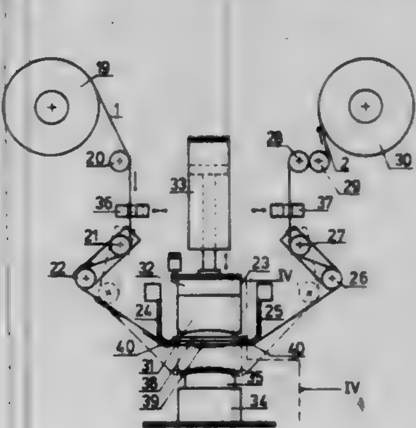
Franz Barta, Trazerberggasse 6, 1130 Vienna, Austria

Filed Jan. 11, 1980, Ser. No. 111,408

Claims priority, application Austria, Jan. 12, 1979, 248/79

Int. Cl.³ C03B *29/00;* **C04B** *33/34;* **B32B** *31/00, 3/02*

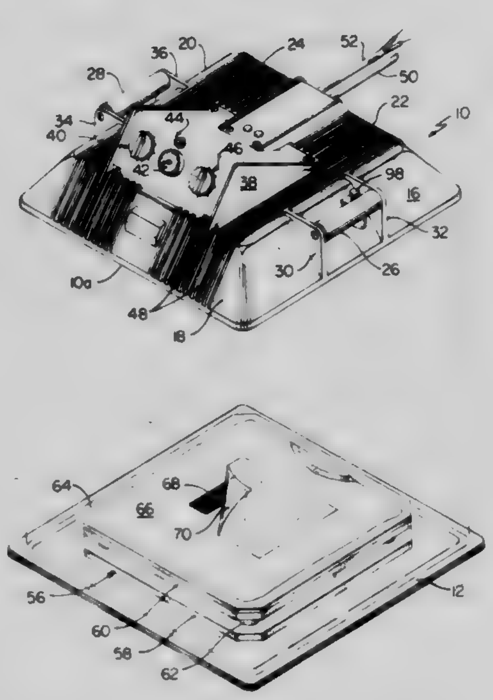
U.S. Cl. 156—238 **11 Claims**



1. A process for applying decalcamania pictures to an object of glass-or ceramics-type material which comprises providing a decalcamania picture comprising a water-absorbing carrier paper having on one surface a vitrifiable color image layer not

extending over the entirety of the paper and an interface layer between said image layer and said paper to ease separation thereof, and on its other surface a substantially water-impervious screening layer which is intact only in those areas corresponding to those where no color image is present on the opposite side of the paper, positioning the picture on to the object with the screening layer on the outer side opposite said object, transferring the image layer to the object under the action of moisture applied from the opposite surface of said decalcamania picture from that bearing the color image layer, heat and pressure, and releasing the paper with said screening layer from the transferred image layer.

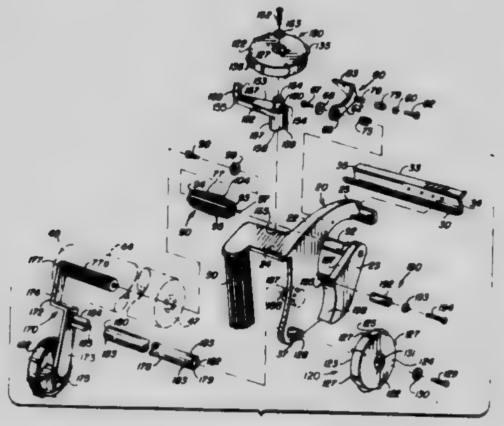
4,379,018
HEAT TRANSFER APPARATUS
Carl P. Griesdorn, Cincinnati, Ohio, assignor to Planet Products Corporation, Cincinnati, Ohio
Filed Dec. 17, 1981, Ser. No. 331,570
Int. Cl.³ B30B *15/34;* B32B *31/20*
U.S. Cl. 156—359 15 Claims



1. A heat transfer apparatus, comprising:
(a) a dome type enclosure member with a peripheral sealing surface, said enclosure member including an internal top portion that is in spaced relationship to the peripheral sealing surface;
(b) a heating element secured to the internal top portion of the enclosure member in spaced relationship to the peripheral sealing surface;
(c) a diaphragm in selective sealing relationship with the peripheral sealing surface and exposed to atmospheric pressure on one of its sides, the diaphragm cooperating with the enclosure member to define an internal chamber with the other of its sides; and
(d) a tool buildup secured to the diaphragm, the tool buildup being disposed within the internal chamber when the peripheral sealing surface is in sealing relationship with the diaphragm.

4,379,019
MASKING MACHINE
Daniel L. Pool, 4414 E. Lincoln Dr., Paradise Valley, Ariz. 85253
Filed Sep. 8, 1980, Ser. No. 185,188
Int. Cl.³ B32B *31/00*
U.S. Cl. 156—527 7 Claims

1. A hand held masking machine for dispensing paper and tape to a surface comprising:
a frame having an outer, an inner and an upper side, and front, central and rear portions;
an offset to the frame displaced in the direction of the outer side of the frame;
a primary tape roll holder mounted on the outer side of the rear portion of the frame for rotation about a first axis, said primary tape roll holder adapted to have a roll of masking tape mounted thereon;
a paper roll holder having a given length mounted on the inner side of the offset portion of the frame for rotation about a second axis, said paper roll holder adapted to have a roll of paper having a hollow cylindrical bore mounted thereon for rotation about the second axis;
a handle bracket having an upper and a lower side mounted on the upper central portion of the frame and extending in a direction substantially parallel to the second axis and away from the inner side of the frame;
a handle secured to the lower surface of the handle bracket and depending from the handle bracket so that the hand of the user of the masking machine is spaced from the inner side of the frame;
a guide bar mounted on the front portion of the frame;
an auxiliary tape roll holder adapted to have a roll of masking tape mounted thereon;
means for mounting the auxiliary tape roll holder on the upper side of the handle bracket for rotation about a third axis substantially perpendicular to the upper surface of the handle bracket; and
means for severing strips of masking tape from a roll of



masking tape mounted on the auxiliary tape roll holder mounted on said means for mounting the auxiliary tape roll holder on the handle bracket.

4. A hand held masking machine for dispensing paper and tape to a surface comprising:
a frame having outer, inner and upper sides; and a front, central and rear portions;
an offset to the frame displaced in the direction of the outer side of the frame;
a primary tape roll holder mounted on the outer side of the rear portion of the frame for rotation about a first axis, said primary tape roll holder adapted to have a roll of masking tape mounted thereon;
a paper roll holder having a given length mounted on the inner side of the offset portion for rotation about a second axis, said first and second axes being substantially parallel, said paper roll holder adapted to have a roll of paper having two sides, a hollow cylindrical bore, and a given width, mounted thereon for rotation about the second axis; the width of the roll of paper being greater than the length of the paper roll holder;
a handle bracket mounted on the upper central portion of the frame and extending inwardly from the frame in a direction substantially parallel to the second axis;
a handle secured to the handle bracket and depending therefrom so that the hand of the user is spaced from the inner side of the frame;
a guide bar mounted on the front portion of the frame;
a subframe;
an auxiliary tape roll holder mounted on the subframe for

rotation about a third axis, said auxiliary tape roll holder adapted to have a roll of masking tape mounted thereon;

an auxiliary paper roll holder mounted on the subframe for rotation about a fourth axis, said third and fourth axes being substantially parallel; and

means for mounting the subframe on the inner side of the frame so that the auxiliary paper roll holder is positioned within the bore of the roll of the paper mounted on the paper roll holder and masking tape from a roll of masking tape mounted on the auxiliary tape roll holder overlies a portion of the side of a roll of paper proximate the subframe.

4,379,020

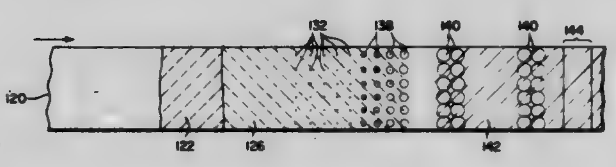
POLYCRYSTALLINE SEMICONDUCTOR PROCESSING

Andreas M. Glaeser, Scituate; John S. Haggerty, Lincoln, and Stephen C. Danforth, Winchester, all of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation of Ser. No. 159,734, Jun. 16, 1980, abandoned. This application Oct. 16, 1981, Ser. No. 311,850

Int. Cl.³ C30B *1/10*

U.S. Cl. 156—603 **12 Claims**



1. A process for forming large grain polycrystalline films of random crystallographic orientation from amorphous films comprising:

(a) depositing a thin amorphous film on a substrate in a controlled atmosphere;

(b) inducing the formation of crystalline embryos at predetermined spaced apart locations in the free upper surface of said amorphous film by localized surface treatment thereat and inhibiting nucleation elsewhere in said film; and

(c) allowing said crystalline embryos to grow in a controlled atmosphere and at a temperature below the melting point of said amorphous film with random crystallographic orientation by the excess free energy of said amorphous film, without further nucleation occurring in said amorphous film, until the growth of said embryos is halted by impingement on adjacently growing embryos, with the resultant grain size of said polycrystalline film being determined by the distances between said spaced apart locations and being greater than the thickness of said film, with transformation from said amorphous films to said large grain polycrystalline films being effected in a solid phase transition from the amorphous to the crystalline state.

4,379,021

METHOD OF MANUFACTURING SINGLE CRYSTALS

Johannes P. M. Damen, and Theodorus J. Berben, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 15, 1981, Ser. No. 302,267

Claims priority, application Netherlands, Sep. 24, 1980, 8005312

Int. Cl.³ C30B *11/08*

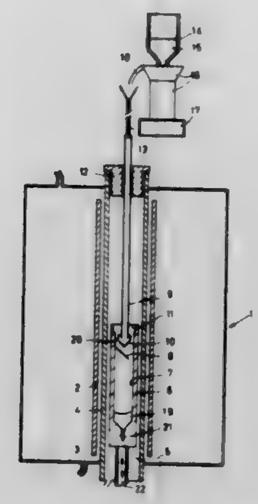
U.S. Cl. 156—616 R **10 Claims**

1. A method of manufacturing a single crystal of a composite oxide by gradually solidifying a melt comprising the steps of

arranging a seed crystal in contact with a volume of a melt, said seed crystal initially having the top of the seed crystal between 20 and 50 mm below the top surface of said melt,

solidifying said melt starting from said seed crystal, said melt initially consisting of not more than 25% by weight of the single crystal to be grown, and

adding to said melt, after said single crystal begins to grow, molten material having the same composition as material solidifying from said melt, said molten material being added in such quantities that the overall quantity of said



melt remains constant throughout substantially the entire process.

4,379,022

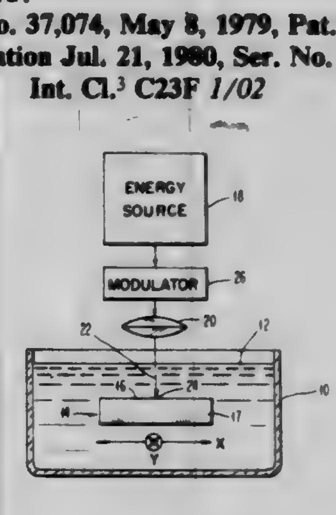
METHOD FOR MASKLESS CHEMICAL MACHINING

Robert L. Melcher, Yorktown Heights; Lubomyr T. Romankiw, Briarcliff Manor, and Robert J. Von Gutfeld, New York, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 37,074, May 8, 1979, Pat. No. 4,283,259. This application Jul. 21, 1980, Ser. No. 170,472

Int. Cl.³ C23F *1/02*

U.S. Cl. 156—643 **10 Claims**



1. A method of masklessly producing machined patterns by preferential chemical machining of regions of a surface of a workpiece comprising the following steps:

contacting the surface with a chemical machining etching solution; and directing an

energy beam having an intensity in the range from about 10^2 W/cm^2 to about 10^6 W/cm^2 onto the workpiece of sufficient intensity to heat only said regions of said surface to be machined locally with said surface in contact with said etching solution to promote enhanced etching of the surface to provide preferentially machined patterns in said regions heated by said beam where preferential machining is sought.

4,379,023

CHARGING HOLE LOCK FOR HORIZONTAL COKE OVENS

Josef Stratmann, Recklinghausen, and Willi Brinkmann, Herne, both of Fed. Rep. of Germany, assignors to Firma Carl Still GmbH & Co. KG, Fed. Rep. of Germany

Filed Mar. 1, 1982, Ser. No. 353,908

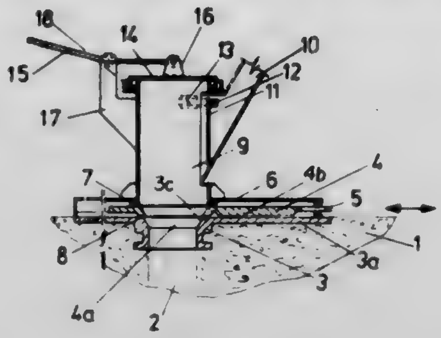
Claims priority, application Fed. Rep. of Germany, Mar. 6, 1981, 3108483

Int. Cl.³ C10B *25/24, 31/04*

U.S. Cl. 202—247 **9 Claims**

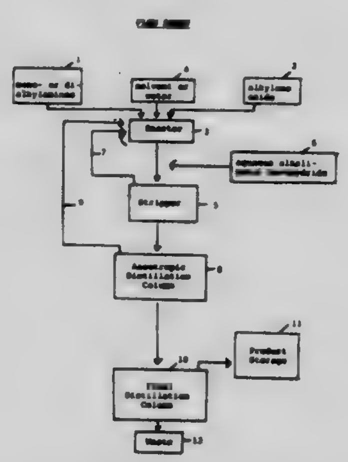
1. In combination, a horizontal coke oven having a charging

hole, a charging hole lock and a charging member, comprising:
a charging hole frame inserted into the charging hole, said frame having an opening aligned with the charging hole;
a casing connected over and sealed to said frame in a gas-tight fashion to define a gateway space therewith;
a spectacle gate having a gate opening and a plug portion, slidably mounted in said space for movement into an open



position with said gate opening aligned with said frame opening, and a closed position with said plug portion aligned with said frame opening;
a linkage connected to said spectacle gate for moving said spectacle gate; and
seal means provided on said casing for establishing a gastight seal with the charging member.

4,379,024
PROCESS FOR THE MANUFACTURE OF ALKYLAMINOALKANOL
David M. Gardner, Worcester, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.
Filed Jul. 23, 1981, Ser. No. 286,211
Int. Cl.³ B01D *3/34*
U.S. Cl. 203—6 **6 Claims**



1. In a process for preparing a color-stable alkylaminoalkanol by the reaction of alkylene oxide with an excess of the class of ammonia and a primary or secondary amine to form a reaction mass, the improvement which comprises the steps of (1) adding to the product of the reaction prior to removal of excess amine at least about one mole of alkali metal borohydride per 1650 mole of alkylene oxide used in the reaction (2) stripping-off excess amine reactant and (3) distilling the resultant reaction mass to recover the alkali metal borohydride and color-forming bodies as bottoms and alkylaminoalkanol as distillate.

4,379,025
WATER REMOVAL FROM BUTYLENE OXIDES BY LIQUID EXTRACTION WITH SELECTED EXTRACTIVE SOLVENTS
Amos Yudovich, Tulsa, Okla., and Norman H. Sweed, Berkeley Heights, N.J., assignors to Atlantic Richfield Company, Los Angeles, Calif.
Filed May 24, 1982, Ser. No. 381,122
Int. Cl.³ B01D *3/40;* **C07D** *301/32*
U.S. Cl. 203—14 **8 Claims**

1. A process for removing water from crude butylene oxides which comprises liquid extraction of a water-containing crude butylene oxide with a solvent consisting essentially of acyclic, paraffinic hydrocarbons having from 7 to 9 carbon atoms to remove water in an aqueous raffinate and recovering an organic extract comprising butylene oxide oxide and solvent.

4,379,026
PROCESS FOR THE PURIFICATION OF BENZALDEHYDE
Cornelis Jongsma, Oirsbeek, Netherlands, assignor to Stamicarbon, B.V., Geleen, Netherlands
Continuation-in-part of Ser. No. 125,661, Feb. 28, 1980, abandoned. This application Jan. 20, 1982, Ser. No. 341,108
Claims priority, application Netherlands, Mar. 2, 1979, 7901670
Int. Cl.³ B01D *3/34*
U.S. Cl. 203—31 **20 Claims**

17. Process for the purification in the presence of water of impure benzaldehyde including odiferous impurities comprising the steps of:
(a) admixing said impure benzaldehyde and said water,
(b) passing said admixture of step (a) over a bed containing solid particles of at least one metal less noble than hydrogen in Groups IA, IIA, IIB, IIIA, IVA, and VIII of the periodic table of elements to purify said impure benzaldehyde, wherein said admixture and said bed are maintained at conditions of temperature and pressure sufficient to eliminate at least a substantial portion of said impurities and at least a portion of said metal in said bed is consumed, and
(c) distilling said purified benzaldehyde.

4,379,027
SELECTIVE HYDROGENATION OF VINYLTOLUENE
John M. Klosek, Sewaren, and Margaret M. Wu, Belle Mead, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.
Filed Dec. 24, 1981, Ser. No. 334,346
Int. Cl.³ B01D *3/14;* **C07C** *5/10, 7/04, 7/163*
U.S. Cl. 203—32 **9 Claims**

1. A process for obtaining m-methylstyrene from a mixture with p-methylstyrene that comprises hydrogenating a mixture of p-methylstyrene and m-methylstyrene in the presence of a modified zeolite having a Constraint Index of about 1 to about 12, a silica to alumina ratio of at least about 12, and a dried crystal density of not less than about 1.6 grams per cubic centimeter, modified with at least one element of Group IA, IIA, IVB, or VB of the Periodic Chart of the Elements and a metal of Group VIII of the Periodic Chart of the Elements; thereby obtaining a mixture of m-methylstyrene and p-ethyltoluene, and removing p-ethyltoluene by distillation.

4,379,028
SEPARATION OF ETHYL ACETATE FROM ETHANOL AND WATER BY EXTRACTIVE DISTILLATION
Lloyd Berg, and Pisant Ratanapupech, both of 1314 S. Third Ave., Bozeman, Mont. 59715
Filed Mar. 30, 1982, Ser. No. 363,638
Int. Cl.³ B01D *3/40;* **C07C** *67/48*
U.S. Cl. 203—51 **9 Claims**

1. A method for recovering ethyl acetate from a mixture of ethyl acetate, ethanol and water which comprises distilling a mixture of ethyl acetate, ethanol and water in a rectification column in the presence of an effective amount of an extractive agent, recovering essentially pure ethyl acetate as overhead product and obtaining the extractive agent, ethanol and water from the stillpot or reboiler, the extractive agent includes dimethylsulfoxide.

4,379,029

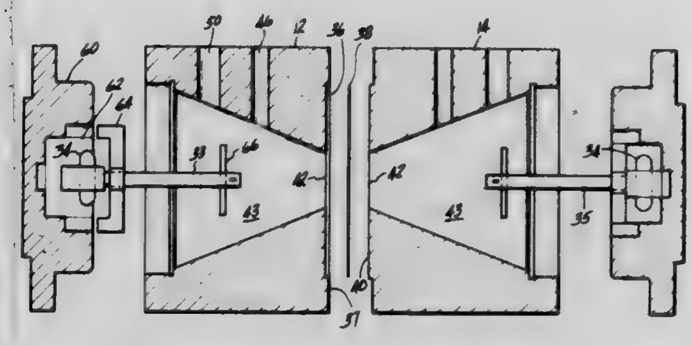
METHOD OF MEASURING METALLIC CATION AND WATER TRANSPORT NUMBERS FOR CATION EXCHANGE HYDRAULICALLY IMPERMEABLE MEMBRANES AND TEST CELL THEREFOR

Howard L. Yeager, Calgary, Canada, assignor to Olin Corporation, New Haven, Conn.

Filed Sep. 10, 1981, Ser. No. 301,071

Int. Cl.[3] G01N *27/28, 27/40*

U.S. Cl. 204—1 T **23 Claims**



1. An electrochemical membrane test cell comprising:

a pair of half cells, each containing a horizontally disposed, inwardly directed, truncated right conical chamber, said cell being formed by joining said half cells at their truncated apexes so that said truncated chambers are aligned and abut each other to form a biconic electrolytic cell;

electrode means within each half cell, said means being adapted to be an anode in one of said pair of half cells and a cathode in the other of said pair;

permselective membrane means, said membrane being sealingly suspended between said half cells, so that said cell is separated into an anodic and a cathodic compartment;

stirring means within each half cell, said means being extended to be close to the surface of said membrane means;

heating means within each of said compartments; and

electrolyte introduction means within each of said compartments, said cell being adapted to perform electrochemical studies to measure the water and metallic cation transport numbers for said membrane means.

16. A method of measuring metallic cation and water transport numbers for cation exchange hydraulically impermeable membranes comprising:

forming a cell, said cell comprising two half cells, each of said half cells containing an internal horizontally disposed, inwardly directed, truncated right conical inner chamber, said cell being formed by joining said half cells at their truncated apexes so that said truncated chambers are aligned and abut each other to form a biconic electrolytic cell, said half cells having one of said membranes sealingly suspended therebetween to form an anode and a cathode compartment, each of said compartments having electrode means, heating means, sensing means, stirring means and electrolyte introduction means;

filling said anode and cathode compartments with anolyte and catholyte solutions and heating said solutions to equilibrate said membrane at a preselected test temperature;

removing said solutions and replacing them with weighed portions of the same solutions;

adding a measured amount of radioactive tracer material to said anolyte solution;

heating and stirring said solutions to achieve a uniform concentration of said anolyte and tracer;

energizing said electrode means to electrolyze said solutions for a period of time, said electrolysis producing a transfer of said tracer material through said membrane into said cathode compartment;

at the conclusion of said electrolysis period, measuring the quantity of tracer which has passed through said membrane; and

measuring the net change in the water content of the electrolyte in each compartment, said quantities being indicative of the moles of metallic cation and water which have been transferred.

4,379,030

ALUMINUM ELECTROPLATING SOLUTION

Theo E. G. Daenen; Gerardus A. R. Van Dijk, and Steven A. Stolk, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 18, 1982, Ser. No. 339,932

Claims priority, application Netherlands, Feb. 6, 1981, 8100570

Int. Cl.[3] C25D *3/44*

U.S. Cl. 204—14 N **5 Claims**

1. An electrolyte liquid for the electrodeposition of aluminum onto a substrate, which liquid contains an organic complex of an aluminum halohydride, characterized in that the liquid consists of a solution of one or more compounds $AlH_x Cl_y.tL$ in a aprotic solvent having the structure

$$R[O-(CH_2)_m]_p-O-(CH_2)_n-OR^1,$$

wherein

$x+y=3$ and both x and y amount to at least 0.25 and not more than 2.75,

t is an integer selected from 1, 2, 3 or 4

L is a ligand forming a coordination compound with the halohydride,

R and R^1 are alkyl groups and

m and n are integers between 1 and 6 and

p has a value of 1, 2 or 3.

4,379,031

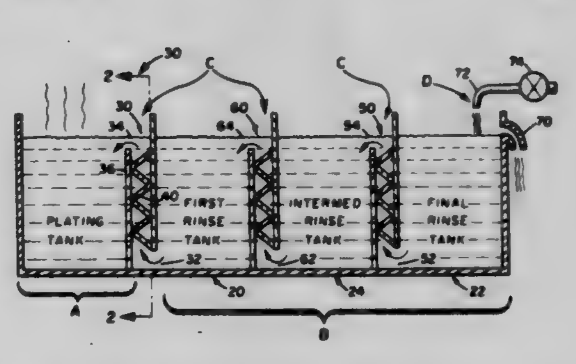
EVAPORATION DRIVEN COUNTERFLOW RINSE SYSTEM AND METHOD

James A. Krotkiewicz, Elyria; Wayne A. Kruper, Willowick, and Otto C. Niederer, Madison, all of Ohio, assignors to Imperial Clevite Inc., Rolling Meadows, Ill.

Filed Jan. 16, 1981, Ser. No. 225,709

Int. Cl.[3] C25D *17/02*

U.S. Cl. 204—45 R **13 Claims**



1. An electroplating apparatus comprising:

a plating tank for receiving a plating solution including plating chemicals and water to a predetermined fluid level in which a selected number of workpieces on a supporting structure are submersed and plated, the plating solution level being diminished by evaporation;

a first rinse tank for receiving rinsing solution to said predetermined level, the first rinse tank being disposed sufficiently adjacent the plating tank to enable plated workpieces to be submersed in the first rinse tank solution to rinse the plating solution from the plated workpieces, whereby the rinsing solution in the first rinse tank includes water and the plating chemicals rinsed from preceding workpieces;

a first elongated fluid path interconnecting the plating tank and the first rinsing tank, the first fluid path being disposed at or below said predetermined level such that solution flows by gravity from the first rinsing tank to the plating tank to replace evaporated plating solution, whereby plating chemicals are returned to the plating tank, with

said first fluid path including a plurality of baffles therein to prevent fluid from flowing directly therethrough;

a final rinse tank for receiving rinsing solution to said predetermined level, the final rinse tank being disposed sufficiently adjacent the first rinse tank to enable the rinsed workpieces to be submersed in the final rinse tank solution to rinse the plated workpieces further, whereby the rinsing solution in the final rinse tank includes water and the plating chemicals rinsed from preceding workpieces;

a second elongated fluid path in fluid connection with the first and final rinse tanks, the second fluid path being disposed at or below said predetermined level such that solution flows by gravity from the final rinse tank to the first rinse tank with said second fluid path including a plurality of baffles therein to prevent fluid from flowing directly therethrough; and

level maintaining means operatively connected with the final rinse tank for maintaining the rinsing solution in the final rinse tank at said predetermined level, whereby the solutions in the first rinse tank, final rinse tank and the plating tank are maintained at said predetermined level and plating chemicals are returned from the final rinse tank to the first rinse tank and from the first rinse tank to the plating tank.

13. A method of electroplating with an electroplating apparatus which includes a plating tank filled to a predetermined level with a plating solution including plating chemicals and water, a first rinse tank filled to said predetermined level with a rinsing solution including water and a dilute concentration of plating chemicals, a first elongated fluid path interconnecting the plating and first rinse tank below the predetermined level, a final rinse tank filled to said predetermined level with a rinsing solution including water and a more dilute concentration of plating chemicals, a second elongated fluid path in fluid communication with the first and final rinse tanks below the predetermined level, an overflow outlet disposed in the final rinse tank substantially at said predetermined level, and a water inlet for supplying water to the final rinse tank, the method comprising:

selecting a workpiece to be plated and the supporting structure therefor so that when said workpiece and said supporting structure are submerged in said plating tank the volume of fluid displaced is less than the volume of said first elongated fluid path;

running water from the water inlet into the final rinse tank at a rate greater than the rate of evaporation of water from the plating tank and allowing any excess water to flow through the overflow outlet, whereby the level of fluid in the tanks is maintained substantially at said predetermined level;

submersing said workpiece in the plating tank and electroplating the same;

withdrawing the workpiece from the plating tank and submersing it in the first rinse tank;

withdrawing the workpiece from the first rinse tank and submersing it in the final rinse tank; and

withdrawing the workpiece from the final rinse tank.

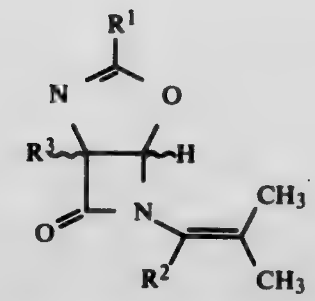
4,379,032

PROCESS FOR PREPARING OXAZOLINEAZETIDINONE DERIVATIVES

Sigeru Torii, Akaiwa; Hideo Tanaka, Okayama; Junzo Nokami, Okayama; Takashi Shiroi, Okayama; Norio Saito, Itano, and Michio Sasaoka, Okayama, all of Japan, assignors to Otsuka Kagaku Yakuhin Kabushiki Kaisha, Osaka, Japan

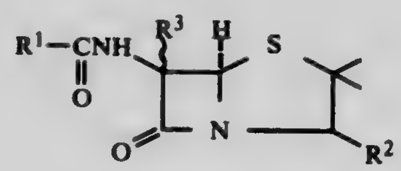
Filed Aug. 9, 1982, Ser. No. 407,134
Int. Cl.³ C25C *1/00*
U.S. Cl. 204—59 R **10 Claims**

1. A process for preparing an oxazolineazetidinone derivative represented by the formula (1)



(1)

wherein R^1 represents hydrogen atom, alkyl group, alkenyl group, substituted or unsubstituted aralkyl group, substituted or unsubstituted aryl group, or substituted or unsubstituted aryloxymethyl group, R^2 represents free or protected carboxyl group and R^3 represents hydrogen atom or methoxy group, the process comprising electrolyzing a penicillin derivative represented by the formula (2)



(2)

wherein R^1, R^2 and R^3 are as defined above in an alcoholic solvent in the presence of a chloride.

4,379,033

METHOD OF MANUFACTURING ALUMINUM IN A HALL-HEROULT CELL

James M. Clark, Elizabethton, and Duane R. Secrist, Sevierville, both of Tenn., assignors to Great Lakes Carbon Corporation, New York, N.Y.

Filed Mar. 9, 1981, Ser. No. 241,536
Int. Cl.³ C25C *3/06, 3/12*
U.S. Cl. 204—67 **21 Claims**

1. A method for manufacturing aluminum by the electrolysis of alumina in molten cryolite in a Hall-Heroult cell employing a non-consumable anode produced by the process of:

(a) forming a first conductive ceramic material to produce a core having a substantially flat working surface and a non-working surface;

(b) forming a physically adherent coating over said non-working surface of said core, on at least the portion thereof which is to be exposed to the electrolyte bath in the cell, said coating consisting of a second conductive ceramic material having, as compared to said first conductive ceramic material,

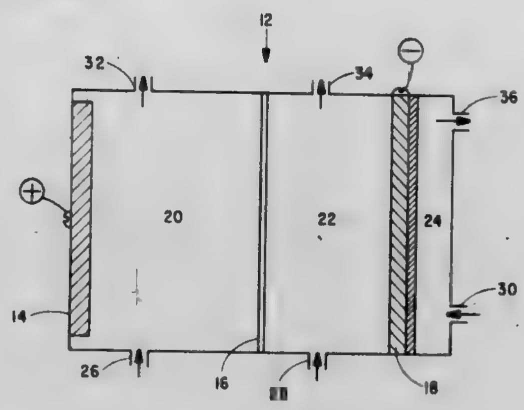
(1) a coefficient of thermal expansion differing by no more than about 0.5%,

(2) an essentially matched shrinkage during sintering,

(3) a higher electrical resistivity, and capable of being chemical diffusion bonded thereto; and

(c) sintering the coated core thus formed to produce a monolithic ceramic anode having a substantially flat working surface and a non-working surface, said non-working surface having an impervious coating thereon, at least in the portion thereof exposed to the electrolyte bath, of higher resistivity than the core and chemical diffusion bonded thereto, whereby substantially all of the current applied to said anode is conducted into the electrolyte bath through said flat working surface.

4,379,034
START-UP PROCEDURE FOR OXYGEN ELECTRODE
Douglas K. Rogers, Painesville, Ohio, assignor to Diamond Shamrock Corporation, Dallas, Tex.
Filed May 8, 1981, Ser. No. 261,777
Int. Cl.³ C25B *1/34*
U.S. Cl. 204—98 5 Claims

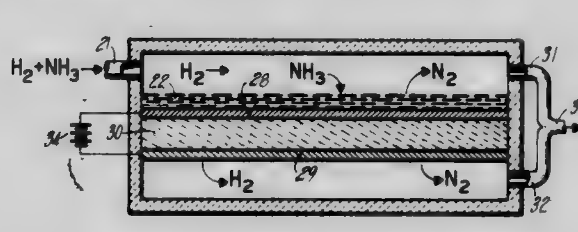


1. A start-up procedure for an alkali metal halide electrolyzing cell having an oxygen cathode comprising subjecting said cathode to a positive gauge pressure but a lesser gauge pressure than it will encounter during operation and contacting the cathode with an alkali metal hydroxide at temperatures ranging from about 60° to 85° for from about 1 to about 24 hours prior to operational use.

4,379,035
METHOD OF OPERATING AN ELECTROLYTIC CELL
Ronald D. Chamberlin, Wadsworth, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed May 10, 1982, Ser. No. 376,328
Int. Cl.³ C25B *1/16, 1/26*
U.S. Cl. 204—98 6 Claims

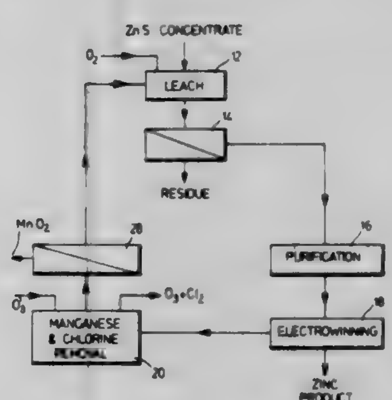
1. In a method of operating an electrolytic cell having an anolyte compartment with an anode therein, a catholyte compartment with a cathode therein, wherein the cathode has a low hydrogen overvoltage surface thereon, and the catholyte compartment has exposed iron therein, the low hydrogen overvoltage surface having a lower hydrogen overvoltage than the exposed iron, which method comprises feeding alkali metal chloride brine to the anolyte compartment, passing an electrical current from the anode to the cathode, and recovering an aqueous alkali metal hydroxide catholyte containing iron as an impurity, the improvement comprising adding an iron corrosion inhibiting amount of a composition comprising alkali metal benzoate and alkali metal nitrite to the catholyte compartment during electrolysis.

4,379,036
CONTINUOUS ELECTROCHEMICAL AMMONIA SCRUBBER
Harold R. Kunz, Vernon; Paul J. Damiano, Manchester, and Francis J. Luczak, Glastonbury, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.
Filed Aug. 7, 1981, Ser. No. 291,138
Int. Cl.³ C25B *1/00, 1/02, 1/22*
U.S. Cl. 204—103 11 Claims



1. In the continuous removal of ammonia gas from a gas stream, the steps of providing a bed of solid porous material wetted with an acid, removing ammonia gas from the gas stream by reacting ammonia in the gas stream with the acid to form an ammoniated salt of the acid on said porous material, and continuously converting the ammoniated salt to acid, nitrogen gas and hydrogen gas by holding the porous material at an electrochemical potential sufficient to oxidize the ammoniated salt of the acid.

4,379,037
REMOVAL OF MANGANESE AND CHLORIDE IONS FROM AQUEOUS ACIDIC ZINC SULPHATE SOLUTIONS
Gerald L. Bolton, Fort Saskatchewan; Verner B. Sefton, and Nicolaus Zubryckyj, both of Edmonton, all of Canada, assignors to Sherritt Gordon Mines Limited, Toronto, Canada
Continuation-in-part of Ser. No. 86,877, Oct. 22, 1979, Pat. No. 4,290,866. This application Jun. 8, 1981, Ser. No. 271,723
Claims priority, application United Kingdom, Dec. 20, 1978, 49207/78
The portion of the term of this patent subsequent to Sep. 22, 1998, has been disclaimed.
Int. Cl.³ C25C *1/16;* C25B *1/26*
U.S. Cl. 204—119 11 Claims



1. A process for removing manganese and chloride ions from an aqueous acidic sulphate solution containing zinc, manganese and chloride ions without removing a substantial amount of zinc ions from the solution, said solution having a free acidity of at least about 0.1 molar, the process comprising treating the solution with ozone to oxidize manganese ions to manganese dioxide, continuing the ozone treatment after the manganese concentration has fallen to a low level to oxidize chloride ions to chlorine gas and removing manganese dioxide from the solution.

4,379,038
PROCESS FOR PREPARING A PHYSIOLOGICALLY ACTIVE SUBSTANCE CONTROLLED RELEASE COMPOSITE COMPOSITION
Isao Kaetsu, and Masaru Yoshida, both of Takasaki, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan
Filed Sep. 19, 1980, Ser. No. 188,812
Claims priority, application Japan, Sep. 27, 1979, 54/123198
Int. Cl.³ A61K *9/16, 41/00;* C08F *2/46;* C12K *1/00*
U.S. Cl. 204—159.12 6 Claims

1. A process for preparing a physiologically active substance controlled release composite composition which comprises the steps of:
using a physiologically active substance-containing adsorbent prepared by adsorbing a first physiologically active substance onto an inorganic adsorbent;
dispersing and mixing a second physiologically active substance, which is different from said first physiologically active substance, onto said physiologically active substance containing adsorbent;
dispersing the resulting mixture in a polymerizable vinyl monomer containing 0–50% of a synthetic high molecular

weight substance which is polymerizable at a temperature of below $-20°$ C.; and

after holding the desired shape, irradiating the resulting dispersion with an ionizing radiation at a temperature within the range of $-20°$ to $-100°$ C. to polymerize.

4,379,039
ULTRAVIOLET CURABLE RESIN COMPOSITION
Hiroshi Fujimoto, Shiga, and Hideo Miyake, Otsu, both of Japan, assignors to Toyo Boseki Kabushiki Kaish, Japan
Filed Dec. 24, 1980, Ser. No. 219,568
Claims priority, application Japan, Dec. 29, 1979, 54-171820
Int. Cl.³ C08G *63/04*
U.S. Cl. 204—159.15 **22 Claims**

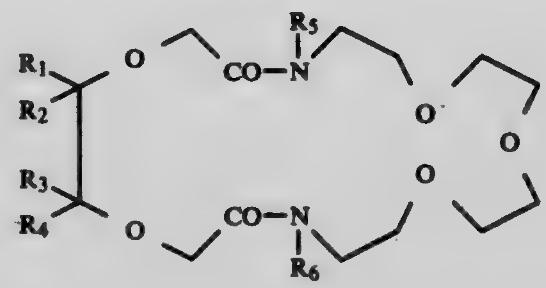
1. An ultraviolet curable resin composition which comprises
(I) a saturated copolyester having a molecular weight of 2,000 to 15,000 which is soluble in a polymerizable compound (II), 20% to 100% by mole of saturated polycarboxylic acid components of the saturated copolyester being an aromatic dicarboxylic acid, wherein 19 to 98% by mole of the aromatic dicarboxylic acid is terephthalic acid, and the glycol component of the saturated copolyester being 10 to 80% by mole of ethylene glycol and 90 to 20% by mole of an alkylene glycol selected from the group consisting of propylene glycol, butanediol, neopentylglycol and hexanediol;
(II) a polymerizable compound comprising 10 to 95% by weight of a compound having one polymerizable double bond in the molecule selected from the group consisting of (i) a styrene compound, (ii) a substituted or unsubstituted alkyl mono(meth)acrylate, (iii) a mono(meth)acrylate of a bisphenol A alkylene oxide adduct, (iv) a urethane modified mono(meth)acrylate, (v) an epoxy mono(methacrylate) and (vi) an oligo ester of a mono(meth)acrylate and 90 to 5% by weight of a compound having two or more polymerizable double bonds in the molecule selected from the group consisting of (vii) a substituted or unsubstituted alkylene glycol di(meth)acrylate, (viii) a di(meth)acrylate of a bisphenol A alkylene oxide adduct, (ix) a urethane modified di(meth)acrylate, (x) an epoxy di(meth)acrylate, (xi) an oligo ester of a di(meth)acrylate, (xii) a poly(meth)acrylate of a polyvalent aliphate alcohol having three or more hydroxyl groups, and (xiii) a urethane modified poly(meth)acrylate, and
(III) a photosensitizer.

4,379,040
METHOD OF AND APPARATUS FOR CONTROL OF REACTIVE SPUTTERING DEPOSITION
F. Howard Gillery, Allison Park, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Division of Ser. No. 229,378, Jan. 29, 1981, Pat. No. 4,336,119. This application Feb. 18, 1982, Ser. No. 349,898
Int. Cl.³ C23C *15/00*
U.S. Cl. 204—192 P **14 Claims**

1. A method of producing a transparent electroconductive article comprising the steps of:
a. magnetically sputtering an inner transparent film of titanium oxide onto a transparent substrate surface, said magnetic sputtering conducted in an evacuated environment having partial pressures of oxygen and a chemically inert gas to produce a film having an optical extinction coefficient in the range between about 0.03 and about 0.3;
b. depositing a substantially transparent electroconductive film onto the inner titanium oxide film; and
c. magnetically sputtering an outer transparent film of titanium oxide onto said electroconductive film, said outer film magnetically sputtered in an evacuated environment having partial pressures of oxygen and a chemically inert gas to produce a film having an optical extinction coefficient less than about 0.3.

4,379,041
POLYMERIC MEMBRANE SELECTIVE TO CALCIUM (II) IONS
Jaroslav Petránek; Olen Ryba, both of Prague; Miloslav Semler, and Miroslav Panoch, both of Turnov, all of Czechoslovakia, assignors to Ceskoslovenska akademie ved, Prague, Czechoslovakia
Filed Apr. 1, 1981, Ser. No. 250,019
Claims priority, application Czechoslovakia, Apr. 24, 1980, 2865-80
Int. Cl.³ G01N *27/46*
U.S. Cl. 204—415 **4 Claims**

1. A membrane selective to calcium (II) ions, formed by a solid film of plastic material which contains an active neutral carrier in a plasticizer for the plastic material, wherein the active carrier is a ternary complex of (a) a macrocyclic polyetherdiamide of the general formula

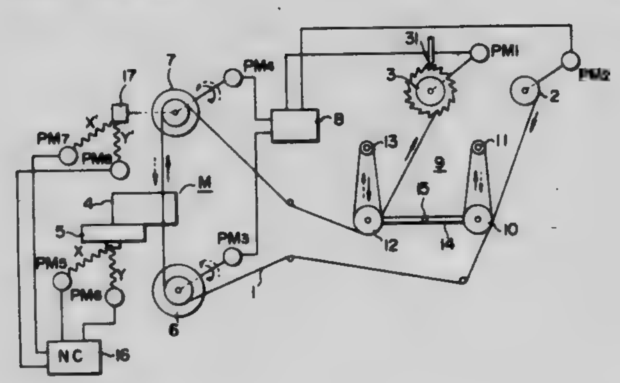


where R_1, R_2, R_3, R_4 are H or alkyl containing 1 to 4 carbon atoms, R_5 and R_6 are alkyl or arylalkyl with 6 to 10 carbon atoms with (b) the calcium (II) ion and (c) a lipophilic organic anion, while the general formula of the ternary complex is

$$2\ \text{polyetherdiamide.Ca.}2A^-,$$

where A^- is the lipophilic organic anion.

4,379,042
APPARATUS USING AN AXIALLY MOVING CONTINUOUS ELONGATED TOOL
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan
Continuation of Ser. No. 915,205, Jun. 13, 1978, abandoned. This application Feb. 8, 1980, Ser. No. 120,107
Claims priority, application Japan, Jun. 14, 1977, 52-70248; Jul. 5, 1977, 52-80063; Aug. 16, 1977, 52-98440
Int. Cl.³ B23P *1/04, 1/12;* **B28D** *1/08*
U.S. Cl. 204—224 M **7 Claims**



1. An apparatus for shaping a workpiece with an axially moving continuous elongated tool, comprising:
a supply reel for continuously feeding said continuous elongated tool at a predetermined rate of axial displacement in the range between 0.1 and 5 meters/minute;
a take-up reel for winding up said continuous elongated tool under tension;
a pair of guide members disposed across a cutting region between said supply and take-up reels in the path of said continuous elongated tool for guiding the same;
means for successively storing under tension said continuous

elongated tool through a first zone between said supply reel and one of said guide members and a second zone between the other guide member and said take-up reel;

means for reciprocating said continuous elongated tool between said guide members at a predetermined rate of axial movement in the range between 5 and 30 meters/second and with a stroke determined within the storage stored by said storing means; and

drive means including a pair of pulse motors (PM5, PM6) controlled by a numercial controller for displacing said workpiece in an X-Y plane relative to said reciprocating axially moving continuous elongated tool incrementally with an increment of displacement of 1 to 5 microns and along a predetermined path in said plane to machine a correspondingly shaped contour in the workpiece, said guide members comprising a pair of guide rollers and a pair of pulse motors (PM3, PM4) drivingly coupled to said guide rollers, respectively, and constituting said reciprocating means for rotating said guide rollers synchronously in one and the other directions alternately.

4,379,043

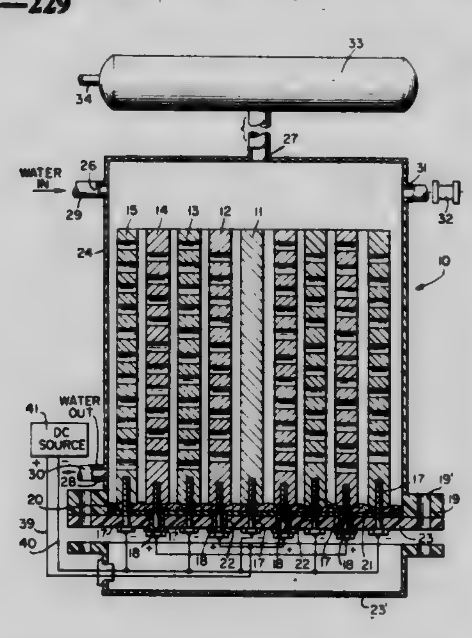
WATER-DECOMPOSITION AND GAS-GENERATING APPARATUS

Claude L. Chappelle, Seabrook, Tex., assignor to Robert G. Francisco, Flint, Mich.; Loren V. Williams, Houston, Tex.; Dan Hennigan, Houston, Tex.; James R. Cornish, Houston, Tex. and Charles R. Allen, Houston, Tex.

Continuation-in-part of Ser. No. 190,872, Sep. 25, 1980, abandoned. This application Dec. 2, 1981, Ser. No. 326,497

Int. Cl.[3] **C25B** *11/03, 11/12, 9/00, 15/02*

U.S. Cl. 204—229 **17 Claims**



1. Apparatus for decomposing water and producing detonating gas comprising:

(a) a plurality of annular carbon electrodes concentrically arranged about a common vertical axis, said annular electrodes each having an upper end and a lower end, each annular electrode having a plurality of perforations along its surface;

(b) a central, solid carbon electrode positioned along said axis;

(c) sealing and insulating elements positioned adjacent said lower electrode ends to form, with the annular electrodes and central electrode, a plurality of concentrically-arranged cells which are adapted to hold liquid electrolyte;

(d) means for supplying liquid electrolyte to said cells; and

(e) means for applying a direct current across said electrodes in order to evolve detonating gas from said cells.

4,379,044

INSTALLATION FOR DEGASSING AND RECYCLING THE ELECTROLYTE IN AN ELECTROLYZER FOR PRODUCING GAS

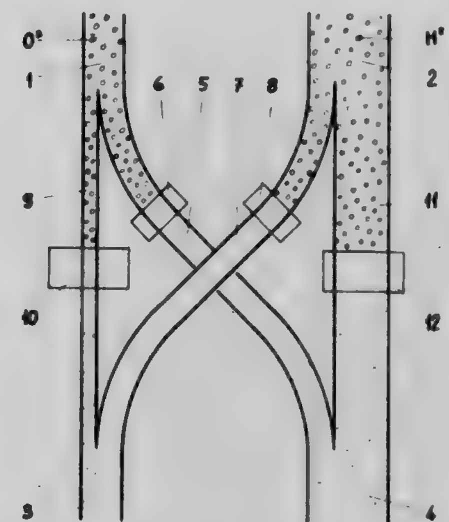
Gerard Pere, Le Breuil, France, assignor to Creusot-Loire, Paris, France

Filed Jun. 30, 1981, Ser. No. 279,286

Claims priority, application France, Jul. 22, 1980, 80 16106

Int. Cl.[3] **C25B** *9/00, 15/08, 1/02*

U.S. Cl. 204—237 **1 Claim**



1. Electrolysis installation for producing gas, of the type comprising an electrolyser having an anolyte outlet (1) with flow A, the said anolyte being charged there with bubbles of the gas (O^2) due to the electrolysis reaction on the anode side, and a catholyte outlet (2) with flow C, said catholyte being charged there with bubbles of the gas (H^2) due to the electrolysis reaction on the cathode side, said electrolyser also being provided with an anolyte inlet (3) with the same flow A as at said anolyte outlet and with a catholyte inlet (4) with the same flow C as at said catholyte outlet, an electrolyte return circuit being provided between said electrolyser inlets and said electrolyser outlets and comprising

(a) a circuit (5) for transferring a portion

$$A \times \frac{C}{A+C}$$

of the anolyte flow A from said anolyte outlet (1) to said catholyte inlet (4), said transfer circuit being equipped with a liquid-gas separator (6) for thorough degassing;

(b) a circuit (7) for transferring a portion

$$C \times \frac{A}{A+C}$$

of the catholyte flow C from said catholyte outlet (2) to said anolyte inlet (3), said transfer circuit also being equipped with a liquid-gas separator (8) for thorough degassing;

(c) a circuit (9) for transferring the remaining

$$\frac{A^2}{A+C}$$

of the anolyte flow A from said anolyte outlet (1) to said anolyte inlet (3), said circuit being equipped with a liquid-gas separator (10) for crude degassing; and

(d) a circuit (11) for transferring the remaining portion

$$\frac{C^2}{A+C}$$

of the catholyte flow C from said catholyte outlet (2) to

said catholyte inlet (4), said circuit being equipped with a liquid-gas separator (12) for crude degassing.

4,379,045
CO-PROCESSING OF RESIDUAL OIL AND COAL
Costandi A. Audeh, Princeton, N.J., assignor to Mobil Oil Corporation, New York, N.Y.
Filed May 6, 1981, Ser. No. 261,075
Int. Cl.³ C10G *1/08, 11/00, 9/00;* **C10C** *3/00*
U.S. Cl. 208—9 **3 Claims**

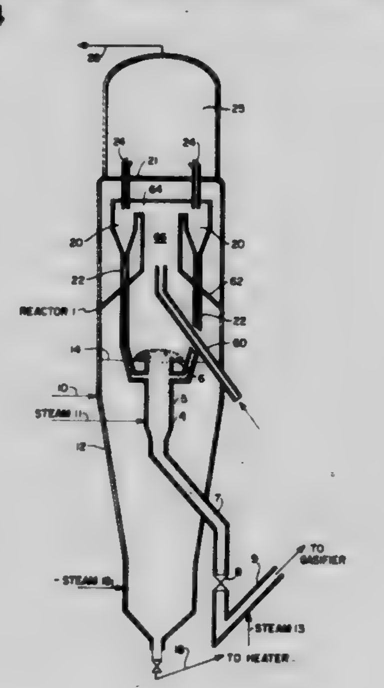
1. A process for the production of gaseous olefins and light liquid distillate from residual oil co-processed with coal which comprises:

(a) heating a mixture of residual oil, pulverized coal and a rare earth exchanged zeolite Y cracking catalyst under conditions effective to reduce the viscosity of the residual oil without the substantial formation of coke, the amount of said cracking catalyst being effective to provide olefinic hydrocarbons, a distillate in the gasoline boiling range, light gas oil, and heavy gas oil,

(b) separating the reaction mixture of step (a) into a gaseous phase, a liquid phase and a solid phase comprising cracking catalyst, coal ash and coal solids, and

(c) fractionally distilling the gaseous and liquid phase of step (b) to provide a light olefinic hydrocarbon fraction, a distillate in the gasoline boiling range, light gas oil, heavy gas oil, and a bottoms fraction.

4,379,046
INTEGRATED TWO STAGE COKING AND STEAM CRACKING PROCESS AND APPARATUS THEREFOR
Morey E. Oldweiler, Chester, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.
Filed Jun. 11, 1981, Ser. No. 272,503
Int. Cl.³ C10G *51/02, 9/32;* **F27B** *15/08*
U.S. Cl. 208—54 **14 Claims**



1. In an integrated, two stage coking and steam cracking process for the production of products including low molecular weight unsaturated hydrocarbons in which

(a) a carbonaceous material is reacted in a reactor in a first stage coking zone containing a bed of fluidized solids wherein steam is introduced to obtain a superficial fluidizing gas velocity in the range of 0.5 to 5 feet per second, maintained at fluid coking conditions including a temperature in the range of about 950° F. to about 1150° F. to form a vaporous coking zone conversion product and coke, said coke depositing on said fluidized solids;

(b) said vaporous coking zone conversion product is passed with entrained solids to a second stage reaction zone;

(c) hot solids at a sufficient temperature and in sufficient amount are introduced into said conversion product entering said second stage reaction zone to raise the conversion product to steam cracking temperatures within the range of 1200° to 1700° F. and supply the endothermic heat of reaction;

(d) solids are separated from product gas within the reactor;

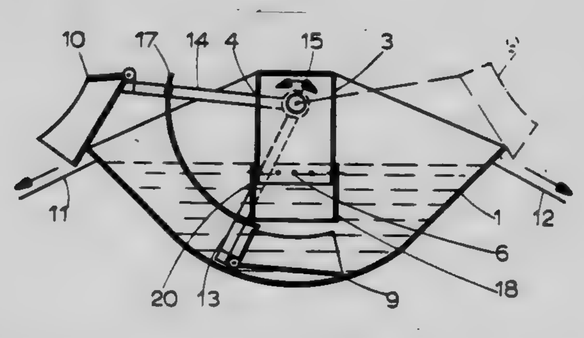
(e) products are recovered comprising low molecular weight unsaturated hydrocarbons, the improvement which comprises:

(f) withdrawing from the reactor a portion of separated solids and preventing its entry into said first stage coking zone; allowing another portion to enter said coking zone and regulating the ratio between the amount of solids withdrawn and the amount of solids allowed to enter said coking zone to maintain the coking zone within said temperature range.

4,379,047
ADDITIVE FOR GLYCOL SOLVENT USED IN AROMATIC EXTRACTION
Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.
Filed Jul. 21, 1980, Ser. No. 170,635
Int. Cl.³ C10G *21/16*
U.S. Cl. 208—333 **13 Claims**

1. In a process for treating a fluid mixture of aromatic compounds and aliphatic compounds wherein the fluid mixture is contacted with a glycol solvent solution containing water and a glycol under conditions such that said aromatic compounds are selectively extracted into said solvent, and a glycol-aromatics extract is separated from an aliphatic raffinate, and said extract is separated into glycol and aromatic compounds, with said glycol being recycled to contact said fluid mixture, the improvement comprising reducing the concentration of peroxides formed in said solution by adding hydrazine to said glycol solvent solution and heating the resultant admixture.

4,379,048
FLOAT-AND-SINK SEPARATOR
Johann J. Jansen, CZ Nieuwstadt, Netherlands, assignor to Stamicarbon, B.V., Geleen, Netherlands
PCT No. PCT/NL81/00002, § 371 Date Oct. 13, 1981, § 102(e) Date Oct. 13, 1981, PCT Pub. No. WO81/02259, PCT Pub. Date Aug. 20, 1981
PCT Filed Feb. 13, 1981, Ser. No. 314,082
Claims priority, application Netherlands, Feb. 16, 1980, 8000978
Int. Cl.³ B03B *5/36*
U.S. Cl. 209—172.5 **6 Claims**



1. Apparatus for separating particles differing in specific gravity by means of a liquid separatory medium, said apparatus comprising:

a washing tank for containing a predetermined volume of said separatory medium means defining an edge and including discharge means for accepting discharged particles therefrom;

first removing means for removing particles which are substantially floating in said separatory medium;

second removing means movable along the bottom of said

washing tank for removing particles which gravitatingly settle through said separatory medium; and

reciprocating means for reciprocating said second removing means between first and second extreme positions thereby transporting settled particles to said discharge means and wherein said second removing means comprises at least one collecting tray having an open end and being reciprocably movable along the bottom of said washing tank between said first and second extreme positions by virtue of said reciprocating means, whereby said collecting tray in said first extreme position is substantially centrally positioned on the bottom of said washing tank thereby collecting a predetermined amount of said settling particles and in said second extreme position tiltedly rests on said edge defining means so that said settled particles collected therein are encouraged to be discharged to said discharge means.

4,379,049

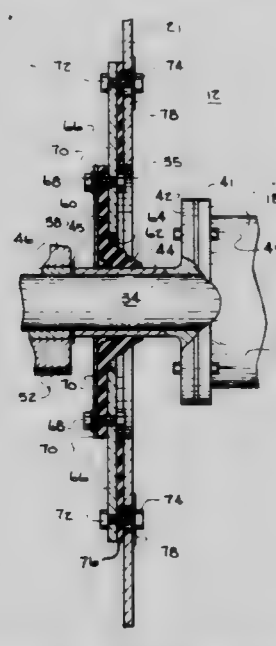
FINE MATERIAL SCREW WASHER

Leo H. Bassett, Burrton, Kans. 67020

Filed Jul. 8, 1981, Ser. No. 281,430

Int. Cl.³ B03B *5/52*

U.S. Cl. 209—464 **7 Claims**



1. A fine material screw washer comprising a longitudinal tank having a belly pan therein, upper and lower end walls, a spiral screw extending longitudinally in the tank in close proximity to the belly pan, the screw having a support shaft at each end thereof which extends through openings in the upper and lower end walls of the tank, support bearings for said shaft positioned on the outside of the end walls for supporting the screw, the improvement comprising:

adjustment means associated with each support bearing allowing separate horizontal and vertical movement of the bearing to adjust the clearance between the screw and the belly pan;

an adjustably movable seal plate positioned over the opening in the lower end wall including a seal therebetween, an aperture in the seal plate for passage of the support shaft; and

a flexible shaft seal attached to the seal plate approximate the aperture surrounding the support shaft whereby as the bearing requires horizontal or vertical adjustment, the seal plate can be adjusted in a like manner.

4,379,050

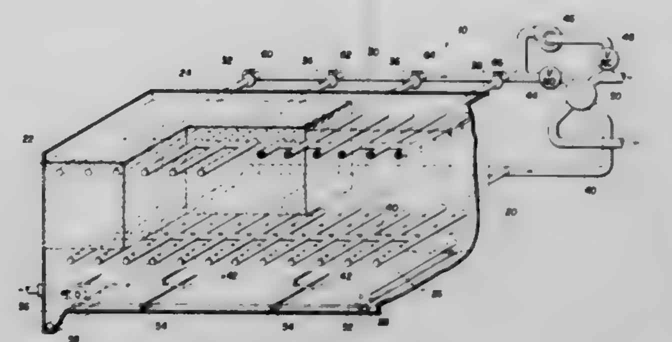
GRANULAR FLUID BIOFILTER REVERSING

W. John Hess, and Morris C. Croker, both of Walla Walla, Wash., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 27, 1981, Ser. No. 315,551

Int. Cl.³ C02C *1/04*

U.S. Cl. 210—151 **29 Claims**



1. A fluid filter system comprising
a. a fluid-holding container;
b. first means through which influent enters said container to be filtered;
c. second means through which effluent exits said container;
d. a fluid filter bed comprised of a mass of buoyant granules, said fluid filter bed being disposed above said second means; and
e. fluid flow reversal means for periodically causing said influent to enter said container through said second means and said effluent to exit said container through said first means.

4,379,051

FILTERING APPARATUS

Edwin Hiesinger, Jenbach; Klaus Keplinger, and Hermann Nessler, both of Innsbruck, all of Austria, assignors to Inkomag, Basel, Switzerland

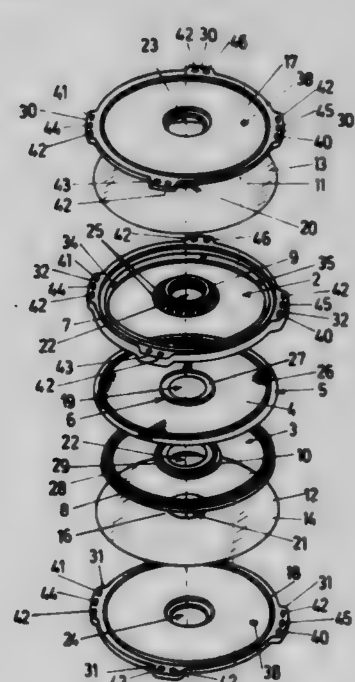
Filed Apr. 7, 1981, Ser. No. 251,731

Claims priority, application Austria, Apr. 16, 1980, 2057/80

The portion of the term of this patent subsequent to Oct. 27, 1998, has been disclaimed.

Int. Cl.³ B01D *37/02*

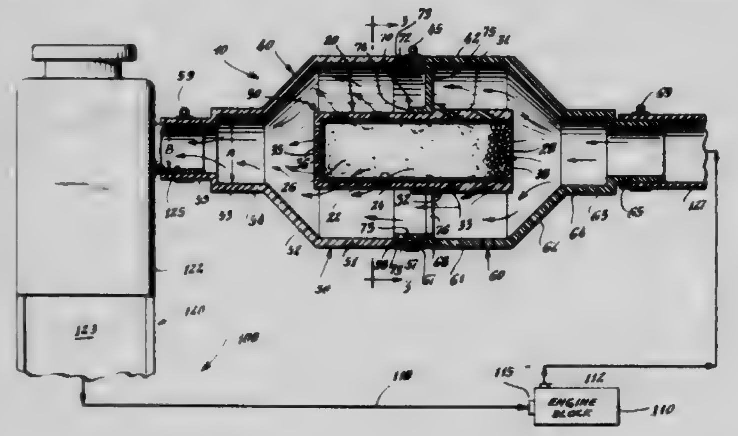
U.S. Cl. 210—193 **9 Claims**



1. An apparatus for the filtering of particles from a fluid comprising at least one substantially cylindrical filter chamber divided into two compartments by an annular circular support fabric for a precoat filter layer, the first of said compartments having at least one closable inlet opening for a carrier medium

of the precoat filter layer, at least one closable inlet for the medium to be filtered and at least one closable inlet for a washing medium, the second of said compartments having a closable outlet opening for the purified filtrate, wherein said filter chamber is divided into two axially symmetric compartments by means of said support fabric, wherein said support fabric is planar and clamped along a reinforced outer ring-shaped rim region of said two compartments and a reinforced inner periphery between a pair of rings defining a central channel through said compartments and said fabric, and wherein each of said compartments is delimited parallel to said support fabric by a movable wall adapted to be pressed against said support fabric by means of external pressure, respective bottom plates flanking the assembly of said movable walls and said fabric and annular side walls surrounding said compartments and clamping said rim region of said fabric.

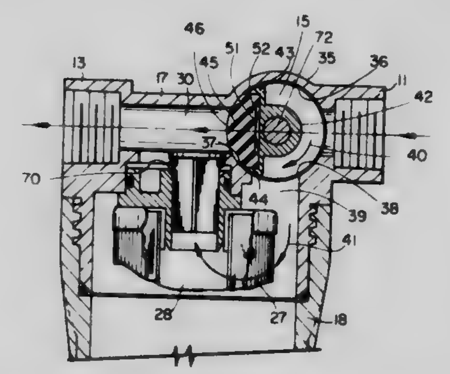
4,379,052
COOLANT FILTER ASSEMBLIES
Earl J. Stearns, Fairfield, Conn., assignor to Flush-O-Matic Corp., Fairfield, Conn.
Filed May 22, 1981, Ser. No. 266,446
Int. Cl.³ B01D *29/04*
U.S. Cl. 210—223 **27 Claims**



1. A coolant filter assembly for use in an automobile cooling system including an engine block, a radiator, radiator outlet and inlet hoses and a pump for circulating the coolant therein, the coolant filter assembly comprising:
(A) a filter cartridge having a cartridge shell including a cylindrical sidewall and an endwall, the cartridge shell being open at one end to admit coolant and the cartridge shell being perforated with openings to permit coolant to exit, and filter material deployed within the cartridge shell for filtering coolant passing therethrough; and
(B) means removably supporting the filter cartridge in the coolant inlet flow path to the radiator with the open end of the cartridge shell receiving the coolant flow, whereby the coolant filter assembly cleans the coolant and the filter cartridge can be removed and replaced when dirty,
(C) said filter cartridge being sized and said supporting means being adapted to permit coolant flow both through and around the filter cartridge, whereby coolant flow is maintained if the filter cartridge becomes clogged.

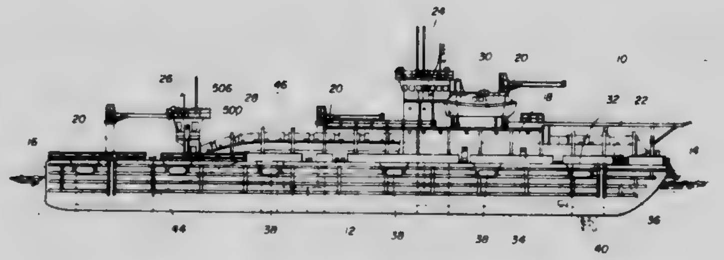
4,379,053
FILTER BYPASS VALVE ASSEMBLY
Earl P. Brane, 9470 Ulmerton Rd., Largo, Fla. 33541
Filed Jun. 12, 1981, Ser. No. 272,953
Int. Cl.³ B01D *27/10*
U.S. Cl. 210—234 **2 Claims**

1. A device for filtering liquid comprising:
a main body having a liquid inlet and a liquid outlet with a filter passage therebetween;
a filter removably mounted to said main body;
first valve means movably mounted to said main body and movable between a fiter position directing all flow from said inlet to said filter and a bypass position directing all flow from said inlet directly to said outlet bypassing said filter; and,
automatic valve means movably mounted in said main body and automatically moving from an open position allowing flow from said filter to said outlet when said first valve means is in said filter position to a closed position blocking flow between said filter and said outlet when said first valve means is in said bypass position and wherein:
said first valve means includes a first valve rotatably mounted to said main body and including a first passage in communication at all times with said inlet and movable to be in communication with said filter passage and said outlet respectively as said first valve means is in said filter position and said bypass position;
said first valve means includes a seal mounted thereto sealingly blocking flow between said inlet and said filter passage and said inlet and said outlet respectively when said first valve means is in said bypass position and said filter positions;



said first valve means includes a valve body with opposite end portions forming a pair of spaced apart drums with sealing means thereon in engagement with said main body, said first valve means further includes spring means positioned between said valve body and said seal with said seal movably mounted to said valve body with said spring means urging said seal against said main body closing said filter passage when said first valve means is in said bypass position but yieldable to allow said seal to move relative to said main body as said first valve means moves to said filter position, said seal and spring means along with said first passage are positioned between said drums.

4,379,054
OPEN SEA SKIMMER BARGE
William M. Ayers, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.
Continuation of Ser. No. 161,087, Jun. 19, 1980, abandoned. This application Mar. 15, 1982, Ser. No. 358,393
Int. Cl.³ E02B *15/04*
U.S. Cl. 210—242.3 **4 Claims**



1. A towed open sea skimming vessel for use in the skimming of oil and the like from the surface of a body of water and/or the erosion of silt and debris from the bottom of said body of water adjacent said vessel, said vessel comprising:
a hull having a bow, a bottom, side walls, a stern having a substantially horizontal elongate slot extending across a portion thereof, and a deck;
tunnel means communicating with the substantially horizon-

tal elongate slot extending across a portion of the stern of said hull and exiting said hull downwardly through the bottom thereof in a substantially vertical position intermediate the bow and stern thereof thereby producing substantially zero fore or aft thrust on said hull, said tunnel means including:

an initial portion having a curvilinear upper wall for said oil and the like to flow therealong in contact therewith, the curvilinear shape of the upper wall causing said oil and the like from the surface of said body of water to buoyantly flow therealong in a substantially uninterrupted layer when said vessel is positioned to have the upper wall extending from above the surface of said body of water to below the surface of said body of water;

an intermediate portion; and

an exit portion having a transition section having flow deflectors therein so that water of said body of water exiting said tunnel means exits said hull downwardly through the bottom thereof in a substantially vertical position;

pump means contained within the intermediate portion of said tunnel means for pumping of said oil and the like and a portion of said water or said water only thereinto and the pumping of only said water therethrough;

tank means selectively communicating with the intermediate portion of said tunnel means, said tank means having movable flap means located in the bottom thereof movable into the intermediate portion of said tunnel means to selectively allow communication between the intermediate portion of said tunnel means and said tank means;

induction header means communicating with said tank means;

induction pump means communicating with said induction header means to pump any of said water in said tank means therefrom into said body of water;

secondary oil separation means contained within said tank means;

tertiary oil separation means communicating with said secondary oil separation means;

transverse stern thruster tunnel means located in the stern of said vessel below the initial portion of said tunnel means having the ends thereof in the side walls of said hull thereby creating a flow path in the stern of said vessel from one side thereof to the other;

transverse stern thruster means located in said transverse stern thruster tunnel means to selectively cause said water to flow through said transverse stern thruster tunnel means from one side of said hull to the other; and

adjustable bow thruster means located in the bow of said hull extending therebelow

whereby during operation said vessel may be utilized for the skimming of oil and the like from the surface of a body of water and/or the erosion of silt from the bottom of said body of water by causing said water to be pumped into said tunnel means by said pump means thereby causing any oil and the like flowing into said tunnel means along with a portion of the water of said body of water flowing into said tunnel means to flow along the curvilinear upper wall of the initial portion of said tunnel means, the oil and the like being caused to flow into the tank means from the portion of water by extending the movable flap means located in the bottom of said tank means being extended into said tunnel means thereby causing said oil and the like and a portion of the portion of the water in said tunnel means to flow into said tank means where said oil and the like is separated by said secondary separation means from any water of said body of water contained therewith thereby allowing the remaining portion of water from said body of water to flow through said tunnel means exiting therefrom to erode the bottom of said body of water when said vessel is adjacent thereto while the location of said vessel during operation with respect to said body of water is controlled by the selective actuation of said transverse stern thruster means and said bow thruster means while water contained with said oil and the like exiting said secondary separation means is further separated from the water by said tertiary separation means.

4,379,055

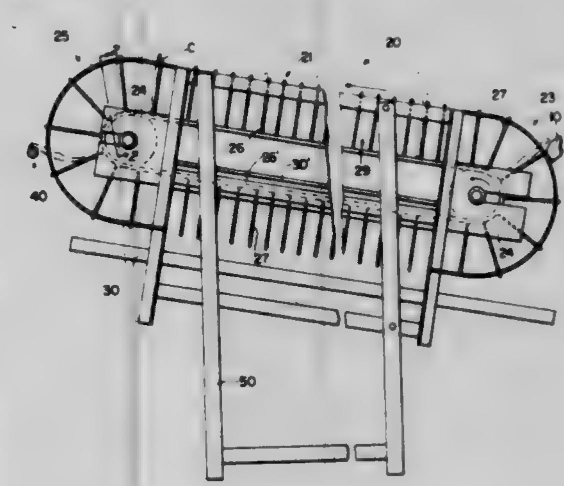
APPARATUS FOR THE DRIP DRY CONVEYANCE OF OIL-FRIED DOUGH PRODUCTS

John L. Carlson; Roger F. Parson, and David F. Nicholson, all of Duluth, Minn., assignors to Jeno's, Inc., Duluth, Minn.

Continuation-in-part of Ser. No. 180,197, Aug. 22, 1980. This application Dec. 15, 1981, Ser. No. 331,079

Int. Cl.[3] B01D *33/04*

U.S. Cl. 210—400 **3 Claims**



1. Apparatus for draining excess oil from hot, drenched, oil-fried dough crust of the type having an upper surface to be topped, comprising:

(A) an inclined, endless conveyor having

A 1 an infeed and,

A 2 an outfeed end, the infeed end being lower than the outfeed end, said conveyor comprising,

A 3 a foraminous belt bearing a plurality of vertical flights, each flight comprising a grate which is defined by vertically disposed spaced apart tines, said tines being connected top and bottom by a rigid frame, said flights and frame being secured to said belt at closely spaced apart intervals wherein the length of each flight, end to end, relative to the spaced apart distance between respective flights, is determined by a flight length multiple of 4.5-9.0 times the preselected distance between adjacent flights, adjacent flights defining slotted compartments for receiving and conveying oil-fried crust at a positive angle relative to the horizontal;

(B) at least one drain disposed beneath said conveyor for collecting oil dripped from said crust; said drain pan having an inclination which is common to the angle of inclination of the conveyor;

(C) inverter discharge means for engaging drained crust upon outfeed from said conveyor, disposed in extension of the conveyor, said discharge means positioning the upper surface of the crust in predetermined adjusted orientation, relative to the horizontal for subsequent handling and pack off.

4,379,056

FILTERING SCRAPER CLEANING DEVICES

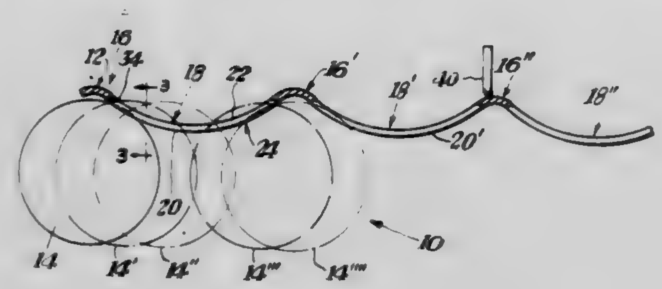
Tadashi Hagihara, 4-1, 5-chome, Minami Nagasaki, Toshima-ku, Tokyo, Japan

Continuation of Ser. No. 79,354, Sep. 27, 1979, abandoned. This application Feb. 6, 1981, Ser. No. 232,013

The portion of the term of this patent subsequent to Sep. 2, 1997, has been disclaimed.

Int. Cl.[3] B01D *23/24*

U.S. Cl. 210—415 **2 Claims**



1. A filter cleaning system, comprising:
a positioning means including a downstream slit cleaning means and a filter body,
said slit cleaning means for movement in a line having a constant course straight or arcuate in one plane for removing debris from through openings in said filter cleaning system, said slit cleaning means including moving slit cleaning elements moving in a line having a constant course straight or arcuate in one plane,
said filter body of sheet material with a plurality of hills and dales having a generally broad upstream surface and a broad downstream surface with a row of said through openings in each dale bordered by a non channeled body portion, each row includes a plurality of individual, spaced apart, long, narrow through openings,
each opening of said through openings being aligned with an opening in adjacent rows without an interconnecting channel,
each said opening having an entrance at said upstream surface and an exit at said downstream surface with each said exit being larger than each said entrance,
each said exit aligned with respect to said entrance,
each side opening shaped without offset and including side walls and end walls continuously sloping without offset away from the opposite wall between said entrance and said exit, and
positioning means for guiding a slit cleaning element between aligned openings in adjacent dales, and for positioning said slit cleaning means and each said opening aligned with an opening in adjacent row of said filter body for linear movement of said slit cleaning elements in said openings from dale to dale in each row,
drive means connected to said filter cleaning system to move said slit cleaning means along a linear path relative to said filter body to remove debris from the opening in said filter body.

4,379,057

METHOD FOR THE CYCLIC REGENERATION OF WATER-SOFTENING SYSTEMS AND PROGRAMMED WATER-SOFTENING SYSTEM FOR APPLYING THE METHOD

Ewald Meiser, Weisham, and Horst Bauer, Erftstadt-Lechenich, both of Fed. Rep. of Germany, assignors to Gebrüder Heyl KG, Hildesheim, Fed. Rep. of Germany

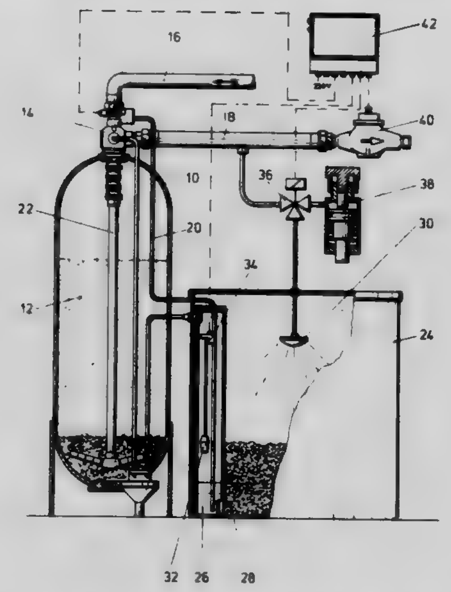
Filed Dec. 5, 1980, Ser. No. 213,728

Claims priority, application Fed. Rep. of Germany, Dec. 17, 1979, 2950728

Int. Cl.[3] C02F *1/42*

U.S. Cl. 210—662 **23 Claims**

1. In a method for a cyclic regeneration of a water softening system, which comprises an exchange medium in a treatment container and a regeneration medium in a storage container, comprising:
first passing a regeneration medium from the bottom through the exchange medium to the top thereof in a direction counter-current to the flow of water during the softening cycle, then slowly flushing the exchange medium with treated water in the same direction of flow, and then strongly flushing in the same direction, the improvement wherein
(1) a maximum time interval and a maximum degree of



exhaustion of the exchange medium between regenerations are preselected and monitored as limit values;
(2) each regeneration is initiated by the one of said two limit values which is reached first;
(3) in each regeneration cycle only the amount of regeneration medium proportional to the degree of exhaustion is used; and
(4) the regeneration medium is diffused through the exchange medium at such a low flow velocity that the particle layers in the exchange medium remain substantially unchanged.

4,379,058

METHOD AND APPARATUS FOR FILTERING CONTAMINATING PARTICLES FROM A LIQUID/PARTICLE MIXTURE

Joseph A. Bolton, Glens Falls, N.Y., assignor to Albany International Corp., Menands, N.Y.

Filed May 14, 1981, Ser. No. 263,368

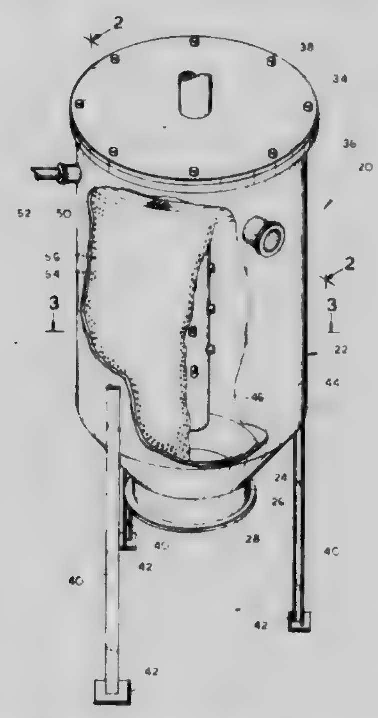
Int. Cl.[3] B01D *41/04*

U.S. Cl. 210—791 **14 Claims**

1. An apparatus for filtering contaminating particles of solid material from a liquid/particle mixture comprising; a hollow tank having a peripheral side wall and top and bottom ends, an inlet opening in the wall adjacent the top adapted to be connected to a source of a liquid/particle mixture, an outlet opening in the side wall spaced from the inlet opening and intermediate the top and bottom of the tank, a sealable drainage opening in the tank, a filter in the tank and having small filtering apertures, the filter being mounted in essentially a vertical position with its upper end just below the inlet opening and perpendicular thereto, the outlet opening being located intermediate the ends of the filter, the drainage opening being at the lower end of the tank and the filter being spaced from the inner peripheral side wall of the tank, the filter extending around a substantial portion of the inner peripheral surface of the tank, the filter being open at both its upper and lower ends and the filtering apertures in its side wall, the inlet opening being positioned so that the mixture is introduced into the open upper end of the filter and filtered liquid from the mixture will pass through the apertures in the side wall of the filter and through the outlet opening and collected particles can be dumped from the lower open end of the filter through the drainage opening

when it is unsealed, the open upper end of the filter having a substantially larger diameter than the diameter of an inlet opening and the apertures in the filter being considerably smaller than the inlet opening, and the ratio of sizes of the apertures in the filter, the open upper end of the filter, and the inlet opening being selected so that when the liquid/particle mixture is introduced at a predetermined velocity through the inlet opening it will enter the open upper end of the filter and be dispersed and brought into contact with the filter side wall with a desired low flow velocity per square inch of filter area and separation of the liquid and particles in the tank is effectively accomplished without significant clogging of the filter apertures by particles during the filtering operation, a shower conduit extending through the upper end of the tank, a plurality of nozzle orifices in the portion of the shower conduit extending into the interior of the tank, and the shower adapted to be connected to a source of washing fluid so that when washing fluid is introduced into the tank through the nozzle orifices in the shower conduit and the drainage opening is unsealed it will facilitate the washing of the collected particles on the interior of the filter out through the drainage opening.

8. A method for filtering contaminating particles of solid material from a liquid/particle mixture comprising; introducing a liquid/particle mixture into a hollow tank having a peripheral side wall and top and bottom ends through an inlet



opening in the wall adjacent the top, filtering the particles from the mixture by use of a filter in the tank disposed essentially vertically and perpendicular to the inlet opening and extending around a substantial portion of the peripheral side wall of the tank, removing the filtered fluid collected from the mixture through an outlet opening in the side wall of the tank spaced from the inlet opening and intermediate the top and bottom of the tank, removing the filtered contaminated particles through a sealable drainage opening in the tank when the drainage opening is unsealed, providing apertures in the filter that are considerably smaller than the inlet opening and the inlet opening being of a substantially smaller diameter than the open upper end of the filter and the ratio of the apertures in the filter, the open upper end of the filter and the inlet opening being selected so that when a liquid/particle mixture is introduced at a predetermined velocity through the inlet opening it will enter the open upper end of the filter and be dispersed and brought into contact with the filter at a low flow velocity per square inch of filter area so that separation of the liquid and contaminated particles in the tank is effectively accomplished without significant clogging of the filter apertures by particles during the filtering operation, and periodically washing the interior of the filter by using a rotating shower conduit extending through the upper end of the tank, a plurality of nozzle orifices in the portion of the shower conduit extending into the interior of the tank, and the shower conduit adapted to be connected to a source of washing fluid so that when washing fluid is introduced into the tank through the nozzle orifices in the shower conduit and the drainage opening is unsealed it will facilitate the washing of the collected particles on the interior of the filter out through the drainage opening.

4,379,059

FABRIC SOFTENING COMPOSITION AND A PROCESS FOR PREPARING IT FROM CATIONIC SURFACTANT AND THICKENER

John A. Hockey; Malcolm A. Shaw; John L. Wilby, and Allan A. Wilson, all of Wirral, England, assignors to Lever Brothers Company, New York, N.Y.

Filed Nov. 5, 1981, Ser. No. 318,514

Claims priority, application United Kingdom, Nov. 7, 1980, 8035862

Int. Cl.^{3} C11D *1/62;* **D06L** *1/12*

U.S. Cl. 252—8.8 **5 Claims**

1. A process for the manufacture of a fabric softening composition having a stable final viscosity, characterized by sequentially or simultaneously,

(i) forming an aqueous dispersion comprising from about 2% to about 20% by weight of a cationic surfactant, said dispersion having a viscosity of 30–50 cps at 25° C. and 110 secs^{-1} shear rate; and

(ii) thickening the composition to the final viscosity with from about 0.01% to about 0.8% of a nonionic or weakly anionic polymer selected from the group consisting of polyacrylamide, polyvinylacetate, guar gum and mixtures of guar gum and xanthan gum containing no more than 10% by weight of xanthan gum, said final viscosity being 70 centipoise or more measured at a temperature of 25° C. and at a shear rate of 110 secs^{-1}.

4,379,060

USE OF NORBORNYL ETHERS IN AUGMENTING OR ENHANCING THE AROMA OF FABRIC SOFTENER ARTICLES AND COMPOSITIONS

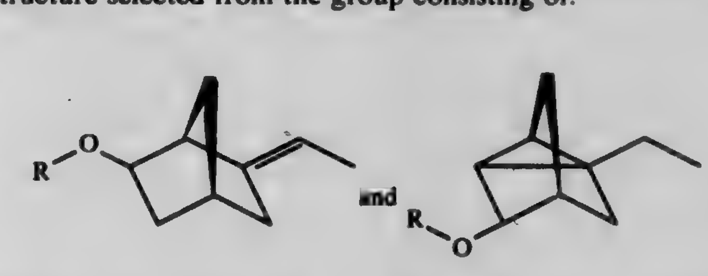
Mark A. Sprecker, Sea Bright, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

Continuation-in-part of Ser. No. 280,275, Jul. 6, 1981, Pat. No. 4,330,416, which is a division of Ser. No. 200,012, Oct. 23, 1980, Pat. No. 4,311,861. This application Dec. 29, 1981, Ser. No. 335,562

Int. Cl.^{3} B32B *33/00;* **D06M** *13/18*

U.S. Cl. 252—8.9 **24 Claims**

1. A fabric softening article comprising a non-woven cloth substrate, in contact with said substrate a substrate coating and in contact with said substrate coating and outer coating, said outer coating comprising at least one compound having a structure selected from the group consisting of:



wherein "R" represents C_3–C_6 alkyl; phenethyl; methoxyethyl; cyclohexyl; allyl; and hydroxyethyl and the moieties "R" are the same in each of the molecules, in an amount sufficient to augment or enhance the aroma of the headspace in a dryer on operation thereof when using said article.

4,379,061

DETERGENT COMPOSITION WITH REDUCED SOIL-REDEPOSITION EFFECT

Hermann Rabitsch, Vienna, Austria, and Helmut A. Sosath, Mannheim, Fed. Rep. of Germany, assignors to Lever Brothers Company, New York, N.Y.

Filed Dec. 17, 1981, Ser. No. 331,720

Claims priority, application United Kingdom, Dec. 17, 1980, 8040445

Int. Cl.³ C11D *3/20, 3/22*

U.S. Cl. 252—174.18 **3 Claims**

1. Detergent composition with reduced soil-redeposition effect, comprising an active detergent material and a ternary mixture of sodium carboxymethyl cellulose, a linear polycarboxylate and a cellulose ether, characterized in that the cellulose ether is an alkyl cellulose in which the alkyl substituent is a lower alkyl group having 1 to 3 carbon atoms, the degree of substitution is at least 0.5 and the degree of polymerisation is not greater than 300, the alkyl cellulose being essentially free of other substituents.

4,379,062

THREAD SEALING AND LUBRICATING COMPOSITION

Raymond D. Prengaman, 2207 Ravinia Dr., Arlington, Tex. 76012

Filed Nov. 6, 1981, Ser. No. 318,814

Int. Cl.³ C10M *1/10*

U.S. Cl. 252—26 **6 Claims**

1. A thread sealing and lubricating composition which comprises:

(a) 8–25% by weight finely divided copper flakes;

(b) 5–20% by weight finely divided aluminum particles;

(c) 4–15% by weight non-metallic, non-carbon powder which is selected from the group consisting of talc, aluminum oxide (Al_2O_3), magnesium oxide (MgO), silicon dioxide (SiO_2) and calcium oxide; and

(d) 40–83% by weight petroleum vehicle.

4,379,063

NOVEL FUNCTIONAL FLUID

Mark A. Williams, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Feb. 20, 1981, Ser. No. 236,330

Int. Cl.³ C09K *15/22;* **C10M** *1/06, 3/04;* **C23F** *11/10*

U.S. Cl. 252—33.6 **6 Claims**

1. A corrosion inhibiting, aqueous functional fluid composition having a pH in the range of from 8 to 12 comprising (a) water, (b) a surface active, corrosion inhibiting, water soluble or dispersible alkali metal, ammonium or organic amine salt of a water insoluble carboxylic acid group terminated amide having one amide linkage

$$(-\overset{|}{N}-\overset{O}{\overset{\|}{C}}-)$$

per molecule and (c) a second surface active agent, wherein (b) has the following formula

$$\left[R^1-\overset{R^2}{\overset{|}{N}}-\overset{O}{\overset{\|}{C}}-R-\overset{O}{\overset{\|}{C}}-O^{(-)} \right]_m [Z^{(+)x}]_y \qquad (I)$$

where

R is a divalent C_4 to C_8 cycloaliphatic radical,

R^1 is a monovalent organic radical selected from the group of:

(a) a monovalent C_7 to C_{10} aliphatic radical having at least one methyl or ethyl branch when R^2 is hydrogen, or

(b) a monovalent C_1 to C_9 straight or branched chain aliphatic group when R^2 is a monovalent C_1 to C_9 straight or branched chain aliphatic group with the proviso that R^1+R^2 shall have a combined total of from 7 to 10 carbon atoms and at least one of R^1 or R^2 has at least 4 carbon atoms,

R^2 is hydrogen or a monovalent C_1 to C_9 branched or straight chain aliphatic group,

Z is an alkali metal cation or a nitrogen containing cation having at least one hydrogen attached to the nitrogen, a positive charge equal to x and selected from the group consisting of ammonium cation and cations of a water soluble alkanolamine having 2 to 4 carbon atoms in the alkanol group, C_2 to C_6 alkyl amine, alkyl alkanolamine having 1 to 6 carbon atoms in the alkyl group and 2 to 4 carbon atoms in the alkanol group, heteroaliphatic monoamine in which the heteroatom is oxygen, heteroaliphatic polyamine having oxygen or nitrogen heteroatoms, alkylene diamine having 2 to 6 carbon atoms in the alkylene group, N-alkyl or N-hydroxyalkyl substituted alkylene diamine having 2 to 6 carbon atoms in the alkylene group, morpholine, N-alkyl substituted morpholine or N-aminoalkyl substituted morpholine,

x is 1 to 3,

y is 1 and

m is 1 to 3

5. A corrosion inhibiting, aqueous functional fluid composition having a pH in the range of from 8 to 12 comprising (a) water, (b) a surface active, corrosion inhibiting, water soluble or dispersible alkali metal, ammonium or organic amine salt of a water insoluble carboxylic acid group terminated amide having one amide linkage

$$(-\overset{|}{N}-\overset{O}{\overset{\|}{C}}-)$$

per molecule and (c) a second surface active agent, wherein (b) has the following formula

$$\left[R^1-\overset{R^2}{\overset{|}{N}}-\overset{O}{\overset{\|}{C}}-R-\overset{O}{\overset{\|}{C}}-O^{(-)} \right]_m [Z^{(+)x}]_y \qquad (I)$$

where

R is a divalent radical selected from the group consisting of a monoethylenically unsaturated C_2 to C_3 aliphatic radical having two free valences in a cis stereo configuration,

R^1 is a monovalent organic radical selected from the group of:

(a) a monovalent C_7 to C_{10} aliphatic group having at least one methyl or ethyl branch or a monovalent heteroaliphatic group having at least one methyl or ethyl branch and the formula $R^3—OR^4{}_n$ (II) wherein R^3 is a straight chain or a methyl or ethyl branched C_6 to C_{12} alkyl radical, R^4 is a C_2 to C_3 alkylene radical and n is 1 to 2 when R^2 is hydrogen, or

(b) a monovalent C_1 to C_{11} straight or branched chain aliphatic radical when R^2 is a C_1 to C_{11} straight or branched chain monovalent aliphatic radical with the proviso that R^1+R^2 shall have a combined total of from 8 to 12 carbon atoms and at least one of R^1 or R^2 shall have at least 5 carbon atoms,

R^2 is hydrogen or a monovalent C_1 to C_{11} branched or straight chain aliphatic group,

Z is an alkali metal cation or a nitrogen containing cation having at least one hydrogen attached to the nitrogen, a positive charge equal to x and selected from the group consisting of ammonium cation and cations of a water soluble alkyl alkanolamine having 1 to 6 carbon atoms in the alkyl group and 2 to 4 carbon atoms in the alkanol group, heteroaliphatic monoamine in which the heteroatom is oxygen, heteroaliphatic polyamine having oxygen or nitrogen heteroatoms, alkylene diamine having 2 to 6 carbon atoms in the alkylene group, N-alkyl or N-

hydroxyalkyl substituted alkylene diamine having 2 to 6 carbon atoms in the alkylene group, morpholine, N-alkyl substituted morpholine or N-aminoalkyl substituted morpholine,

x is 1 to 3,
y is 1 and
m is 1 to 3.

4,379,064
OXIDATIVE PASSIVATION OF POLYAMINE-DISPERSANTS
John A. Cengel, Wheaton; Mark W. Hunt, Naperville; Joseph S. Strukl, Lisle, and Peter G. Pappas, Downers Grove, all of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.
Filed Mar. 20, 1981, Ser. No. 246,007
Int. Cl.[3] C10M *1/32, 3/26, 1/20*
U.S. Cl. 252—51.5 A **11 Claims**

1. A process for improving the compatibility of a polyamine dispersant with fluorocarbon compositions which comprises reacting said dispersant with an oxidizing agent which is selected from the group consisting of oxygen, sulfur oxides, nitrogen oxides, peroxides and ozone, wherein the amount of said oxidizing agent is effective to reduce the TBN of said dispersant by about 50% to about 90%.

4,379,065
AMINO PHENOLS IN COMBINATION WITH ASHLESS ESTER DISPERSANTS AS USEFUL ADDITIVES FOR FUELS AND LUBRICANTS
Richard M. Lange, Euclid, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio
Continuation of Ser. No. 253,830, Apr. 13, 1981, Pat. No. 4,320,021, which is a continuation of Ser. No. 914,710, Jun. 12, 1978, abandoned, which is a continuation-in-part of Ser. No. 892,529, Apr. 3, 1978, abandoned, which is a continuation-in-part of Ser. No. 676,172, Apr. 12, 1976, abandoned, which is a continuation-in-part of Ser. No. 622,358, Apr. 14, 1975, abandoned. This application Mar. 15, 1082, Ser. No. 358,510
Int. Cl.[3] C10M *1/32*
U.S. Cl. 252—51.5 A **21 Claims**

1. A composition comprising a combination of:

(A) at least one amino phenol of the general formula

$$(R)_a\text{—}\underset{}{\overset{(OH)_c}{\overset{|}{Ar}}}\text{—}(NH_2)_b$$

wherein R is a substantially saturated, hydrocarbon-based substituent of at least 30 aliphatic carbon atoms; a, b and c are each independently an integer of one up to three times the number of aromatic nuclei present in Ar with the proviso that the sum of a, b and c does not exceed the unsatisfied valences of Ar; and Ar is an aromatic moiety having 0–3 optional substituents selected from the group consisting of lower alkyl, lower alkoxyl, nitro, halo or combinations of two or more of said substituents; and

(B) at least one ashless dispersant, wherein said dispersant is an ester composition of a high molecular weight carboxylic acid acylating agent containing at least 30 carbon atoms in the acyl moiety wherein the weight ratios of (A) to (B) is about 0.1 to about 10 to 1.

13. A fuel composition containing a major proportion of a normally liquid fuel and about 1 to about 10,000 parts by weight per million parts of fuel of at least one composition claimed in claim 1.

16. A lubricant composition comprising a major proportion of at least one oil of lubricating viscosity and about 0.05 to about 30 parts by weight per 100 parts oil of at least one composition claimed in claim 1.

19. An additive concentrate comprising about 30–90% of at least one composition of claim 1 and a substantially inert, normally liquid organic solvent/diluent.

4,379,066
METHOD FOR REDUCING BRAKE NOISE IN OIL-IMMERSED DISC BRAKES
Vernon R. Small, Jr., Rodeo, Calif., assignor to Chevron Research Company, San Francisco, Calif.
Filed Nov. 24, 1980, Ser. No. 209,569
Int. Cl.[3] C10M *1/26*
U.S. Cl. 252—56 R **5 Claims**

1. A method for reducing oil-immersed disc brake chatter by lubricating the contacting surfaces of oil-immersed disc brakes with a composition comprising a hydrocarbon-based lubricant containing an effective amount to reduce chatter of a hydroxyalkyl alkanoate of the formula:

$$R\text{—}\underset{OR'}{\underset{|}{CH}}\text{—}\underset{OR''}{\underset{|}{CH_2}}$$

wherein R is alkyl containing from 8 to 28 carbon atoms and one of R' and R'' is hydrogen and the other is alkanoyl containing 1 to 30 carbon atoms, or mixtures thereof.

4,379,067
SELF-SEALING REFRIGERANT
Joseph J. Packo, 11000 Onion Creek Ct., Austin, Tex. 78747, and Donald L. Bailey, Traverse City, Mich., assignors to Joseph J. Packo, Austin, Tex.
Filed Jun. 3, 1981, Ser. No. 269,969
Int. Cl.[3] C09K *5/04*
U.S. Cl. 252—67 **16 Claims**

1. A leak sealing and leak preventing refrigeration fluid composition for refrigeration and air conditioning units comprising:

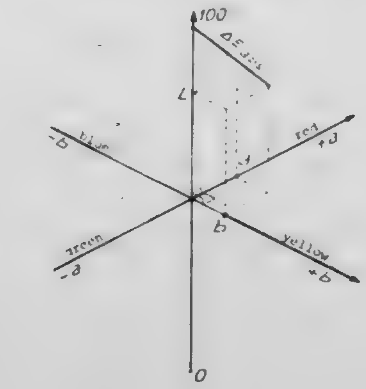
(a) a refrigerant fluid selected from the group consisting of chlorofluorocarbons, ammonia, sulfur dioxide, ethyl chloride, methyl chloride, dimethyl either, mixtures of methyl chloride and dimethyl ether, and mixtures of carbon dioxide with nitrous oxide;

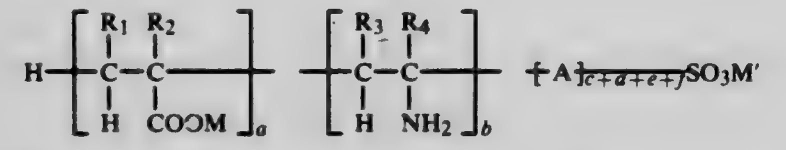
(b) a vapor and liquid phase sealant for forming a seal at the site of a leak in an air conditioning or refrigeration circuit, said sealant being an hydrolyzable or polymerizable organosilane or mixture thereof compatible with said refrigerant fluid which does not substantially interfere with the properties of the refrigerant fluid, which exists as a liquid in the liquid portion of the circuit and as a gas in the gaseous portion of the circuit, and which is substantially inert to the material from which the circuit is made, said organosilane sealant being selected from the group consisting of aminosilanes, mercaptosilanes, acyloxysilanes, mixtures of alkoxysilanes with an acidic anhydride or an amine, and mixtures of said aminosilanes and said other organosilanes.

4,379,068
HYDROPHILIC COTELOMERS HAVING A TERMINAL SULFONATE GROUP AND CONTAINING ACID AND AMINE FUNCTIONS, AND THEIR APPLICATION IN DETERGENT COMPOSITIONS
Pierre Coudere, Bethune, France, assignor to Societe Chimique des Charbonnages, Paris, France
Filed Jun. 22, 1981, Ser. No. 276,400
Claims priority, application France, Jun. 25, 1980, 80 14061
Int. Cl.[3] C11D *7/18*
U.S. Cl. 252—99 **18 Claims**

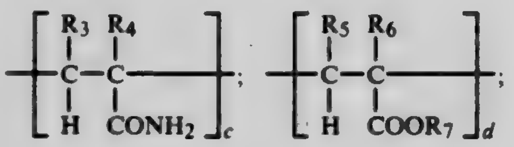
5. A dry, powdered detergent composition comprising a bleaching agent, at least one surfactant, sodium silicate, and

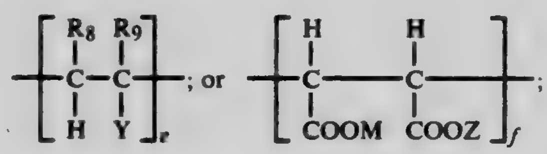
10–50% by weight of a hydrophilic cotelomer having the formula





wherein R_1, R_2, R_3 and R_4 are each independently H or $C_{1\text{-}4}$ alkyl; M is H or an alkali metal; M' is an alkali metal; $8 \leqq a \leqq 40$; and $1 \leqq b \leqq 20$; and A represents structural units having at least one of the formulae:





wherein R_3, R_4, R_5 and R_6 are each independently H or $C_{1\text{-}4}$ alkyl; R_7 is $C_{1\text{-}8}$ alkyl; R_8 and R_9 are each independently H or $C_{1\text{-}2}$ alkyl; Y is aryl; M is H or an alkali metal; Z is M or $C_{1\text{-}8}$ alkyl; $0 \leqq c \leqq 2$; $0 \leqq d \leqq 3$; $0 \leqq e \leqq 2$; and $0 \leqq f \leqq 10$.

4,379,069

DETERGENT POWDERS OF IMPROVED SOLUBILITY

Anthony A. Rapisarda, Elmhurst, N.Y.; Joseph Romeo, Bergenfield, and Jose A. Lopez, Palisades Park, both of N.J., assignors to Lever Brothers Company, New York, N.Y.

Filed Jun. 4, 1981, Ser. No. 270,319

Int. Cl.[3] C11D *7/00*

U.S. Cl. 252—135 **9 Claims**

1. A process for making a powder detergent of improved solubility, comprising the steps of:

(1) preparing a silicate free alkaline blend consisting essentially of, in percent by weight of the finished product, about 10–60% builder, about 0.6–6% surfactant, about 20–50% alkaline agent and 0 to about 70% filler; and

(2) thereafter mixing said blend with about 10–30% solid alkali metal silicate and a chlorine donor providing about 0.4–1.5% available chlorine, the pH of the resulting product being about 10.4 or greater at about 0.25% product use concentration.

9. A composition made by the process of claim 1, 7 or 8 wherein the solid alkali metal silicate is less alkaline than metasilicate.

4,379,070

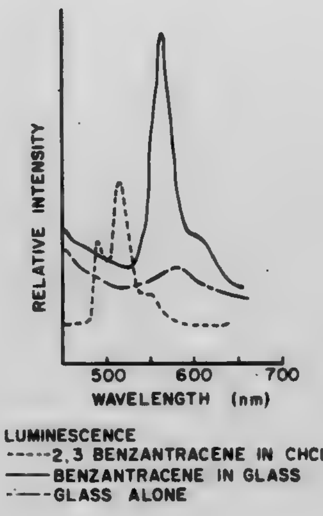
TIN-PHOSPHORUS OXYFLUORIDE GLASS CONTAINING AROMATIC ORGANIC COMPOUND

Paul A. Tick, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Apr. 26, 1982, Ser. No. 371,791

Int. Cl.[3] C09K *11/06*

U.S. Cl. 252—301.16 **8 Claims**



1. A tin-phosphorous oxyfluoride glass article containing at least one dissolved polycyclic aromatic hydrocarbon which exhibits a response to light or an electric field, the compound being present in a concentration ranging up to about 1% by weight of the glass.

4,379,071

PROCESS FOR THE PRODUCTION OF MICROCAPSULES

Hildegard Schnöring, Wuppertal-Elberfeld; Manfred Dahm, Bergisch-Neukirchen, and Gottfried Pampus, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 448,247, Mar. 5, 1974, abandoned. This application Mar. 8, 1976, Ser. No. 664,908

Claims priority, application Fed. Rep. of Germany, Mar. 9, 1973, 23117126

Int. Cl.[3] B01J *13/02*

U.S. Cl. 252—316 **14 Claims**

1. A process for the production of microcapsules containing solid or liquid substances, which are sparingly soluble in water, comprising the steps

(a) continuously mixing material to be encapsulated with a product obtained by the reaction of a diol or a polyol having a molecular weight of from 400 to 10,000 with phosgene, a diisocyanate or a polyisocyanate, said product containing at least two chloroformic acid ester or isocyanate groups per molecule;

(b) continuously introducing in separate streams into a zone of high turbulence the mixture from step (a), an aqueous phase and a chain lengthening agent, partially or completely dissolved in the aqueous phase, which is at least bifunctional and is an aliphatic, cycloaliphatic or aromatic glycol, an amino glycol or an aliphatic, cycloaliphatic or aromatic amine whereby flow through the zone of high turbulence is at least 300 parts by volume of liquid per unit volume of turbulent zone space per hour;

(c) maintaining the zone of high turbulence at temperatures from 50° to 150° C. to thereby form a high molecular weight polymer which envelops the substance to be encapsulated and forms microcapsules; and

(d) continuously removing the formed microcapsules from said zone of high turbulence.

4,379,072

WATER-BASED RUST INHIBITOR

Oliver L. Yarham, Park Forest, Ill.; John M. Sech, Whiting, and Carl S. Kennedy, Dyer, both of Ind., assignors to Nalco Chemical Company, Oak Brook, Ill.

Filed Oct. 8, 1981, Ser. No. 309,653

Int. Cl.[3] C23F *11/14, 11/12*

U.S. Cl. 252—389 R **4 Claims**

1. A non-petroleum based metal corrosion inhibiting composition comprising:

Ingredients	% by Weight
Water	75–90
Linseed Oil Fatty Acid	2–8
C_6–C_{12} Dibasic Acid	1–10
Amine Blend, comprising a 1:2 to 2:1 ratio of a cyclic amine from the group consisting of cyclohexyl amine, morpholine and C_2–C_4 alkanol amine.	3–8
Water-soluble alkali metal base	.5–3

4,379,073

COMPOSITION FOR WOOD TREATMENT

Charles J. Zimmerman, Steep Bank Rd., St. James, N.Y. 11780

Filed Apr. 23, 1981, Ser. No. 256,822

Int. Cl.[3] B44D *1/16*

U.S. Cl. 252—400 R **3 Claims**

1. A wood preservative for pressure treating wood, said wood preservative comprising:

(a) chromated copper arsenate;

(b) 1-amino-8-naphthol-3,6-disulfonic acid;

(c) brown acid dye; and

(d) mixing chromated copper arsenate, 1-amino-8-naphthol-3, 6-disulfonic acid and brown acid dye together in the following proportions: Three pounds of 1-amino-8-naphthol-3, 6-disulfonic acid with nine pounds of brown acid dye and 1,000 gallons of 2.5% or less of chromated copper acid.

4,379,074

CHEMICAL COMPOSITION BASED ON TITANIUM TRIHALIDE, A METHOD FOR ITS PREPARATION, AND A PROCESS FOR THE POLYMERIZATION OR COPOLYMERIZATION OF UNSATURATED COMPOUNDS WHICH USES THIS COMPOSITION

Agostino Balducci, San Donato Milanese; Margherita Corbellini, Milan, and Mirko Osellame, Ombriano, all of Italy, assignors to Anic S.p.A., Palermo and Snamprogetti, S.p.A., Milan, both of, Italy

Filed Dec. 5, 1980, Ser. No. 213,658

Claims priority, application Italy, Feb. 1, 1980, 19619 A/80

Int. Cl.[3] C08F *4/64*

U.S. Cl. 252—429 B **4 Claims**

1. A catalyst system consisting of: (a) a compound of the formula:

$$TiX_3.mM'Y_n.qM''Y'_p.cAlY''_{3-S}R'_S$$

in which X is halogen, M' and M'' are metals different from each other, selected from the group consisting of Mg, Al, Ti, Zr, Mo, V, Mn, Cr, Fe and Zn; Y,Y' and Y'', the same or different from each other, are halogens and can be the same as or different from X, m and q can be zero or greater than zero, but cannot be both zero simultaneously, c has a value between 0.5 and 50; n and p represent the valencies of M' and M'' respectively; S has a value from 0 to 3; and R' is a hydrocarbon radical having a number of carbon atoms less than or equal to 10, in combination with (b) a compound of the formula:

$$AlR''_{p'}X'_{3-p'}$$

in which R'' is a hydrocarbon radical, X' is halogen and p' is a number between 1 and 3.

4,379,075

PROCESS FOR POLYMERIZING HIGH MELT INDEX OLEFINS AND POLYMERIZATION CATALYSTS USED THEREFORE

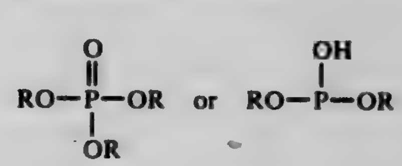
Louis J. Rekers, Wyoming, and Stanley J. Katzen, Cincinnati, both of Ohio, assignors to National Petro Chemicals Corp., New York, N.Y.

Filed Mar. 13, 1981, Ser. No. 243,677

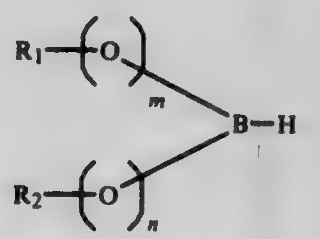
Int. Cl.[3] C08F *4/78*

U.S. Cl. 252—430 **7 Claims**

1. A catalyst system obtained by heat activating a supported organophosphoryl chromium compound obtained by the reaction of chromium trioxide with an organophosphorous compound having the formula:



wherein R is alkyl, aralkyl, aryl, cycloalkyl, or hydrogen, but at least one R is other than hydrogen, and combining the heat activated supported material with a melt index increasing amount of at least one organoborane catalyst modifier having the formula:



wherein

m and n each is zero or 1,

R_1 and R_2 are each a hydrocarbyl group of from 1 to 10 carbon atoms, or one of R_1 and R_2 is hydrogen, or together R_1 and R_2 constitute a hydrocarbyl group of from 2 to 10 carbon atoms.

4,379,076

REFORMING WITH MULTIMETALLIC CATALYSTS

Paul E. Eberly, Jr.; Charles H. Mauldin, and William C. Baird, Jr., all of Baton Rouge, La., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 53,375, Jun. 29, 1979, Pat. No. 4,265,786. This application Dec. 1, 1980, Ser. No. 211,765

Int. Cl.[3] B01J *27/02*

U.S. Cl. 252—439 **12 Claims**

1. A reforming catalyst which comprises from about 0.1 to about 2 percent platinum, from about 0.1 to about 2 percent iridium, from about 0.01 to about 0.1 percent copper, from about 0.001 to about 3 percent selenium, and from about 0.1 to about 2.5 percent halogen, composited with an inorganic oxide support.

4,379,077

ACTIVE CARBON CONDITIONING PROCESS

Frank Solomon, Great Neck, N.Y., assignor to Diamond Shamrock Corporation, Dallas, Tex.

Filed Oct. 31, 1980, Ser. No. 202,580

Int. Cl.[3] B01J *21/18;* **H01M** *4/88*

U.S. Cl. 252—444 **7 Claims**

1. In a process for making an oxygen cathode having a carbon supported hydroxide forming catalyst the improvement

comprising treating active carbon particles by contacting said active carbon particles with an alkali and thereafter contacting said active carbon particles with an acid, said contacting with alkali being conducted at temperatures ranging from about 90° to 140° C. for a time period of at least about 0.5 hours, said contacting steps occurring prior to placement of any catalyst on the carbon.

4,379,078

PROCESS FOR PRODUCING GRANULATED CATALYST FOR THE SYNTHESIS OF AMMONIA

Viktor P. Lytkin, ulitsa Trudovye Rezervy, 70b, kv. 95; Vladimir N. Menshov, ulitsa Berezhnogo, 21, kv. 24; Jury S. Frolov, ulitsa Kuibysheva, 14, kv. 26; Zinaida A. Polikarpova, ulitsa Kommunisticheskaya, 23a, kv. 19; Viktor S. Sobolevsky, ulitsa Moskovskaya, 2/14, kv. 5; Maria G. Seljutina, ulitsa Jubileinaya, 3, poselok "25 let Khimkombinata"; Vladimir N. Anokhin, ulitsa Berezovaya, 9, kv. 2; Nikolai D. Barbosov, ulitsa S. Esenina, 3, kv. 22, all of Novomoskovsk Tulskoi oblasti, all of U.S.S.R.; Sergei P. Vorontsov, deceased, late of Novomoskovsk Tulskoi oblasti, U.S.S.R.; by Nina F. Vorontsova, administrator, ulitsa Moskovskaya, 20, kv. 60., Novomoskovsk Tulskoi oblasti, U.S.S.R.; David B. Chistozvonov, deceased, late of Novomoskovsk Tulskoi oblasti, U.S.S.R., and by Vera G. Chistozvonova, adminstrator, ulitsa Kirova, 4/23, kv. 51., Novomoskovsk Tulskoi oblasti, U.S.S.R.

Filed Jan. 16, 1981, Ser. No. 225,507

Int. Cl.[3] **B01J** *21/04, 23/78*

U.S. Cl. 252—466 J **5 Claims**

1. A process for producing a granular catalyst for the synthesis of ammonia which comprises simultaneous melting and oxidation of iron with the use of a promoter selected from the group consisting of potassium carbonate, calcium oxide, alumina and mixtures thereof in a melt layer of 30 to 70 mm thickness of the resulting catalyst mass, followed by granulating said melt with a current of air ensuring a horizontal movement of the resulting catalyst granules and cooling them to a temperature of 1,000° C. and then reducing the resulting granules as they cool spontaneously with a reducing gas.

4,379,079

USE OF METHYL-THIO-2-METHYL-2-PENTENOATE IN AUGMENTING OR ENHANCING THE AROMA OF PERFUME COMPOSITIONS, COLOGNES AND PERFUMED ARTICLES

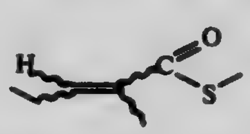
Raman R. Patel, Plainsboro; Alan O. Pittet, Atlantic Highlands, and Ranya Muralidhara, Fair Haven, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Filed Nov. 19, 1981, Ser. No. 322,843

Int. Cl.[3] **A61K** *7/46;* **C11B** *9/00*

U.S. Cl. 252—522 R **5 Claims**

1. A process for augmenting or enhancing the aroma of consumable materials selected from the group consisting of perfume compositions, colognes and perfumed articles comprising the step of intimately admixing with a perfume composition base, a cologne base or a perfumed article base, an aroma augmenting or enhancing quantity of a methyl-thio-2-methyl-2-pentenoate defined according to the structure:



wherein the wavy lines represent covalent bonds juxtaposed in a "cis" or "trans" configuration around the carbon-carbon double bond of the structure.

4,379,080

GRANULAR DETERGENT COMPOSITIONS CONTAINING FILM-FORMING POLYMERS

Alan P. Murphy, Colerain Township, Belmont County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Apr. 22, 1981, Ser. No. 256,454

Int. Cl.[3] **C11D** *3/08, 3/12, 3/37, 17/06*

U.S. Cl. 252—526 **31 Claims**

1. A granular detergent composition comprising:

(a) from about 5% to about 40% by weight of an organic surfactant selected from the group consisting of anionic, nonionic, zwitterionic, ampholytic and cationic surfactants, and mixtures thereof;

(b) from about 10% to about 60% by weight of a finely divided aluminosilicate ion exchange material selected from the group consisting of:

(1) crystalline aluminosilicate material of the formula:

$$Na_z[(AlO_2)_z.(SiO_2)_y].xH_2O$$

wherein z and y are at least 6, the molar ratio of z to y is from 1.0 to 0.5 and x is from 10 to 264, said material having a particle size diameter of from about 0.1 micron to about 10 microns, a calcium ion exchange capacity of at least about 200 mg. $CaCO_3$ eq./g. and a calcium ion exchange rate of at least about 2 grains Ca^{++}/gallon/-minute/gram/gallon;

(2) amorphous hydrated aluminosilicate material of the empirical formula:

$$M_z(zAlO_2.ySiO_2)$$

wherein M is sodium, potassium, ammonium, or substituted ammonium, z is from about 0.5 to about 2 and y is 1, said material having a magnesium ion exchange capacity of at least about 50 milligram equivalents of $CaCO_3$ hardness per gram of anhydrous aluminosilicate and a Mg^{++} exchange rate of at least about 1 grain/gallon/minute/gram/gallon; and

(3) mixtures thereof; and

(c) from about 5% to about 75% by weight of a water-soluble neutral or alkaline salt; and

(d) from about 0.1% to about 10% by weight of a film-forming polymer soluble in an aqueous slurry comprising the above components, said film-forming polymer being an at least partially neutralized salt of: a homopolymer or copolymer of acrylic acid, hydroxyacrylic acid, or methacrylic acid, cellulose acetate sulfate; cellulose sulfate; hydroxyethylcellulose sulfate; methylcellulose sulfate; or hydroxypropylcellulose sulfate; said composition containing less than about 10% by weight of phosphate materials and less than about 3% by weight of alkali metal silicate materials.

4. A composition according to claim 1 wherein the organic surfactant is selected from the group consisting of linear alkylbenzene sulfonates containing from about 11 to 14 carbon atoms in the alkyl group, tallowalkyl sulfates; coconutalkyl glyceryl ether sulfonates; alkyl ether sulfates wherein the alkyl moiety contains from about 14 to 18 carbon atoms and wherein the average degree of ethoxylation is from about 1 to 4; olefin or paraffin sulfonates containing from about 14 to 16 carbon atoms; alkyldimethyl amine oxides wherein the alkyl group contains from about 11 to 16 carbon atoms; alkyldimethylammonio propane sulfonates and alkyldimethylammonio hydroxy propane sulfonates wherein the alkyl group contains from about 14 to 18 carbon atoms; soaps of higher fatty acids containing from about 12 to 18 carbon atoms; condensation products of C_9–C_{15} alcohols with from about 4 to 8 moles of ethylene oxide, and mixtures thereof.

4,379,081

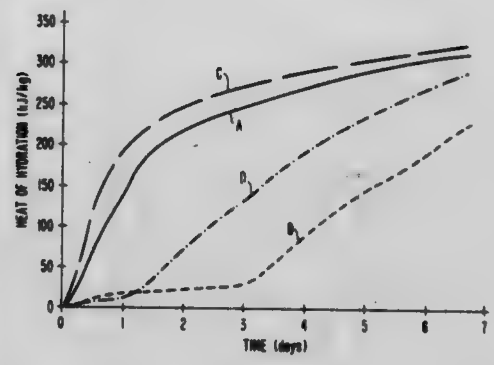
METHOD OF ENCAPSULATING WASTE RADIOACTIVE MATERIAL

Michael W. Rootham, Monroeville, Pa., and James A. Forrester, Buckinghamshire, United Kingdom, assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 12, 1981, Ser. No. 243,103

Int. Cl.³ G21F *9/16*

U.S. Cl. 252—628 **10 Claims**



1. A method of encapsulating radioactive waste comprising the steps of:

drawing a predetermined amount of radioactive liquid waste having a cement setting retardant therein from a source, said retardant constituting a component which variably retards set and strength development in a cement mix;

mixing said liquid waste in a high shear mixer to provide a homogeneously mixed, predetermined volume of liquid;

introducing a corresponding volume of cement into the predetermined volume of liquid to provide a cement paste;

subjecting the cement paste to high shear mixing in said mixer for a time sufficient to remove the retardant from the cement hydrating surface and until the retarding reactions have been overcome to thusly produce a thixotropic rapid setting cement.

4,379,082

METHOD OF REMOVING RUTHENIUM CONTAMINATION FROM A LIQUID RADIOACTIVE EFFLUENT

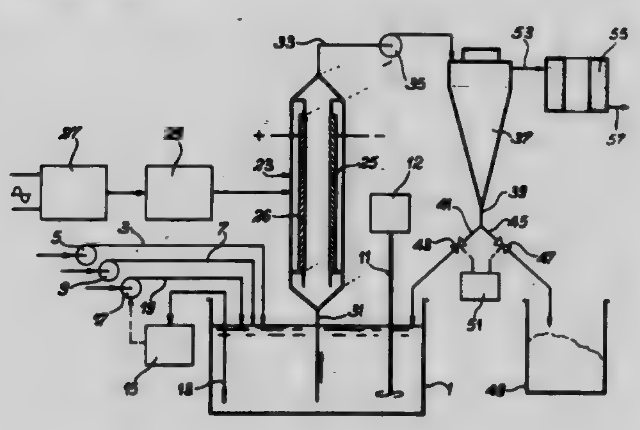
Jean-Paul Gauchon, Pertuis, France, assignor to Commissariat a l'Energie Atomique, Paris, France

Filed Apr. 29, 1980, Ser. No. 145,320

Claims priority, application France, May 7, 1979, 79 11468

Int. Cl.³ G21F *9/10*

U.S. Cl. 252—631 **8 Claims**



1. A method of removing ruthenium contamination from a radioactive liquid effluent, consisting in adding to said liquid effluent a reducing agent and cupric ions, to form, in said effluent, a cuprous oxide precipitate on which the ruthenium is fixed, and subsequently separating the precipitate thus formed from the effluent.

4,379,083

PROCESS FOR THE PREPARATION OF BLOOD PLASMA FRACTIONS

Jürgen Falke; Helmut Geiger, both of Marburg; Wolfgang Grünbein, Liederbach, and Heinz-Georg Kandel, Wetter, all of Fed. Rep. of Germany, assignors to Behringwerke Aktiengesellschaft, Marburg, Fed. Rep. of Germany

Filed May 14, 1981, Ser. No. 263,719

Claims priority, application Fed. Rep. of Germany, May 16, 1980, 3018669

Int. Cl.³ C07G *7/00*

U.S. Cl. 260—112 B **3 Claims**

1. A process for the preparation of a plasma constituent which comprises separately and continuously feeding plasma, precipitant and buffer to a circulating pump for admixture in a zone of high turbulence and introduction to a loop reactor comprising said pump, a stirring vessel, a conduit extending from an outlet of the vessel to the pump, and a recirculating conduit extending from the pump to an inlet of the vessel for circulating the mixture to and from said vessel, and continuously withdrawing a portion of the reaction mixture from the loop reactor for separation of a precipitated plasma protein.

4,379,084

PROTEIN MATERIAL AND METHOD FOR THE MANUFACTURE THEREOF

Susumu Teranishi; Yoichi Kawasaki, both of Osaka; Tsutomu Katayama, Izumisano, and Hitoshi Taniguchi, all of Japan, assignors to Fuji Oil Company Limited, Osaka, Japan

Filed Sep. 15, 1981, Ser. No. 302,353

Claims priority, application Japan, Sep. 22, 1980, 55/132076

Int. Cl.³ A23J *1/02, 1/14, 1/16, 3/00*

U.S. Cl. 260—112 R **7 Claims**

1. A method for manufacturing a fibrous protein material which comprises the steps of dispersing into an aqueous slurry or paste of protein an emulsion containing oil and water phase, the external phase of said emulsion being the oil phase, to mix said emulsion with said slurry or paste, and forming the mixture into fibrous material.

4,379,085

HEAT STABILIZATION OF PLASMA PROTEINS

Craigenne A. Williams, and Milan Wickerhauser, both of Bethesda, Md., assignors to American National Red Cross, Washington, D.C.

Filed May 14, 1982, Ser. No. 378,229

Int. Cl.³ C07G *7/00*

U.S. Cl. 260—112 B **10 Claims**

1. A method for the heat stabilization of a plasma protein comprising heating the protein in an aqueous medium in the presence of ammonium or potassium citrate in an amount in excess of 2.0 M to saturation of the aqueous medium.

4,379,086

METHOD OF PREPARING IMMUNOGLOBULIN SUITABLE FOR INTRAVENOUS ADMINISTRATION USING PEG

Tokusuke Kimura, Tokyo, and Fumio Kurosu, Hasuda, both of Japan, assignors to Fujizoki Pharmaceutical Co., Ltd., Tokyo, Japan

Filed May 28, 1982, Ser. No. 383,050

Claims priority, application Japan, Jan. 9, 1981, 56/87503

Int. Cl.³ C07G *7/00*

U.S. Cl. 260—112 B **1 Claim**

1. The method of preparing immunoglobulin suitable for intravenous administration which comprises the steps of:

(1) dissolving Cohn Plasma Fraction II in a Phosphate buffer solution having a pH of 7.0 to 8.0 to a concentration of 2% to 3%,

(2) adding polyethylene glycol (PEG) having a molecular weight of 4000 to the solution to a concentration of 3% to 4%,

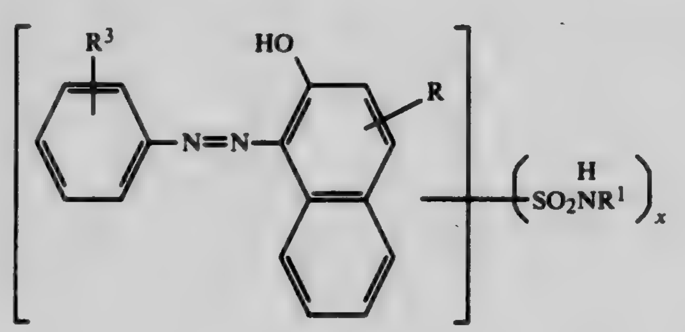
(3) removing aggregates of immunoglobulin produced and precipitated by centrifugation,
(4) adding PEG (M.W. 4000) to the supernatant to a concentration of 6% to 8% at a pH of 6.5 to 7.0, and
(5) separating immunoglobulin as a paste from the aqueous liquid.

4,379,087
METHOD OF PREPARING ALPHA-1-PROTEINASE INHIBITOR
Michael H. Coan, El Cerrito, and William J. Brockway, San Leandro, both of Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif.
Filed Jun. 17, 1982, Ser. No. 389,202
Int. Cl.[3] C07G *7/00*
U.S. Cl. 260—112 B **16 Claims**

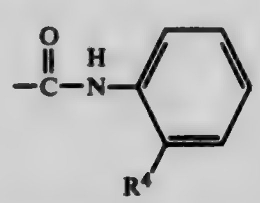
1. A method for separating alpha-1-proteinase inhibitor from a blood plasma fraction containing the same, which comprises the steps of
(a) holding an aqueous solution of the blood plasma fraction at a pH of about 6.5–8.5, and a temperature of about 2°–50° C. for a period of about 0.2–24 hours,
(b) mixing the solution with a polycondensed polyglycol in the proportion of about 10–15 grams of polyglycol per 100 ml of aqueous solution containing the blood plasma fraction and adjusting the pH of the mixture to about 4.6–5.7 to selectively precipitate unwanted proteins from the solution without precipitation of alpha-1-proteinase inhibitor, and
(c) separating alpha-1-proteinase inhibitor from the solution.

4,379,088
N-AMINOALKYLENESULFONAMIDO SUBSTITUTED MONOAZO COLORANTS
Nathan N. Crounse, Myrtle Beach, S.C., assignor to Sterling Drug Inc., New York, N.Y.
Division of Ser. No. 195,118, Oct. 8, 1980. This application Aug. 17, 1981, Ser. No. 293,393
Int. Cl.[3] C09B *29/20, 29/03, 29/15, 29/036*
U.S. Cl. 260—157 **10 Claims**

1. A mixture consisting essentially of a monoazo compound which is substituted with an average of x (N-substituted sulfonamido) groups per molecule wherein said monoazo compound is of the formula



in which
x represents a number from 1 to 4,
R represents hydrogen or the moiety



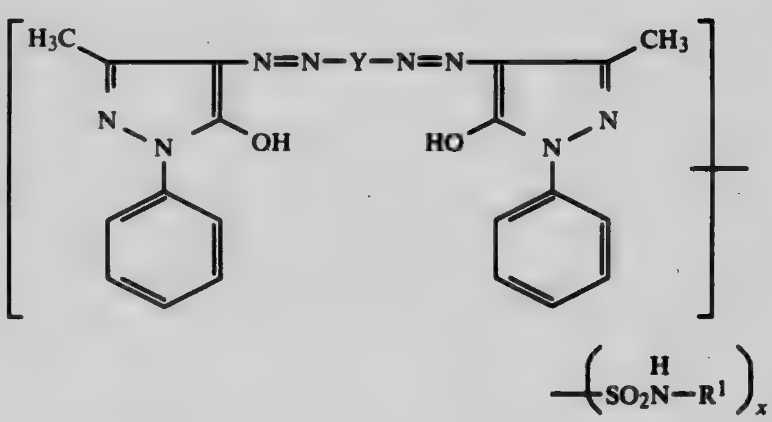
in which R^4 is hydrogen, C_1 to C_3 alkoxy or C_1 to C_3 alkyl,
R^1 represents a moiety selected from the group consisting of alkylene-NH-alkylene-NH_2,
alkylene-N-(C_1 to C_4 alkyl)$_2$,

alkylene-$NCH_2CH_2NHC{=}O$ and alkylene-$NCH_2CH_2N{=}CCH_3$

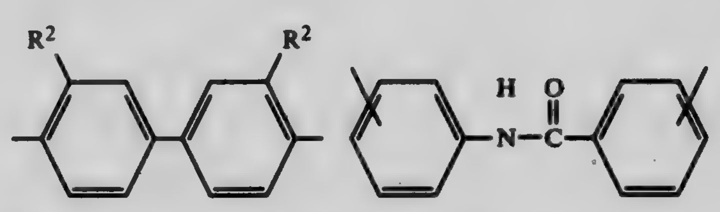
in which alkylene represents —CH_2CH_2— and —$CH_2CH_2CH_2$—,
R^3 represents hydrogen, C_1 to C_3 alkyl or C_1 to C_3 alkoxy; or the acid-addition salt forms of said mixtures of monoazo compounds.

4,379,089
POLYAMINOALKYLENESULFONAMIDATED DISAZO COLORANTS
Nathan N. Crounse, Myrtle Beach, S.C., assignor to Sterling Drug Inc., New York, N.Y.
Filed Oct. 8, 1980, Ser. No. 195,118
Int. Cl.[3] C09B *29/38, 35/04, 29/16, 29/20*
U.S. Cl. 260—161 **3 Claims**

1. A mixture consisting essentially of a disazo compound which is substituted with an average of x (N-substituted sulfonamido) groups per molecule wherein said disazo compound is of the formula



in which
x represents a number from 1 to 4,
Y represents a moiety selected from the class having the formulas



R^1 represents a moiety selected from the group consisting of alkylene-NH-alkylene-NH_2, alkylene-N-(non-tertiary C_1 to C_4 alkyl)$_2$,

alkylene-$NCH_2CH_2NHC{=}O$ and alkylene-$NHC_2CH_2{=}CCH_3$

in which alkylene represents —CH_2CH_2—and —$CH_2CH_2CH_2$—,
R^2 represents hydrogen, C_1 to C_3 alkyl or C_1 to C_3 alkoxy; or the acid-addition salt forms of said disazo compounds.

4,379,090

PROCESS FOR THE PREPARATION OF 1-(PHENYL AND HALOPHENYL)-3,4-DIHYDRO-4-[(DIMETHYLAMINO)-METHYLENE]5H-2-BENZAZEPIN-5-ONE-2-OXIDES

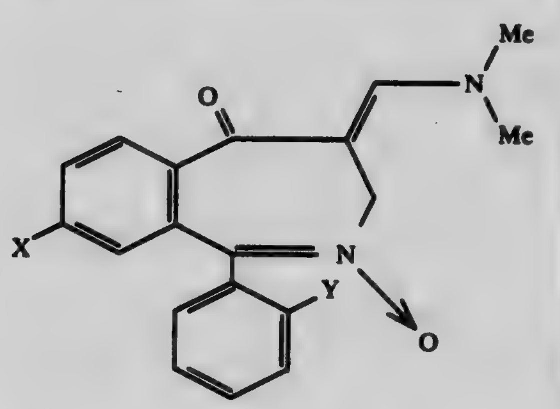
Eugene J. Trybulski, Parsippany, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 150,509, May 16, 1980, Pat. No. 4,318,854, which is a continuation-in-part of Ser. No. 10,118, Feb. 7, 1979, abandoned. This application Nov. 23, 1981, Ser. No. 324,293

Int. Cl.^{3} C07D *223/16*

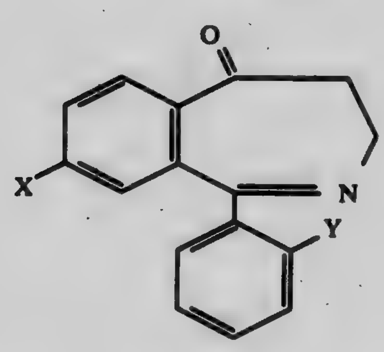
U.S. Cl. 260—239 BB **1 Claim**

1. A process to produce a compound of the formula



wherein X and Y are selected from the group consisting of hydrogen, halogen and trifluoromethyl, which consists essentially of:

(a) reacting a compound of the formula



wherein X and Y are as above, with a peracid in an inert organic solvent at from about 0° C. to 40° C. and separating the analogous N-oxide thereof and

(b) thereafter reacting the N-oxide of step (a) with dimethylformamide dimethylacetal in an inert solvent at from about 0° C. to 100° C. to produce the end product.

4,379,091

ESTERS OF ARYLPROPIONIC ACIDS ENDOWED WITH AN ANTI-INFLAMMATORY ACTIVITY

Paolo Ferruti; Ferdinando Danusso, both of Milan; Maria C. Tanzi, Monza, and Giuseppe Quadro, Milan, all of Italy, assignors to Ausonia Farmaceutici s.r.l., Rome, Italy

Filed Feb. 11, 1981, Ser. No. 233,665

Claims priority, application Italy, Feb. 13, 1980, 19879 A/80

Int. Cl.^{3} C07C *69/76*

U.S. Cl. 548—472 **7 Claims**

1. The tetraethylene glycol monoester with 2-(4-isobutylphenyl) propionic acid.

4,379,092

PROCESS FOR THE PREPARATION OF ANTHRAQUINONE AND ITS SUBSTITUTED DERIVATIVES

Michel Devic, Lyons, France, assignor to P C U K Produits Chimiques Ugine Kuhlmann, Courbevoie, France

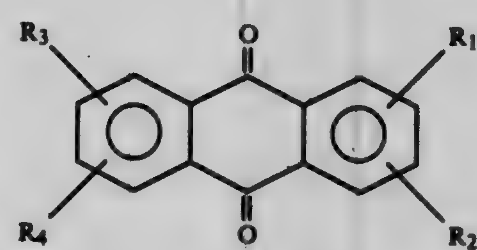
Filed Nov. 24, 1981, Ser. No. 324,520

Claims priority, application France, Dec. 16, 1980, 80 26637

Int. Cl.^{3} C07C *50/18;* **C09B** *1/00*

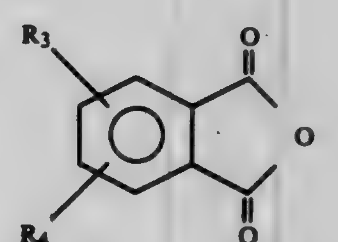
U.S. Cl. 260—369 **7 Claims**

1. Process for the preparation of anthraquinone compounds of the general formula:



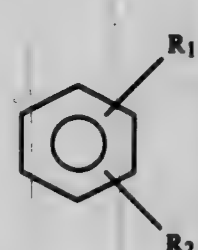
(I)

in which R_1, R_2, R_3, R_4 represent hydrogen, halogen or a linear or branched alkyl containing 1 to 5 carbon atoms which comprises reacting a phthalic anhydride or substituted phthalic anhydride of the formula:



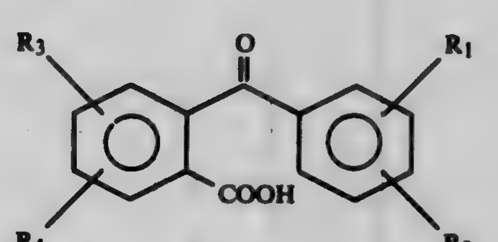
(II)

with a benzene compound of the formula:



(III)

wherein R_1, R_2, R_3, and R_4 have the same definition as above, in the presence of a catalyst mixture of hydrofluoric acid and boron trifluoride, and converting the thus obtained o-benzoyl benzoic acid of the formula:

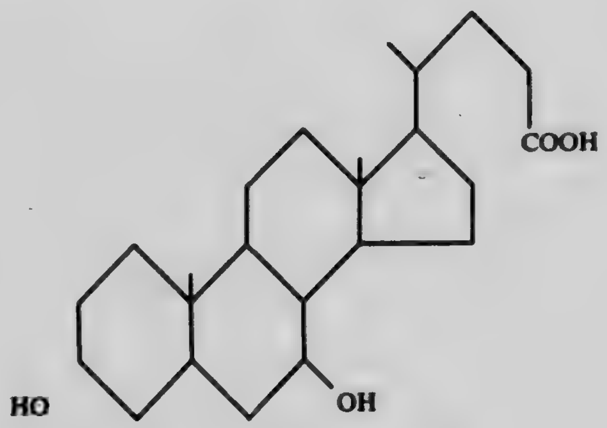


(IV)

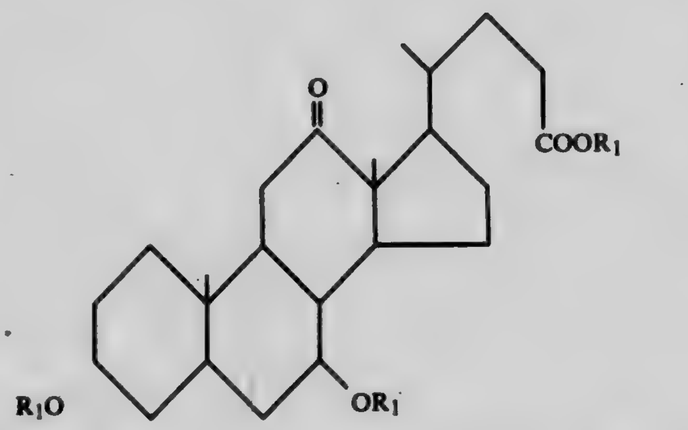
in which R_1, R_2, R_3, and R_4 have the same definition as above, into the compound of formula (I) by cyclization.

4,379,093
PROCESS FOR PREPARING HIGH PURITY URSODEOXYCHOLIC ACID
Antonio Bonaldi, Chiuduno, and Egidio Molinari, Longone al Segrino, both of Italy, assignors to Erregierre S.p.A., Bergamo, Italy
Filed Jun. 24, 1981, Ser. No. 277,005
Claims priority, application Italy, Apr. 14, 1981, 21137 A/81
Int. Cl.[3] C07J *9/00*
U.S. Cl. 260—397.1 **4 Claims**

1. A process for preparing high purity ursodeoxycholic acid



characterised in that a compound of formula



in which R_1 = H or a —$Si(CH_3)_3$ group, is reduced with hydrazine hydrate in the presence of an alkaline base and triethylene glycol, and the product obtained, if R_1 = —$Si(CH_3)_3$ is subjected to acid hydrolysis.

4,379,094
FERROSILOXANE THERMAL STABILIZERS FOR DIORGANOPOLYSILOXANES
Gail D. DiSalvo, Greenwich, and James D. Reedy, New Fairfield, both of Conn., assignors to Union Carbide Corporation, Danbury, Conn.
Filed Dec. 30, 1981, Ser. No. 335,613
Int. Cl.[3] C07F *15/02, 7/08*
U.S. Cl. 260—439 R **7 Claims**

1. A ferrosiloxane compound of the formula:

$$Fe^{+n}(OSiRR'R'')_x(OCOR''')_{n-x}$$

wherein n has a value of 2 or 3; x has a value of 1 to 3 inclusive; R, R', R'' and R''' are individually are alkyl, alkaryl, alkenyl, alkynyl, aryl, cycloalkyl, heteroatom substituted alkyl, cycloalkyl or aryl group having from 1 to 25 carbon atoms; R' could also be hydrogen or a siloxy group and wherein R'' could also be a siloxy or substituted siloxy group.

4. A process for stabilizing diorganopolysiloxanes from heat by adding an effective amount of a ferrosiloxane compound of the formula:

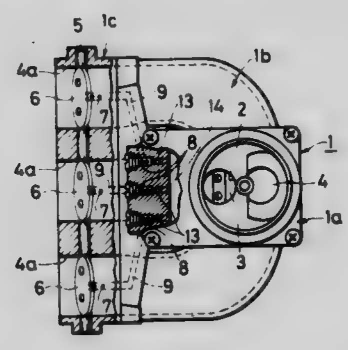
$$Fe^{+n}(OSiRR'R'')_x(OCOR''')_{n-x}.$$

4,379,095
METHOD FOR REDUCING THE MECHANICAL STABILITY OF NATURAL RUBBER LATEX
Richard C. Oldack, Uniontown, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio
Continuation of Ser. No. 158,959, Jun. 12, 1980, abandoned. This application Feb. 17, 1982, Ser. No. 349,184
Int. Cl.[3] C08L *7/02*
U.S. Cl. 260—815 **4 Claims**

1. A method for reducing the mechanical and chemical stability of natural rubber latex comprising the step of:

adding to the latex a nonionic polyol block copolymer surfactant selected from the group consisting of block polymers of propylene oxide sandwiched between block polymers of ethylene oxide in an amount of about 0.5 parts per 100 parts of rubber and block copolymers of ethylene oxide and propylene oxide bonded to ethylenediamine in an amount of from about 0.1 to about 0.5 parts, per 100 parts of rubber, and having a cloud point of less than 100° C., in order to reduce the amount of pressure necessary for the latex to bond to substances upon which it is applied.

4,379,096
COMPOUND CARBURETOR
Hiroshi Yokoyama; Tokuzi Ishida, both of Hamamatsu; Kunio Kikuchi, Odawara, and Kazuaki Zama, Chigasaki, all of Japan, assignors to Suzuki Motor Co., Ltd., Hamana and Mikuni Kogyo Kabushiki Kaisha, Tokyo, both of, Japan
Filed Nov. 24, 1981, Ser. No. 324,486
Int. Cl.[3] F02M *11/02*
U.S. Cl. 261—23 A **7 Claims**

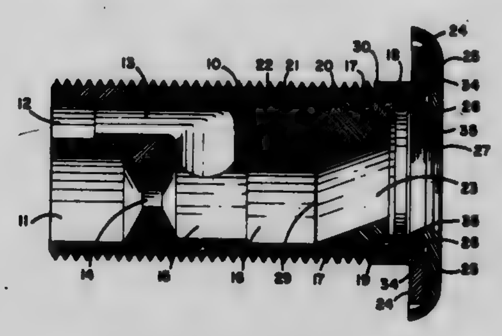


1. A compound carburetor comprising a primary bore provided therein with a primary throttle valve and branched in the downstream part of said primary throttle valve to be respectively connected to a plurality of cylinders of an engine to be used, a secondary bore arranged adjacently to said primary bore and branched in the downstream part to be respectively connected to said plurality of cylinders through secondary throttle valves arranged respectively for said plurality of cylinders, and a plurality of secondary slow-running fuel systems set respectively independently for said plurality of cylinders, opened respectively in the vicinity of said respective secondary throttle valves and cooperating respectively with said respective secondary throttle valves.

4,379,097
HYDROTHERAPY JET UNIT
Wilbur P. Leggett, 2189 Geronimo Way, Las Vegas, Nev. 89109
Filed Apr. 3, 1981, Ser. No. 249,892
Int. Cl.[3] B01F *3/04*
U.S. Cl. 261—78 A **11 Claims**

1. An improvement in a hydrotherapy jet unit for use under submerged conditions comprising a cylindrical housing bearing external threads throughout substantially its entire cylindrical length, and provided with means for attaching said housing

to pipe means connected to a pressurized water source and by separate and substantially parallel pipe means to ambient air, said housing bearing an integral circular mounting flange at the exit end of the cylindrical housing, said flange being of larger diameter than said cylindrical housing to facilitate insertion of said housing in a wall of a water-bearing vessel, said housing containing a water-air mixing chamber into which air is induced via said air pipe means and an axially aligned integral



plenum cavity, said housing further containing an expansion chamber, a deflection nozzle cavity adjacent said expansion chamber, a deflection nozzle mounted in the deflection nozzle cavity, and a cover cap, whereby water and air which are brought together and mixed in said water-air mixing chamber are jetted through said housing at high velocity passing from said water-air mixing chamber to said expansion chamber, thence through said deflection nozzle and thence through an opening in said cover cap.

4,379,098

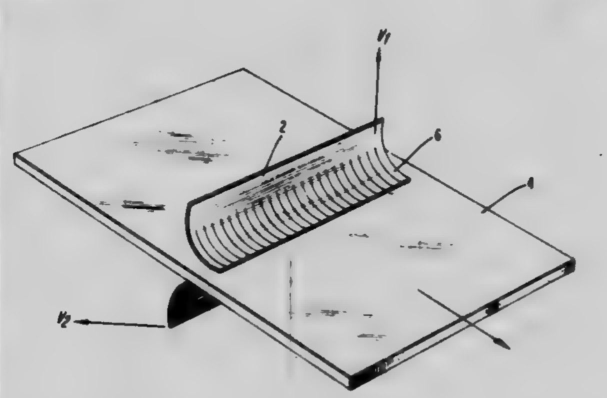
ELECTROMAGNETIC RADIATION SHIELDING COMPOSITES AND METHOD OF PRODUCTION THEREOF

Anthony Gumienny, Columbus, Ohio, assignor to Transmet Corporation, Columbus, Ohio

Filed Jul. 17, 1980, Ser. No. 169,671

Int. Cl.³ H05B *6/60;* **H02M** *3/04*

U.S. Cl. 264—24 **39 Claims**



1. A method of preparing an electromagnetic shielding composite which exhibits high conductivity and low resistance comprising:

providing a composite comprising an electrically conductive material dispersed within a matrix material; and

applying an electrical potential difference across said composite of sufficient magnitude to increase the conductivity of the composite whereby an additional application of said electrical potential difference will not further increase the conductivity of the composite, and thereafter passing an electrical current through the composite of sufficient magnitude to further increase the conductivity of the composite while maintaining the electrical potential difference at a value which does not exceed the value of the electrical potential difference which was previously applied, said electrical current being of a value greater than the value of any current which previously passed through the composite during application of said electrical potential difference.

4,379,099

METHOD FOR PRODUCING POLYESTER CONTAINER

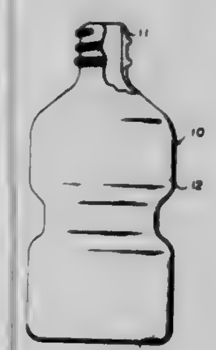
Akiho Ota, Funabashi, and Fumio Negishi, Tokyo, both of Japan, assignors to Yoshino Kogyosho Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 150,662, May 16, 1980, abandoned, which is a division of Ser. No. 19,913, Mar. 12, 1979, abandoned. This application Nov. 3, 1981, Ser. No. 317,887

Claims priority, application Japan, Jun. 29, 1978, 53-89840[U]; Jul. 4, 1978, 53-81340; Oct. 9, 1978, 53-124303

Int. Cl.³ B29C *17/07*

U.S. Cl. 264—25 **6 Claims**



1. A method for producing a hollow bottle-shaped container of biaxially oriented polyethylene terephthalate having a neck section, a bottom section, and a body section extending between said neck section and bottom section from a preform having a prefinished neck section with an annular radially outwardly extending ledge at its lower end, said method comprising the steps:

heating only the neck section of said preform, including the ledge, with a radiant heater at at least the glass transition temperature for at least 2 minutes 30 seconds and thereafter cooling the neck section to increase the density of the spherulitic texture only in the neck section to produce a preform having a milky color only in the neck section including the ledge and the remainder of the preform being transparent; and thereafter

biaxially orienting in a mold said preform in the regions of the preform below said ledge, including those immediately therebelow with no stretching in the neck section including the ledge to form the hollow-shaped container having a milky color only in the neck section including the ledge and the remainder of the container being transparent.

4,379,100

POLYURETHANE MOLDING PROCESS WITH SILOXANE INTERNAL RELEASE AGENT

Wayne C. Salisbury, Middleton, and Lee Hodson, Barrington, both of N.H., assignors to Ex-Cell-O Corporation, Troy, Mich.

Continuation-in-part of Ser. No. 230,896, Feb. 2, 1981, abandoned. This application Mar. 20, 1981, Ser. No. 246,103

Int. Cl.³ B28B *7/36, 7/38*

U.S. Cl. 264—39 **10 Claims**

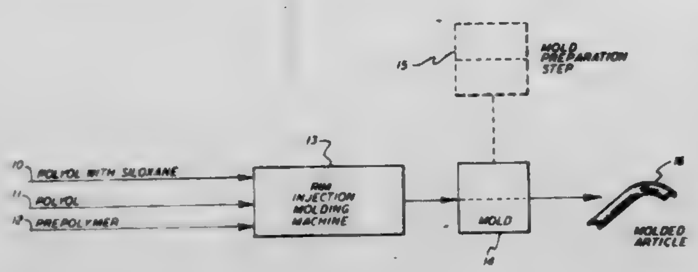
1. A process wherein the ingredients for a polyurethane-forming composition are brought together and reacted in a mold cavity to form a molded article, said ingredients including a polyol, an isocyanate and a normally liquid carboxy-functional siloxane internal mold release agent (hereinafter, "said CFS"), comprising:

I. dividing said ingredients into at least two components, viz:

(a) an isocyanate-containing component free of said CFS

(b) a polyol-containing component containing said CFS and free of said isocyanate and free of material that will react undesirably with said CFS;

II. preconditioning the surfaces of said mold cavity contacting said ingredients by cleaning said surfaces and uniformly and thinly applying said CFS thereto, and repeating several molding cycles with intermittent cleaning and reapplication of CFS as required;



III. maintaining said CFS present in said ingredients in a minimal amount sufficient to effect adequate release with said preconditioning which minimal amount is inadequate to maintain continued release in the absence of preconditioning.

4,379,101

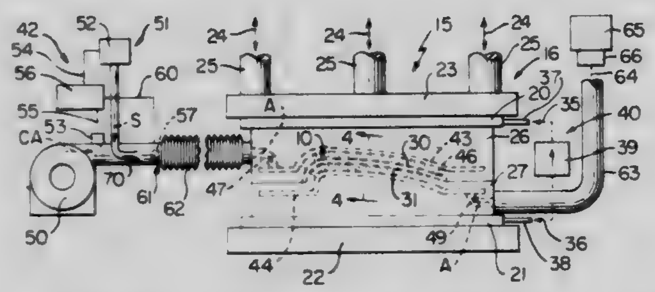
FORMING APPARATUS AND METHOD

Carl M. Smith, Oakville, Canada, assignor to Allen Industries, Inc., Troy, Mich.

Continuation of Ser. No. 156,437, Jun. 4, 1980, abandoned. This application Oct. 20, 1981, Ser. No. 313,106

Int. Cl.³ B29J *5/00*

U.S. Cl. 264—40.3 9 Claims



1. In a method of forming a pad construction of disconnected fibers comprising the steps of; randomly disposing said fibers to define a web thereof; dispersing an adhesive material throughout said fibers for bonding same upon heating and compressing said fibers and adhesive material; cutting said web to define a workpiece; providing a press having a first and a second platen supported for relative movement toward and away from each other and a first and a second mold supported by said first and second platen respectively; said molds having forming surfaces which define the configuration of said pad construction; supporting said workpiece between said forming surfaces; heating said workpiece; and compressing said workpiece between said forming surfaces; said heating step comprising the steps of providing hot humid air and flowing said hot humid air through said workpiece resulting in a rapid penetration and improved heating of said fibers and adhesive material and thereby enabling comparatively high speed forming of said pad construction with minimum forming pressure during said compressing step; said flowing step comprising, flowing said hot humid air through a first manifold in said first mold and through a plurality of air passages in said first mold which communicate with said first manifold with each air passage terminating in an aperture in the forming surface of said first mold, and receiving said hot humid air after passage thereof through said workpiece in a plurality of apertures in the forming surface of said second mold with said apertures in the forming surface of said second mold communicating with associated passages which in turn communicate with a second manifold in said second mold; the improvement in which said step of providing hot humid air comprises the step of mixing ambient air and superheated steam; said mixing step comprising mixing said superheated steam and ambient air employing a control system which controls a control device for said steam and a control device for said ambient air, and operating said control device for said ambient air independently of the operation of said control device for said steam to purge said manifolds and said passages of water vapor and to tend to cool said workpiece after said hot humid air has been provided through said workpiece, initially operating said control device for said ambient air and said control device for said steam to provide said ambient air at a high volume and said steam at a low volume to establish fluid flow through said workpiece before said step of providing said hot humid air and starting while said workpiece is being initially compressed between said forming surfaces, said step of providing said hot humid air comprising the step of operating said control device for said ambient air and said control device for said steam to provide said ambient air at a reduced volume from said high volume thereof and said steam at an increased volume from said low volume thereof, said step of operating said control device for said ambient air independently of the operation of said control device for said steam to purge comprising the step of again increasing the volume of said ambient air to said high volume thereof.

4,379,102

METHOD FOR MANUFACTURING ELECTRIC WIRE HAVING WIRE-ENAMEL-TYPE INSULATION

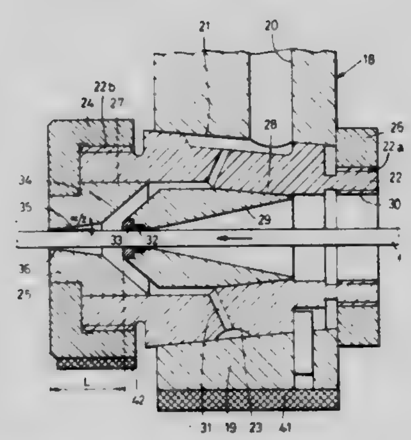
Eberhard Kertscher, Romanel, Switzerland, assignor to Maillefer S.A., Ecublens, Switzerland

Continuation of Ser. No. 26,060, Apr. 2, 1979, abandoned, which is a division of Ser. No. 811,362, Jun. 29, 1977, Pat. No. 4,165,957. This application Nov. 6, 1980, Ser. No. 204,755

Claims priority, application Switzerland, Jul. 1, 1976, 8446/76

Int. Cl.³ B29F *3/10*

U.S. Cl. 264—40.7 6 Claims



1. Method of manufacturing electric insulated wires for use in magnetic windings for motors, transformers, and the like, which wires comprise a metal core covered with an insulation sheath having a predetermined diameter of a magnitude 10 to 100 micrometers greater than the diameter of the core for a core diameter of 0.1 to 4 mm, comprising the steps of

processing a synthetic resin having a melting point of at least 250° C. through a screw extruder with simultaneous heating of the resin to a temperature at least 30° C. higher than said melting point to obtain said resin in a hydrostatic liquid state,

forwarding said resin from said screw extruder into an extrusion head for feeding said head with said resin in said hydrostatic liquid state and in a pressure comprised between 10 and 1000 bars, said head having at least one inlet opening for receiving the metal core therein, at least one outlet opening for delivering the insulated wire with the said sheath thereon, and a distribution chamber of a fixed size with static compression means, for bringing said resin onto said core,

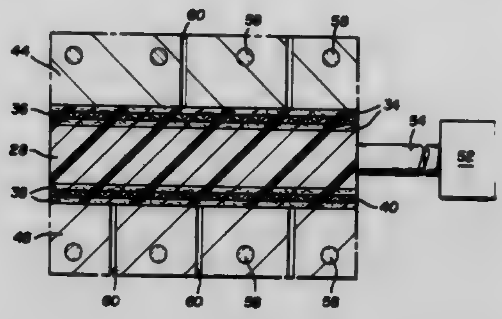
regulating said pressure to keep it at a constant value,

and travelling said core through said extrusion head at a speed such that the resin is pulled along by the core.

4,379,103
METHOD OF FORMING A FOAM RESIN CORE STRUCTURE HAVING A SMOOTH COMPOSITE REINFORCED INTEGRAL SKIN

Ralph G. Doerfling, Northville, Mich., assignor to Detroit Gasket & Manufacturing Co., Detroit, Mich.

Filed Aug. 25, 1980, Ser. No. 180,740
Int. Cl.³ B29D *27/00*
U.S. Cl. 264—45.5 **8 Claims**



1. The method of forming a foam resin core structure having a smooth composite reinforced integral skin, comprising the following steps:

(a) inserting two pervious, absorbant, low density, flexible sheets in an enclosed die assembly having opposed spaced apart die surfaces and side surfaces, said die surfaces forming an enclosed die cavity, said sheets positioned within said die cavity in spaced apart relationship to one another and generally parallel to said opposed spaced die surfaces, and said opposed die surfaces having pressure relief openings,

(b) injecting a fluid foamable thermosetting resin reaction mixture under pressure into said enclosed die cavity and into the space between said sheets, said reaction mixture foaming and expanding or forcing said sheets against said opposed spaced die surfaces, said sheets absorbing said fluid thermosetting resin while permitting gas to escape therethrough into said pressure relief openings, and said resin saturating said sheets and forming a thin resin film on the exterior surfaces of said sheets adjacet said opposed spaced die surfaces, and

(c) curing said foamed thermosetting resin in said enclosed die cavity, forming a thermoset resin foam core between said sheets and a relatively smooth composite reinforced integral skin on opposed sides of said core, said composite reinforced integral skin comprising said absorbant sheets soaked with thermosetting resin and a smooth external film of resin.

4,379,104
METHOD AND DEVICE FOR MOULDING A TIRE FOR A WHEEL RIM

Arie Koorevaar, 630 Rivierdijk, 3371 EE Hardinxveld-Giessendam, Netherlands

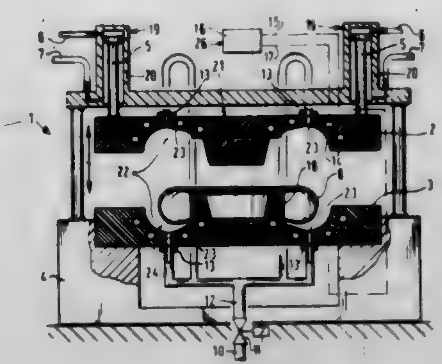
Filed Mar. 16, 1981, Ser. No. 243,872
Claims priority, application Netherlands, Mar. 21, 1980, 8001681
Int. Cl.³ B29D *27/00*
U.S. Cl. 264—45.5 **12 Claims**

1. The method of making a tire which comprises the steps of:

(a) providing an annular mold cavity which is of generally crescent shape in radial cross section by enclosing with abutment of the cavity defined rim portion a thin walled annular core between mold halves which define a toroidal space therebetween, said core being formed of synthetic resinous material;

(b) introducing foamable synthetic resinous material into said mold cavity in amount sufficient to fill said cavity completely when such material has foamed;

(c) foaming such material to form a tire comprising the annular, thin walled core having an annular covering of



foamed, synthetic resinous material of generally crescent-shaped radial cross section thereon; and

(d) removing said tire from the mold halves.

4,379,105
PROCESS FOR THE PRODUCTION OF ELASTIC SHAPED ARTICLES

Ronald P. Taylor, Coraopolis, and Barry A. Phillips, Slovan, both of Pa., assignors to Mobay Chemical Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 170,426, Jul. 21, 1980, abandoned. This application Jul. 29, 1981, Ser. No. 288,222
Int. Cl.³ B29D *27/00*
U.S. Cl. 264—45.5 **12 Claims**

1. A process for the production of optionally cellular, elastic, shaped articles having an impervious surface layer of polyurethane-polyurea elastomers by reacting a reaction mixture comprising:

(A) an organic polyisocyanate;

(B) an ethylene oxide-tipped difunctional or higher functional polyoxyalkylene polyol having a hydroxyl number of from about 22 to about 35 and a total ethylene oxide content of from about 12 to about 22% by weight, based on the total amount of alkylene oxide present in said ethylene oxide-tipped polyol;

(C) a propylene oxide-tipped difunctional or higher functional polyoxyalkylene polyol containing oxyethylene segments in the internal block of the polyol in a quantity of from 15 to 60% by weight, based on the total amount of alkylene oxide present in said propylene oxide-tipped polyol, and having a hydroxyl number of from about 22 to about 35;

(D) a catalyst;

(E) an aromatic amine chain extender, said amine being miscible with components (B) and (C), in any proportion, and optionally;

(F) blowing agents, surfactants and/or flow enhancing agents;

said reaction mixture being processed as one-shot systems by the reaction injection molding technique (RIM process) and said reactants being used in quantities corresponding to an isocyanate index of from 70 to 130, further characterized in that (i) the polyols (B) and (C) are used in a weight ratio less than or equal to 5:1, and (ii) the composition and proportions of (B) and (C) are selected such that the total concentration of oxyethylene groups in the final polyurethane is from about 7 to about 14% by weight.

4,379,106

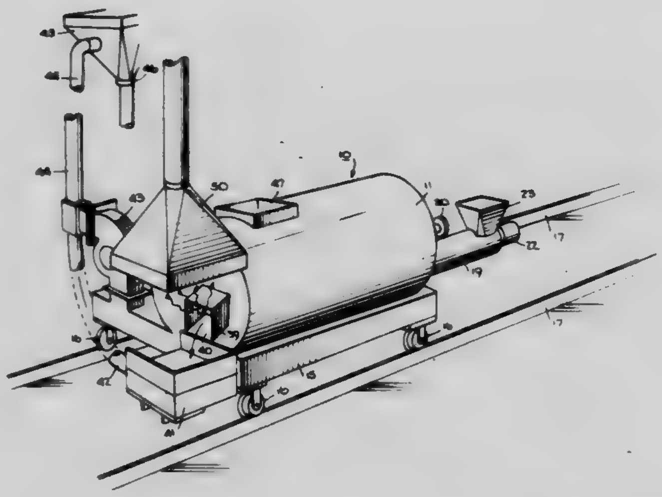
METHOD OF EXPANDING HEAT EXPANDABLE THERMOPLASTIC ELEMENTS WITH STEAM AND A HORIZONTAL EXPANDER WITH A FEED NEAR THE BOTTOM FOR EXPANDING THE HEAT EXPANDABLE ELEMENT

Harry Bussey, Jr., P.O. Box 115, Serpentine Rd., Navesink, N.J. 07752

Filed Jan. 9, 1981, Ser. No. 223,697

Int. Cl.³ B29D *27/00;* **F27B** *9/18*

U.S. Cl. 264—51 **32 Claims**



1. A method of expanding heat expandable thermoplastic elements, said method comprising the steps of

feeding a supply of heat expandable thermoplastic elements into a horizontally disposed chamber near the bottom dead center of the chamber at one axial end thereof to maintain the chamber in a substantially filled condition;

agitating the elements in the chamber while conveying the elements towards an outlet at an opposite end of the chamber; and

passing a heated medium upwardly into the chamber for heating and expanding the elements therein during conveyance toward the outlet.

4,379,107

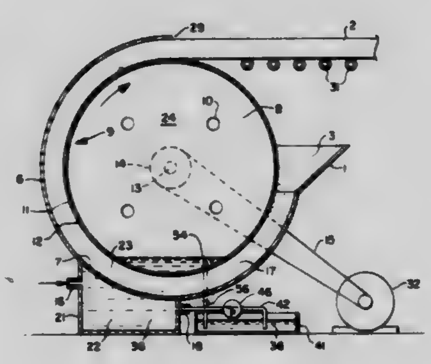
METHOD AND APPARATUS FOR THE CONTINUOUS PRODUCTION OF A UNIFORM SLAB OR SHEET FROM HEAT EXPANDABLE THERMOPLASTIC PARTICLES

Rolf E. Berner, R.D. #6, Box 1444, New Castle, Pa. 16103

Filed Jul. 14, 1981, Ser. No. 283,281

Int. Cl.³ B29D *27/00;* **B29C** *29/00*

U.S. Cl. 264—51 **13 Claims**



1. A method for producing a continuously molded thermoplastic sheet from heat expandable granules in a heated zone within a molding channel comprising:

a. introducing water into said molding channel to cause said granules to adhere to one another; and

b. introducing a hot gas into contact with said wetted granules to expand said granules into said thermoplastic sheet.

4,379,108

STRENGTHENING PHOSPHATE SHALE BRIQUETTES

James A. Robertson, Levittown, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Filed Feb. 19, 1980, Ser. No. 122,099

Int. Cl.³ C04B *35/64*

U.S. Cl. 264—56 **8 Claims**

1. The method of producing phosphate shale agglomerates of enhanced strength which comprises adding to and mixing with crushed phosphate shale ore, the crushed ore containing from about 20% to about 30% by weight P_2O_5 and including particles varying in size from fines up to about $\frac{3}{4}$ inch, tempering water and a water-soluble alkali metal or ammonium phosphate, the amount of water being sufficient to bring the moisture content of the mixture between 9 and about 12%, the water-soluble phosphate being added in an amount up to about 0.1% by weight of the phosphate shale, compacting the mixture to form green briquettes, calcining the green briquettes at a temperature of from about 2,000° F. (1,095° C.) to about 2,500° F. (1,375° C.) and recovering the calcined briquettes.

4,379,109

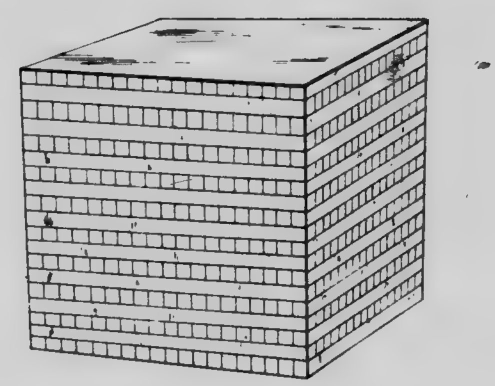
METHOD OF PREPARING A MONOLITHIC STRUCTURE HAVING FLOW CHANNELS

Edgar A. Simpson, Severna Park, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed Feb. 2, 1978, Ser. No. 874,584

Int. Cl.³ C04B *39/12*

U.S. Cl. 264—60 **8 Claims**



1. A method of preparing a ceramic monolithic structure having a plurality of flow channels comprising

(a) shaping a substantially uniform mixture of a composition comprising a ceramic powder, an organic thermoplastic binder, and a plasticizer to form flat sheets;

(b) forming a series of ribs on a first side of at least a portion of the sheets;

(c) extracting the plasticizer from the sheets to form sheets comprising the ceramic powder and the organic thermoplastic binder;

(d) applying a ceramic cement composition to the ribs or to the second side of the extracted sheets;

(e) positioning the sheets in a layered structure such that the ceramic cement composition is in adhesive contact with a surface of the adjacent sheet; and

(f) firing the layered structure to sinter the ceramic powder and the cement composition and to decompose the binder.

4,379,110

SINTERING OF SILICON NITRIDE TO HIGH DENSITY

Charles D. Greskovich, Schenectady; John A. Palm, Jonesville, and Svante Prochazka, Ballston Lake, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

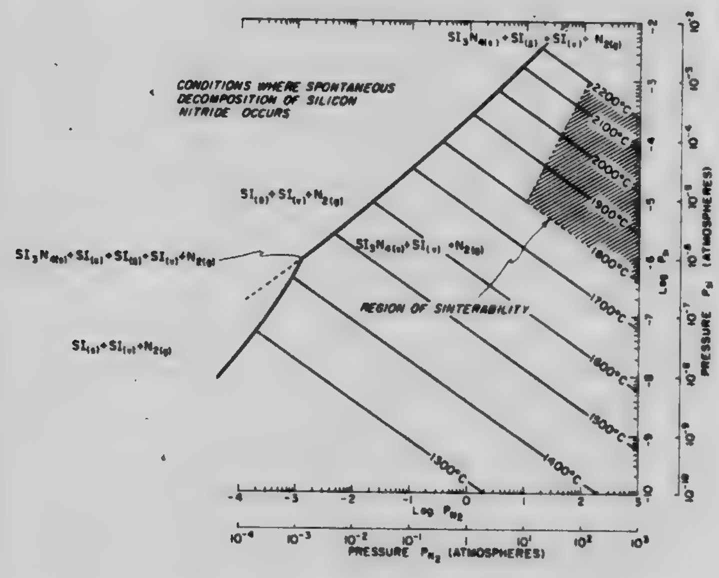
Continuation of Ser. No. 65,121, Aug. 9, 1979, abandoned. This application Sep. 14, 1981, Ser. No. 301,707

Int. Cl.³ C04B *35/58*

U.S. Cl. 264—65 **5 Claims**

1. A method of producing a high density pre-shaped sintered

polycrystalline silicon nitride body which consists essentially of providing at least a significantly homogeneous dispersion having an average particle size which is submicron of silicon nitride, oxygen and a beryllium additive, said beryllium additive being selected from the group consisting of beryllium, beryllium oxide, beryllium carbide, beryllium fluoride, beryllium nitride, beryllium silicon nitride and mixtures thereof, said beryllium additive being used in an amount wherein the beryllium component is equivalent to from about 0.1% by weight to about 2% by weight of elemental beryllium based on the amount of silicon nitride, shaping said dispersion into a compact, said compact containing oxygen in an amount ranging from about 1.4% weight to about 7% by weight of said silicon nitride, said compact containing increasing amounts of said oxygen with increasing amounts of said beryllium component, said compact containing about 7% by weight oxygen for an equivalent amount of said elemental beryllium of about 2% by



weight, and initially first sintering said compact at a temperature ranging from about 1900° C. to about 2100° C. in a sintering atmosphere of nitrogen at supra atmospheric pressure until at least the pores in the entire outside surface of the compact are closed making such sintered surface impermeable to nitrogen gas, said nitrogen pressure during said first sintering ranging from a minimum of about 10 atmospheres at a sintering temperature of about 1900° C. to a pressure of about 37 atmospheres at a sintering temperature of about 2100° C., and then secondly sintering said compact at a temperature ranging from about 1800° C. to about 2100° C. under a pressure of nitrogen ranging from about two times to about four times the value of said first sintering pressure thereby yielding a sintered body with a density ranging from about 95% to about 100%, said nitrogen being at super-atmospheric pressure which at said sintering temperatures prevents significant thermal decomposition of said silicon nitride the maximum pressure of said nitrogen in said second intering being lower than 100 atmospheres.

4,379,111

METHOD FOR PRODUCING CHROMIUM OXIDE COATED REFRACTORY FIBERS

Russell D. Smith, Grand Island, N.Y., and Richard E. Tressler, Julian, Pa., assignors to Kennecott Corporation, Stamford, Conn.

Continuation of Ser. No. 41,033, May 21, 1979, abandoned. This application Jul. 6, 1981, Ser. No. 280,652

Int. Cl.[3] B32B *9/00;* **B05D** *3/02;* **B29G** *5/00*

U.S. Cl. 264—137 **5 Claims**

1. A method for uniformly coating a ceramic fiber to increase the shrink resistance of the ceramic fiber comprising spraying a solution containing from about 0.1 to about 20 weight percent chromium ion upon the fiber at a fiber temperature of about 350° C. to the melting temperature of the fiber to form a fiber having increased shrink resistance, said spraying occurring during fiberization prior to initial cooling.

4,379,112

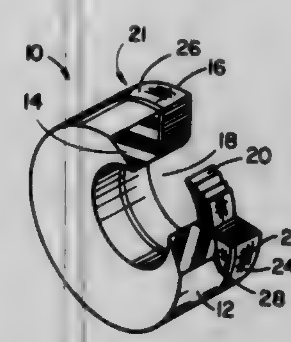
METHOD FOR MAKING A REINFORCED ELASTOMER PISTON PACKING

George E. Heikes, Jr., and Claude L. Henderson, both of Denver, Colo., assignors to The Gates Rubber Company, Denver, Colo.

Division of Ser. No. 92,406, Nov. 8, 1979, Pat. No. 4,280,709. This application Apr. 13, 1981, Ser. No. 253,999

Int. Cl.[3] B29H *9/04*

U.S. Cl. 264—159 **2 Claims**



1. A method for making piston rubbers comprising the steps of:

wrapping a length of rubberized thread fabric several times around a mandrel and over itself in volute fashion to define a plied sleeve having a desired radial thickness with side portions of the thread fabric at an outer generally cylindrical surface of the sleeve;

radially cutting the sleeve into a plurality of bands having desired widths;

positioning the bands and elastomeric material in mold cavities of generally cylindrical piston rubber shape so that portions of the thread fabric at the outer generally cylindrical portion of the sleeve are juxtaposed a mold surface portion having the cylindrical piston rubber shape;

pressurizing, heating, curing and molding the bands and elastomeric material together to define piston rubbers while leaving side portions of the thread fabric at an exterior portion of the piston rubbers to define wear-resistant surfaces.

4,379,113

MELT SPINNING PROCESS FOR ACRYLONITRILE POLYMER FIBER-THREE OR MORE STRETCH STAGES

Chi C. Young, and Francesco DeMaria, both of Gulf Breeze, Fla., assignors to American Cyanamid Company, Stamford, Conn.

Filed Jul. 9, 1981, Ser. No. 281,612

Int. Cl.[3] D01F *7/00*

U.S. Cl. 264—206 **7 Claims**

1. In a process for preparing an acrylonitrile polymer fiber wherein a single phase fusion melt of acrylonitrile polymer and water is extruded through a spinnerette directly into a steam-pressurized solidification zone maintained under conditions of saturation, pressure and temperature which control the rate of release of water from the nascent extrudate and maintain the nascent extrudate in a stretchable state and stretching the extrudate while it remains within said solidification zone, the improvement which comprises conducting the stretching in at least three stretch stages, the first stage being conducted at a stretch ratio in the range of about 1.1 to 10 relative to the linear speed of the fusion melt through the spinerette, the second and third stages being conducted at a total stretch ratio greater than that of the first stage and the third and any subsequent stages being conducted at a stretch ratio that reduces steam pressure requirements for fiber relaxation.

4,379,114

METHOD OF JOINING WATERPROOF SHEETS, AND THEIR JOINT STRUCTURE

Toshiaki Fujiki; Hikaru Kano, both of Kobe, and Toru Nishi, Nishinomiya, all of Japan, assignors to Mitsuboshi Belting Limited, Hyogo, Japan

Filed Oct. 7, 1981, Ser. No. 309,348

Int. Cl.[3] B29C *24/00, 27/00, 15/00*

U.S. Cl. 264—248 **8 Claims**

1. A method for joining edges of two sheets together, comprising: disposing a cure tape, which will flow under heat and pressure and is heat curable, between overlapping edge portions of the sheets to be joined, said tape having a width which is substantially equal to that of said overlapping edge portions, positioning said edge portions with said cure tape between pressing members with a resilient cushion between one of said sheets and one of said members, applying heat and pressure to said sheets and the interposed cure tape causing said cure tape to flow, thereby resulting a gently curved joint between said two sheets free from any acutely stepped portion, said cushion being deformed when said pressure is applied so as to form a shaping cavity for the joint therein.

4,379,115

PIPE SOCKET FORMING

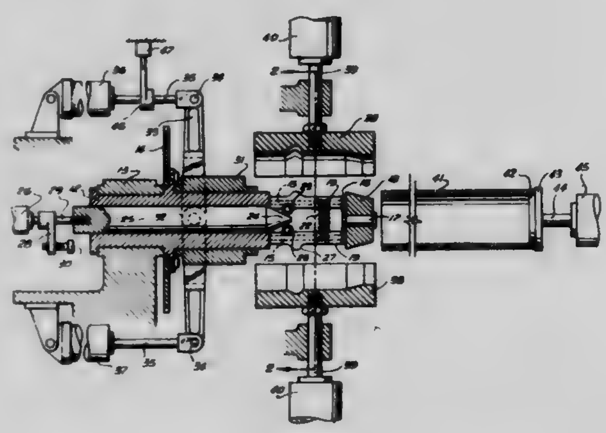
Barry G. Seach, Castle Hill; Hans Muller, Seven Hills, and Solomon E. Cohen, Eastwood, all of Australia, assignors to James Hardie & Coy, Pty. Limited, New South Wales, Australia

Division of Ser. No. 201,545, Mar. 14, 1979. This application Jul. 18, 1980, Ser. No. 170,102

Claims priority, application Australia, Mar. 20, 1978, PD3758

Int. Cl.[3] B29D *23/00*

U.S. Cl. 264—296 **6 Claims**



1. A method of forming a socket on an end portion of a pipe in a plastically deformable condition, comprising the steps of:
- expanding the end portion of the pipe to form a cylindrical enlargement having a diameter greater than that of the remainder of the pipe;
- externally constraining said enlargement by enclosing it within a contour die formed as an envelope having the external shape required of the socket;
- applying an axially directed loading to the ends of said enlargement for reducing the length of said enlargement and for preventing wall thickness reduction thereof; and
- forming the socket by applying pressure radially outwardly against interior surfaces of said enlargement and by concurrently circumferentially trowelling the interior surfaces of said enlargement during said constraining step and said axially applying step.

4,379,116

PROCESS FOR THE PREPARATION OF POLYVINYLBUTYRAL SHEETING AND ADHESION CONTROL

Robert E. Moynihan, Lowell, Ohio, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 23, 1981, Ser. No. 324,117

Int. Cl.[3] B29B *1/04*

U.S. Cl. 264—349 **6 Claims**

1. In a process for the preparation of polyvinylbutyral sheeting comprising admixing an aqueous slurry of polyvinylbutyral and a compatible quantity of plasticizer, removing at least part of the water from the aqueous slurry and extruding the resulting admixture in the form of a sheet, the improvement which comprises adding to the admixture, after water removal and prior to extrusion, about from 10 to 1,000 ppm of at least one metal carboxylate of the formula $M(CO_2R)_2$ wherein M is magnesium or calcium and R is CH_3 or hydrogen.

4,379,117

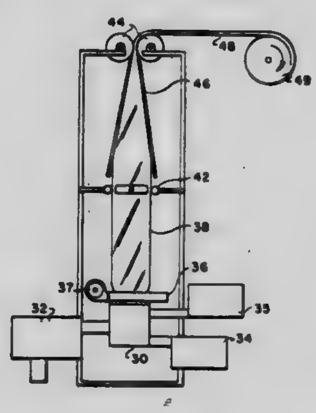
METHOD FOR PREPARING A FILM OF VINYLIDENE CHLORIDE POLYMER

William G. Baird, Jr., Winchester; Stanley E. Holbrook, South Acton, and Jeremy A. Platt, Cambridge, all of Mass., assignors to W. R. Grace & Co., Duncan, S.C.

Continuation of Ser. No. 460,855, Apr. 15, 1974, Pat. No. 4,048,428, which is a continuation of Ser. No. 114,692, Feb. 11, 1971, Pat. No. 3,821,182, which is a division of Ser. No. 590,107, Jun. 2, 1966, abandoned, which is a division of Ser. No. 157,194, Dec. 5, 1961, abandoned. This application Mar. 1, 1976, Ser. No. 662,662

Int. Cl.[3] B29D *23/01, 23/04*

U.S. Cl. 264—514 **10 Claims**

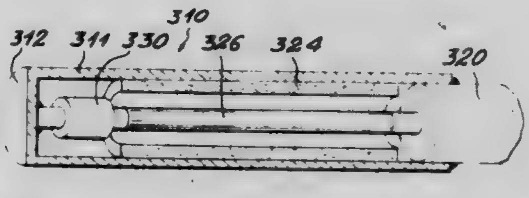


1. A process for production of film of hot-tacky thermoplastic material by the blown film process, which material is tacky to the extent that in production thereof by the blown film process, wherein a tube of the material is independently extruded, the extruded tube is inflated and thereafter flattened with squeeze rollers so that walls of the tubing are superimposed, the superimposed walls become bonded together, which comprises extruding two tubes, one outside the other to produce a two ply tube comprising an inner ply and an outer ply, inflating the two ply tube, and thereafter flattening the two ply tube with squeeze rollers, and removing the flattened two ply tube from the squeeze rollers, the outer ply being said hot-tacky thermoplastic material, and the inner ply being a tack-free thermoplastic material.

7. A process for production of a multi-ply film of a copolymer of vinylidene chloride by the blown film process, which copolymer is tacky to the extent that in production thereof by the blown film process, wherein a tube of the copolymer is independently extruded, inflated and thereafter flattened with squeeze rollers so that walls of the tube are superimposed, the superimposed walls become bonded together, which comprises extruding at least two tubes, one outer to the other to

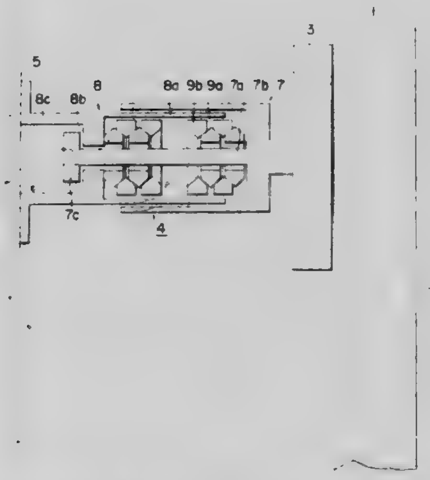
produce a multi-ply tube comprising an inner ply and an outer ply, inflating the multi-ply tube, and thereafter flattening the multi-ply tube with squeeze rollers, and removing the flattened multi-ply tube from the squeeze rollers, the outer ply being a copolymer of vinylidene chloride, and the inner ply being a tack-free thermoplastic material.

4,379,118
PROCESS FOR MEASURING A CONTINUOUS NEUTRON FLUX AND MEASURING APPARATUS FOR CARRYING OUT THIS PROCESS
Michel Roche, Dijon, France, assignor to Commissariat a l'Energie Atomique, Paris, France
Filed Sep. 12, 1980, Ser. No. 186,427
Claims priority, application France, Sep. 21, 1979, 79 23514
Int. Cl.³ G21C *17/00*
U.S. Cl. 376—154 9 Claims



1. Process for measuring a continuous neutron flux, comprising the steps of:
disposing in the neutron flux a probe comprising a first part defining an enclosure and a second part disposed inside the enclosure and constituted by an electrical resistor previously calibrated in order to know the variation thereof as a function of the temperature, the electrical resistor being separated from the enclosure by a medium whose heat conductance is known and one of said parts being made at least partially of a fissile material whilst the other part is made of inert material,
measuring said electrical resistor to yield the temperature of the second part and measuring the temperature of the first part of the probe, and
establishing from the difference in the temperatures measured at equilibrium between the two parts of the probe and the corresponding value of the heat conductance of the medium, the power continuously released by the part made of fissile material.

4,379,119
APPARATUS FOR SUPPORTING CORE CONSTITUTING ELEMENTS IN NUCLEAR REACTOR CORE
Shigeru Fujimoto, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan
Filed Nov. 13, 1980, Ser. No. 207,010
Claims priority, application Japan, Nov. 20, 1979, 54-149574
Int. Cl.³ G21C *9/00*
U.S. Cl. 376—302 2 Claims



1. Apparatus for supporting a nuclear reactor core comprising a support frame for supporting core elements and a friction damper through which said support frame is secured to an inner wall of a reactor vessel, said friction damper comprising first and second cylindrical members which are loosely telescoped with each other and a ring spring disposed in said cylindrical members, said first cylindrical member being connected to said support frame and comprising a first cylindrical portion having an open end facing said inner wall of the reactor vessel, a shaft portion concentric with said first cylindrical portion and extending through said open end, and an annular head mounted on a protruded end of said shaft portion, said second cylindrical member being secured to said inner wall of the reactor vessel and comprising a second cylindrical portion and a cylindrical chamber connected to an inside of said second cylindrical portion through a partition wall which is provided with a through hole having a diameter less than that of said annular head, said annular head being positioned inside of said cylindrical chamber, said ring spring being arranged within said first and second cylindrical portions about said shaft portion.

4,379,120
SULFIDATION RESISTANT NICKEL-IRON BASE ALLOY
C. Raymond Whitney, and Andrew R. Walsh, both of Reading, Pa., assignors to Carpenter Technology Corporation, Reading, Pa.
Filed Jul. 28, 1980, Ser. No. 172,681
Int. Cl.³ C22C *19/05*
U.S. Cl. 420—448 4 Claims

1. An austenitic nickel-iron base alloy resistant to sulfidation at elevated temperatures of about 1200–1500 F., which has good hot strength and stress rupture life at elevated temperatures up to about 1500 F. when heat treated, as well as thermal stability as indicated by freedom from the formation of more than 10 v/o chromium-rich alpha phase when exposed to temperatures of from about 1200–1500 F. for about 1500 hours, said alloy consisting essentially by weight of about

	w/o
C	0.02–0.08
Mn	2 Max.
Si	0.25 Max.
P	0.03 Max.
S	0.03 Max.
Cr	21–24.5
Ni	52–60
Mo	1–3.5
Ti	1.75–3.25
Al	0.75–2.25
Cb	0.50–2
B	up to 0.02

the balance being essentially iron, and said alloy being balanced so as to have an average electron-vacancy number Nv not greater than 2.50.

4,379,121
BRAZING FILLER METAL COMPOSITION AND PROCESS
John H. McMurray, Stratford, and Jule Miller, Derby, both of Conn., assignors to Avco Corporation, Stratford, Conn.
Filed Jul. 9, 1981, Ser. No. 281,794
Int. Cl.³ C22C *19/05*
U.S. Cl. 420—452 2 Claims

1. A brazing filler metal composition comprising, by weight, from about 3.0% to about 4.0% chromium; from about 1.0% to about 2.0% boron; from about 2.0% to about 2.5% silicon; from about 1.0% to about 2.0% iron; from about 5.0% to about 6.0% phosphorus; a maximum of about 0.06% carbon; and the remainder nickel.

4,379,122

MIXING HEAD FOR REACTIVE COMPONENTS

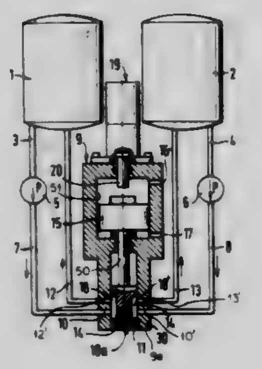
Peter Taubenmann, Munich, Fed. Rep. of Germany, assignor to Krauss-Maffei Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jan. 30, 1981, Ser. No. 229,945

Claims priority, application Fed. Rep. of Germany, Feb. 13, 1980, 3005231

Int. Cl.³ B01F *5/04, 15/02, 17/00;* **B01J** *13/00*

U.S. Cl. 422—133 **6 Claims**



1. A mixing head for two reactive components comprising:
housing means forming a mixing chamber and having respective inlets supplied with said components and adapted to open into a mold cavity;
a control member displaceable in said housing means between a first position wherein flow from said inlets into said chamber is blocked and residual mixtures of said components are displaced from said chamber, and a second position wherein flow from said inlets into said chamber is unblocked, said control member defining passages for recirculating said compartments from said inlets in said first position of said control member;
a first cylinder arrangement including a piston operatively connected to said control member and hydraulically actuatable to shift said control member between said positions;
a displacement body laterally shiftable into and out of said chamber for controlling the mixing of said components thereof;
a second cylinder arrangement having a piston connected to said body and hydraulically operable to shift said body into said chamber;
a third cylinder arrangement mounted on said housing means and having a piston positioned for mechanical displacement by the piston of said first cylinder upon movement of said member from said first position to said second position to displace hydraulic fluid from said third cylinder arrangement; and
a duct connecting said second and third cylinder arrangements whereby the movement of the piston of said third cylinder arrangement induces movement of the piston of said second cylinder arrangement, and independent of the hydraulic operation of said first cylinder arrangement, for establishing hydraulic fluid communication therebetween for shifting said body into said chamber upon movement of said member from said first position to said second position and for withdrawing said body from said chamber upon movement of said member from said second position toward said first position.

4,379,123

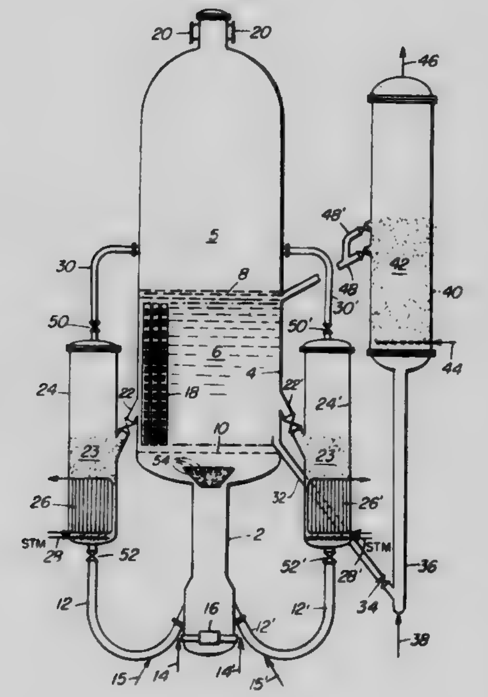
FLUID CATALYST CONVERSION OF ALCOHOLS AND OXYGENATES TO HYDROCARBONS

Nicholas Daviduk, Pennington, and James H. Haddad, Princeton Junction, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Division of Ser. No. 89,706, Oct. 30, 1979, Pat. No. 4,238,631. This application Aug. 11, 1980, Ser. No. 176,830

Int. Cl.³ B01J *8/28, 8/26;* **C07C** *1/20*

U.S. Cl. 422—142 **3 Claims**



1. An apparatus for converting reactants comprising lower alcohols and related oxygenates in the presence of fluid catalyst particles to C_{10} and lower boiling hydrocarbons including LPG and gaoline-boiling components comprising:
a relatively large diameter reactor vessel provided with a perforated grid means across a lower cross-section thereof, a fluid bed of catalyst particles above said grid means and a plurality of vertical elongated tubular baffle means arranged within said bed of catalyst, said tubular baffle means being provided with a plurality of openings in the walls thereof sufficient to provide cross-flow of catalyst particles through said tubular baffle means and restrict reactant bubble growth within desired limits,
a riser reactor in open communication with the bottom of said large diameter reactor vessel beneath said grid means,
a plurality of satellite stripping-cooling chambers adjacent said large reactor vessel, each of said chambers provided with a catalyst transfer conduit between said fluid bed of catalyst and said stripping-cooling chamber, a gaseous material transfer conduit communicating between the top of said stripping-cooling chamber and said large diameter vessel above the upper level of the bed of catalyst therein,
conduit means communicating between the bottom of said stripping-cooling chambers and the lower portion of said riser reactor, means for charging vaporous reactant material to a lower portion of said riser reactor, means for charging stripping gas to a lower portion of said stripping-cooling chambers beneath indirect heat exchange means therein, and
means for withdrawing reaction product material from an upper portion of said large diameter reactor vessel.

4,379,124

REACTOR MADE FROM STEEL WITH PARTICULARLY HIGH RESISTANCE TO THE EFFECTS OF OXO SYNTHESIS AND METHOD OF PREPARING STEEL FOR USE IN CONSTRUCTING AN OXO REACTOR

Raymond Fouquet, Paris, France, assignor to Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Continuation of Ser. No. 60,872, Jul. 26, 1979, abandoned. This application Mar. 23, 1981, Ser. No. 246,680

Claims priority, application France, Sep. 1, 1978, 78 25261

Int. Cl.³ B01J *19/02*

U.S. Cl. 422—240 8 Claims

1. An oxo reactor for carrying out oxo synthesis comprising:
a. vertical tubes,
b. means coupling the tops and bottoms of said vertical tubes, said tubes and coupling means being formed of steel having a Brinell hardness of less than 300 and including in said steel 1-6% chromium and 0.4–0.7% molybdenum,
c. inlet means for introducing the oxo reagents into the reactor and structured to result in immediate mixing of said reagents introduced into the reactor, and
d. the steel used in making said coupling means being different from the steel used in making said vertical tubes and having a higher chromium content.

6. A method of constructing an oxo synthesis reactor comprising vertical tubes and means coupling the tops and bottoms of said tubes, said method comprising the steps of:
a. forming said vertical tubes and coupling means of steel with a Brinell hardness of less than 300,
b. including in said steel 1-6% chromium and 0.4–0.7% molybdenum, and
c. the steel used in making said coupling means being different from the steel used in making said vertical tubes and having a higher chromium content.

4,379,125

APPARATUS FOR THE PRODUCTION OF AQUEOUS SOLUTIONS OF SODIUM CHLORIDE FROM ROCK SALT

Siegfried Benninger, Schwalbach; Karl Reining, Kelkheim, and Werner Krasel, Hofheim am Taunus, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

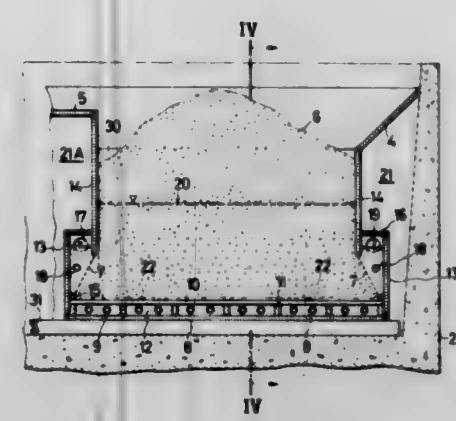
Division of Ser. No. 240,317, Mar. 4, 1981, Pat. No. 4,343,621. This application Mar. 8, 1982, Ser. No. 356,167

Claims priority, application Fed. Rep. of Germany, Mar. 6, 1980, 3008563

Int. Cl.³ B01D *11/02*

U.S. Cl. 422—274 24 Claims

1. Apparatus for the production, free from vapors, of concentrated, aqueous sodium chloride crude brine, comprising a dissolving chamber for dissolving rock salt which is equipped with appliances for feeding in brine which is unsaturated in respect of salt and for removing saturated crude brine, wherein pipes for the admission of unsaturated brine are installed on the floor of the dissolving chamber, the dissolving chamber has an elongate layout and at least one vertical or inclined screen



which is permeable by brine, but not by rock salt and which delimits a salt-free space in the dissolving chamber, is installed longitudinally in the dissolving chamber.

4,379,126

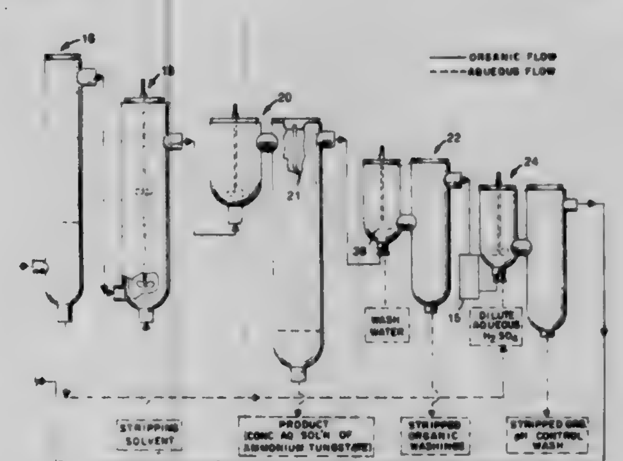
PROCESS FOR RECOVERING TUNGSTEN VALUES FROM ALKALI SOLUTIONS

Tai K. Kim; Joseph E. Ritsko; Martin B. MacInnis, and Martin C. Vogt, all of Towanda, Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Aug. 13, 1981, Ser. No. 292,376

Int. Cl.³ C01G *41/00*

U.S. Cl. 423—54 1 Claim



1. A continuous process for producing ammonium tungstate from an aqueous alkali metal tungstate solution and reduciing the concentration of alkali metal impurities in ammonium tungstate produced comprising the steps of: (a) extracting tungsten values into an organic extractant by contacting said aqueous alkali metal tungstate solution with said organic extractant for a sufficient period of time to form a loaded organic extractant containing tungsten values and an aqueous solution, said organic extractant comprising: a high molecular weight tertiary alkyl amine and an water insoluble aliphatic organic solvent, (b) separating said loaded organic extractant from said aqueous solution, (c) stripping said loaded organic extractant from step b by contacting with an aqueous ammonia solution to form an aqueous ammonium tungstate solution and a stripped organic extractant, (d) separating said aqueous ammonium tungstate from said stripped organic extractant, (e) washing said stripped organic extractant to remove a portion of alkali metal impurities and (f) contacting said stripped organic extractant with activated carbon for removing additional alkali metal impurities, (g) feeding said stripped organic extractant from step (e) to step (a) for use as said organic extractant.

4,379,127

METHOD OF RECOVERING MOLYBDENUM OXIDE

Günter Bauer, Fürth, and Joachim Eckert, Zirndorf, both of Fed. Rep. of Germany, assignors to GfE Gesellschaft für Elektrometallurgie mbH, Düsseldorf, Fed. Rep. of Germany

Filed Oct. 5, 1981, Ser. No. 308,845

Claims priority, application Fed. Rep. of Germany, Jul. 22, 1981, 3128921

Int. Cl.³ C01G *39/02*

U.S. Cl. 423—55 **2 Claims**

1. A method of producing molybdenum oxide which comprises the steps of:

(a) forming an aqueous suspension of a molybdenum sulfide impurity-containing concentrate having a particle size of substantially 70 microns;

(b) subjecting the suspension produced in step (a) to an elevated oxygen partial pressure and an elevated temperature in an autoclave to oxidize the molybdenum sulfide to molybdenum oxide and produce another suspension, and maintaining the suspension density during oxidation within a range between 100 and 150 g of solids per liter;

(c) filtering said other suspension to recover molybdenum oxide therefrom and produce a first filtrate containing sulfuric acid;

(d) neutralizing said first filtrate at least partially by adding lime or limestone thereto to produce a third suspension containing calcium sulfate;

(e) filtering said third suspension to recover calcium sulfate and produce a second filtrate;

(f) recirculating said second filtrate to step (a) as the sole recirculated liquid and at a rate sufficient to maintain the suspension density of the suspension entering step (b) between substantially 100 and 150 g of solids per liter; and

(g) controlling the temperature in said autoclave to maintain it between 230° C. and 245° C. and maintaining the pressure in said autoclave by varying said suspension density within said range.

4,379,128

PHOSPHOROUS-DOPED ALKALI TANTALUM DOUBLE FLUORIDES

Reinhard Hähn, Goslar, and Dieter Behrens, Bad Harzburg, both of Fed. Rep. of Germany, assignors to Hermann C. Starck Berlin, Goslar, Fed. Rep. of Germany

Filed Feb. 6, 1981, Ser. No. 231,991

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1980, 3005207

Int. Cl.³ C01B *9/08*

U.S. Cl. 423—63 **7 Claims**

1. In the process of producing a K_2TaF_7 double salt comprising the steps of extracting an an elevated temperature an organic solution of H_2TaF_7 with an aqueous extraction solution of a potassium salt to form said K_2TaF_7, said aqueous solution being immiscible with said organic solution, followed by crystallization and separation of said K_2TaF_7 from said aqueous extraction solution, the improvement wherein a selected amount of a phosphorous-containing compound is added to said aqueous extraction solution after said extraction step and before crystallization of said K_2TaF_7 whereby a phosphorous-doped K_2TaF_7 double salt is provided, the amount of phosphorous containing compound added to said extraction solution being selected such that the phosphorous content of said doped double salt is between about 50 and 500 ppm, by weight.

4,379,129

METHOD OF DECOMPOSING OZONE

Akira Abe, Minami-ashigara, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Division of Ser. No. 794,151, May 5, 1977, abandoned. This application Nov. 20, 1980, Ser. No. 208,770

Claims priority, application Japan, May 6, 1976, 51-50930

Int. Cl.³ B01D *53/36*

U.S. Cl. 423—210 **11 Claims**

1. A process for decomposing ozone discharged from an electrophotographic duplicating machine, which comprises contacting the discharged ozone with a catalyst comprising active carbon with silver deposited on the surface thereof.

4,379,130

PROCESS FOR REGENERATING SCRUBBING SOLUTIONS

Jack D. Brady, Fayetteville, Ga., assignor to Andersen 2000 Inc., Atlanta, Ga.

Filed Sep. 21, 1981, Ser. No. 303,778

Int. Cl.³ C01B *17/00*

U.S. Cl. 423—242 **12 Claims**

1. A method of regenerating an aqueous solution containing sodium sulfite and sodium bisulfite comprising the steps of:

(a) introducing calcium oxide in the form of pebble lime into the solution containing the sodium sulfite and sodium bisulfite;

(b) impinging substantially all of the pebble lime in the solution and the solution against an impingement surface to mechanically remove any film of calcium sulfite formed on the surface of the pebble lime so that substantially all of the calcium oxide in the pebble lime reacts with the solution to convert the sodium bisulfite to sodium sulfite and form an aqueous slurry containing dissolved sodium sulfite, solid calcium sulfite and the unreacted residue of the pebble lime whereby the unreacted residue enhances the settling rate of the solids in the slurry; and

(c) separating the solid calcium sulfite from the slurry by settling the slurry to form a regenerated aqueous solution having a reduced sodium bisulfite concentration.

10. A process for removing gaseous sulfur oxides from a gas stream by contacting the gas stream with a circulating aqueous scrubbing solution containing sodium sulfite, sodium bisulfite and sodium sulfate so that the sulfur oxides react with the sodium sulfite in the scrubbing solution to increase the sodium bisulfite content, said process comprising the steps of:

monitoring the density of the scrubbing solution;

withdrawing a portion of the circulation scrubbing solution in response to the increase in density of the scrubbing solution to a storage tank;

when the withdrawn portion of the scrubbing solution in the storage tank reaches a prescribed starting level, transferring the scrubbing solution from the storage tank to a reactor vessel at a substantially constant flow rate;

introducing calcium oxide in the form of pebble lime into the scrubbing solution in the reactor vessel for reaction with the scrubbing solution;

repeatedly impinging substantially all of the pebble lime and scrubbing solution in the reactor vessel against an impingement surface in the reactor vessel to mechanically remove any film of calcium sulfite formed on the surface of the pebble lime as the solution reacts with the calcium oxide in the pebble lime so that substantially all of the pebble lime reacts with the solution to form an aqueous slurry containing increased sodium sulfite content, solid calcium sulfite and the unreacted residue of the pebble lime whereby the settling rate of the slurry is greatly enhanced;

withdrawing the aqueous slurry from the reactor vessel at substantially the same flow rate as the scrubbing solution is transferred to the reactor vessel;

forcing the withdrawn aqueous slurry through a plate type settler so that the solid calcium sulfite in the aqueous

slurry settles by gravity to produce a concentrated slurry at the lower end of the settler and a substantially solids free aqueous solution at the upper end of the settler;

withdrawing the solids free aqueous solution from the upper end of the settler as an overflow;

withdrawing the concentrated slurry from the lower end of the settler as an underflow;

filtering the concentrated slurry in a rotary vacuum filter and recovering the substantially solids free aqueous solution produced as a filtrate;

combining the substantially solids free aqueous solution withdrawn from the settler with the substantially solids free aqueous solution from the rotary vacuum filter to produce a regenerated scrubbing solution with a reduced sodium bisulfate concentration; and

returning the regenerated scrubbing solution to the circulating scrubbing solution.

4,379,131

PRODUCTION OF PHOSPHORUS PENTOXIDE WITH UTILIZATION OF REACTION HEAT

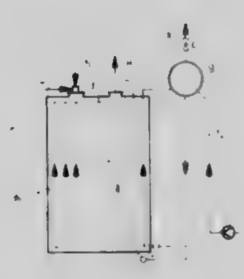
Hellmuth Daniel, Erftstadt; Robert Queck, Hürth-Burbach; Bernhard Kuxdorf, Brühl, and Herbert Püsche, Erftstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Aug. 28, 1981, Ser. No. 297,159

Claims priority, application Fed. Rep. of Germany, Sep. 3, 1980, 3033109

Int. Cl.³ C01B *25/12*

U.S. Cl. 423—304 **8 Claims**



1. In the process for making phosphorus pentoxide by subjecting elementary phosphorus to a combustion reaction with the aid of dried air inside a combustion chamber of which the metallic walls are arranged so as to form a cooling system with cavities therein; circulating a cooling medium through the cooling system for taking up the reaction heat, the improvement which comprises subjecting the phosphorus to combustion with dried air containing, per m^3, 5 g down to 0.01 g of water; circulating a liquid or liquid/steam-mixture through the cooling system under pressures within the range of 1 to 150 bars, the liquid or mixture assuming a temperature of more than 150° C. up to 500° C.; steam which is being formed in the cooling system being continuously taken therefrom and utilized for the production of energy; an equivalent proportion of fresh liquid being introduced into the cooling system; and hot P_2O_5 issuing in vapor form from the combustion chamber being condensed or worked up into desirable final product.

4,379,132

PROCESS FOR SODIUM HYPOPHOSPHITE

Dennis C. Annarelli, Newtown, Pa., and Richard E. Hall, Trenton, N.J., assignors to FMC Corporation, Philadelphia, Pa.

Filed Aug. 5, 1982, Ser. No. 405,223

Int. Cl.³ C01B *15/16, 25/26*

U.S. Cl. 423—305 **14 Claims**

10. A process of purifying a solution containing sodium, hypophosphite, calcium, and hydroxide ions comprising:

(a) adding sufficient phosphoric acid or an acid phosphate salt to adjust the pH of the solution to between 6.5 and 7.0 thereby neutralizing the hydroxide ions in solution and precipitating the equivalent calcium ions as an insoluble calcium phosphate,

(b) separating the insoluble calcium phosphate from the neutralized solution, and

(c) contacting the neutralized solution with a cation ion exchange resin bearing sodium ions thereby exchanging the calcium ions with sodium ions.

4,379,133

PROCESS FOR ANISOTROPIC CARBON PRODUCTION

Maximilian Zander, Castrop-Rauxel; Gerd-Peter Blümer, Datteln; Gerd Collin, Duisburg; Herbert Glaser, Gladbeck, and Rolf Marrett, Castrop-Rauxel, all of Fed. Rep. of Germany, assignors to Rutgerswerke Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 19, 1981, Ser. No. 275,290

Claims priority, application Fed. Rep. of Germany, Jun. 26, 1980, 3024423

Int. Cl.³ C01B *31/00;* **C09C** *1/48;* **C10G** *21/18*

U.S. Cl. 423—445 **2 Claims**

1. A process for the preparation of anistropic carbon comprising extracting coal tar pitch with an organic solvent, adding picric acid to the extract solution to form picrates, recovering the picrates, decomposing the picrates and heating the resulting coal tar pitch fraction at 350° to 550° C. at a pressure of 0.1 to 50 bar for about 100 to 30 minutes to transform it substantially quantitatively into anisotropic carbon and recovering the anisotropic carbon formed at 350° to 550° C.

4,379,134

PROCESS OF PREPARING HIGH PURITY ALUMINA BODIES

Willis W. Weber, South Salem, N.Y., and Joseph A. Herbst, Turnersville, N.J., assignors to Union Carbide Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 234,205, Feb. 13, 1981, abandoned. This application Feb. 11, 1982, Ser. No. 347,336

Int. Cl.³ C01F *7/02*

U.S. Cl. 423—626 **23 Claims**

1. A process for the production of alpha-alumina bodies which comprises:

(i) blending a peptizing acid, water and fluoride anions with alumina, said peptizing acid and water being of a sufficient amount to form an extrudable mixture, and said extrudable mixture containing an effective amount of fluoride anions to form the alpha-alumina bodies;

(ii) extruding said extrudable mixture to form shaped bodies;

(iii) calcining said bodies at a temperature from about 400° C. to about 700° C. for a sufficient duration to convert the alumina of said bodies to a gamma-alumina phase; and

(iv) calcining said bodies in the gamma-alumina phase at a temperature from about 1200° C. to about 1700° C. for a sufficient duration to convert essentially all the gamma-alumina of said bodies to an alpha-alumina phase, said alpha-alumina bodies characterized by having at least 85 percent of the pore volume being represented by pores having a diameter of form 10,000 to 200,000 Angstroms and having a square area less than one square meter per gram.

4,379,135

METHOD FOR ENUMERATION OF ORAL GRAM-NEGATIVE BACTERIA

Shuji Sasaki, Odawara, and Yoji Yamazaki, Kadoma, both of Japan, assignors to Lion Corporation, Tokyo, Japan

Continuation of Ser. No. 18,175, Mar. 7, 1979, abandoned. This application Oct. 1, 1981, Ser. No. 307,576

Claims priority, application Japan, Mar. 10, 1978, 53-27402

Int. Cl.³ G01N *21/64, 33/54;* **C12Q** *1/04, 1/24*

U.S. Cl. 436—536 **4 Claims**

1. A method for the enumeration of oral gram-negative bacteria selected from the group consisting of *Bacteroides*

melaninogenicus and Capnocytophaga sp. by an indirect fluorescent antibody method comprising the steps of:
(a) preparing a smear of a sample containing bacteria selected from the group consisting of *Bacteroides melaninogenicus* and Capnocytophaga sp.;
(b) pretreating said smear with phosphate buffered saline, having a low pH, to remove human immuno-globulins combined with said bacteria;
(c) treating said sample with an unlabelled antiserum selected from the group consisting of an antiserum to *Bacteroides melaninogenicus* which is diluted from 32 to 512 times and an antiserum to Capnocytophaga sp. which is diluted from 64 to 512 times, the antiserum to *Bacteroides melaninogenicus* being prepared by treating the bacterial cells with formalin, suspending the treated cells in Freund's complete adjuvant to obtain an antigen and injecting the antigen subcutaneously into a rabbit and collecting the antiserum from the rabbit and the antiserum to Capnocytophaga sp. being prepared by lysing the Capnocytophaga sp. bacterial cells by ultrasonic treatment, treating the lysed cells with formalin and suspending the treated cells in Freund's complete adjuvant to obtain an antigen and injecting the antigen subcutaneously into a rabbit and collecting the antiserum from the rabbit;
(d) treating the reaction product of the sample and the antiserum with a fluorescent conjugated antibody obtained by immunizing a different species of animal with γ-globulin of the same species of animal as the antiserum and labelling the obtained antibody to said γ-globulin with a fluorescent substance; and
(e) enumerating the oral gram-negative bacteria by observation under a fluorescent microscope.

4,379,136

SOLID STICK OF POWDER FOR COSMETIC AND TOILET USE AND A METHOD FOR PREPARING THEREOF

Nobuo Mochida, 4-17-2, Minamiogikubo, Suginami-ku, Tokyo, Japan

Filed Dec. 6, 1978, Ser. No. 967,085

Claims priority, application Japan, Dec. 7, 1977, 52-146169

Int. Cl.³ A61K *7/32, 31/745*

U.S. Cl. 424—65 **3 Claims**

1. A method for manufacturing a solid stick of powder for cosmetic and toilet use comprising the steps of, blending (1) one or more particulate materials selected from the group consisting of talc, kaolin, calcium carbonate, magnesium carbonate, starch, zinc white, titanium dioxide, metallic soap, silica; particulate resin, hydrocarbons, fats and oils, waxes, fatty acids, lower and higher alcohols, esters, and phospholipids; (2) one or more ingredients consisting of surface active agents, perfumes, pigments and preservatives and (3) as a binding aid, one or more ingredients selected from the group consisting of particulate polyethylene, zinc stearate, corn starch, silicone oil, lanolin and kaolin, and mixing with agitation at a temperature of from 90° C. to 160° C.; pulverizing the resultant mixture, and compressing said pulverized material at an impact pressure of about 3.0 kg/cm^2 to 8.0 kg/cm^2 to form a solid stick.

4,379,137

DISINFECTING AND PRESERVING COMPOSITION COMPRISING A SYNERGISTIC COMBINATION OF A POLYMERIC QUATERNARY AMMONIUM COMPOUND AND A 3-ISOTHIAZOLONE COMPOUND

Helmut H. Ehlers; Heinz Eggensperger, both of Hamburg; Lothar Bücklers, Norderstedt; Ulrich Eigener, Henstedt-Ulzburg; Karl-Heinz Diehl, Norderstedt, and Norbert Weigand, Reutlingen, all of Fed. Rep. of Germany, assignors to Sterling Drug Inc., New York, N.Y.

Filed Jul. 28, 1980, Ser. No. 172,571

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1979, 2930865

Int. Cl.³ A01N *33/12, 43/78*

U.S. Cl. 424—78 **2 Claims**

1. A synergistic bactericidal composition comprising in admixture
(a) a mixture of polymeric quaternary ammonium compounds having the formula

$$HOC_2H_4-\overset{C_2H_4OH}{\underset{C_2H_4OH}{N^{\oplus}}}-A-\left[\overset{CH_3}{\underset{CH_3}{N^{\oplus}}}-A-\overset{CH_3}{\underset{CH_3}{N^{\oplus}}}-A\right]_n-\overset{C_2H_4OH}{\underset{C_2H_4OH}{N^{\oplus}}}-C_2H_4OH.(2n+2)Cl^-$$

where A is $-CH_2CH{=}CH-CH_2-$ and n is a number from 2 to 30; and
(b) a mixture of 5-chloro-2-methyl-3-isothiazolone and 2-methyl-3-isothiazolone;
wherein the ratio of component (a) to component (b) is about 1:1 to 2:1.

4,379,138

BIODEGRADABLE POLYMERS OF LACTONES

Colin G. Pitt, and Anton E. Schindler, both of Durham, N.C., assignors to Research Triangle Institute, Research Triangle Park, N.C.

Filed Dec. 28, 1981, Ser. No. 335,188

Int. Cl.³ C08G *63/08*

U.S. Cl. 424—78 **13 Claims**

1. An elastomeric, biodegradable polymer formed by the opening polymerization of at least one monocyclic lactone and at least one polycyclic dilactone containing two lactone groups, each of which may be polymerized by ring opening to form a two-dimensional polymer.

4,379,139

ANTICOAGULANT RODENTICIDE WITH LACERATION MEANS

Ray F. Dawson, Winter Park, Fla., assignor to Lancaster Laboratories, Inc., Lancaster, Pa.

Filed Jul. 21, 1981, Ser. No. 285,607

Int. Cl.³ A01N *25/00;* **A01M** *25/00, 1/20*

U.S. Cl. 424—84 **21 Claims**

1. A rodenticide composition consisting essentially of an anticoagulant present in a concentration of at least about 0.005% by weight, based on the weight of the total rodenticide composition, an edible bait and a lacerating agent present in a concentration of at least about 5% by weight, based on the weight of the total rodenticide composition.

4,379,140

TURKEY RHINOTRACHEITIS VACCINE

Marcus M. Jensen, Provo, Utah, assignor to Brigham Young University, Provo, Utah

Filed Jan. 12, 1981, Ser. No. 224,402

Int. Cl.³ A61K *39/02;* **C12N** *1/20*

U.S. Cl. 424—92 **8 Claims**

1. A live vaccine against turkey rhinotracheitis having good immunizing capabilities and the absence of

adverse side-effects, containing a pharmaceutically acceptable carrier and an immunologically effective amount of a temperature sensitive, non-virulent, genetically stable strain of *Alcaligenes faecalis* that can be back passed 6 times in the nasal mucosa of turkeys and show no signs of changes in growth characteristics or virulenece, said strain being substantially similar in immunizing properties to the strain of *Alcaligenes faecalis* ATCC No. 31770.

4. A method for the immunization of turkeys against rhinotracheitis which comprises applying the vaccine of claim 1 in an immunologically effective amount to a turkey.

8. A biologically pure culture of a temperature sensitive, non-virulent, genetically stable strain of *Alcaligenes faecalis* which is the strain of *Alcaligenes faecalis* having ATCC No. 31770.

4,379,141

METHOD FOR RECOVERING MYELOPEROXIDASE AND PHARMACEUTICAL COMPOSITION CONTAINING MYELOPEROXIDASE AS MAJOR CONSTITUENT

Eichi Hasegawa, and Takashi Kobayashi, both of Hirakata, Japan, assignors to The Green Cross Corporation, Osaka, Japan

Division of Ser. No. 179,783, Aug. 20, 1980, Pat. No. 4,306,025. This application Aug. 28, 1981, Ser. No. 297,418

Claims priority, application Japan, Dec. 28, 1979, 54-172109; Feb. 22, 1980, 55/22113

Int. Cl.³ A61K *37/48*

U.S. Cl. 424—94 **12 Claims**

1. A pharmaceutical composition effective against tubercle bacillus resistant to isonicotinic acid hydrazide deficient or diminished in catalase synthesizing activity, consisting essentially of 5 to 0.05 m moles of a pharmacologically acceptable alkali metal halide for 100 to 0.05 units of a myeloperoxidase originated from human myelogenous leukocytes.

4,379,142

THROMBIN INHIBITOR AND PREPARATION AND USE THEREOF

Hans Port, Weilheim-Unterhausen; Jürgen Schrenk, Weilheim, and Peter Wunderwald, Haunshofen, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Filed Oct. 8, 1981, Ser. No. 309,665

Claims priority, application Fed. Rep. of Germany, Oct. 9, 1980, 3038163

Int. Cl.³ A23J *1/06*

U.S. Cl. 424—101 **6 Claims**

1. Thrombin inhibitor comprising a glycoprotein of a molecular weight of 68,000 to 69,000 Dalton and an isoelectric point of pH 4.5, obtained by the process of treating plasma, serum or a fraction obtained therefrom with an insoluble carrier-bound heparin or dextran sulfate, eluting the latter, after removal of non-bound material, with a salt solution having an ion strength of 0.12 to 0.36 and a pH value from 6.5 to 8.3, and recovering the thrombin inhibitor from the eluate, and is further characterized in that it inhibits thrombin in the presence of heparin, differs immunologically from antithrombin III, and does not inhibit factor Xa, plasmin and trypsin.

4,379,143

TOPICAL LIQUID OR OINTMENT

Howard S. Sherry, Cherry Hill, N.J., and Elliott P. Hertzenberg, Wilmington, Del., assignors to PQ Corporation, Valley Forge, Pa.

Continuation-in-part of Ser. No. 213,261, Dec. 5, 1980, abandoned. This application Feb. 1, 1982, Ser. No. 344,340

Int. Cl.³ A61K *33/06*

U.S. Cl. 424—154 **11 Claims**

1. An analgesic preparation comprising 1 to 6 parts by weight of an activated zeolite of the formula:

$$M_{x/n}[(AlO_2)_x(SiO_2)_y]$$

wherein x and y are integers greater than 6, the molar ratio of x to y is 0.1 to 1.1 and M is a metal with the valence of n; and 4 to 9 parts of an anhydrous liquid wherein the zeolite is the sole warmi..g ingredient.

4,379,144

PROCESS FOR PRODUCING A FLOWABLE FUNGICIDE FORMULATION

Joseph T. Dilday, North Little Rock, Ark., assignor to Olin Corporation, New Haven, Conn.

Continuation of Ser. No. 71,227, Aug. 30, 1979, abandoned. This application Apr. 9, 1981, Ser. No. 252,667

Int. Cl.³ A01N *61/02, 33/18, 43/78, 43/80*

U.S. Cl. 424—168 **28 Claims**

1. A process for producing a flowable fungicide formulation comprising the steps of:

(a) heating at least one solid active fungicidal compound, a hydrocarbon solvent, and a surfactant to reduce the particle size of said solid fungicidal compound and to form a liquid melt from said mixture;

(b) adding an aqueous solution to said melt to form a water-in-oil emulsion; and

(c) thoroughly mixing said emulsion in the presence of an amount of a thickening agent to form a stable flowable fungicide formulation, said flowable fungicide formulation comprising from about 1% to about 50% by weight of active fungicidal compounds, from about 15% to about 40% by weight of said hydrocarbon solvent, from about 2% to about 10% by weight of said surfactant, from about 10% to about 50% by weight of water, and from about 0.25% to about 3% by weight of said thickening agent.

4,379,145

ANTITUMOR PROTEIN HYBRID AND PROCESS FOR THE PREPARATION THEREOF

Yasuhiko Masuho; Naoji Umemoto, both of Hino; Takeshi Hara, Hachioji, and Hidematsu Hirai, Sapporo, all of Japan, assignors to Teijin Limited, Osaka and Hidematsu Hirai, Hokkaido, both of, Japan

Filed Dec. 15, 1980, Ser. No. 216,709

Claims priority, application Japan, Dec. 14, 1979, 54-161609

Int. Cl.³ A61K *37/00;* **C07C** *103/52;* **C07G** *7/00*

U.S. Cl. 424—177 **4 Claims**

1. Antitumor protein hybrid, having a moiety consisting of the antitumor immunoglobulin and a moiety substantially consisting of the fragment A of a diphtheria toxin, which is expressed by the following formula (I):

$$Ab\leftarrow\!(NHCO-X-S_1-S_2FA)_n \qquad (I)$$

where Ab indicates a moiety consisting of the antitumor immunoglobulin and FA indicates a moiety substantially consisting of the fragment A of a diphtheria toxin; X is an alkylene group or phenylene group which either has or does not have a branch chain of 1 to 5 carbon atoms; N in the amido bond is a nitrogen atom arising from the amino group in the antitumor immunoglobulin; S_1 and S_2 are both sulfur atoms, S_2 indicating a sulfur atom arising from the disulfide bond in a diphtheria toxin; n stands for an integer of 1 to 5.

4,379,146

SUBSTITUTED PHOSPHONAMIDES AS ANTIHYPERTENSIVES

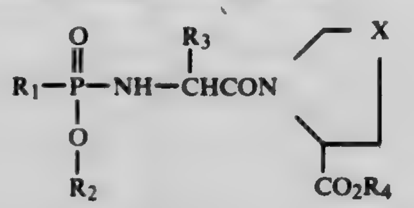
William J. Greenlee, Teaneck; Elbert E. Harris; Arthur A. Patchett, both of Westfield, and Eugene D. Thorsett, Fanwood, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 235,336, Feb. 17, 1981. This application Nov. 5, 1981, Ser. No. 318,221

Int. Cl.[3] **A61K** *37/00;* **C07C** *103/52;* **C07D** *277/20*

U.S. Cl. 424—177 **24 Claims**

1. A compound of the general formula



wherein:

R_1 is alkyl or substituted alkyl of C_1–C_6 wherein the substituent is halo, amino, acylamino;

aralkyl wherein the alkyl is C_1–C_4 optionally substituted by amino or acylamino and wherein the aryl function is phenyl or naphthyl optionally substituted by halo or hydroxyl; or,

heteroaralkyl wherein the alkyl is C_1–C_4 optionally substituted by amino or acylamino and wherein the heteroaryl group can be indolyl or thienyl;

R_2 is H, lower alkyl of C_1–C_4, aralkyl;

R_3 is lower alkyl of C_1–C_6 optionally substituted by an amino group;

R_4 is H, lower alkyl of C_1–C_6, aralkyl;

X is $(CH_2)_n$ wherein n is 1 or 2; and,

the pharmaceutically acceptable salts thereof.

4,379,147

SUBSTITUTED 2-(ANILINOMETHYL)-2-IMIDAZOLINE DERIVATIVES, COMPOSITIONS CONTAINING THESE DERIVATIVES, AND THE USE THEREOF FOR COMBATING PESTS

Manfred Böger, Weil am Rhein, Fed. Rep. of Germany; Urs Burckhardt, Basel, Switzerland; Haukur Kristinsson, Bottmingen, Switzerland; Günter Mattern, Liestal, Switzerland, and Walter Traber, Reinach, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

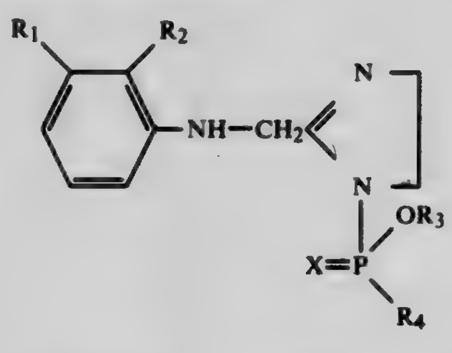
Filed Feb. 1, 1982, Ser. No. 344,280

Claims priority, application Switzerland, Feb. 9, 1981, 842/81

Int. Cl.[3] **A01N** *57/32;* **C07F** *9/24*

U.S. Cl. 424—200 **12 Claims**

1. A compound of the formula



wherein

R_1 and R_2 independently of one another are each a chlorine atom or the methyl group,

R_3 is methyl or ethyl,

R_4 is alkyl having 1 to 4 carbon atoms, alkoxy having 1 or 2 carbon atoms, alkylthio having 1 to 4 carbon atoms, or phenyl, and

X is an oxygen atom or a sulfur atom, and

including acid addition salts thereof.

7. A pesticidal composition comprising (1) a pesticidally effective amount of a compound according to claim 1 and (2) a carrier.

4,379,148

ANALGESIC AND ANTI-INFLAMMATORY COMPOSITION

Makoto Sato, Moriyama; Isami Kimura, and Azuma Yamaguchi, both of Shiga, all of Japan, assignors to Morishita Pharmaceutical Co., Ltd., Osaka, Japan

Filed Jan. 26, 1982, Ser. No. 342,963

Claims priority, application Japan, Jan. 30, 1981, 56/13523

Int. Cl.[3] **A61K** *27/00, 31/625*

U.S. Cl. 424—232 **4 Claims**

1. An analgesic and anti-inflammatory pharmaceutical composition for oral administration comprising an analgesic and anti-inflammatory effective amount of a combination of 4-ethoxy-2-methyl-5-morpholino-3(2H)-pyridazinone and a non-steroidal acid anti-inflammatory agent selected from the group consisting of phenylbutazone, ibuprofen, mefenamic acid, indomethacin, acetylsalicylic acid, naproxen, ketoprofen and flurbiprofen, said composition comprising about ¼ to ½ of the oral clinically effective amount of 4-ethyoxy-2-methyl-5-morpholino-3(2H)-pyridazinone and about ⅓ to ½ the oral clinically effective amount of the non-steroidal acid anti-inflammatory agent.

4,379,149

PROCESS FOR INTRODUCING AN OXYGEN-CONTAINING FUNCTIONAL GROUP INTO ANSAMYCINS

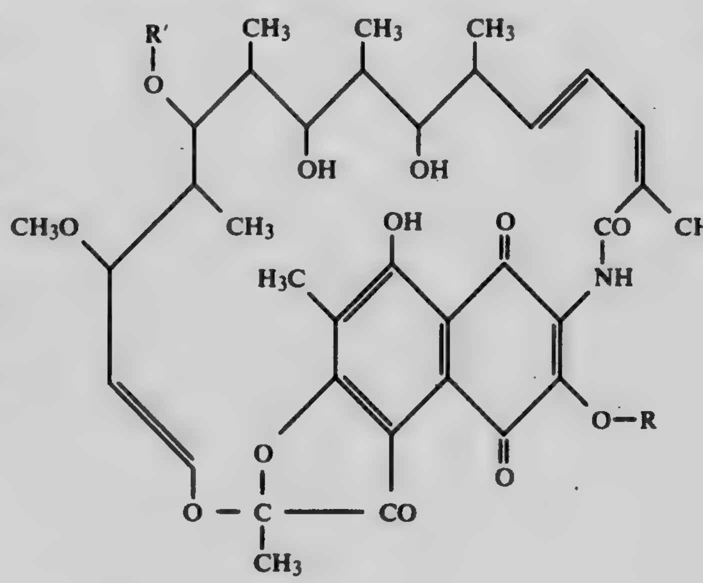
Wilhelm Kump, Biel-Benken, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 167,970, Jul. 14, 1980, abandoned. This application Sep. 22, 1981, Ser. No. 304,457

Int. Cl.[3] **A61K** *31/395;* **C07D** *491/08*

U.S. Cl. 424—244 **13 Claims**

7. A rifamycin S derivative of the formula



(IA)

in which

each of R and R′ represents a hydrogen atom or

R′ represents acetyl and R represents a radical Alk or a radical Ar or the acyl radical of a carboxylic acid R^2—(C=O)— in which R^2 is hydrogen, Alk or Ar, whereby Alk represents an alkyl radical having a maximum of 7 carbon atoms or such an alkyl substituted with hydroxy or alkoxy having a maximum of 4 carbon atoms, and Ar represents phenyl or a phenyl substituted with lower alkyl, lower alkoxy, methylendioxy or formyl,

and a corresponding derivative of the SV series.

13. Therapeutic method for inhibiting or relieving microbial infections in a warm-blooded animal, characterised by the administration to these warm-blooded animals of a compound according to claim 7, alone or in the form of a preparation, in amounts which in these warm-blooded animals are effective to inhibit or relieve the infection.

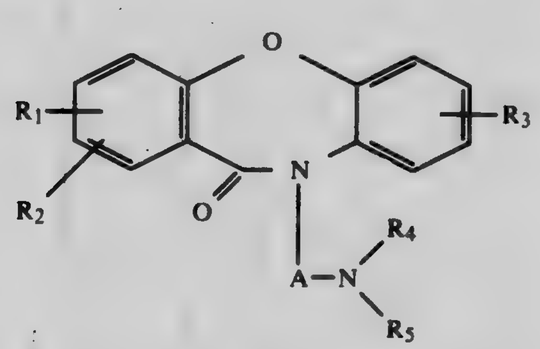
4,379,150

DIBENZ[B,F][1,4]OXAZEPINE DERIVATIVES, PROCESS FOR PREPARING THE SAME, AND PHARMACEUTICAL COMPOSITIONS COMPRISING THE SAME

Kiyohiko Ito, Tama; Masuo Koizumi; Yasushi Murakami, both of Tokyo; Michitaka Akima, Sakado; Jinichiro Aono; Yasuhiro Ohba, both of Kawasaki; Tamotsu Yamazaki, Tokorozawa; Kazushige Sakai, Tokyo; Shun-ichi Hata, Yokohama, and Shigeru Takanashi, Asaka, all of Japan, assignors to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan

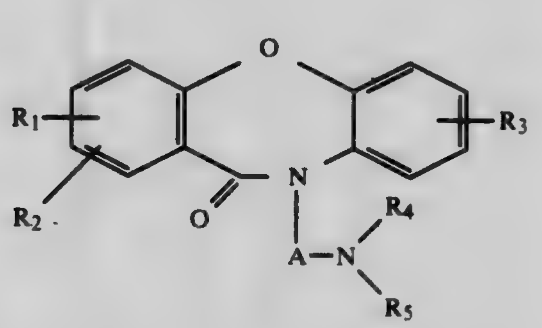
Filed Dec. 17, 1981, Ser. No. 331,897
Claims priority, application Japan, Dec. 24, 1980, 55-181831
Int. Cl.³ A61K *31/55;* **C07D** *413/06*
U.S. Cl. 424—244 **10 Claims**

1. A compound of the formula:



(wherein R_1 is a hydrogen atom or a lower alkyl group; R_2 is a branched lower alkyl group; R_3 is a hydrogen atom, a carboxyl group, a carbamoyl group, a lower alkoxycarbonyl group or a lower alkoxy group with the proviso that both R_1 and R_3 are not hydrogen; R_4 and R_5 are each a lower alkyl group or may, when taken together with a nitrogen atom, form a heterocyclic ring selected from the group consisting of piperidino, piperazino, pyrrolidino or morpholino; A is a lower alkylene group) or a pharmaceutically acceptable salt thereof.

10. A pharmaceutical composition for preventing and treating circulatory diseases which comprises an amount effective for preventing or treating a circulatory disease of a compound of the formula:



(wherein R_1 is a hydrogen atom or a lower alkyl group; R_2 is a branched lower alkyl group; R_3 is a hydrogen atom, a carboxyl group, a carbamoyl group, a lower alkoxycarbonyl group or a lower alkoxy group with the proviso that both R_1 and R_3 are not hydrogen; R_4 and R_5 are each a lower alkyl group or may, when taken together with a nitrogen atom, form a piperidino, piperazino, pyrrolidino or morpholino ring; A is a lower alkylene group) or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier.

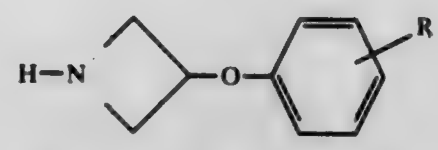
4,379,151

3-PHENOXYAZETIDINES FOR ANOREXIGENIC ACTIVITY

Albert D. Cale, Jr., Mechanicsville, Va., assignor to A. H. Robins Company, Inc., Richmond, Va.

Continuation-in-part of Ser. No. 886,487, Mar. 14, 1978, abandoned. This application Oct. 16, 1981, Ser. No. 312,046
Int. Cl.³ C07D *205/04;* **A61K** *31/395*
U.S. Cl. 424—244 **4 Claims**

1. A process which comprises administering to a living animal body for its anorexigenic effect an effective amount of a compound selected from the group consisting of 3-phenoxyazetidines of the formula:



wherein R is hydrogen, aminocarbonyl or trifluoromethyl and pharmaceutically acceptable acid addition salts thereof in admixture with a pharmaceutically acceptable carrier.

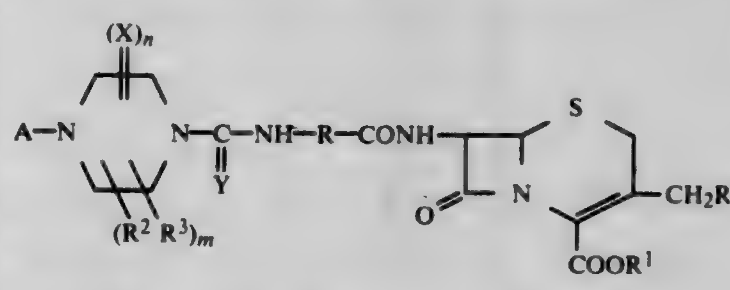
4,379,152

CEPHALOSPORINS

Isamu Saikawa; Shuntaro Takano, both of Toyama; Chosaku Yoshida, Takaoka; Okuta Takashima, Toyama; Kaishu Momonoi, Shinminato; Seietsu Kuroda, Toyama; Miwako Komatsu, Fuchumachi; Takashi Yasuda, Kosugimachi, and Yutaka Kodama, Toyama, all of Japan, assignors to Toyama Chemical Co., Ltd., Tokyo, Japan

Division of Ser. No. 915,873, Jun. 15, 1978, Pat. No. 4,219,554, which is a division of Ser. No. 654,060, Jan. 30, 1976, Pat. No. 4,112,090. This application May 17, 1979, Ser. No. 39,904
Int. Cl.³ C07D *501/26;* **A61K** *31/545*
U.S. Cl. 424—246 **27 Claims**

1. An antibacterial compound of the formula (I),



(I)

wherein R is a group represented by the formula

each of said moieties A, R^1, R^2, R^3, R^4, R^5 and R^6 is a conventional penicillin or cephalosporin substituent selected from the groups or atoms which each of said moieties represents as set forth subsequently, wherein R^5 represents alkyl, cycloalkyl, cycloalkenyl, cycloalkadienyl, aryl, aralkyl, aryloxy, alkylthioalkyl, furyl, thienyl, oxazoly, thiazolyl, isoxazolyl, isothiazolyl, imidazolyl, pyrazolyl, pyridyl, pyrazyl, pyrimidyl, pyridazyl, quinolyl, isoquinolyl, quinazolyl, indolyl, indazolyl, 1,3,4-oxadiazolyl, 1,2,4-oxadiazolyl, 1,3,4-thiadiazolyl or 1,2,4-thiadiazolyl, any of which may be substituted by halogen, hydroxy, nitro, alkyl, alkoxy, alkylthio, acyl or alkylsulfonylamino; R^6 represents a hydrogen atom; and R^5 and R^6 together with a common carbon atom may form a cycloalkyl, cycloalkenyl or cycloalkadienyl ring;

R^1 represents a hydrogen atom, a blocking group of a conventional penicillin or cephalosporin or a pharmaceutically acceptable salt-forming cation of a conventional penicillin or cephalosporin;

n represents 1 or 2; each of the n X's, which may be identical or different from one another, represents individually an oxygen or sulfur atom, and the n X's are attached in any combination to the 2-, 3-, or 5-positions of the piperazine ring;

m represents 4-n; each pair of R^2 and R^3 are linked to the same carbon atom, and each R^2 and R^3 of m pairs of R^2 and R^3, which may be the same or different, represent individually hydrogen, halogen, carboxyl, alkyl, cycloalkyl, aryl, acyl,

aralkyl, alkoxycarbonylalkyl, acyloxyalkyl, alkoxy, alkoxycarbonyl, cycloalkyloxycarbonyl, aralkoxycarbonyl, aryloxycarbonyl, amino, N-alkylamino, N,N-dialkylamino, N-arylaminocyclic amino or carbamoyl; any of which may be substituted by halogen, alkyl, alkoxy, alkylthio, acyl or nitro; and any pair of R^2 and R^3 together with a common carbon atom may form a cycloalkyl ring

A represents hydrogen, hydroxy, nitro, cyano, alkyl, alkenyl, alkynyl, alkadienyl, cycloalkyl, cycloalkenyl, cycloalkadienyl, aryl, acyl, aralkyl, acyloxyalkyl, alkoxy, cycloalkyloxy, alkoxycarbonyl, aryloxy, cycloalkyloxycarbonyl, aryloxycarbonyl, aralkoxycarbonyl, alkylsulfonyl, cycloalkylsulfonyl, arylsulfonyl, carbamoyl, N-alkylaminocarbonyl, N-arylaminocarbonyl, N,N-dialkylaminocarbonyl, cyclic aminocarbonyl, thiocarbamoyl, N-alkylaminothiocarbonyl, N-arylaminothiocarbonyl, N,N-dialkylaminothiocarbonyl, cyclic aminothiocarbonyl, acylcarbamoyl, acylthiocarbamoyl, alkylsulfonylcarbamoyl, arylsulfonylcarbamoyl, alkylsulfonylthiocarbamoyl, arylsulfonylthiocarbamoyl, sulfamoyl, alkoxycarbonylthioalkyl, alkoxythiocarbonylthioalkyl, amino, thiazolyl, pyridyl, pyridazyl, pyrazyl, thiadiazolyl, triazolyl, tetrazolyl or quinolyl, any of which may be substituted by halogen, hydroxyl, alkyl, alkoxy, alkylthio, nitro, cyano, amino, carboxyl, or acyl;

Y represen s an oxygen or sulfur atom; and

R^4 represents hydrogen, an acyloxy group or a carbamoyloxy group.

4,379,153

BENZENESULFONYL UREAS, AND PHARMACEUTICAL PREPARATIONS

Volker Hitzel, Hofheim am Taunus; Rudi Weyer, Kelkheim; Karl Geisen, Frankfurt am Main, and Günter Regitz, Bad Soden am Taunus, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

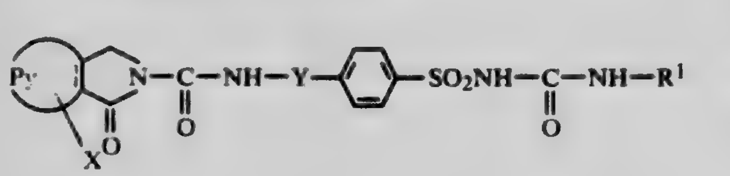
Filed Nov. 26, 1980, Ser. No. 211,273

Claims priority, application Fed. Rep. of Germany, Dec. 1, 1979, 2948522

Int. Cl.³ C07D *471/04;* A61K *31/395*

U.S. Cl. 424—256 7 Claims

1. A compound of the formula



or a physiologically acceptable salt thereof in which

is a fused pyridine ring in which the nitrogen atom is in any of the four possible positions;

X is hydrogen, alkyl of 1 to 4 C atoms or halogen;

Y is alkylene of 2-3 C atoms; and

R^1 is alkyl of 4 to 8 C atoms, cycloaklyl, alkylcycloalkyl, dialkylcycloalkyl, cycloalkylalkyl, cycloalkenyl or alkylcycloalkenyl, in each instance with 5-9 C atoms, methylcyclopentylmethyl, cyclohexenylmethyl, chlorocyclohexyl, methoxycyclohexyl, bicycloheptyl, bicycloheptenyl, bicycloheptylmethyl, bicycloheptenylmethyl, bicyclooctyl, nortricyclyl, adamantyl or benzyl.

7. A method of treatment of hyperglycemia which comprises administering to a diabetic a hypoglycemically effective amount of a compound as defined in claim 1.

4,379,154

THIOCARBOXAMIDE DERIVATIVES AND THEIR USE AS PHARMACEUTICALS

Jean-Claude Aloup, Villeneuve-le-Roi; Jean Bouchaudon, Morsang-sur-Orge; Daniel Farge, Thiais, and Claude James, Paris, all of France, assignors to Rhone-Poulenc Sante, France

Filed May 18, 1981, Ser. No. 264,550

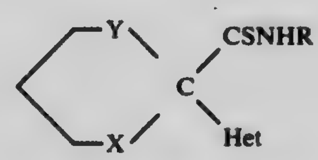
Claims priority, application France, Aug. 18, 1980, 80 18035

The portion of the term of this patent subsequent to Jun. 9, 1998, has been disclaimed.

Int. Cl.³ A61K *31/50;* C07D *237/08*

U.S. Cl. 424—250 19 Claims

1. A thioformamide derivative of the formula:



wherein R represents a hydrogen atom or an alkyl radical of 1 through 4 carbon atoms, and

(i) Het represents a heterocyclic radical of aromatic character, containing one or two nitrogen atoms, selected from the group consisting of pyrid-3-yl, pyrid-4-yl, pyridazinyl, pyrazinyl, pyrimidinyl, quinolyl, imidazolyl, naphthyridinyl, quinoxalinyl and quinazolinyl, X represents a sulphur or oxygen atom and Y represents a sulphur or oxygen atom, a valency bond or a methylene radical, or

(ii) Het represents the pyrid-2-yl radical, X represents a sulphur or oxygen atom and Y represents a sulphur or oxygen atom or a methylene radical, or

(iii) Het represents the pyrid-2-yl radical, X represents an oxygen atom and Y represents a valency bond.

4,379,155

3,5-DISUBSTITUTED-1H-1,2,4-TRIAZOLE DERIVATIVES

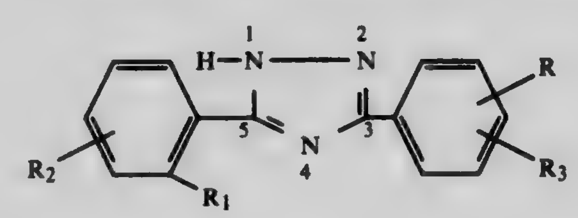
Amedeo Omodei-Sale, Voghera; Pietro Consonni, Milan; Giulio Galliani, Monza, all of Italy, and Leonard J. Lerner, Cranbury, N.J., assignors to Gruppo Lepetit S.p.A., Milan, Italy

Continuation-in-part of Ser. No. 254,816, Apr. 16, 1981, abandoned, which is a continuation-in-part of Ser. No. 47,411, Jun. 11, 1979, abandoned, which is a continuation-in-part of Ser. No. 11,297, Feb. 12, 1979, abandoned, which is a continuation-in-part of Ser. No. 897,313, Apr. 18, 1978, abandoned. This application Jul. 17, 1981, Ser. No. 284,033

Int. Cl.³ A61K *31/41;* C07D *249/08*

U.S. Cl. 424—269 9 Claims

1. A 3,5-disubstituted-1H-1,2,4-triazole of the formula



I

wherein:

R is selected from hydrogen, (C_{1-4})alkyl, (C_{1-4})alkoxy, allyloxy, propargyloxy, trifluoromethyl, phenyl, fluoro, chloro and dimethylamino;

R_1 represents a (C_{1-4})alkyl group;

R_2 is selected from hydrogen, fluoro, chloro, (C_{1-4})alkyl, methoxy and ethoxy;

R_3 is selected from hydrogen, fluoro, chloro, (C_{1-4})alkyl and (C_{1-4})alkoxy;

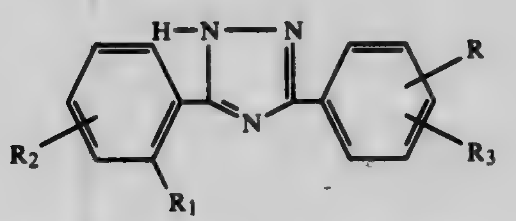
R and R_3 taken together represent a methylenedioxy group,

with the proviso that, when R, R_2 and R_3 simultaneously represent hydrogen, R_1 cannot be methyl;

with the further proviso that, when R_2 and one of R and R_3 simultaneously represent hydrogen, R_1 and the other of R and R_3 cannot simultaneously represent methyl; and with the still further proviso that compounds of formula I are excluded wherein R_2 is hydrogen and one of R and R_3 is simultaneously a 2-positioned alkyl group and the other of R and R_3 is hydrogen;

or a salt thereof with a pharmaceutically acceptable acid.

8. A pharmaceutical composition for preventing littering in impregnated female animals comprising a pharmaceutical carrier and, as the active ingredient an effective amount of a compound of the formula



I

wherein R, R_1, R_2 and R_3 are defined as in claim 1, or a salt thereof with a pharmaceutically acceptable acid.

4,379,156

HETEROCYCLIC CHEMICALS, THEIR PREPARATION AND USE

Peter J. Islip, Sanderstead, and Mirjana V. Bogunovic, Bromley, both of England, assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.

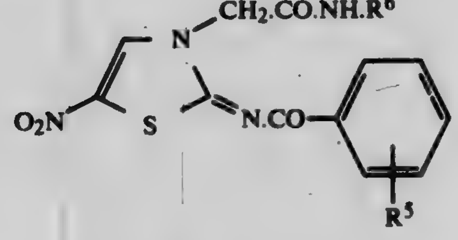
Filed Dec. 22, 1980, Ser. No. 218,553

Claims priority, application United Kingdom, Dec. 21, 1979, 7944276

Int. Cl.³ C07D ***277/38;*** **A61K** ***31/425***

U.S. Cl. 424—270 **11 Claims**

1. A compound of formula (III)



(III)

wherein

R^5 is a single substituent substituted in a position of the phenyl ring selected from position 2 and position 3 and when in the 2-position R^5 is selected from a chlorine atom, a methyl group and a nitro group and when in the 3-position R^5 is a nitro group; and

R^6 is selected from a hydrogen atom and a $CO.CH_3$ group.

6. A pharmaceutical formulation comprising a non-toxic effective schistosomal amount of the compound of claim 1 in association with a pharmaceutically acceptable carrier therefor.

4,379,157

SULPHONYL COMPOUNDS, METHOD OF PREPARING THE NEW COMPOUNDS, AS WELL AS APHICIDAL COMPOSITIONS ON THE BASIS OF THE NEW COMPOUNDS

Roelof van Hes; Arnoldus C. Grosscurt, and Wouter Balk, all of Weesp, Netherlands, assignors to Duphar International Research B.V., Netherlands

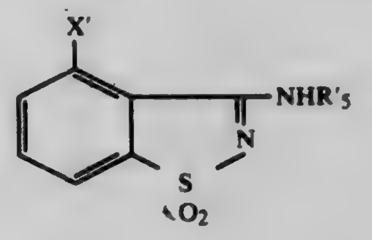
Filed Jan. 19, 1981, Ser. No. 226,533

Claims priority, application Netherlands, Jan. 23, 1980, 8000414

Int. Cl.³ C07D ***275/06***

U.S. Cl. 424—270 **14 Claims**

1. Compounds of the general formula



wherein

X' is a fluorine atom or a chlorine atom, and

R_5' is a hydrogen atom, a 2-chloroethyl group, or a cyclohexylcarbamoyl group.

4,379,158

ANTISECRETORY IMIDAZOLE AMIDINE COMPOUNDS, COMPOSITION AND METHOD OF USE

Yasufumi Hirata, Omiya; Isao Yanagisawa; Toshinari Tamura, both of Tokyo, and Masaaki Takeda, Urawa, all of Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

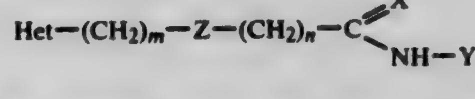
Continuation-in-part of Ser. No. 934,276, Aug. 16, 1978, Pat. No. 4,252,819. This application Oct. 3, 1980, Ser. No. 193,742

Claims priority, application Japan, Aug. 29, 1977, 52-104079; Jul. 17, 1978, 53-86944

Int. Cl.³ A61K ***31/615;*** **C07D** ***233/64;*** **A61K** ***31/444;*** **C07D** ***401/12***

U.S. Cl. 424—273 R **9 Claims**

1. A heterocyclic compounnd of the formula

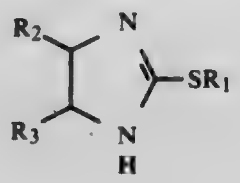


wherein Het represents imidazolyl, either unsubstituted or substituted by halogen, hydroxyl, lower alkyl, lower alkoxy, hydroxymethyl, phenyl, benzyl, cyano, amino, aminoalkyl, amidinoalkyl; Z represents sulfur or oxygen; X represents the formula $N—R_1$ wherein R_1 represents cyano, unsubstituted or lower alkyl-substituted carbamoyl, unsubstituted or lower-alkyl-substituted thiocarbamoyl; Y represents alkyl substituted by hydroxyl, amino or halogen, cycloalkyl of 3–6 carbon atoms, lower alkenyl, lower alkynyl, aryl, unsubstituted or substituted by hydroxyl, amino or halogen, aralkyl, unsubstituted or substituted by hydroxyl, amino, or halogen, cyano, or carbamoyl; and m and n represent an integer of 1 to 3; or a pharmacologically acceptable acid addition salt thereof.

4. A composition for inhibiting gastric acid secretion containing as the active ingredient an effective amount of a heterocyclic compound of claim 1 and a pharmaceutically acceptable carrier.

4,379,159
ANTIINFLAMMATORY 2-SUBSTITUTED-THIO-4,5-DIHYDRO-4,5-DIARYL-1H-IMIDAZOLES
Saul C. Cherkofsky, Wilmington, Del., assignor to E. I. Du Pont de Nemours & Company, Wilmington, Del.
Filed Oct. 16, 1980, Ser. No. 197,750
Int. Cl.³ A61K *31/415;* **C07D** *233/28*
U.S. Cl. 424—273 R **15 Claims**

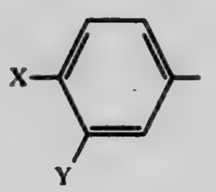
1. A compound of the formula



where

$R_1 = C_1\text{-}C_4$ alkyl, mono- or polyfluoro $C_2\text{-}C_4$ alkyl with the proviso that a fluoro group cannot be present in the α position, or allyl;

R_2 and R_3 independently =



where

X=H, F, Cl, Br, NO_2 or $CH_3S(O)_n$; n=0, 1 or 2;

Y=H, F or Cl;

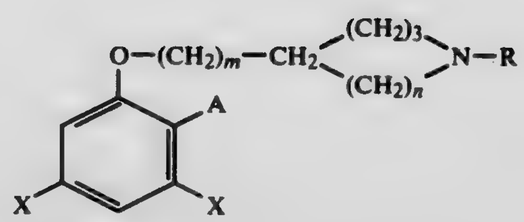
provided when Y=F or Cl, X must be F or Cl, and provided R_2 and R_3 cannot both be phenyl; or a pharmaceutically suitable acid addition salt thereof.

4,379,160
CARBAZOLE COMPOUNDS AND MEDICINAL USE THEREOF
Morton Harfenist, Chapel Hill, and Charles T. Joyner, Raleigh, both of N.C., assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.
Division of Ser. No. 16,914, Mar. 2, 1979. This application May 12, 1980, Ser. No. 149,186
Claims priority, application United Kingdom, Nov. 1, 1978, 42845/78
Int. Cl.³ A61K *31/40*
U.S. Cl. 424—274 **38 Claims**

22. The method of treating aggression in a human which has been identified as exhibiting aggressive symptoms which comprises administering to said human an effective nontoxic antiaggression amount of 9-[3-(3,5-cis-dimethylpiperazino)-propyl]-carbazole, a pharmaceutically acceptable salt thereof, or a pharmaceutically acceptable solvate of a pharmaceutically acceptable salt thereof.

4,379,161
NOVEL SUBSTITUTED HETEROCYCLIC PHENOXYAMINES, THE METHOD OF PREPARATION THEREOF AND THE USE THEREOF AS LOCAL ANAESTHETICS
Michel Thominet, 82, rue Bonaparte, 75006 Paris, and Jacqueline Franceschini, 28, avenue Larroumes, 94240 L'Hay les Roses, both of France
Filed Jun. 25, 1980, Ser. No. 162,796
Claims priority, application France, Jun. 7, 1979, 79 17610; Jan. 4, 1980, 80 07352
Int. Cl.³ C07D *223/04, 207/08;* **A61K** *31/40, 31/55*
U.S. Cl. 424—274 **24 Claims**

1. A heterocyclic phenoxy-amine of the formula



where

m is 0 or 2, n is 0 or 2, and m+n is 2;

where

X is F, Cl or Br;

where

A is hydrogen or alkoxy of 1 to 4 carbon atoms; and

where

R is alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, alkenyl of 2 to 6 carbon atoms, cycloalkenyl of 4 to 6 carbon atoms, or cycloalkenyl-alkyl or cycloalkyl-alkyl with the cycloalkenyl, cycloalkyl and alkyl groups having 4 to 6 carbon atoms, 3 to 6 carbon atoms and 1 to 6 carbon atoms respectively.

22. A method of providing local anesthesia to a patient in need of same which comprises applying an effective amount of a compound of claim 1 to the surface of said patient's skin.

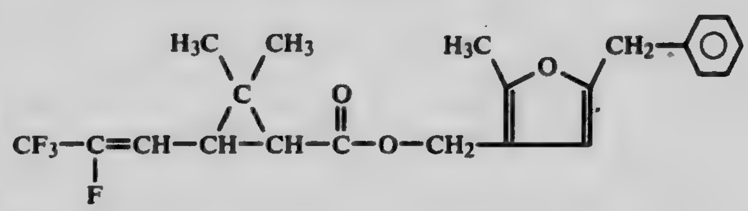
4,379,162
1-BENZOTHIEPIN-4-CARBOXAMIDES
Melvin H. Rosen, Kendall, Fla., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.
Division of Ser. No. 119,717, Feb. 8, 1980, Pat. No. 4,277,484, which is a division of Ser. No. 944,218, Sep. 20, 1978, Pat. No. 4,226,998, which is a division of Ser. No. 854,176, Nov. 23, 1977, Pat. No. 4,185,109, which is a continuation of Ser. No. 743,208, Nov. 18, 1976, abandoned, which is a continuation-in-part of Ser. No. 585,147, Jun. 9, 1975, abandoned, which is a continuation-in-part of Ser. No. 509,524, Sep. 26, 1974, abandoned. This application Feb. 9, 1981, Ser. No. 232,766
The portion of the term of this patent subsequent to Aug. 28, 1998, has been disclaimed.
Int. Cl.³ C07D *337/08;* **A61K** *31/38*
U.S. Cl. 424—275 **2 Claims**

1. N-p-Fluorophenyl-7-chloro-5-hydroxy-2,3-dihydro-1-benzothiepin-1-oxide-4-carboxamide or the sodium salt thereof.

2. An antiinflammatory pharmaceutical composition comprising an anti-inflammatory effective amount of a compound of claim 1, together with one or more pharmaceutically acceptable excipients.

4,379,163
PYRETHROIDS
Paolo Piccardi; Francesco Corda, both of Milan; Franco Gozzo, San Donato Milanese; Augusto Menconi, and Angelo Longoni, both of Milan, all of Italy, assignors to Montedison, S.p.A., Milan, Italy
Continuation of Ser. No. 15,105, Feb. 26, 1979, Pat. No. 4,328,237. This application Jun. 15, 1981, Ser. No. 273,541
Claims priority, application Italy, Feb. 28, 1978, 20713 A/78; Jan. 30, 1979, 19703 A/79
Int. Cl.³ A01N *43/08;* **C07D** *307/54*
U.S. Cl. 424—285 **7 Claims**

1. A compound of the formula



6. A method for fighting infestations by insects and acari, comprising distributing in the zone to be protected an effective amount of one or more of the compounds of claim 1.

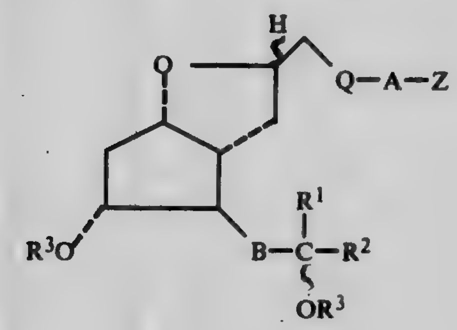
4,379,164

VASODILATIVE 4-THIA-PGI$_1$ AND 4-SULFINYL-PGI$_1$ AND DERIVATIVES THEREOF

Istvan Tömösközi; Peter Györy; Gabor Kovacs; Sandor Virag; Peter Körmöczy, and Istvan Stadler, all of Budapest, Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara R.T., Budapest, Hungary

Filed Oct. 23, 1981, Ser. No. 314,433
Claims priority, application Hungary, Oct. 28, 1980, 2596
Int. Cl.^{3} A61K *31/335;* **C07D** *307/935*
U.S. Cl. 424—285 **8 Claims**

1. A 4-thia- or 4-sulfinyl-PGI$_1$-compound of the formula I



(I)

wherein

Q stands for —S— or —SO—,
A stands for C_{1-6} straight or branched chain alkylene,
B stands for ethylene, vinylene or ethynylene,
R^1 represents hydrogen or C_{1-4} alkyl,
R^2 represents C_{1-8} straight or branched chain alkyl,
R^3 stands for hydrogen or acetyl, and
Z represents —COOH, —CN, —CH_2OH or —COOW, wherein W stands for an equivalent of a pharmacologically acceptable cation or C_{1-4} alkyl.

8. A platelet inhibiting, vasodilative, bronchodilative and stomach-mucosa-protective method of treatment which comprises administering to a subject in need thereof an effective amount of a compound as defined in claim 1.

4,379,165

ANTI-CONVULSANT

Charles R. Clark, Auburn, Ala., assignor to Research Corporation, New York, N.Y.

Filed May 18, 1981, Ser. No. 264,604
Int. Cl.^{3} C07C *103/75;* **A61K** *31/16*
U.S. Cl. 424—324 **5 Claims**

1. A method of treating epilepsy and other convulsive disorders comprising administering an N-substituted amino-benzamide selected from the group consisting of 4-amino-N-phenylbenzamide, 4-amino-N-cyclohexyl-benzamide, 4-amino-N-amyl-benzamide, 4-amino-N-benzyl-benzamide, 4-amino-N,N-(di-n-propyl)-benzamide, 4-amino-N-(n-hexyl)-benzamide, 4-amino-N-(n-butyl)-benzamide, 3-amino-N-(alpha-methylbenzyl)-benzamide, 2-amino-N-(alpha-methylbenzyl)-benzamide, and 4-amino-N-(alpha-methylbenzyl)-benzamide.

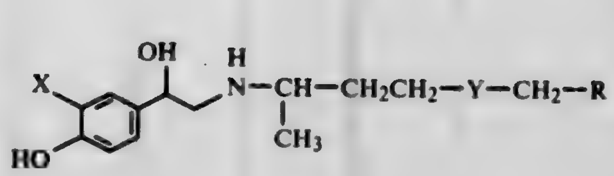
4,379,166

ARYLMETHOXY-, ARYLMETHYLTHIO-, HETEROARYLMETHOXY-, AND HETEROARYLMETHYLTHIO-ALKYLAMINOALCOHOLS

Bernard R. Neustadt, and Elijah H. Gold, both of West Orange, N.J., assignors to Schering Corporation, Kenilworth, N.J.

Filed Aug. 3, 1981, Ser. No. 289,339
Int. Cl.^{3} A61K *31/165, 31/135;* **C07D** *253/08, 217/18*
U.S. Cl. 424—324 **14 Claims**

1. A compound of the formula



wherein

X is carbamoyl, mono- or di- C_1 to C_6 alkyl carbamoyl, C_1 to C_6 alkylthio, C_1 to C_6 alkylsulfinyl, or C_1 to C_6 alkylsulfonyl;
Y is O, S, SO or SO_2; and
R is phenyl; phenyl substituted by C_1 to C_6 alkyl, hydroxy, C_1 to C_6 alkoxy, halo, carboxy, C_1 to C_6 alkoxycarbonyl, or nitro groups; heteroaryl groups having 5 to 10 ring members having one or two rings comprising aromatic carbon atoms and from 1 to 3 nitrogen atoms, and substituted derivatives thereof wherein said heteroaryl group is substituted by C_1 to C_6 alkyl, hydroxy, C_1 to C_6 alkoxy, halo, phenyl, or C_1 to C_6 alkoxycarbonyl, and wherein said heteroaryl group is joined to the side chain at one of said ring aromatic carbon atoms;

and the pharmaceutically acceptable salts thereof.

12. A pharmaceutical composition comprising an effective antihypertensive amount of a compound of claim 1 together with a non-toxic pharmaceutically acceptable carrier.

4,379,167

1-ARYLOXY-4-AMINO-2-BUTANOLS AND THE PHARMACEUTICAL USE THEREOF

Carl D. Lunsford, and Ying-Ho Chen, both of Richmond, Va., assignors to A. H. Robins Company, Inc., Richmond, Va.

Continuation-in-part of Ser. No. 730,498, Oct. 17, 1976, abandoned, which is a continuation of Ser. No. 618,984, Oct. 2, 1975, abandoned, which is a continuation-in-part of Ser. No. 518,122, Oct. 25, 1974, abandoned. This application Jul. 5, 1977, Ser. No. 813,056
Int. Cl.^{3} A61K *31/135;* **C07C** *93/06*
U.S. Cl. 424—330 **15 Claims**

1. 1-Aryloxy-4-amino-2-butanol compounds having local anesthetic, beta-adrenergic blocking, antihypertensive and antiarrhythmic properties of the formula

$$ArO—CH_2—CHOH—CH_2—CH_2—NR^1R^2$$

wherein Ar is 1-naphthyl, R^1 is lower alkyl having one to eight carbon atoms, phenethyl or lower cycloalkyl having five to seven carbon atoms, R^2 is hydrogen or lower alkyl having one to eight carbon atoms, and pharmaceutically acceptable acid addition salts thereof.

4,379,168

PESTICIDES CONTAINING D-LIMONENE

Vincent Dotolo, 1989 Bellair Rd., Clearwater, Fla. 33516

Continuation of Ser. No. 130,138, Mar. 14, 1980, abandoned. This application Aug. 24, 1981, Ser. No. 295,448
Int. Cl.^{3} A01N *27/00*
U.S. Cl. 424—356 **37 Claims**

1. A pesticide composition for topical application on small animals, i.e., an animal pesticide dip consisting essentially of about 2-25% D-limonene from citrus products about 1-15% liquid, water soluble, surface-active agent capable of emulsifying the D-limonene, and the remainder water, by volume.

4,379,169

NEW GUM BASE AND CHEWING GUM CONTAINING SAME

Richard A. Reggio, Yorktown Heights; Ronald P. D'Amelia, Hicksville, both of N.Y., and Dominick R. Friello, Danbury, Conn., assignors to Nabisco Brands, Inc., New York, N.Y.

Filed Nov. 9, 1981, Ser. No. 319,490
Int. Cl.[3] **H23G** *3/30*
U.S. Cl. 426—3 **13 Claims**

1. A gum base which has excellent film-forming capability, comprising from about 0.5 to about 25% by weight of an elastomer, from about 50 to about 85% by weight of one or more ester gums, and from about 1 to about 25% by weight of a plasticizer selected from the group consisting of acids selected from the group consisting of oleic acid, lauric acid, lactic acid, isostearic acid, caprylic acid and capric acid, esters of said acids, mono-, di- and triglycerol esters of said acids, polyglycerol esters of said acids having a hydrophobic hydrophilic character of HLB 2 to 13, sorbitan or polysorbate ester of said acids, stripped coco, and mixtures thereof, said gum base being substantially free of inorganic fillers.

4,379,170

PROCESS FOR MANUFACTURE OF CHEESE

David H. Hettinga, Northbrook; Robert J. Wargel, Winnetka, and Richard C. Tripp, Wheeling, all of Ill., assignors to Kraft, Inc., Glenview, Ill.

Filed Nov. 30, 1977, Ser. No. 856,016
Int. Cl.[3] **A23C** *19/05, 9/12*
U.S. Cl. 426—40 **26 Claims**

1. In a process for the manufacture of cheese the steps of preparing a non-hydrolyzed milk protein composition which is substantially free of fermentable sugars and in which the protein and salts are capable of forming a stable matrix for fat, said milk protein composition being prepared by removing water and fermentable sugars from milk, separately preparing a hydrolyzed milk protein composition by treating a milk protein with a protease to hydrolyze this milk protein and to develop cheese flavor components and precursors therefor, mixing the hydrolyzed milk protein composition with said non-hydrolyzed milk protein composition, the hydrolyzed milk protein composition having a trichloroacetic acid soluble tyrosine in an amount between about 500 and about 3000 micrograms per milliliter and providing a minor portion of the protein in the cheese, adding a culture to the mixture, adding a coagulant to cause setting, breaking the set mixture to provide curd and whey, firming the curd by cooking, draining whey from the curd, and recovering and pressing the curd.

14. In a process for the manufacture of cheese the steps of preparing a non-hydrolyzed milk protein composition which is substantially free of fermentable sugars and in which the protein and salts are capable of forming a stable matrix for the fat, said milk protein composition being prepared by removing water and fermentable sugars from milk, separately preparing a hydrolyzed milk protein composition by treating milk protein with a protease to hydrolyze this portion of milk protein and to develop cheese flavor components and precursors therefor, mixing the hydrolyzed milk protein with said milk protein composition, treating milk fat with a lipase to hydrolyze the milk fat and to develop cheese flavor components and precursors therefor, mixing the hydrolyzed milk fat with the said milk protein composition and said hydrolyzed milk protein composition, adding a culture to the mixture, adding a coagulant to cause setting, breaking the set mixture to provide curd and whey, firming the curd by cooking, draining whey from the curd, and recovering and pressing the curd.

4,379,171

METHOD FOR PREPARING FOOD PRODUCTS WITH SWEET FRUCTOSE COATINGS

Ivan Furda, Wayzata, and Shirley C. Gengler, Bloomington, both of Minn., assignors to General Mills, Inc., Minneapolis, Minn.

Filed Oct. 7, 1981, Ser. No. 309,533
Int. Cl.[3] **A23L** *1/164;* **A23G** *3/00*
U.S. Cl. 426—291 **10 Claims**

1. A process for preparing a ready-to-eat cereal exhibiting enhanced sweetness, comprising the steps of:

(a) providing pieces of ready-to-eat cereal;

(b) coating the cereal pieces with high fructose corn syrup seeded with powdered crystalline fructose wherein the weight ratio of cereal pieces to seeded fructose corn syrup ranges from about 1:0.05 to 1:0.30 to form syrup-coated cereal pieces;

(c) coating the syrup-coated cereal pieces with powdered crystalline fructose wherein the weight ratio of total crystalline fructose to the seeded fructose syrup ranges from about 1:1 to 2:1 to form coated cereal pieces;

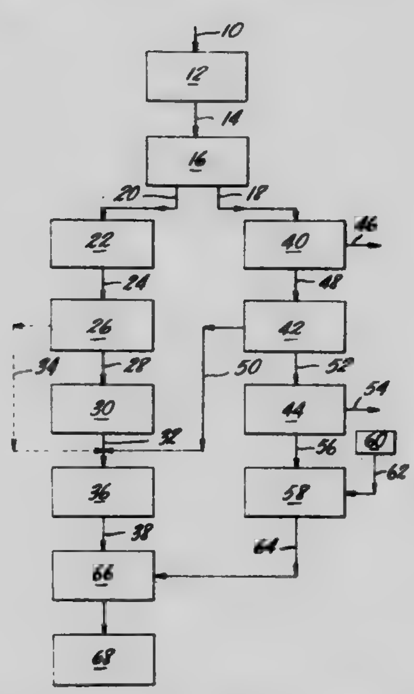
(d) applying an edible oil to the coated cereal pieces wherein the edible oil has a melting point of from about 70° F. to 120° F., wherein the weight ratio of cereal base to oil ranges from about 1:0.06 to 1:0.5, and wherein the temperature of the oil is sufficiently high such that the oil remains liquid while being enrobed onto the cereal base to form a liquid oil enrobed cereal base.

4,379,172

SEPARATING VOLATILE AROMATICS FROM ROASTED AND GROUND COFFEE

Richard T. Liu, Worthington, Ohio, assignor to Societe D'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Continuation-in-part of Ser. No. 156,166, Jun. 3, 1980, abandoned. This application Apr. 14, 1981, Ser. No. 249,701
Int. Cl.[3] **A23F** *5/48, 5/50*
U.S. Cl. 426—386 **11 Claims**



1. A process for separating volatile aromatics from roasted and ground coffee beans which comprises:

(a) wetting dry, roasted and ground coffee beans with an aqueous extraction medium in a first zone to evolve aromatics-laden gases and simultaneously extracting unextracted wetted roasted and ground coffee beans in a second zone with an aqueous extraction medium to obtain an extract at a temperature below 100° C. at essentially atmospheric pressure;

(b) passing both the aromatics-laden gases and the extract

through a separation chamber to separate aromatics-laden gases from extract;
(c) passing the separated aromatics-laden gases through at least two condensers wherein the first condenser condenses and removes water from the aromatics-laden gases and the last condenser is maintained at a temperature of from about 0° C. to about 5° C. to condense volatile aromatics entrained with the aromatics-laden gases; and then
(d) collecting the condensed volatile aromatics.

4,379,173
PROCESS FOR PREPARING BISCUITS CONTAINING GLUCOMANNAN
Yoshinari Masuyama, No. 5-19-19, Higashi Gotanda, Shinagawa-ku, Tokyo, Japan (141)
Continuation-in-part of Ser. No. 96,159, Nov. 20, 1979, abandoned. This application Apr. 6, 1981, Ser. No. 251,096
Claims priority, application Japan, Oct. 5, 1979, 54-128035
Int. Cl.^{3} A21D *13/08*
U.S. Cl. 426—549 **5 Claims**

1. A process for preparing biscuits containing glucomannan consisting essentially of the steps of:
adding a sufficient amount of glucomannan powder to a predetermined amount of roasted flour so as to provide a binding effect through the water and gluten contained in the flour,
mixing the glucomannan powder and flour until a binding effect of gluten is obtained,
placing the mixture into a mold, and
baking the mixture in the mold at a temperature of from about 70° to 85° C. for about 25 to 45 minutes.

4,379,174
DIETETIC CAKE MIX
Sol B. Radlove, Sunrise, Fla., assignor to Batterlite-Whitlock Incorporated, Springfield, Ill.
Continuation-in-part of Ser. No. 73,106, Sep. 6, 1979, Pat. No. 4,277,504, and a continuation-in-part of Ser. No. 818,531, Jul. 25, 1977, Pat. No. 4,185,127. This application Jun. 29, 1981, Ser. No. 278,197
Int. Cl.^{3} A21D *10/00*
U.S. Cl. 426—554 **11 Claims**

1. In a dietetic, dry cake mix, free of artificial sweeteners and sucrose, having
(1) a non-shortening portion comprising flour, skim milk solids, dried egg whites and a sweetener;
(2) a shortening portion comprising a shortening, and an emulsifier;
(3) a baking powder portion comprising an alkaline bicarbonate component and an acidic component;
wherein the improvement comprises:
the sweetener comprises a high fructose corn syrup wherein the dry weight of the fructose ranges from about 40% to about 60% of the dry solids;
the acidic component of the baking powder includes glucono-delta-lactone and the ratio by weight of the acidic component to the alkaline component is greater than about 1.5:1.0;
the dry weight of the fructose and glucono-delta-lactone are present in such portions that the ratio by weight of the fructose to the acidic component is between about 5 and about 10 so that the cake baked from batter formed when the dry cake mix is combined with water is acidic with a pH of between about 3.5 and about 6.5, has acceptable sweetness, moisture, good volume, texture, mouth-feel and shelf life.

4,379,175
PREPARATION OF LOW FAT IMITATION CREAM CHEESE
Donald B. Baker, Tulsa, Okla., assignor to The Pro-Mark Companies, Tulsa, Okla.
Continuation-in-part of Ser. No. 224,207, Jan. 12, 1981, abandoned, which is a continuation-in-part of Ser. No. 9,466, Feb. 6, 1979, Pat. No. 4,244,983. This application Jul. 21, 1981, Ser. No. 285,630
The portion of the term of this patent subsequent to Jan. 13, 1998, has been disclaimed.
Int. Cl.^{3} A23C *19/08, 20/00*
U.S. Cl. 426—582 **9 Claims**

1. A method for making a low fat cheese product which resembles cream cheese in appearance, texture and taste comprising the steps of:
(a) admixing milk, a milk fat-containing carrier having a butterfat content of at least 30% by weight and a stabilizer, the relative proportions of milk and milk fat-containing carrier being selected to provide a fat content in he cheese product from about 0.5% to less than 4% by weight;
(b) heating said mixture to a temperature in the range from about 170° to 185° F. for a time sufficient to form a uniform substantially homogeneous mixture and to effect pasteurization;
(c) admixing dry cottage cheese curd and said milk fat-containing carrier-stabilizer mixture to coat said cottage cheese curd therewith and to form a curd mixture wherein said curd comprises from 50 to 85% by weight of said curd and milk fat-containing carrier-stabilizer mixture;
(d) agitating said curd and milk fat-containing carrier-stabilizer mixture to form a substantially uniform and fluid mixture while maintaining said curd mixture at a temperature in the range from about 70° to 160° F.;
(e) adding flavorants comprising buttermilk flavor and bacterial culture to said agitated curd mixture from step (d);
(f) adding flavorants comprising salt, an edible acid and lipase modified butterfat products and a preservative to said mixture at any time prior to step (g); and
(g) homogenizing said curd mixture at pressures in the range 500 to 5000 psig.

4,379,176
ICING HAVING A SUBSTANTIALLY TEMPERATURE INDEPENDENT VISCOSITY
Karen Scherwitz, Fort Atkinson, Wis., and James Citti, Minneapolis, Minn., assignors to The Pillsbury Company, Minneapolis, Minn.
Filed Mar. 5, 1982, Ser. No. 355,270
Int. Cl.^{3} A23G *3/00*
U.S. Cl. 426—613 **10 Claims**

1. An icing composition which has a substantially temperature independent viscosity and remains pliable and spreadable even at freezing conditions, and yet which is spreadable and not runny at temperatures ranging from room temperature, to refrigerator storage temperatures, comprising:
an icing formulation having a total fat content of from about 12% by weight to about 20% by weight, from about 30% to about 60% by weight of powdered sugar, from about 9% to about 22% total water content by weight, with the total fat content comprising a mixture of liquid oil and hydrogenated shortening, and the ratio of liquid oil to liquid oil plus shortening being from within the range of about 0.26 to 0.43:1.

4,379,177

STABLE DEHYDRATED COCRYSTALLINE AMINO ACID FOOD ADDITIVES

Stephen A. McCoy, Villa Hills, Ky., and James L. Bono, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 164,977, Jul. 1, 1980, abandoned, which is a continuation-in-part of Ser. No. 55,224, Jul. 5, 1979, abandoned. This application Dec. 9, 1981, Ser. No. 328,989

Int. Cl.[3] A23J *3/00;* **A23L** *1/30*

U.S. Cl. 426—656 **6 Claims**

1. A dry, stable amino acid food additive comprising: a uniform cocrystalline matrix of:

(1) an amino acid material; and

(2) a soluble edible cocrystallizer material, the ratio by weight of the cocrystallizer to the amount of edible amino acid being from 0.9:1 to about 6:1, said cocrystallizable material being selected from the group consisting of edible alkaline and alkali earth metal salts of halides, phosphates and nitrates, crystalline starches, crystalline cellulose, crystalline sugars, crystalline polyhydric alcohols and mixtures thereof;

wherein said amino acid material is selected from the group consisting of:

N-acyl derivatives of L-methionine,
N-acyl derivatives of cystine and cysteine,
N-acetyl L-methionine,
N-acetyl derivatives of L-methionine,
N-acetyl derivatives of L-cystine,
N-acetyl derivatives of L-cysteine,
N,N'-diacetyl L-cystine,
N-acetyl L-cysteine,
their salts, and mixtures thereof, and wherein the N-acyl substituent is derived from a fatty acid having from 1 to 24 carbon atoms.

4,379,178

FINGERPRINTING SYSTEM

Louis B. Meadows, Valencia, and Arthur S. Diamond, Ventura, both of Calif., assignors to Dactek International, Inc., Van Nuys, Calif.

Filed Mar. 27, 1981, Ser. No. 248,275

Int. Cl.[3] A61B *5/10*

U.S. Cl. 427—1 **14 Claims**

1. A method of producing a print of a finger or other body part comprising the steps of:

applying an aqueous solution of a color-forming, water-soluble, metal salt compound to said part to form an invisible, latent pattern; transferring said invisible pattern to a card impregnated with 10 to 40 parts by weight of a developer for said metal compound comprising a mixture of at least one water-soluble color developing compound selected from a polyhydroxy aromatic compound, a quinolinol compound and mixtures thereof with 1 to 10 parts by weight of a viscosity control agent consisting essentially of a dibasic organic acid containing from 8 to 18 carbon atoms; and

forming a dark image on said card by reacting said pattern of metal salt compound with said color-forming developer.

10. A fingerprint imaging device comprising:

a card having a first information receiving area and a second fingerpring receiving area;

at least said second area being impregnated with a mixture of a water-soluble developer capable of developing invisible, latent patterns of water-soluble transition metal salts selected from at least one of a polyhydroxy compound and a quinolinol with 2 to 8 percent by weight of a water-soluble dibasic fatty acid containing from 8 to 18 carbon atoms.

4,379,179

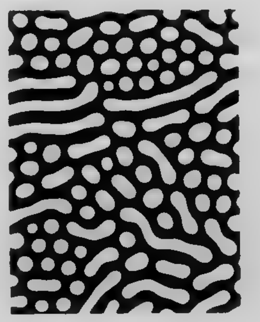
METHOD FOR DETERMINING THE MAGNETIC ANISOTROPY FIELD IN THE MANUFACTURE OF MAGNETIC DOMAIN DEVICES

Russell D. Pierce, Randolph, and Walter B. Venard, Bernardsville, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 9, 1981, Ser. No. 319,627

Int. Cl.[3] B05D *5/12*

U.S. Cl. 427—8 **7 Claims**



1. A method for making a plurality of magnetic devices, each of said devices comprising a layer of a magnetic material on a substrate, said method comprising depositing said layer on said substrate and ascertaining the magnetic anisotropy field of said layer, such ascertaining comprising

(1) subjecting said layer to a magnetic field in a direction having a chosen azimuth and a preferred angle of elevation, and

(2) inspecting a magnetic domain pattern produced in said layer upon essential removal of said field,

said method being characterized in that said preferred angle of elevation has been determined essentially by

(i) determining a functional relationship between a tentative angle of elevation and a magnetic field strength, said tentative angle of elevation being associated with a tentative direction whose azimuth is essentially said chosen azimuth, and said magnetic field strength being the strength of a magnetic test field which is in said tentative direction and which is the weakest field such that, upon essential removal of said magnetic test field, a preferred magnetic domain pattern is produced in said layer, said preferred magnetic domain pattern being equal or most nearly equal, as a function of said magnetic field strength, to an array of essentially circular magnetic domains, and

(ii) selecting said preferred angle of elevation to be essentially equal to an angle of elevation corresponding to an essentially linear portion of said functional relationship, said essentially linear portion being adjacent to a peak of said functional relationship.

4,379,180

METHODS FOR MAKING GRADED INDEX ANTIREFLECTIVE SURFACES

John E. E. Baglin, Yorktown Heights; Ralph Feder, Hyde Park; Ivan Haller, Chappaqua, all of N.Y.; William N. Hammer, Brookfield Center, Conn., and Eberhard Spiller, Mt. Kisco, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 5, 1979, Ser. No. 91,299

Int. Cl.[3] B44C *1/22;* **C03C** *15/00, 25/06;* **B29C** *17/08*

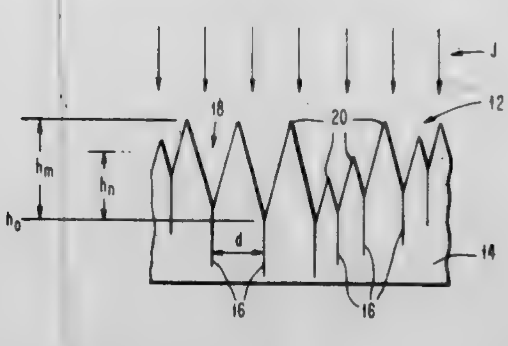
U.S. Cl. 427—38 **11 Claims**

1. A method for increasing the absorptivity of a surface of a material to a predetermined band of electromagnetic radiation which comprises:

exposing the surface to a flux of ions which introduces ion tracks into the surface, said track density being greater than about $10^8/cm^2$, and

contacting said exposed surface with an etchant which at-

tacks said ion tracks for a time sufficient to develop an array of protuberances having a mean height not less than



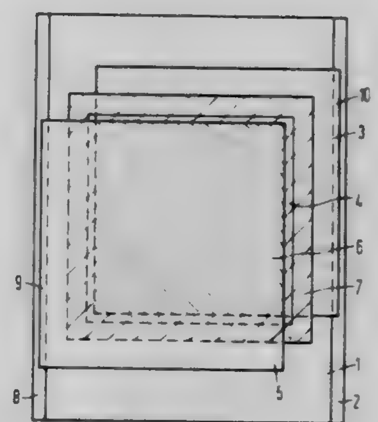
$\frac{1}{2}\lambda_n$, where λ_n is maximum wavelength of the light to be absorbed.

4,379,181
METHOD FOR PLASMA DEPOSITION OF AMORPHOUS MATERIALS
Vincent D. Cannella, Detroit, and Masatsugu Izu, Birmingham, both of Mich., assignors to Energy Conversion Devices, Inc., Troy, Mich.
Filed Mar. 16, 1981, Ser. No. 244,388
Int. Cl.^{3} B05D *3/06*
U.S. Cl. 427—39 **4 Claims**

1. In the method of manufacture of amorphous semiconductor devices including the deposition of at least one layer of amorphous semiconductor grade material of preselected electrical and optical properties upon a large area substrate wherein a reaction gas mixture containing at least silicon and fluorine is introduced into a plasma region between said substrate and a cathode and an alternating electric field is applied therebetween so that said reaction gas mixture is ionized to form a plasma for depositing said layer of amorphous semiconductor grade material of said preselected properties upon said substrate, the improvement comprising the steps of: maintaining the frequency of said alternating electric field between about 50 nd 200 kilo Hertz and maintaining the power density of said plasma at about 0.3–0.5 watt/cm^3, whereby the amorphous material deposited onto said substrate is a semiconductor grade material which additionally exhibits the characteristics of substantial uniformity of thickness and substantial reduction of tensile stresses.

4,379,182
METHOD OF MAKING A REGENERABLE ELECTRIC LAYER CAPACITOR
Reinhard Behn, Munich; Horst Pachonik, Taufkirchen, and Gerhard Seebacher, Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Continuation of Ser. No. 123,890, Feb. 22, 1980, abandoned. This application Nov. 10, 1981, Ser. No. 319,938
Claims priority, application Fed. Rep. of Germany, Mar. 5, 1979, 2908467
Int. Cl.^{3} B05D *3/06;* **C23C** *11/00*
U.S. Cl. 427—41 **1 Claim**

1. A method for the manufacture of a capacitor having a substrate with upper and lower metal layers with a glow polymerization layer therebetween and contact strips on the substrate, comprising the steps of: providing only one diaphragm with a parallelogram-shaped diaphragm aperture; placing the diaphragm on the substrate and producing the lower layer within the aperture such that it overlaps one of the contact strips; laterally displacing the same diaphragm with the aperture parallel to the substrate in a direction which is not parallel to any side edge of the aperture, placing said diaphragm directly in contact with the lower layer, and then forming the polymerization layer through the aperture such that a decreasing thickness marginal zone of the polymerization layer adja-



cent edges of the aperture results which approaches zero at the adjacent edges; and again lifting off the diaphragm upwardly to clear the polymerization layer without damaging the same, laterally displacing the aperture of the same diaphragm parallel to the substrate in a direction which is not parallel to any side edge of the aperture, and then forming the upper layer through the aperture of said same diaphragm such that it overlaps the other contact strip, whereby through use of the same diaphragm placed in contact with the substrate or lower and upper layers, in a simplified manner layers of equal coverage are insured in a glow polymerization dielectric type capacitor.

4,379,183
METHOD OF PRODUCING COBALT-MODIFIED MAGNETIC PARTICLES
Yasuo Araki, Kawachinagano; Hajime Uno, Sakai; Shigeharu Higuchi, Sakai, and Seiji Matsumoto, Sakai, all of Japan, assignors to Sakai Chemical Industry Co., Ltd., Osaka, Japan
Filed Nov. 18, 1981, Ser. No. 322,667
Claims priority, application Japan, Jan. 20, 1981, 56-7633
Int. Cl.^{3} C01G *49/06*
U.S. Cl. 427—127 **16 Claims**

1. A method of producing cobalt-modified magnetic particles which comprises:

(a) heating an aqueous suspension of amorphous ferric hydroxide at an elevated temperature from 100° C. to 250° C. at an alkaline pH in the presence of an effective amount of at least one growth regulating agent dissolved in the suspension, in the presence or in the absence of α-ferric oxide seed crystals of minor axes not more than 0.4 microns in average in amounts of 0.1–25 mole % in terms of Fe content in relation to the ferric hydroxide in the suspension, the growth regulating agent being selected from the group consisting of an organic phosphoric acid, a hydroxycarboxylic acid, a polybasic acid, an aminocarboxylic acid, an aminosulfonic acid, an aromatic sulfonic acid, a thiocarboxylic acid, a water soluble salt of any one of the acids, a water soluble ester of any one of the acids, a polyamine, a thioalcohol, a polyhydric alcohol and a β-dicarbonyl compound, for a length of time sufficient to convert the amorphous ferric hydroxide into acicular α-ferric oxide,

(b) converting the α-ferric oxide into γ-ferric oxide by reduction thereof followed by oxidation, and

(c) forming an aqueous suspension of the γ-ferric oxide and

ferrous hydroxide and cobaltous hydroxide in amounts of 0.5–50 mole %, respectively in relation to the Fe content of the γ-ferric oxide in the suspension, said suspension having an alkaline pH and maintaining the suspension at a temperature from 30° C. to 50° C. for a time sufficient to form a cobalt modified γ-ferric oxide; said cobalt modified γ-ferric oxide when incorporated into a tape effecting a magnetic recording tape having an improved squareness ratio.

4,379,184
PROCESS FOR FORMING A REFLECTING COPPER COATING ON A FACE OF A GLASS SUBSTRATE

Nikolai S. Tsvetkov, ulitsa Peskovaya, 31, kv. 4; Igor I. Maleev, ulitsa Goncharova, 29, kv. 13; Irina E. Opainich, ulitsa Fedorova, 12, kv. 13; Lidia A. Lobkovskaya, ulitsa Uzhgorodskaya, 7, kv. 5; Alexandr R. Bogush, ulitsa Nauchnaya, 105, kv. 105; Alexandra D. Sozanskaya, ulitsa Engelsa, 35, kv. 2; Evgeny I. Onischak, ulitsa Marshala Rybalko, 12, kv. 72; Evgeny I. Gladyshevsky, ulitsa Saksaganskogo, 5, kv. 6, and Mikhail D. Opainich, ulitsa Fedorova, 12, kv. 13, all of Lvov, U.S.S.R.

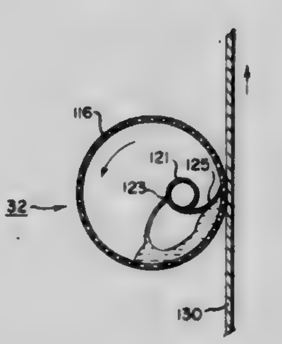
Filed Sep. 8, 1981, Ser. No. 299,880
Claims priority, application U.S.S.R., Feb. 28, 1979, 2743205; Dec. 20, 19[illegible], 2849301
Int. Cl.³ B05D *1/36, 3/02, 5/06;* **G02B** *5/08*
U.S. Cl. 427—169 **7 Claims**

1. A process for forming a reflecting copper coating on a face of a glass substrate, comprising the steps of:
(a) activating the glass face by contacting it with a 0.0005 to 0.007% by weight aqueous solution of $SnCl_2.2H_2O$ to sensitize it, then contacting, the sensitized glass face with a 0.005 to 0.15% by weight aqueous solution of $AgNO_3$;
(b) chemically coating the activated face of the glass substrate with copper for 3 to 15 minutes in a coppering solution preheated to 30° to 65° C.;
(c) stabilizing the coated fact of the glass substrate with an aqueous solution of a stabilizer;
(d) drying the stabilized copper coated face of the glass substrate.

4,379,185
METHOD FOR MANUFACTURE OF INLAID VINYL-FLOORING

Merrill M. Smith, Morrisville, Pa., and Donald C. Ferguson, Trenton, N.J., assignors to American Biltrite, Inc., Cambridge, Mass.

Filed Feb. 13, 1981, Ser. No. 234,402
Int. Cl.³ B05D *5/06, 5/02*
U.S. Cl. 427—209 **14 Claims**



1. A method of making a decorative sheeting material comprising the steps of:
preparing a plurality of differently pigmented plastisols having a Brookfield viscosity of approximately 25 to 35 poise as measured at 25° C. and 20 rpm on a No. 4 spindle;
forming a backing material by:
depositing a first layer of plastisol on a release paper;
depositing an open mesh webbing on said first layer;
depositing a second layer of plastisol on said webbing and first layer; and
curing the two layers of plastisol to form substantially unitary layer encompassing said webbing;
feeding said backing material through a plurality of rotary screen printers;
rotary screen printing the first of said plurality of pigmented plastisols in a layer at least 8 mils (0.2 mm.) thick on a first portion of said blocking material by forcing said plastisol through an array of holes in the first of said rotary screen printers;
partially gelling the first of said plastisols immediately after it is printed on said backing;
rotary screen printing the second of said plurality of pigmented plastisols in a layer at least 8 mils thick on a second portion of said blocking material by forcing said plastisol through an array of holes in the second of said rotary screen printers;
partially gelling the second of said plastisols immediately after it is printed on said backing; and
curing said plurality of plastisols whereby a decorative sheeting material is formed having a decorative pattern defined by the differently pigmented plastisols deposited on said backing.

4,379,186
FLUIDIZING FINE POWDER

Eric L. Bush, Matching Green, Near Harlow, and Ernest J. Workman, Bishop's Stortford, both of England, assignors to ITT Industries, Inc., New York, N.Y.

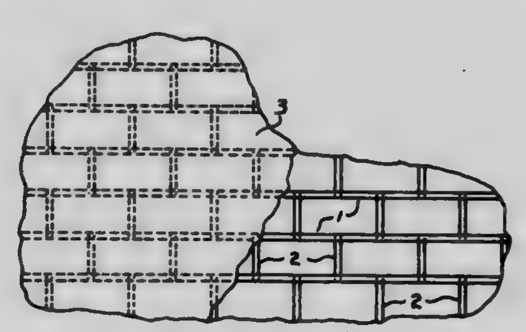
Filed Mar. 10, 1981, Ser. No. 242,201
Claims priority, application United Kingdom, Mar. 20, 1980, 8009410
Int. Cl.³ B01J *8/32;* **C23C** *11/02*
U.S. Cl. 427—213 **7 Claims**

1. A process of coating inert powder that is too fine to be readily fluidized on its own comprising the step of:
placing the powder in a fluidization chamber admixed with a sufficient quantity of additional coarse powder of a substantially large particle size, large enough to be capable of being fluidized on its own in said fluidization chamber, the quantity by weight of said fine powder significantly exceeding the quantity by weight of said coarse powder but the ratio by weight of said fine powder to said coarse powder being not more than about 10;
fluidizing the fine powder with the coarse powder in the chamber with a gas and/or vapor phase fluid; and
coating the fine powder with a valve metal.

4,379,187
METHOD OF PRODUCING A BRICK WALL FACING

David C. Seman, 640 Brown Ave., Erie, Pa. 16502

Filed Dec. 2, 1974, Ser. No. 528,674
Int. Cl.³ B05D *1/32*
U.S. Cl. 427—282 **23 Claims**



1. A unit for simulating mortar lines of a brick wall comprising a horizontal pressure sensitive adhesive tape of width and length corresponding to a horizontal mortar line of a course of a plurality of bricks, and a plurality of vertical tapes of length and width corresponding to vertical mortar lines between bricks in said course, the vertical tapes being adhered at one

end to said horizontal tape on spacing corresponding to the spacing of the bricks in said course, and said unit being preassembled and capable of installation as a unit on a surface on which said mortar lines are to be simulated.

9. Starting with the unit of claim 1, the method of applying a simulated brick facing to a wall which comprises

(1) applying to said wall a plurality of said units, said units being applied to the wall with horizontal tapes spaced to correspond to the horizontal mortar lines of a brick wall and with the vertical tapes of adjacent units in staggered relation to each other in the manner of vertical mortar lines in a brick wall,

(2) Plastering a skim coat of cement over said wall and tapes, and

(3) pulling off the tapes substantially immediately to remove the cement overlying the tapes and expose the mortar lines while leaving the balance of the skim coat adhered to the wall.

4,379,188

SURFACE HYDROLYZED OLEFIN-VINYL ESTER CONTAINER COATINGS

Alfred B. Zimmerman, Fairfield, and Leroy J. Memering, Cincinnati, both of Ohio, assignors to National Distillers & Chemical Corp., New York, N.Y.

Continuation of Ser. No. 140,509, Apr. 15, 1980, abandoned. This application Sep. 17, 1981, Ser. No. 303,258

Int. Cl.³ B05D *1/06, 3/04, 3/10;* **B65D** *23/08*

U.S. Cl. 428—35 **13 Claims**

1. A container provided with an impact absorbent shatter resistant coating having a frosty appearance which comprises a surface hydrolyzed olefin-vinyl ester copolymer, wherein the degree of hydrolysis of said olefin-vinyl ester copolymer is essentially to a depth of from about 10 percent to about 30 percent of the average thickness of the coating.

4,379,189

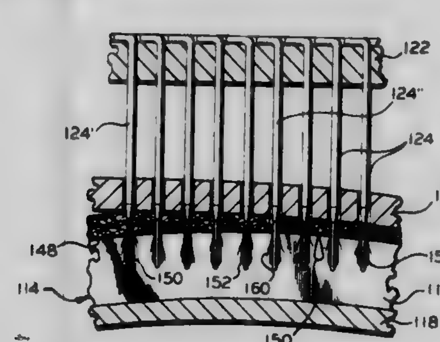
NONWOVEN TEXTILE FABRIC WITH FUSED FACE AND RAISED LOOP PILE

Louis Platt, Seneca, S.C., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 19, 1980, Ser. No. 218,142

Int. Cl.³ D04H *18/00*

U.S. Cl. 428—89 **46 Claims**



4. A textile fabric comprising:

a first side and a second side;

coherent nonwoven fibers;

a first fused face on said first side wherein at least a portion of said nonwoven fibers on said first side are fused together;

a second fused face on said second side wherein at least a portion of said nonwoven fibers on said second side are fused together; and

an unfused plurality of said nonwoven fibers extending outwardly from one of said sides of said fabric whereby a raised pile is formed on said one of said sides.

4,379,190

FILLED THERMOPLASTIC COMPOSITIONS BASED ON MIXTURES OF ETHYLENE INTERPOLYMERS

Timothy T. Schenck, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 251,989, Apr. 6, 1981, abandoned, which is a continuation-in-part of Ser. No. 176,782, Aug. 11, 1980, abandoned. This application Jun. 15, 1981, Ser. No. 273,420

Int. Cl.³ B32B *27/30;* **C08K** *5/01, 5/10, 5/11*

U.S. Cl. 428—95 **28 Claims**

1. A composition consisting essentially of

(a) from about 5 percent to about 60 percent by weight of a mixture of at least two copolymers of ethylene, copolymer (A) and copolymer (B), each copolymer having at least one polar comonomer selected from the group consisting of vinyl esters of saturated carboxylic acids wherein the acid moiety has up to 4 carbon atoms, unsaturated mono- or dicarboxylic acids of 3 to 5 carbon atoms, the salts of said unsaturated acids, and esters of said unsaturated acids wherein the alcohol moiety has 1 to 8 carbon atoms, copolymer (A) having a polar comonomer content of from about 2 to about 30 percent by weight, an ethylene content of from about 70 to about 98 percent by weight and a melt index of from about 0.1 to about 20, and copolymer (B) having a polar conomoner content of from about 28 to about 70 percent by weight, an ethylene content of from about 30 to about 72 percent by weight and a melt index of from about 5 to about 1000, provided that the polar comonomer content of copolymer (B) is at least 12 percent by weight higher than the polar comonomer content of copolymer (A) and the weight ratio of copolymer (A) to copolymer (B) is from about 99/1 to about 55/45;

(b) from about 40 percent to about 90 percent by weight of filler;

(c) from 0 percent to about 15 percent by weight of at least one plasticizer selected from the group consisting of processing oils, polyesters, polyethers and polyether esters provided that, when the filler level is above about 75 percent by weight, there is at least about 1 percent by weight of plasticizer present, provided that when the filler level is at least 70 percent by weight said composition exhibits a tensile elongation at least 50% higher than a blend containing a single copolymer of ethylene having the same polar comonomer content and melt index as the mixture of at least two copolymers of ethylene has;

(d) from 0 to about 27% by weight of elastomeric polymer; and

(e) from 0 to about 48% by weight of olefin polymer selected from the group consisting of low density branched polyethylene, high density linear polyethylene, linear copolymers of ethylene and another olefin comonomer, polypropylene and copolymers of propylene and ethylene where the ethylene content is up to 20% by weight.

4,379,191

HONEYCOMB NOISE ATTENUATION STRUCTURE

Stanley L. Beggs, Chula Vista; Frank J. Riel, San Diego, and D. W. R. Lawson, Bonita, all of Calif., assignors to Rohr Industries, Inc., Vista, Calif.

Continuation of Ser. No. 604,200, Oct. 13, 1975. This application Dec. 22, 1980, Ser. No. 219,192

Int. Cl.³ B32B *3/12*

U.S. Cl. 428—118 **7 Claims**

1. An acoustical honeycomb sandwich panel for use as supporting structure within an aircraft jet engine inlet and nacelle structures wherein said acoustical honeycomb sandwich panel is exposed to the sound of jet engines and other noise producing mechanisms comprising:

a honeycomb core having a multiplicity of open cells with walls of thin sheet material disposed transversely to the panel;

a perforated facing of thin sheet material having one surface thereof bonded to one core face;

an imperforate facing of thin sheet material bonded to the other core face; and

a thin sheet of porous fibrous material bonded to the other surface of said perforated facing sheet with a bonding medium selected from a class of electrically insulating adhesive systems whose melt viscosity, during the curing

process, is sufficiently high so that the adhesive will not flow into the pores of the porous sheet by capillary attraction whereby to maintain the full porosity of the porous fibrous material over the holes in said perforate facing sheet and insulating said thin sheet of porous fibrous material from said peforated facing sheet, the pores of said porous material providing communication between the core cells and the atmosphere through the perforations of said perforated sheet.

4,379,192

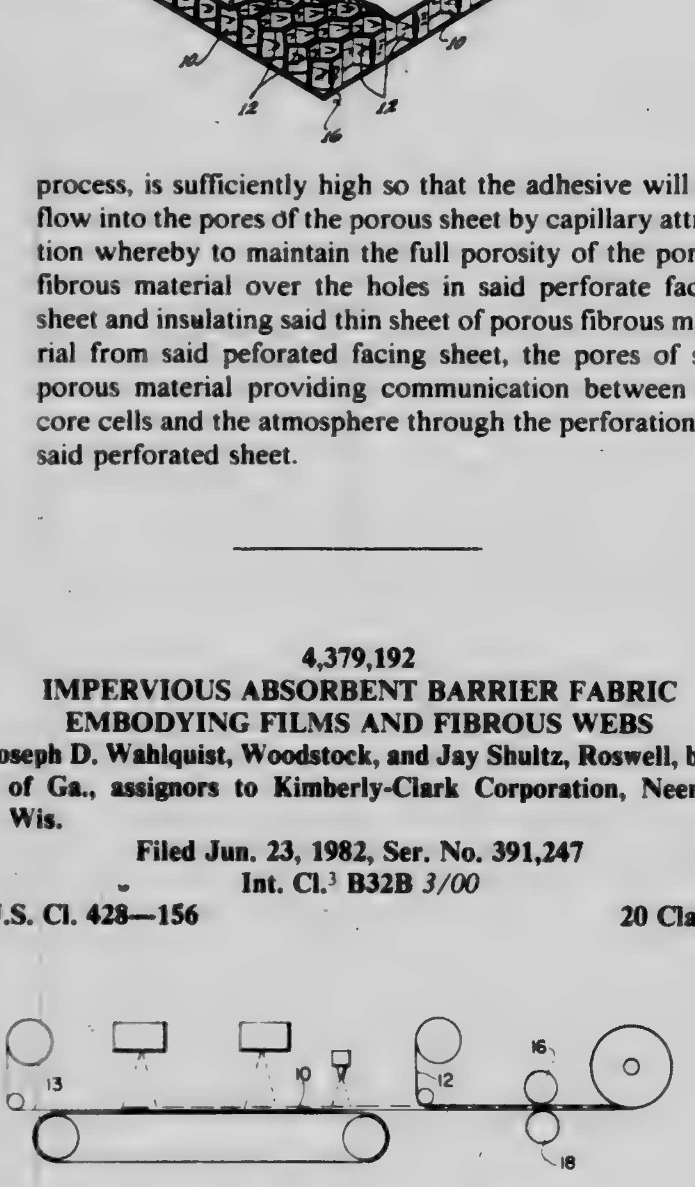
IMPERVIOUS ABSORBENT BARRIER FABRIC EMBODYING FILMS AND FIBROUS WEBS

Joseph D. Wahlquist, Woodstock, and Jay Shultz, Roswell, both of Ga., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Filed Jun. 23, 1982, Ser. No. 391,247

Int. Cl.³ B32B *3/00*

U.S. Cl. 428—156 **20 Claims**



1. An absorbent impervious barrier fabric comprising a fibrous section including a mat of polymeric melt blown microfibers with an average diameter of up to about 10 microns and a basis weight between about 0.3 oz/yd^2 and 4.0 oz/yd^2, and an impervious polymeric film between about 0.0006 and 0.0016 inches thick adjacent said mat, said fibrous section and film being united in a pattern of compacted bond regions occupying less than about 15 percent of the total area and formed by the application of heat and pressure, said bond regions comprising pillars of bonds extending completely through the fabric from the outer surface where the fibrous elements are fused, to the interface between the mat and the film where the microfibers are fused to the film and the film has increased crystallinity in the bond regions without disruptions in the imperviousness of the film, the bond intensity tapering from said fused regions toward a low bonding level in the central plane of said mat to provide a double gradient in bond intensity in said pillars of bonds, the surface of the fibrous section of the fabric having a shape formed by depressions in the bond regions, providing a three dimensional configuration.

4,379,193

HIGH PRESSURE DECORATIVE LAMINATES CONTAINING AN AIR-LAID WEB AND METHOD OF PRODUCING SAME

James E. B. Hunt, Staines, England, assignor to Formica Corporation, Wayne, N.J.

Filed Feb. 11, 1981, Ser. No. 233,418

Claims priority, application United Kingdom, Feb. 29, 1980, 8007002

Int. Cl.³ B32B *3/00, 23/04, 23/10*

U.S. Cl. 428—196 **7 Claims**

1. A heat and pressure consolidated high pressure decorative laminate comprising, in superimposed relationship,

(a) a monostichous layer of randomly oriented, substantially non-hydrogen bonded, air-laid cellulosic fibers from about 0.5 to 2.5 mm in average length, said layer being from about 0.25 mm to 2.25 mm thick, of uniform composition and basis weight and containing from about 20 to 35%, by weight, based on the total weight of fiber and resin in (a), of a thermoset resin and

(b) a thermoset resin impregnated, decorative sheet.

4,379,194

HIGH PRESSURE DECORATIVE LAMINATES CONTAINING AN AIR-LAID WEB OF FIBERS AND FILLER AND METHOD OF PRODUCING SAME

Theodore R. Clarke, and John F. Hosler, both of Cincinnati, Ohio, assignors to Formica Corporation, Wayne, N.J.

Filed Jan. 19, 1981, Ser. No. 226,345

Int. Cl.³ B32B *3/00, 5/02*

U.S. Cl. 428—203 **5 Claims**

1. A heat and pressure consolidated decorative laminate comprising, in superimposed relationship,

(a) a monostichous layer of randomly oriented, substantially non-hydrogen bonded, air-laid cellulosic fibers of from about 0.25 mm to 2.25 mm thickness and containing from about 10 to 40%, by weight, based on the total weight of fiber and resin in (a), of a thermoset resin and from about 1% to about 20%, by weight, based on the total weight of said fiber, of pulverized, particulate filler having a particle size no larger than about 200 microns, and

(b) a thermoset resin impregnated cellulosic print sheet.

4,379,195

LOW VALUE RESISTOR INKS

Ashok N. Prabhu, Plainsboro, and Kenneth W. Hang, Princeton Junction, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Jul. 6, 1981, Ser. No. 280,937

Int. Cl.³ B32B *3/10;* **H01B** *1/02*

U.S. Cl. 428—209 **10 Claims**

1. A resistor ink suitable for forming a resistor film on a circuit board comprising:

(a) from about 30 to about 85 percent by weight of a conductive component comprising stannous oxide and molybdenum trioxide or a mixture of molybdenum trioxide and metallic molybdenum;

(b) from about 10 to about 65 percent by weight of a glass selected from the group consisting of:

(i) a barium aluminum borate glass consisting of from about 40 to about 55 percent by weight of barium oxide, from about 16 to about 22 percent by weight of aluminum oxide, and from about 14 to about 40 percent by weight of boron trioxide; and

(ii) a barium calcium borosilicate glass consisting of from about 40 to about 55 percent by weight of barium oxide, from about 10 to about 15 percent by weight of calcium oxide, from about 14 to about 25 percent by weight of boron trioxide and from about 13 to about 23 percent by weight of silicon dioxide; and

(c) from about 5 to about 40 percent by weight of a suitable organic vehicle.

4,379,196

PROTECTIVE COATING FOR ALUMINUM AND METHOD OF MAKING

Warren Halper, Hendersonville, N.C., assignor to General Electric Company, Schenectady, N.Y.

Filed Apr. 23, 1981, Ser. No. 256,895

Int. Cl.³ G02B *5/08;* **B32B** *15/04*

U.S. Cl. 428—213 **7 Claims**

1. A corrosion and abrasion resistant composite reflective aluminum article articled comprising an aluminum substrate, a silica glass coating on said aluminum substrate tightly adherent thereto, and a second coating overlying said silica glass coating comprising a mixture of colloidal silica and the partial condensate of a silanol.

6. An article as defined in claim 1, said silica glass coating having a thickness of not more than about 0.2 mil.

7. An article as defined in claim 6, said second coating being substantially thicker than said silica glass coating.

4,379,197

STRETCH WRAP FILM COMPOSITION

Cipriano Cipriani, Morristown, and Henry J. Boyd, Laurence Harbor, both of N.J., assignors to El Paso Polyolefins Company, Paramus, N.J.

Filed Dec. 2, 1981, Ser. No. 326,716

Int. Cl.³ B32B *7/02*

U.S. Cl. 428—220 **10 Claims**

1. A stretch wrap film composition consisting essentially of
(a) a linear low density polyethylene resin free of any polymerized vinyl acetate groups said resin being a copolymer of ethylene with one or more comonomers selected from C_4 to C_{10} alpha-olefins and having a density in the range of from about 0.900 to about 0.940 g/cc and a melt index between about 0.1 and 10 g/10 min. and
(b) from about 0.3 to about 3.0 weight percent sorbitan monooleate based on the weight of the resin,
said composition in film form having excellent cling properties without exhibiting excessive adherence to film processing equipment.

4,379,198

COMPOSITE MATERIAL CONTAINING A THERMOPLASTIC SYNTHETIC RESIN LAYER

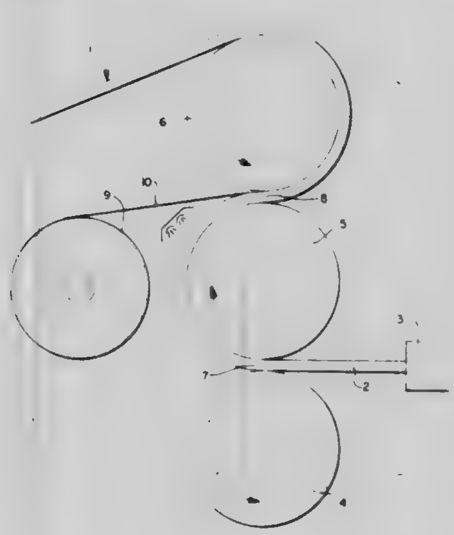
Hans Jaeschke, St.-Augustin; Paul Spielau, Troisdorf-Eschmar, and Horst Ulb, Troisdorf-Sieglar, all of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed Sep. 15, 1981, Ser. No. 302,615

Claims priority, application Fed. Rep. of Germany, Oct. 1, 1980, 3036994

Int. Cl.³ B32B *27/04, 31/08, 31/12, 31/20*

U.S. Cl. 428—288 **7 Claims**



1. A composite material, especially suitable for chemical apparatus construction comprising a layer of a thermoplastic synthetic resin and a textile layer pressed onto the resin layer in the heated condition; said textile layer consisting of a mechanically prestrengthened, polyester fiber mat bound chemically with a binder consisting essentially of a synthetic resin dispersion of polymers of acrylic or methacrylic acid esters and/or copolymers of esters of acrylic or methacrylic acid and of acrylonitrile.

7. A method for producing a composite material which comprises chemically bonding the fibers of a polyester fiber mat which has been needled with a binder consisting essentially of a dispersion of polymers of acrylic or methacrylic acid esters and/or copolymers of esters of acrylic acid or methacrylic acid and acrylonitrile, and thereafter laminating the polyester mat to a layer of a synthetic resin by application of heat and pressure.

4,379,199

HEAT-RESISTING LAYER-CONSTRUCTIONS AND METHOD FOR PREPARING THE SAME

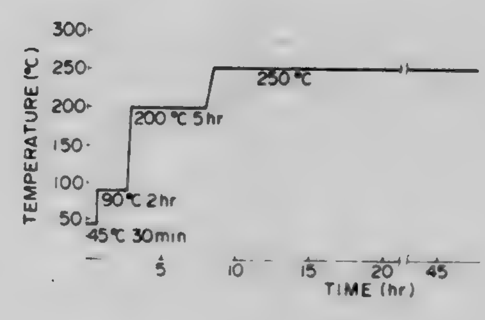
Susumu Senaha; Tetsuya Chiba; Akira Ohno, and Shitomi Katayama, all of Kanagawa, Japan, assignors to Yokohama Kiko Co. and NHK Spring Co., Ltd., both of Kanagawa, Japan

Continuation of Ser. No. 26,396, Apr. 2, 1979, abandoned. This application Jul. 29, 1981, Ser. No. 287,855

Claims priority, application Japan, Apr. 1, 1978, 53/39409

Int. Cl.³ B32B *9/04, 15/08, 27/06*

U.S. Cl. 428—332 **5 Claims**



1. Heat resisting layer-constructions consisting of
(a) a heat resistant, base substrate and
(b) a resinous layer coated and heat cured on said substrate, said resinous layer (b) comprising a polyaralkylsiloxane comprising structural units having the general formula (I)

$$(-\overset{\overset{\displaystyle R}{|}}{\underset{|}{Si}}-O-)_x\cdot(-\overset{\overset{\displaystyle Ar}{|}}{\underset{|}{Si}}-O-)_y\cdot(-\overset{\overset{\displaystyle X}{|}}{\underset{|}{Si}}-O-)_z \qquad (I)$$

wherein R is a lower alkyl radical; Ar is an aryl radical; X is a polycondensable functional radical; x, y and z, each represents the molar proportion of the unit for which it is the subscript, respectively, and wherein the free bonds in each of the structural units shown in the general formula (I) are selected from the radicals as defined for R, Ar and X, or may combine with one another to form a bridging bond or may be a mono-functional radical, so long as the numerical molar fraction:

$$\frac{\text{aryl radicals}}{\text{aryl radicals} + \text{alkyl radicals}}$$

in said polyaralkylsiloxane having the general formula (I) is from 0.65 to 1.00,
the functionality of the polycondensable functional groups in said polyaralkylsiloxane having the general formula (I) is from 2 to 3, and
the ratio of the number of carbon atoms to the number of silicon atoms in said polyaralkylsiloxane having the general formula (I) is from 4.25 to 16.

4,379,200

NOVEL METHOD OF PRODUCING ION EXCHANGE MEMBRANE

Sueo Machi, Takasaki; Isao Ishigaki, Maebashi, and Takanobu Sugo, Gunma, all of Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

Continuation of Ser. No. 118,104, Feb. 4, 1980, abandoned. This application Sep. 14, 1981, Ser. No. 302,054

Claims priority, application Japan, Feb. 5, 1979, 54-11992

Int. Cl.³ B05D *3/06*

U.S. Cl. 428—337 **5 Claims**

1. A method of producing an ion exchange membrane having an electrical resistance of 50Ω cm or lower and a uniform graft distribution comprising

irradiating a polyethylene film not more than 150 μm thick with ionizing radiation for a total dose of 1-30 Mrads in vacuum or in an inert gas,

then contacting the irradiated film with a 15 to 50 wt% aqueous solution of acrylic acid and/or methacrylic acid, substantially free of oxygen and which contains a homopolymerization inhibitor of a ferrous salt or a cupric salt to graft acrylic acid and/or methacrylic acid onto the polyethylene film, for a time sufficient to provide a degree of grafting of at least 60%, and

then treating the grafted film with a 2 to 10 wt% aqueous solution of potassium hydroxide at a temperature of room temperature to 90° C. for 5-120 minutes.

4,379,201

MULTIACRYLATE CROSS-LINKING AGENTS IN PRESSURE-SENSITIVE PHOTOADHESIVES

Steven M. Heilmann, North St. Paul, and John D. Moon, Hastings, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 30, 1981, Ser. No. 249,116

Int. Cl.³ B05D *3/06*

U.S. Cl. 428—345 **19 Claims**

1. Method of making pressure-sensitive adhesive tape using a coatable mixture which is polymerizable by ultraviolet radiation to a pressure-sensitive adhesive state, which mixture comprises (a) partially polymerized acrylic acid ester of non-tertiary alcohol, the alkyl groups of which have an average of about 4 to 14 carbon atoms, said acrylic acid ester being per se polymerizable to a sticky, stretchable, elastic adhesive mass and (b) a photoinitiator, which coatable mixture is (1) coated onto a backing member and (2) exposed to ultraviolet radiation to polymerize the mixture to a pressure-sensitive adhesive state, wherein the improvement comprises:

dissolved in the mixture is polyacrylic-functional crosslinking monomer having less than 10 atoms in the chain between polymerizable vinyl groups and being present in an amount providing about 0.5 to 5×10^{-5} diacrylate equivalent per gram of component (a),

thus providing a crosslinked adhesive coating affording an Adhesion Value of at least 83 N/dm and a Shear Value of at least 1250 minutes.

8. A photoactive mixture having a coatable viscosity of 300 to 20,000 centipoises at ordinary room temperature and comprising

(a) a partially polymerized acrylic acid ester of non-tertiary alcohol, the alkyl groups of which have an average of about 4 to 14 carbon atoms, said acrylic acid ester being per se polymerizable to a sticky, stretchable, elastic adhesive mass, and

(b) a photoinitiator

wherein the improvement comprises

dissolved in the mixture is polyacrylic-functional crosslinking monomer having less than 10 atoms in the chain between polymerizable vinyl groups and being present in an amount providing about 0.5 to 5×10^{-5} diacrylate equivalent per gram of component (a).

15. Pressure-sensitive adhesive tape comprising a flexible backing member and a pressure-sensitive adhesive coating comprising a copolymer of

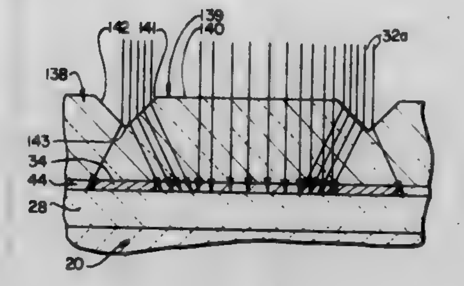
(a) a partially polymerized acrylic acid ester of non-tertiary alcohol, the alkyl groups of which have an average of about 4 to 14 carbon atoms, said acrylic acid ester being per se polymerizable to a sticky, stretchable, elastic adhesive mass, and

(b) at least one copolymerizable monomer selected from acrylic acid, methacrylic acid, itaconic acid, acrylamide, methacrylamide, an N-acryloylamino acid, and N-vinyl-2-pyrrolidone in an amount providing up to about 12% by weight of component (a),

which adhesive coating is free from chlorine and other corrosive material, wherein the improvement comprises,

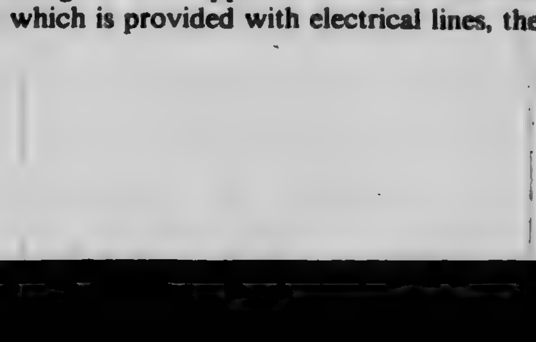
the tape has an Adhesion Value as herein defined of at least 83 N/dm and a Shear Value of at least 1250 minutes.

4,379,202
SOLAR CELLS
Bruce Chalmers, Falmouth, Mass., assignor to Mobil Solar Energy Corporation, Waltham, Mass.
Filed Jun. 26, 1981, Ser. No. 277,905
Int. Cl.^{3} H01L *31/04*
U.S. Cl. 136—256 **10 Claims**



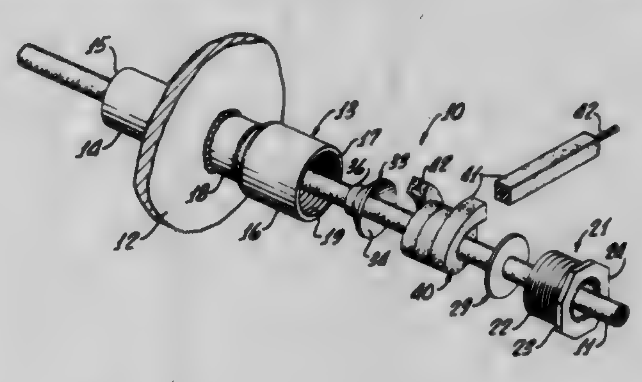
1. A solar cell assembly comprising in combination
a solar cell for generating an electrical current in response to electromagnetic radiation, said cell having a front surface and an electrode obscuring a plurality of regions of said front surface, said regions each having a characteristic dimension in a first direction and being spaced from one another along said first direction in a predetermined spatial frequency, said electrode comprising a comb-like array of equally spaced-apart like conductors;
a transparent front cover of predetermined refractive index having opposed first and second surfaces, said first surface facing said front surface of said cell and confronting a medium having a refractive index different from said predetermined refractive index, said first surface having a contour comprising a plurality of substantially identical cylindrical segments having a like plurality of substantially cylindrical axes, adjacent ones of said cylinder axes being spaced apart a distance similar to that between adjacent ones of said conductors, each of said cylinder axes being disposed (a) in a plane substantially parallel to said conductors, (b) parallel to individual conductors, and (c) equidistant from an adjacent pair of said conductors, said cylinders being dimensioned and disposed so that selected rays of said radiation incident upon them are deflected through a predetermined angle and directed to regions of said front surface which are not obscured by said electrode, and said second surface being a substantially planar surface parallel to said cylinder axes; and
means securing said front cover to said cell in overlaying relation to said front surface with said first surface positioned at a predetermined distance from said electrode.

4,379,203
HOUSING FOR LASER APPARATUS
Günther Koszytorz, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed May 20, 1981, Ser. No. 265,456
Claims priority, application Fed. Rep. of Germany, May 23, 1980, 3019915
Int. Cl.^{3} H01S *3/04*
U.S. Cl. 174—15 R **5 Claims**



1. A housing for laser apparatus to which a coolant is supplied and which is provided with electrical lines, the housing comprising two semi-cylindrical housing halves which in the assembled configuration of the housing form a cylindrical housing, each housing half comprising a semi-circular outer surface and a planar inner surface having a cutout extending therein parallel to the axis of the housing half, the cutouts of the respective housing halves being oppositely arranged in the assembled configuration of the housing to form a chamber, each cutout including a base and the base of at least one of the cutouts being a planar surface, between the cutout and the semicircular outer surface of at least one of the housing halves are disposed parallel to the axis of that housing half at least two canals for coolant and at least one cable channel for electrical wires, and means for joining the two housing halves together.

4,379,204
STUFFING TUBE
Frederick Perrault, Torrance, and Raymond E. Perrault, Rancho Palos Verdes, both of Calif., assignors to Whipple Patent Management Corporation, Sherman Oaks, Calif.
Filed May 4, 1981, Ser. No. 259,916
Int. Cl.^{3} H02G *3/22*
U.S. Cl. 174—65 SS **23 Claims**



1. A stuffing tube device for providing a seal around electrical cables or the like extended through bulkheads and decks of ships comprising:
a tube of substantially uniform wall thickness having
a first portion of a first diameter,
a second portion of a second and larger diameter, and
a shoulder between said first and second portions,
a member having an interiorly and exteriorly tapered portion, a straight cylindrical section at the inner end of said tapered portion, and an opening therethrough adapted to receive an electrical cable or the like,
the exterior of said tapered portion engaging said shoulder, washer means in said second portion,
a threaded member adjacent said washer means,
said second portion of said tube having threads at the outer end thereof meshed with the threads of said threaded member, whereby said threaded member can bias said washer means inwardly of said tube upon relative advancement of said threads,
and a seal between said washer means and said member,
one end of said seal engaging said washer means and the opposite end of said seal engaging said tapered portion,
whereby upon such relative advancement, said seal is compressed for providing a seal around an electrical cable extending through said tubular member and around the wall of said second portion of said tubular member.

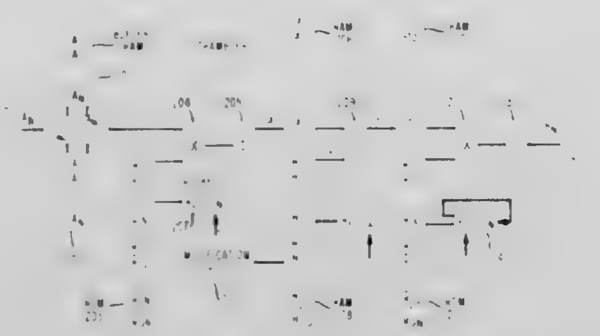
4,379,205
ANALOG SIGNAL SCRAMBLING SYSTEM
Aaron D. Wyner, Maplewood, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Jun. 22, 1979, Ser. No. 51,107
Int. Cl.^{3} H04L *9/00*
U.S. Cl. 178—22.10 **8 Claims**

1. Scrambling apparatus for converting digital samples of an analog signal having a prescribed bandwidth into a scrambled

analog signal for application to a channel having a bandwidth no greater than that needed for the original signal, comprising:

means for forming a first vector α of discrete prolate spheroidal sequence coefficient signals from said digital samples of said analog signal,

means responsive to said signals formed by said first means for rearranging said first vector of signals into a scrambled



vector β of discrete prolate spheroidal sequence coefficient signals,

means responsive to said output rearranging means for reforming said scrambled vector of discrete prolate spheroidal sequence coefficient signals to output scrambled digital signal samples (B_n) for transmission, and

means for applying said output scrambled digital signal samples as an analog signal to said channel.

4,379,206

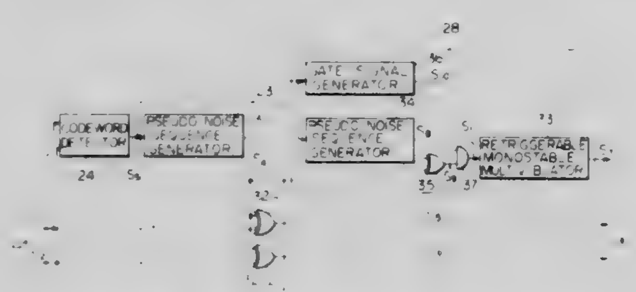
MONITORING CIRCUIT FOR A DESCRAMBLING DEVICE

Shinichiro Aoki, Sagamihara, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Sep. 17, 1980, Ser. No. 188,261

Int. Cl.³ H04L *9/00;* **G06F** *11/08*

U.S. Cl. 178—22.13 **12 Claims**



7. A monitoring circuit, operatively connected to a codeword detector which generates a codeword detector signal, and operatively connected to receive first and second demodulator signals, for a descrambling device, comprising:

a first pseudo noise sequence generator, operatively connected to the codeword detector, for generating a first pseudo noise sequence signal when the codeword detector signal is received;

a second pseudo noise sequence generator, operatively connected to the codeword detector, for generating a second pseudo noise sequence signal when the codeword detector signal is received;

first means, having a first input operatively connected to said first pseudo noise sequence generator and having a second input operatively connected to receive the first demodulator signal, for generating a first data signal from the first pseudo noise sequence signal and the first demodulator signal;

second means, having a first input operatively connected to said first pseudo noise sequence generator and having a second input operatively connected to receive the second demodulator signal, for generating a second data signal from the second pseudo noise sequence signal and the second demodulator signal;

a discriminator, having first and second inputs operatively connected to said first and second pseudo noise sequence generators, respectively, for discriminating between the first and second pseudo noise sequence signals, and for generating a pulse shaped signal when the first and second pseudo noise sequence signals are different;

gate means, having first and second inputs operatively connected to the codeword detector and said discriminator, respectively, for transmitting therethrough the pulse shaped signal when said gate means is operatively activated by the codeword detector signal, said gate means comprising:

a gate signal generator, having an input operatively connected to the codeword detector, and having an output, for generating a gate signal, wherein the time period of the gate signal is a first predetermined time period, after said gate signal is operatively activated by the codeword detector signal; and

an AND gate having first and second inputs operatively connected to the output of said gate signal generator and said discriminator, respectively, and having an output; and

a monitoring signal generator, operatively connected to the output of said AND gate, for converting the pulse shaped signal into a monitoring signal.

4,379,207

AUTOMATIC NOISE ELIMINATING DEVICE FOR AN FM RECEIVER

Masaki Kubota, Yokohama, Japan, assignor to Nissan Motor Company, Ltd., Yokohama, Japan

Filed Sep. 16, 1980, Ser. No. 187,712

Claims priority, application Japan, Sep. 17, 1979, 54-126993[U]

Int. Cl.³ H04H *5/00*

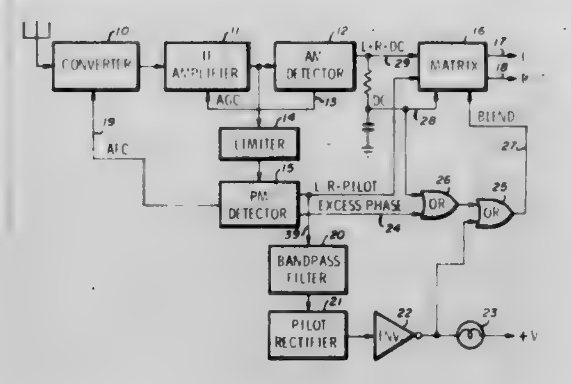
U.S. Cl. 179—1 GJ **4 Claims**

1. An automatic noise eliminating device for an FM receiver, comprising:

(a) a multipath detector which detects an amplitude modulated signal caused by multipath transmission in an FM intermediate frequency signal and outputs a control signal according to the magnitude of the amplitude modulated signal, said detector having (1) an amplifier with an automatic gain control circuit connected to an intermediate frequency amplifier of the FM receiver, (2) a first AM detector receiving the output of said amplifier and deriving an envelope signal therefrom, (3) a capacitor through which is fed the envelope signal from said first AM detector and which cuts off low frequency signal components and the direct current component therefrom; and (4) a second AM detector connected in series with said capacitor and detecting a signal including amplitude modulated signal components in the signal passed by the capacitor and outputting a DC voltage signal depending upon the detected signal; and

(b) at least one high frequency cutoff circuit which cancels higher frequency signal components of an audio signal according to the level of the control signal from said multipath detector.

4,379,208
AM STEREO RECEIVER LOGIC
Tim D. Isbell, and Don R. Sauer, both of San Jose, Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.
Filed Nov. 13, 1980, Ser. No. 206,336
Int. Cl.³ H04H *5/00*
U.S. Cl. 179—1 GS **4 Claims**



1. A logic circuit for operating an AM stereo radio receiver, said receiver including an envelope detector which provides an L+R signal along with a DC potential, a phase modulation decoder which provides an L−R signal along with a stereo pilot signal and an excess phase potential which appears when said receiver is mistuned, and a matrix which combines said L+R and said L−R signals to produce L and R signals for stereo sound reproduction, said matrix including electronic means for blending said L and R signals thereby to mute said stereo, said logic circuit comprising:

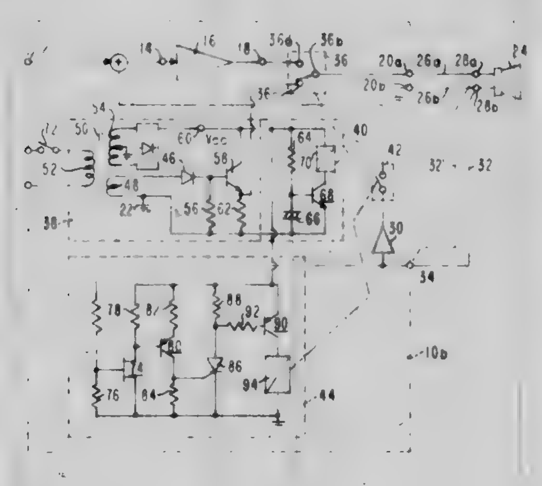
means for visually indicating the presence of a stereo signal in said receiver;

means coupled to said phase modulation decoder output for extracting said stereo pilot signal;

means for actuating said visually indicating means in response to said stereo pilot signal; and

an OR gate having a first input coupled to said means for extracting said pilot signal and a second input coupled to said excess phase potential, whereby said receiver operates in a monaural mode when either mistuned or in the absence of said stereo pilot signal.

4,379,209
AUDIO AMPLIFIER
Hideki Sakano, Iwafunemachi, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasakishi, Japan
Filed Nov. 19, 1980, Ser. No. 208,394
Claims priority, application Japan, Feb. 20, 1980, 55-20099
Int. Cl.³ H03F *1/38*
U.S. Cl. 179—1 A **13 Claims**



1. An audio amplifier for connection to a pair of terminals of a loudspeaker through like individual extension wires comprising:

a line input terminal;

a line amplifier having an input terminal connected to the line input terminal;

a line output terminal for connection to one of the terminals of the loudspeaker through one of the extension wires;

a grounded terminal for connection to the other of the terminals of the loudspeaker through the other of the extension wires;

an auxiliary terminal for connection to the grounded terminal of the loudspeaker;

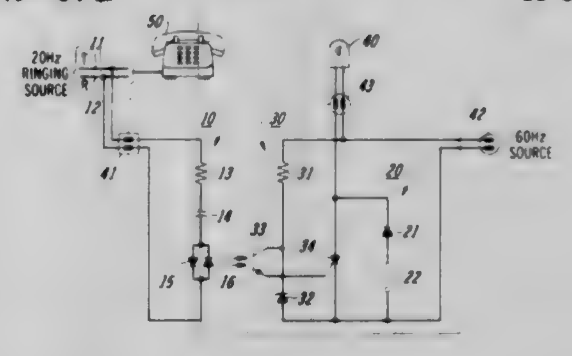
a positive feedback circuit connected between the auxiliary terminal and the input terminal of the line amplifier; and

apparatus for protecting the line amplifier and loudspeaker from damage by voltage overload including:

(a) a first switch in the positive feedback circuit between the auxiliary terminal and the input terminal of the line amplifier; and

(b) controller means sensitive to the voltage at the auxiliary terminal for opening, or maintaining open, said switch when the latter voltage exceeds a predetermined value.

4,379,210
RINGING DETECTOR FOR USE BY THE DEAF
Richard G. Sparber, Wheaton, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed May 28, 1981, Ser. No. 267,751
Int. Cl.³ H04M *11/02*
U.S. Cl. 179—84 L **11 Claims**



1. A telephone ringing detector circuit connectible between an illuminating device and a source of alternating current and to a telephone line, said detector circuit comprising:

first circuit means including first rectifier means connected between said illuminating device and said source for supplying current to said illuminating device only during first half cycles of said alternating current for energizing said illuminating device to a first level of illumination; and

second circuit means including second rectifier means and also connected between said illuminating device and said source operated responsive to ringing voltage on said line for supplying current to said illuminating device also during second half cycles of said alternating current for energizing said illuminating device to a second, higher level of illumination.

4,379,211
ARCUATELY TENSIONED PIEZOELECTRIC DIAPHRAGM MICROPHONE
Edwin Joscelyn, Commack; Michael J. Ferrante, Bayshore, and Robert F. Saiya, North Babylon, all of N.Y., assignors to Telephonics Corporation, Huntington, N.Y.
Filed Oct. 14, 1980, Ser. No. 196,528
Int. Cl.³ H04R *17/02*
U.S. Cl. 179—110 A **11 Claims**

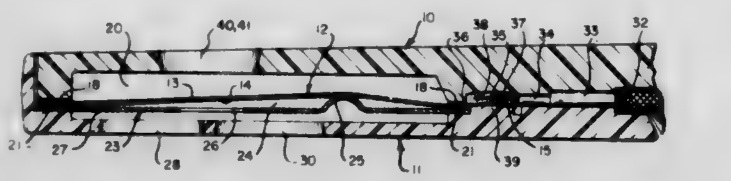
1. A piezoelectric acousto-electric transducer comprising:

(a) a peripherally supported, metallized piezoelectric diaphragm;

(b) a baffle plate in close parallel proximity to said piezoelectric diaphragm;

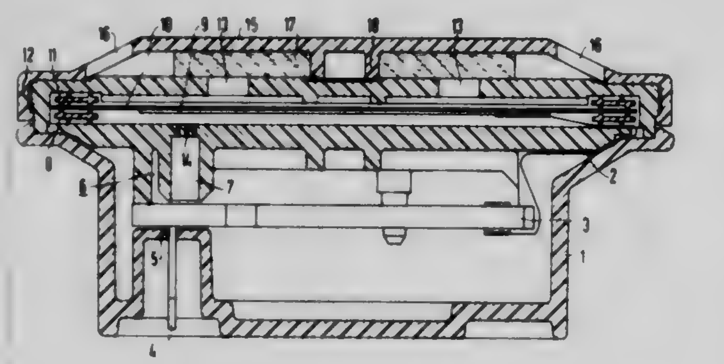
(c) a boss protruding from said baffle plate with sufficient

height to arcuately tension said diaphragm away from said baffle plate; and



(d) means for making electrical contact to the metallized piezoelectric diaphragm.

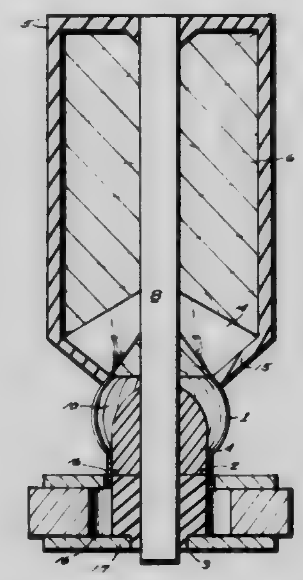
4,379,212
ELECTRO-ACOUSTIC TRANSDUCER
Erwin Martin, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Feb. 24, 1981, Ser. No. 237,692
Claims priority, application Fed. Rep. of Germany, Feb. 29, 1980, 3007834
Int. Cl.[3] H04R *15/00*
U.S. Cl. 179—110 A **7 Claims**



1. An electro-acoustic transducer, comprising:
a transducer plate arranged in a housing and by which a space in the housing is divided into a front chamber and a rear chamber;
a fitting which closes off the front chamber;
at least one Helmholtz absorption resonator means arranged in conjunction with a plate in the rear chamber for attenuating rises in resonance;
the Helmholtz resonator means comprising a cylindrical collar zone having one end closed off except for narrow slot-like sound openings arranged in said plate and the other end of the collar being substantially completely open; and
the slot-like openings being die cast in the plate and the specific dimensions being chosen to establish a desired air friction resistance of the Helmholtz resonator means to achieve a desired attenuation response.

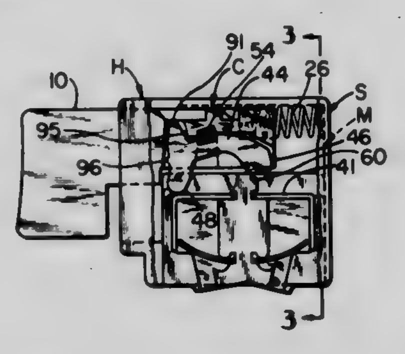
4,379,213
ELECTROACOUSTICAL CONVERTER
Lutz Lehnhardt, Berlin, Fed. Rep. of Germany, assignor to BM-Elektronik Meletzky KG, Berlin, Fed. Rep. of Germany
Filed Nov. 21, 1980, Ser. No. 209,115
Claims priority, application Fed. Rep. of Germany, Nov. 21, 1979, 2946981
Int. Cl.[3] H04R *7/14, 9/06*
U.S. Cl. 179—115.5 R **11 Claims**

1. An electro-acoustic converter, comprising:
a vibration generator having an annular vibration coil;
means at least partially housing said vibration generator and providing a gap out through which said vibration coil projects;
a barrel-shaped diaphragm member comprising a plurality of pre-bent arcuate strip means arranged in a ring so as to be convex outwards and so as to have two opposite annular ends;
the vibration generator being disposed at one end of the barrel-shaped diaphragm with the vibration coil thereof connected to said one end of said diaphragm;
a traverse bar mounted to said vibration generator housing means and extending longitudinally centrally through said vibration generator;
means connecting the opposite end of the diaphragm with the traverse bar; and



a sound-conducting member spacedly disposed internally of the diaphragm and based in the vicinity of said one end of said diaphragm, the diaphragm and sound-conducting member being so shaped and positioned relative to one another so as to leave an annular gap therebetween, which gap expands in cross-sectional area from said one end toward said opposite end of said diaphragm, so that sound waves radiated internally from said diaphragm are conducted towards said opposite end of said diaphragm.

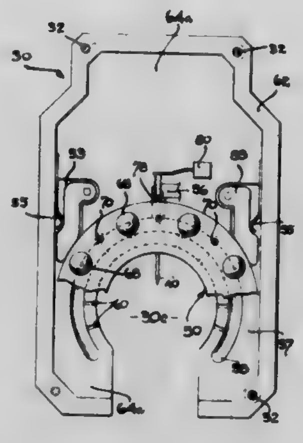
4,379,214
TRIGGER OPERATED TOOL HANDLE SWITCH
Benjamin H. Matthews, Peninsula, Ohio, assignor to Lucerne Products, Inc., Hudson, Ohio
Filed Dec. 28, 1981, Ser. No. 334,827
Int. Cl.[3] H01H *13/08*
U.S. Cl. 200—157 **4 Claims**



1. In an electric switch mechanism for portable electric motor drive type tools having a reciprocable contact carrier and a movable electrically conductive bridging contact carried by the contact carrier for making and breaking electrical contact with coacting stationary contacts in the switch mechanism, the improvement comprising; said bridging contact having a protuberance at each point of contact with the contact carrier to ensure that such contact therebetween at each such point is always at the same spot(s) on the bridging contact when the bridging contact is reciprocated by the contact carrier in either direction, said bridging contact including a horizontally elongated body portion having a downwardly and rearwardly extending trailing contact end portion having one of said protuberances on its rearward edge, and said body

portion having an upwardly extending stem having another of said protuberances on its forward edge.

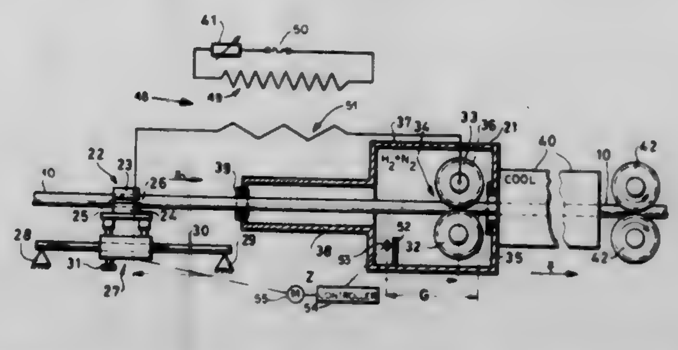
4,379,215
ORBITAL CASSETTE WELDING HEAD
Roderick G. Rohrberg, 3121 Fujita St., Torrance, Calif. 90505
Filed Mar. 30, 1981, Ser. No. 249,092
Int. Cl.³ B23K *9/225*
U.S. Cl. 219—60 A **8 Claims**



1. In a welding device for welding together tubing sections or the like and having a tube clamping unit for clamping said tube sections together with their edges in abutment against each other, a cassette type welding unit carrying the welding electrode which can be removably joined to said clamping unit with the welding electrode directly opposite the interface between said tubing sections and means for rotatably driving the electrode in an orbital path around the interface between the tubing sections, the improvement comprising
a drive member fabricated of an electrically conductive material, the electrode being mounted on said drive member in electrical contact therewith, said drive member being horseshoe shaped and having a plurality of paired balls seated therein in opposing relationship, said balls protruding from the opposite surfaces of said drive member to form bearings therefor,
a housing forming a cassette rotatably supporting said drive member, said housing having an outer portion fabricated of an electrically non-conductive material and an inner portion in the form of a plate member fixedly mounted in said outer portion, said inner portion having a pair of oppositely positioned raceways in which the paired balls of said drive member ride,
a drive motor,
gear train means for coupling the drive shaft assembly of said drive member to said drive motor,
brush means for coupling welding current to said drive member and thence to said welding electrode,
homing switch means for disconnecting power to said drive motor when said drive means has completed a predetermined orbital rotation, and
clamping means for removably connecting the welding unit to the clamping unit.

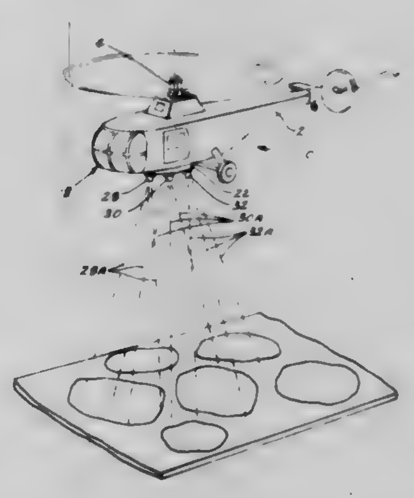
4,379,216
METHOD AND APPARATUS FOR SOLDER BONDING MULTILAYER TUBING
Hans J. Weiss, Nassauische Str. 21, 5912 Hilchenbach, Fed. Rep. of Germany
Filed Mar. 26, 1981, Ser. No. 247,854
Claims priority, application Fed. Rep. of Germany, Mar. 28, 1980, 3012086
Int. Cl.³ B23K *1/14*
U.S. Cl. 219—85 CM **9 Claims**

1. In a method of making tubing wherein:
steel strip is continuously pulled at a predetermined feed speed from a supply, is shaped into a multilayer tube of a predetermined mass per unit of length, and said tube is advanced at said speed through a soldering station;
solder is continuously fed to said tube in said station;
an electric current is passed through said tube between a contact engaging said tube in said station and a contact engaging said tube adjacent said station to fuse said solder; and



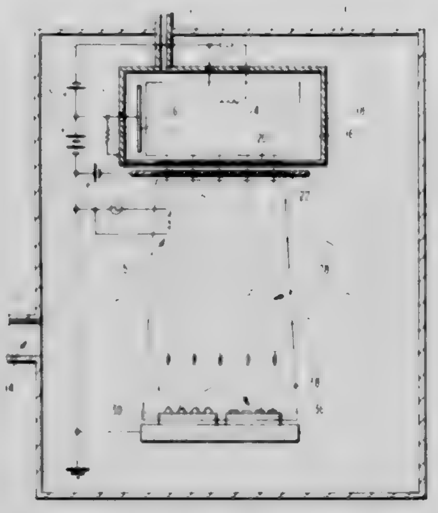
said tube and solder are cooled downstream of said station to bond same together; the improvement wherein
the spacing between said contacts is set in dependence on the product of said feed speed and said predetermined mass per unit of length of said tube and is varied substantially proportionately with said product when same varies.

4,379,217
METHOD AND MEANS OF MELTING FROZEN MATERIAL ON TERRAIN OR WATER SURFACES
Grace A. Youmans, 1816 - 80th St., Des Moines, Iowa 50322
Filed Feb. 5, 1981, Ser. No. 231,734
Int. Cl.³ B23K *27/00*
U.S. Cl. 219—121 L **9 Claims**



1. The combination of an airborne helicopter and an ice and snow melting device, comprising,
a helicopter device having the capability of hovering in midair and the ability to move both laterally and vertically,
said helicopter having a chassis with an undercarriage means,
a downwardly extending turret on said undercarriage,
a rotatable heat ray emitting means on said turret for emitting heat rays downwardly from said helicopter to melt ice and snow on the terrain below said helicopter.

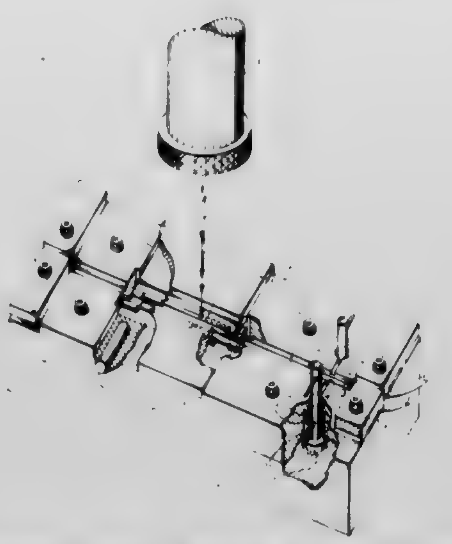
4,379,218
FLUXLESS ION BEAM SOLDERING PROCESS
Kurt R. Grebe, Beacon, and James M. E. Harper, Yorktown Heights, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jun. 30, 1981, Ser. No. 278,964
Int. Cl.³ B23K *15/00*
U.S. Cl. 219—121 ED 8 Claims



1. A process for fluxlessly joining members together including the steps of:
(a) providing a first member having disposed a plurality of pads of a low melting material;
(b) providing a second member having disposed a plurality of matching pads to which pads of said first member is to be joined;
(c) simultaneously exposing said pads on said first and second members to an ion beam of sufficient energy and for a time sufficient to clean and melt said pads;
(d) cooling said exposed pads to cause said pads to solidify;
(e) placing the pads of said first member in juxtaposition to matching pads of said second member; and thereafter
(f) exposing said pads to ion beam radiation of sufficient energy and for a time sufficient to cause said pads to reflow whereby upon cooling said matching pads are joined.

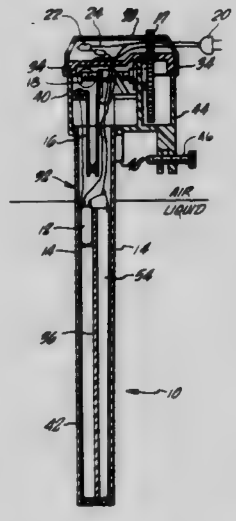
4,379,219
SHAVING UNIT AND METHOD OF MANUFACTURE THEREFOR
Henry Behrens, Topsfield, and Chester F. Jacobson, Southboro, both of Mass., assignors to The Gillette Company, Boston, Mass.
Continuation of Ser. No. 142,324, Apr. 21, 1980, abandoned. This application Dec. 29, 1981, Ser. No. 335,320
Int. Cl.³ B23K *27/00*
U.S. Cl. 219—121 LC 16 Claims

1. A method for welding a steel blade strip having cutting edge means thereon to a metallic support member, said method comprising holding said strip in tension while positioning it and said member with respect to each other, positioning a welding mask so as to insure intimate contact between the strip and support member and subjecting the combination to a laser



beam so that energy passes through the mask to weld the strip and support member together.

4,379,220
METHOD OF HEATING LIQUID
Lee M. Middleman, Portola Valley, Calif., and Roger S. Goodrich, Smyrna, Ga., assignors to Raychem Corporation, Menlo Park, Calif.
Division of Ser. No. 38,218, May 11, 1979, Pat. No. 4,276,466. This application Dec. 19, 1980, Ser. No. 218,445
Int. Cl.³ F24H *1/06*; H05B *3/04*
U.S. Cl. 219—331 42 Claims



1. A method for heating a liquid comprising the steps of (1) placing in the liquid a heating article comprising (a) a water-impermeable, heat conductive housing fabricated from a meltable material having a notched Izod impact strength of at least about 0.5 ft-lbs/in. and (b) a flexible heating element within the housing and in intimate engagement with the housing, the flexible heating element being capable of providing from about 1 to about 10 watts per square inch of surface area of the heating element; and (2) connecting the heating article to a source of electric power so that heat is transferred from the heating element through the housing to the liquid.

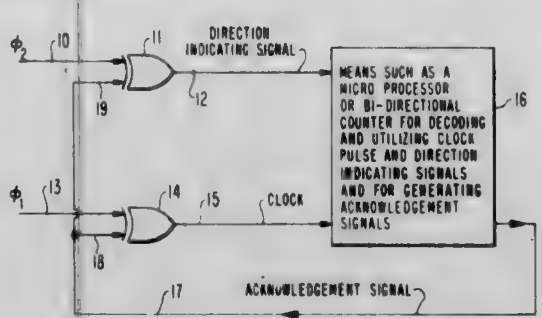
4,379,221
CIRCUIT FOR DETECTING PHASE RELATIONSHIP BETWEEN TWO SIGNALS

Jeremiah Y. Avins, Kendall Park, and Donald W. Phillion, Princeton, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Jul. 11, 1980, Ser. No. 167,488

Int. Cl.³ H03D *13/00;* G06M *3/14;* G01R *25/00*

U.S. Cl. 377—43 **6 Claims**



1. A circuit for determining the leading or lagging phase relationship between first and second two-level signals at each level transition of said first two-level signal, and comprising:

first and second Exclusive OR gate means each having first input terminals for receiving said first and second two level signals respectively and further having a second input terminal and an output terminal;

decoding means having first and second input terminals coupled respectively only to the output terminals of said first and second Exclusive OR gate means and responsive only to the level transitions of said first signal to detect the leading or lagging phase relationship of said first and second signals at said each level transition of said first signal, and to supply to the second input terminals of said first and second Exclusive OR gate means after each detection of said phase relationship a third signal having a level equal to the concurrent level of said first signal.

4,379,222
HIGH SPEED SHIFT REGISTER

Alan B. Hayter, and Bernard L. Reagan, Jr., both of Ithaca, N.Y., assignors to NCR Corporation, Dayton, Ohio

Filed Aug. 21, 1980, Ser. No. 180,186

Int. Cl.³ G06F *5/04*

U.S. Cl. 377—81 **10 Claims**

1. A high speed shift register circuit comprising in combination:

first shift register means having a first output conductor, said first shift register means being responsive to a leading edge of a first clock signal for serially shifting data in said first shift register means onto said first output conductor;

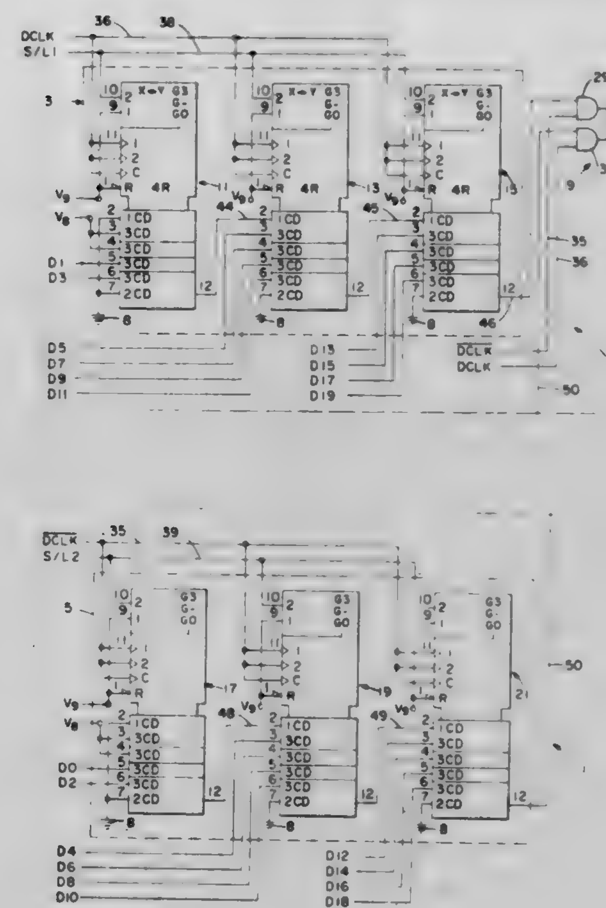
second shift register means having a second output conductor, said second shift register means being responsive to a leading edge of a second clock signal for serially shifting data in said second shift register means onto said second output conductor;

means for producing said first and second clock signals, said second clock signal being the logical complement of the first clock signal, the delay between a leading edge of said first clock signal and a corresponding trailing edge of said second clock signal being less than a predetermined value;

first means for logically combining a signal on said first output conductor with said second clock signal to produce a first signal;

second means for logically combining a signal on said second output conductor with said first clock signal to produce a second signal; and

third means having a third output conductor, said third means being responsive to the signals produced by said first and second means for producing a third signal wherein data contained in said first and second shift register means is interleaved and serially shifted onto said third



conductor at a rate which is equal to a multiple of the frequency of said first clock signal.

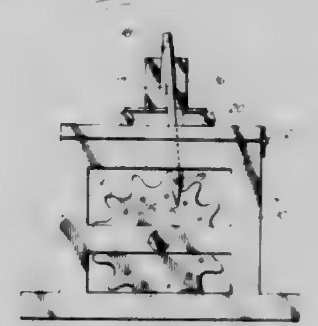
4,379,223
UNIVERSAL CHAIN LINK COUNTING APPARATUS AND METHOD

Scott Summers, 605-2nd Ave. S., Wheaton, Minn. 56296

Filed Jan. 7, 1982, Ser. No. 337,525

Int. Cl.³ G06M *1/00*

U.S. Cl. 235—103 **2 Claims**



1. A universal chain link counting apparatus, said apparatus comprising:

a frame;

a cross-bolt disposed through openings in opposite sides of said frame;

a plurality of sprockets rotatably mounted in spaced relation on said cross-bolt, each of said sprockets having a different number and spacings of teeth thereon designed to accommodate a different size of chain;

a plurality of pegs mounted on the interior surface of each of said sprockets, the number of pegs on any given sprocket corresponding to the number of teeth on that sprocket;

a counting mechanism slidably mounted on top of said frame such that a lever arm of said counting mechanism contacts said pegs as a length of chain is pulled across said sprocket, thus counting each link of chain;

sliding means permitting said counting mechanism to be slid

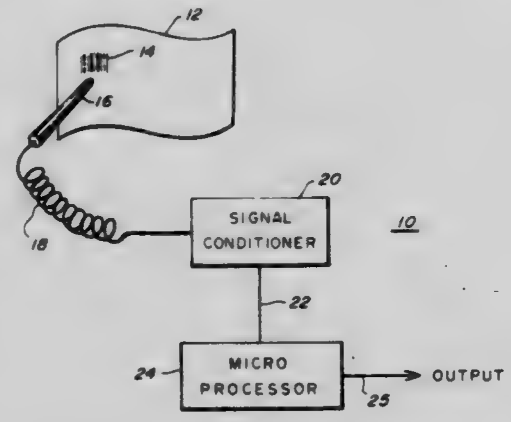
into position to contact the pegs on any of said sprockets and thus count links of any size chain.

4,379,224

APPARATUS FOR INTERPRETING CODE 39 BAR CODE DATA

Robert J. Engstrom, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 26, 1981, Ser. No. 267,151
Int. Cl.³ G06K ***7/10***
U.S. Cl. 235—463 **3 Claims**



1. In a system for optically reading Code 39 bar code data wherein said system comprises (i) an optical code pen for reading bar code data and for producing an analog electrical output signal indicative of such data, and (ii) electrical conditioning means connected to said pen to receive said output and to produce a digital output signal indicative of said bar code data, said digital signal being characterized by relatively narrow and/or wide bars separated by relatively narrow and/or wide spaces, apparatus for interpreting said digital output signal of said system, said apparatus comprising:

(a) means connected to receive said digital output signal and for measuring the time duration of each bar, said time duration data for all bars in a code character being stored,
(b) means for receiving said code character time duration data and for identifying the minimum and maximum width bars,
(c) means for producing a first bar cutoff value of a time duration approximately 1.5 times the time duration of the minimum width bar,
(d) means for producing a second bar cutoff value of a time duration approximately equal to one-half of the sum of the time durations of the minimum and maximum bar widths,
(e) means for comparing said first and second bar cutoff values and for using the greater of such values as a reference against which all of the bars in said characters are measured, those bars having a time duration greater than that of said reference bar cutoff value then being interpreted as wide bars and those bars having a time duration less than that of said reference bar cutoff value then being interpreted as narrow bars.

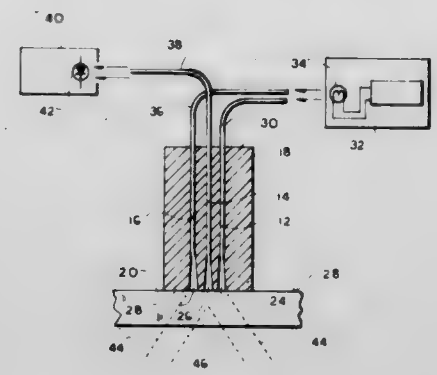
4,379,225

FIBEROPTIC HEAD WITH FIBER BUNDLES HAVING DIFFERENT NUMERICAL APERTURES

Richard L. Apothaker, Northfield, N.J., assignor to Kontes Glass Company, Vineland, N.J.

Filed Jul. 3, 1980, Ser. No. 165,383
Int. Cl.³ G02B ***5/14***
U.S. Cl. 250—227 **3 Claims**

1. A head for use in apparatus for scanning a test surface of the type having a light source and light detector means, said head comprising first and second illuminating fiberoptic bundles, each having an input end situated to receive light from the source and an output end illuminating an area on the test surface, said output ends being spaced from each other with said illuminated areas overlapping in a given zone, a light receiving fiberoptic bundle having an output end adjacent the detector means and an input end located between the output ends of said first and second bundles, such that said light receiving bundle gathers light from said given zone, wherein the numerical



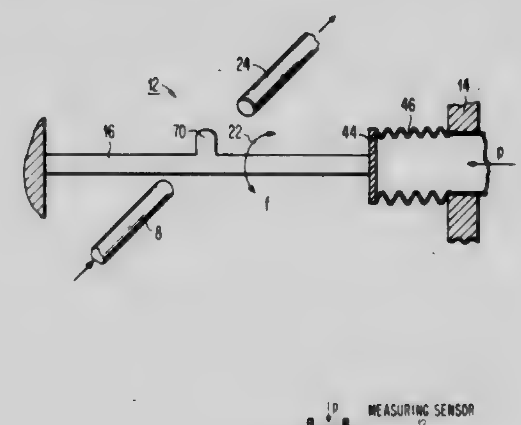
aperture of the fibers of said light receiving bundle is lower than the numerical aperture of the fibers in said first and second illuminating bundles.

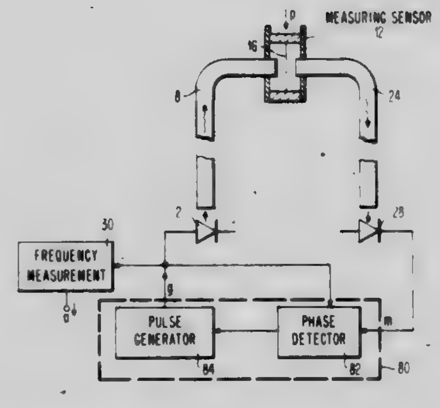
4,379,226

METHOD AND SENSOR DEVICE FOR MEASURING A PHYSICAL PARAMETER UTILIZING AN OSCILLATORY, LIGHT MODULATION ELEMENT

Georg H. Sichling, Corvallis, Oreg.; Helmut Schwab, and Bernard Schwab, both of Princeton, N.J., assignors to Siemens Corporation, Iselin, N.J.

Filed Feb. 2, 1981, Ser. No. 230,868
Int. Cl.³ G01L ***1/10;*** **G02B** ***5/14***
U.S. Cl. 250—231 R **1 Claim**





1. A sensor device for measuring a physical parameter at a first location remote from a second location, comprising in combination:

(a) means for generating at least one light pulse of high energy and a light beam,
(b) light modulation means arranged at said first location and having a modulation frequency determined by said physical parameter to be measured, said light modulation means modulating the amplitude of said light beam, said light modulation means comprising,
a mechanical oscillator arranged at said first location having a mechanical oscillator frequency, said oscillator reflecting or transmitting said light beam in accordance

with said oscillator frequency, said oscillator comprising a single means for both receiving said light pulse and modulating said light beam, wherein said oscillator is formed to oscillate due to molecule pressure when said light pulse hits said single means, and

(c) frequency detector means arranged at said second location for measuring the frequency of said modulated light beam, said frequency indicating the value of said physical parameter.

4,379,227

APPARATUS FOR AND A METHOD OF MONITORING THE BUILD-UP OF ICE

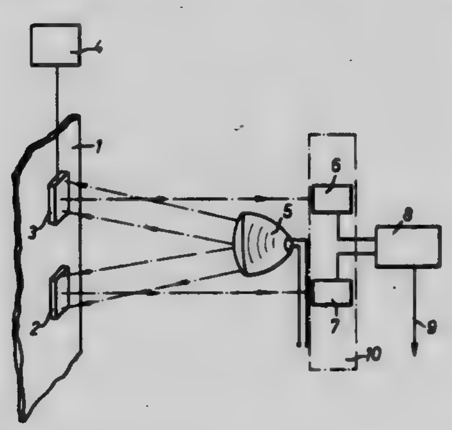
Paul Kovacs, Obere Bühlstrasse 13, CH-8700 Küsnacht, Switzerland

Filed Apr. 17, 1981, Ser. No. 255,096

Claims priority, application European Pat. Off., Apr. 21, 1980, 80200360

Int. Cl.³ G01W *1/00*

U.S. Cl. 250—231 R **12 Claims**



1. An apparatus for monitoring the build-up of ice on engine and plant parts, comprising

a first means for heating of a reference surface at the engine or plant part to a temperature above the freezing point;

at least one second means for illuminating said reference surface and a remotely thereof located monitoring surface at said engine or plant part;

at least one third means for measuring the intensity of the light reflected from said reference surface and said monitoring surface; and

at least one fourth means for determining the difference between the values measured by said at least one third means and for the generation of a corresponding output signal.

4,379,228

NEUTRON-NEUTRON-LOGGING

Linus S. Allen, Dallas, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Oct. 10, 1980, Ser. No. 196,001

Int. Cl.³ G01V *5/00*

U.S. Cl. 250—266 **9 Claims**

1. A system for logging the formations traversed by a borehole, comprising:

(a) a borehole tool,

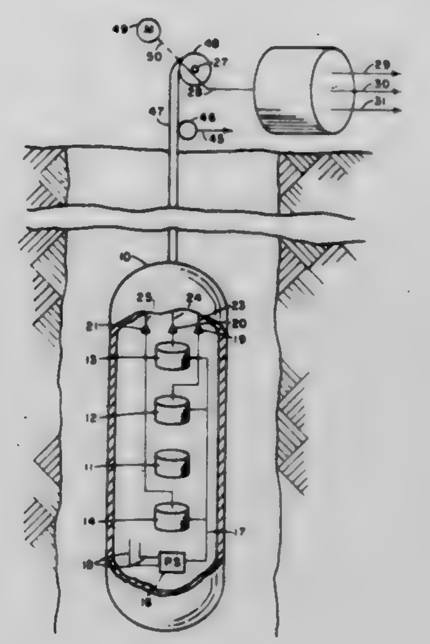
(b) means for moving said borehole tool through a borehole,

(c) a steady-state source of fast neutrons located within said borehole tool for irradiating the formations surrounding the borehole with neutrons,

(d) first and second radiation detectors located within said borehole tool at spaced-apart positions from said source, said first and second detectors measuring the same type of radiation

(e) a third radiation detector located within said borehole tool and spaced at the same distance from the fast neutron source as one of said first or second detectors, said third detector measuring a different type of radiation than that measured by said first and second detectors,

(f) means for producing a signal representative of the ratio of the radiations measured by said first and second detectors, and



(g) means for producing a second signals representative of the ratio of the radiations measured by said third detector and the one of said first or second detectors spaced at the same distance from that fast neutron source within the borehole tool as said third detector.

4,379,229

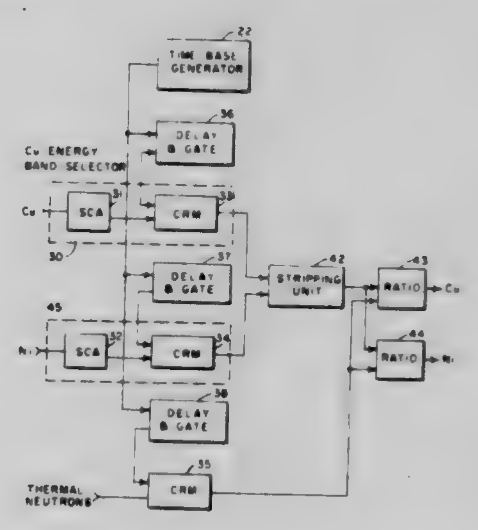
MEASURING OF GAMMA-RAY ENERGY DUE TO THERMAL NEUTRON CAPTURE OF COPPER AND NICKEL

Wyatt W. Givens, Dallas, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 30, 1980, Ser. No. 221,481

Int. Cl.³ G01V *5/00*

U.S. Cl. 250—270 **6 Claims**



5. The method of determining concentrations of a selected element of metallic material in formations adjacent a borehole which comprises:

(a) irradiating the formations surrounding the borehole with neutrons from a fast neutron source having energies sufficient to excite thermal neutron capture in select metallic materials within said formations,

(b) detecting and counting gamma-rays emitted from the formations in response to thermal neutron capture from said select metallic materials,

(c) detecting and counting fast neutrons directly from said fast neutron source and

(d) determining the ratio of the count of fast neutrons with the count of gamma-rays for each select metallic material to compensate said count of gamma-rays for variations in the output of said fast neutron source and thereby provide a quantitative indication of the metallic material content within the formations surrounding the borehole.

4,379,230

AUTOMATIC BEAM CORRECTION IN A SCANNING TRANSMISSION ELECTRON MICROSCOPE

Gijsbertus Bouwhuis, Eindhoven; Hendrik De Lang, Heeze, and Nicolaas H. Dekkers, Eindhoven, all of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 5, 1980, Ser. No. 184,561

Claims priority, application Netherlands, Sep. 5, 1979, 7906632

Int. Cl.³ G01N *23/00;* **H01J** *37/26*

U.S. Cl. 250—307 **11 Claims**

1. A method of providing at least one of automatic focus and astigmatism correction in an electron microscope comprising the steps of

scanning an object in the object plane of an electron microscope with a spot-focussed electron beam,

forming an electron interference pattern in a detector plane, said interference pattern being caused by interaction of said object with said electron beam,

displacing said interference pattern over said detector plane in response to said scanning,

sensing electron intensity at a plurality of individually spaced locations in said detector plane,

processing sensed signals by at least comparing signals from a pair of spaced locations to determine displacement of said electron intensity pattern over said detector plane,

wherein said step of comparing signals includes the steps of forming a correlation integral of the two signals with respect to time for different applied time delays, determining a time delay required to cause said correlation integral to become a maximum, and generating a correction control signal dependent on said determined time delay,

and

applying said correction control signal to correct energization of an electro-optical element of said electron microscope in order to provide at least one of an optimum focus condition and a predetermined amount of astigmatism correction to the electron beam scanning said object plane.

4,379,231

ELECTRON MICROSCOPE

Kazuo Shii, Asahimura, and Toshiyuki Ohashi, Katsuta, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

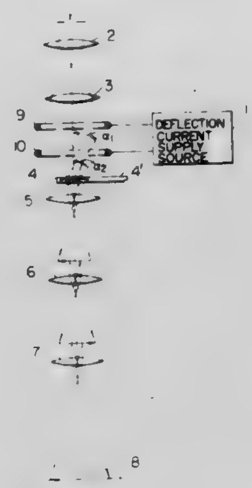
Filed Mar. 12, 1980, Ser. No. 129,754

Claims priority, application Japan, Mar. 14, 1979, 54-28703

Int. Cl.³ G01N *23/00*

U.S. Cl. 250—311 **24 Claims**

1. An electron microscope comprising means for generating an electron beam; means for causing the electron beam to impinge upon a specimen at a predetermined incident angle while continuously changing the incident azimuth of the electron beam incident upon the specimen at said predetermined incident angle at a predetermined frequency to transmit the electron beam through the specimen; a magnifying lens system for magnifying the transmitted electron beam in angular



spread; and a viewing fluorescent screen for receiving the magnified electron beam projected thereon to form a visual enlarged image of the specimen on the viewing fluorescent screen wherein the beam is continuously rotated so that the resulting image on the viewing screen will be blurred in the direction of astigmatism.

4,379,232

FERROELECTRIC IMAGING SYSTEM

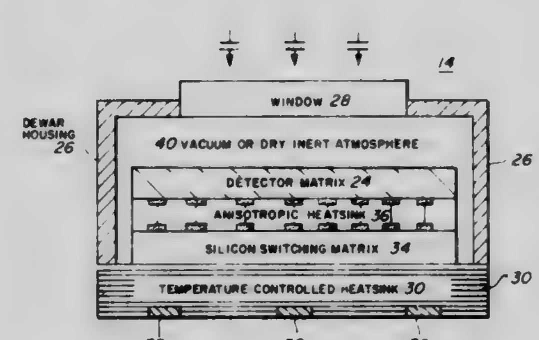
George S. Hopper, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 861,812, Dec. 19, 1977, Pat. No. 4,162,402. This application Jun. 19, 1979, Ser. No. 50,027

The portion of the term of this patent subsequent to Jul. 24, 1996, has been disclaimed.

Int. Cl.³ H01J *31/49;* **G01J** *1/00;* **H04N** *5/33*

U.S. Cl. 250—332 **11 Claims**



1. A thermal energy detection system comprising:

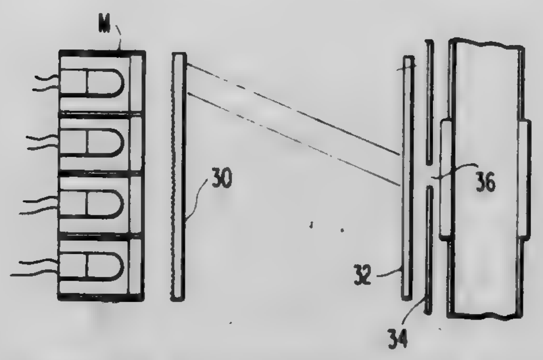
(a) a detector matrix having a plurality of capacitor type thermal sensors;

(b) switching means operatively connected to the detector matrix for selectively addressing the plurality of capacitor type thermal sensors;

(c) bias means operatively connected to the switching means for charging said sensors; and

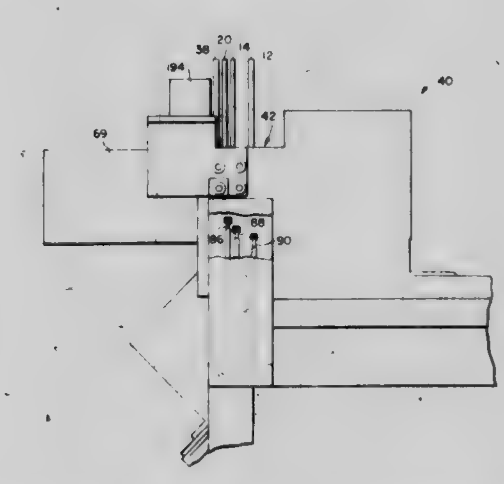
(d) readout means operatively connected to the detector matrix for reading out signals representative of the thermal energy impinging on said sensors.

4,379,233
OPTICAL ARRANGEMENT FOR QUANTITATIVE ANALYSIS INSTRUMENT UTILIZING PULSED RADIATION EMITTING DIODES
Scott B. Rosenthal, Gaithersburg, Md., assignor to Trebor Industries, Inc., Gaithersburg, Md.
Filed May 27, 1981, Ser. No. 267,555
Int. Cl.^{3} H01L *9/00*
U.S. Cl. 250—553 **6 Claims**



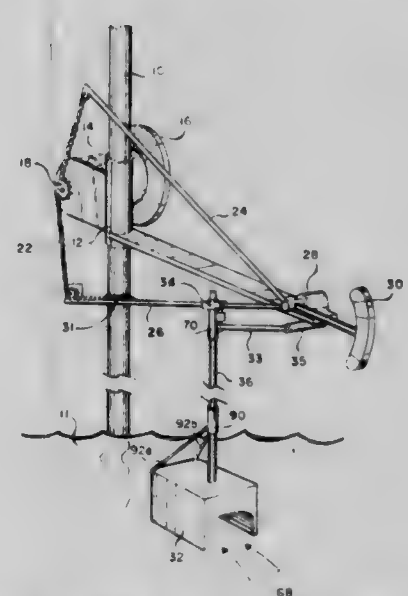
1. An instrument for quantitative analysis of a sample comprising:
a plurality of pulsed radiation emitting diodes positioned in a matrix to direct radiation to a sample;
baffles separating the diodes in the matrix;
narrow bandpass filters positioned adjacent the diodes to allow only preselected wavelengths of radiation to be directed to the sample;
a sample chamber having at least portions thereof transparent to the radiation from the diodes and bandpass filters;
lens means positioned adjacent the matrix of diodes and bandpass filters to that radiation from all of the diodes passes through the lens and is bent toward the center of a focal plane adjacent the sample chamber;
radiation altering means to allow radiation from the lens means to pass to the sample but with uniform energy distribution from each of the diodes;
photodetecting means for detecting the radiation which passes through a sample in the sample chamber;
means to calculate and display quantitative analysis based on the output of the photodetecting means.

4,379,234
ELECTRO OPTIC CONTROLLED PISTON RING INSTALLING APPARATUS
Jose C. Cruz, Columbus, Ind., assignor to Cummins Engine Company, Inc., Columbus, Ind.
Filed May 15, 1981, Ser. No. 264,046
Int. Cl.^{3} G02B *5/14*
U.S. Cl. 250—561 **13 Claims**



1. Apparatus for installing a set of dissimilar piston rings which must be arranged in a proper predetermined order or orientation in a plurality of corresponding grooves contained in the exterior surface of a piston, comprising
(a) ring assembly means for operating in successive cycles including a holding cycle in which a set of piston rings are retained in the order in which the set will be installed and an assembling cycle in which the set of piston rings are installed in the grooves of a piston in the order in which the piston rings were retained during the immediately preceding holding cycle;
(b) detection means for sensing the order or orientation in which the ring assembly means retains the set of piston rings during a holding cycle and for generating a stop signal if the rings are not in proper order or orientation; and
(c) control means connected with said detection means for preventing said ring assembly means from operating in the assembling cycle in response to the generation of said stop signal by said detection means.

4,379,235
WAVE ACTION GENERATOR
John A. Trepl, II, 1691 Mesa Dr., Apt. F-13, Santa Ana, Calif. 92707
Filed Mar. 9, 1981, Ser. No. 241,659
Int. Cl.^{3} F03B *13/12*
U.S. Cl. 290—53 **16 Claims**



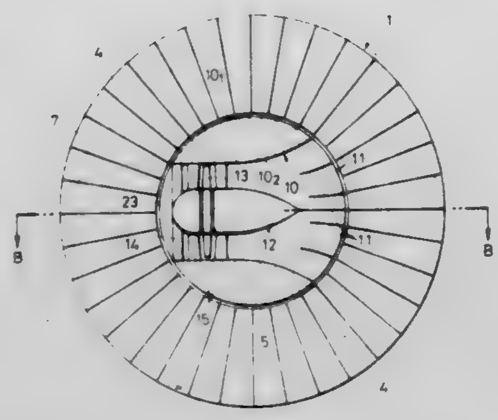
1. Apparatus for producing electric power from wave motion, comprising:
(a) support means arranged to be fixedly positioned in a body of water subject to wave motion;
(b) generator means mounted on said support means;
(c) flywheel means associated with said generator means to store rotational energy for driving said generator means;
(d) impeller means movably mounted with respect to said support means for imparting rotational energy to said flywheel means; and
(e) float means arranged to move said impeller means in response to wave motion in said body of water, said float means being coupled to a swivel arrangement for permitting the float means to turn into the direction of a wave current by a castering action;
(f) said float body adapted to be partially submerged;
generally parallel fin means depending from said float body;
said float body having on its underside an inclined surface whose upper end is generally adjacent one end of said fin means and whose lower end is generally adjacent the other end of said fin means;
means arranged to support said float for pivotal movement about a generally vertical axis.

4,379,236

WINDMILL GENERATOR APPARATUS

Minoru Inoue, Tokyo, Japan, assignor to Meisei University, Tokyo, Japan

Filed Apr. 24, 1981, Ser. No. 257,203
Int. Cl.³ F03D *1/04*
U.S. Cl. 290—55 **6 Claims**



1. A windmill generator apparatus comprising:
a duct possessing structure including:
a first annular floor and a first annular roof of prescribed inner and outer diameters, substantially horizontally disposed and spaced apart from each other by a prescribed distance, and a prescribed number of vertical stationary guiding partitions radially provided between said first floor and said first roof; a first space in the shape of a hollow cylinder being formed within the central portion of said duct possessing structure;
a revolving body including:
a circular second floor and a circular second roof of outer diameters smaller than the outer diameter of the first space, the inner sides of said second floor and of said second roof defining a smooth continuous surface with the inner sides of said first floor and said first roof, and two duct-forming guide pillar members disposed between said second floor and said second roof symmetrically at the outer circumferential portions thereof taking as a plane of symmetry a plane that contains the diameters of said second floor and said second roof, each of said guide pillar members comprising a duct-blocking arcuate outer wall along the outer circumference of said second floor and said second roof, and a duct-forming curved inner wall connecting both side edges of said arcuate outer wall; said revolving body being adapted for rotation within said first space on an axis coaxial therewith;
a windmill supported for rotation within a second hollow space, defined by said second floor, said second roof and by said two guide pillar members of said revolving body, and on an axis which is the vertical central axis of said second hollow space;
a rotational generator rotated by said windmill; and
wind directional means for turning said revolving body so as to point said windmill in the windward direction.

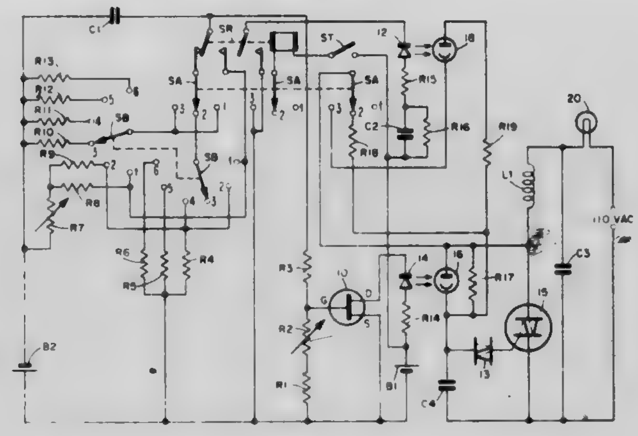
4,379,237

LIGHT INTENSITY CONTROL DEVICE AND CIRCUIT THEREFOR

Lawson P. Mosteller, Jr., 7404 Farnum St., Springfield, Va. 22151

Filed Sep. 17, 1981, Ser. No. 303,066
Int. Cl.³ H01H *43/00;* **H05B** *39/02*
U.S. Cl. 307—141 **17 Claims**

1. A device for producing a gradual change in power supplied to a load comprising:
a first solid state switching device having first and second power electrodes and a gate electrode,
a variable timer network connected to said gate electrode and comprising a chargeable capacitor and a switchable resistive network,
a first light emitting diode connected to receive current passed by said switching device and emit light proportional to the received current,
a first photoresistor positioned to receive light emitted by said first light emitting diode,
a second solid state switching device having first and second power electrodes and a gate electrode and controlling the supply of current to said load,



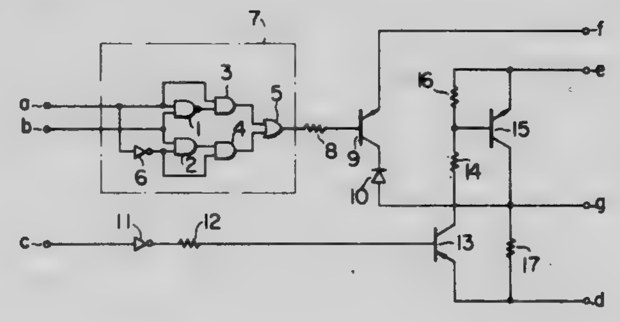
said first photoresistor being connected to the gate of said second switching device whereby power is supplied to said load as a function of the light received by said first photoresistor from said light emitting diode,
said resistive network being adjustable so that with said capacitor, said timer network controls the rate of change of voltage to the gate electrode of said first switching device and thereby the rate of change of power supplied to said load.

4,379,238

INTEGRATED SIGNAL PROCESSING CIRCUIT

Hiroshi Minakuchi, Shiga, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 51,862, Jun. 25, 1979, abandoned. This application Feb. 26, 1982, Ser. No. 352,852
Int. Cl.³ H03K *5/00, 17/56*
U.S. Cl. 307—243 **4 Claims**



1. An integrated signal processing circuit for transmitting externally a plurality of output signals over a signal output path comprising:
a first input signal path for receiving a first output signal which varies between at least two D.C. levels;
a second input signal path for receiving a second output signal having a pulse width shorter than the period of level variation of said first output signal;
a mixing circuit coupled to said first and second input signal paths for synthesizing a composite output from said first and second output signals, said mixing circuit inverting the phase of said second output signal and transmitting it to said signal output path when said first output signal has a first level and transmitting said second output signal to said signal output path without inversion when said first output signal has a second level, said mixing circuit com-

prising a first AND gate having input terminals receiving said first output signal and a phase inverted said second output signal, a second AND gate having input terminals receiving a phase inverted first output signal and said second output signal, and an OR gate having input terminals receiving output signals from said first and second AND gates.

4,379,239

CIRCUIT FOR GENERATING A TRIGGER PULSE

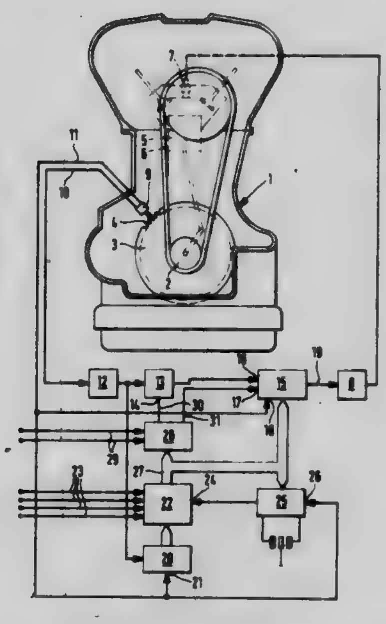
Manfred Knuefelmann, Duesseldorf; Burkhard Brandner, and Reinhold Blauhut, both of Werdohl, all of Fed. Rep. of Germany, assignors to Firma Atlas Fahrzeugtechnik GmbH, Fed. Rep. of Germany

Filed Jun. 23, 1982, Ser. No. 391,351

Claims priority, application Fed. Rep. of Germany, Jul. 22, 1981, 3128922

Int. Cl.[3] **H03K** *3/00, 5/01;* **F02P** *5/04*

U.S. Cl. 307—268 **4 Claims**



1. Circuit for generating a trigger pulse delayed within a period of a motion of variable periodic time, the phase lag relative to a zero phase being dependent on the periodic time and other parameters, a zero pulse and angle pulses starting at zero phase being generated, the pulse frequency being inversely proportional to the periodic time, the angle pulses being fed into a counter and correcting data being generated within every period during a constant-time window, characterized by the following elements:

(a) During every period the angle pulses are counted by a phase address counter (**20**) the output of which provides a multi-bit address signal assigned to the respective angle pulse;

(b) the multi-bit address signal is fed into the input of a correction data memory (**22**) the output of which provides a multi-bit correction signal;

(c) the output of the correction data memory (**22**) can be disabled by the output pulse of a time window circuit (**25**)

(d) the angle pulses are fed into a controlled pulse duplicator (**13**) the duplicating input (**14**) of which is controlled by one bit of the multi-bit correction signal;

(e) the output of the controlled duplicator (**13**) is connected to a counter (**15**) with a disable input (**17**) controlled by a second bit of the multi-bit correction signal.

4,379,240

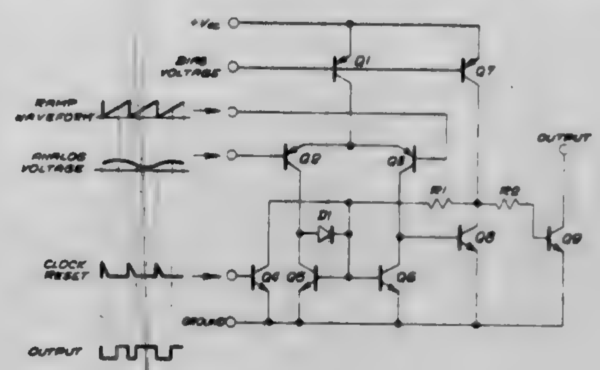
LATCHING PULSE WIDTH MODULATION COMPARATOR

Robert A. Mammano, Costa Mesa, Calif., assignor to Silicon General, Inc., Garden Grove, Calif.

Filed Aug. 19, 1980, Ser. No. 179,538

Int. Cl.[3] **H03K** *5/24*

U.S. Cl. 307—356 **14 Claims**



1. A comparator circuit having integral latching and resetting, comprising:

a differential input stage having first and second sides which are driven by first and second input signals, respectively, whereby when one of said sides is conducting, the other of said sides is not conducting, each of said sides having an output;

a voltage gain stage including first and second transistors which are connected to be supplied by said outputs of said first and second sides of said input stage, respectively, said first and second transistors having drive inputs which are connected to be driven by said output of said first side of said input stage;

an output stage connected to be driven by said output of said second side of said input stage, said output stage having an output; and

a positive feedback network connected from said output of said output stage to provide positive feedback to drive said first and second transistors of said voltage gain stage, said feedback network including circuitry for removing said positive feedback from said first and second transistors upon application of a reset signal.

4,379,241

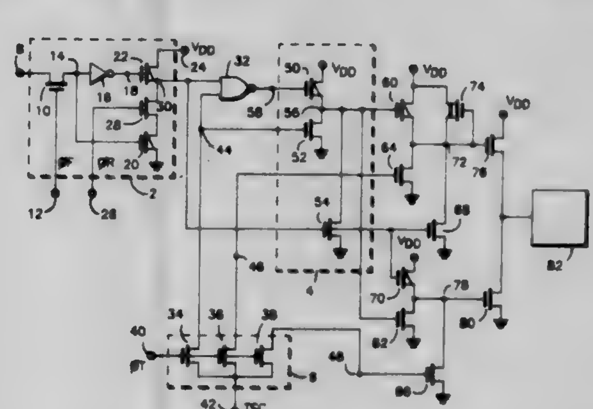
EDGE DEFINED OUTPUT BUFFER CIRCUIT

Joseph Pumo, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 14, 1980, Ser. No. 149,607

Int. Cl.[3] **H03K** *17/693, 19/096*

U.S. Cl. 307—481 **11 Claims**



1. An edge definition circuit for synchronizing an input signal with first and second clock signals, comprising:

first means coupled to said input signal and to said first clock signal for producing a first voltage transition on an output node in response to a voltage transition of said input sig-

nal, said first voltage transition occuring at a time determined by said first clock signal; and

second means coupled to said first means and said second clock signal for producing a second voltage transition on said output node in response to another transition of said input signal, said second voltage transition occurring at a time determined by said second clock signal.

4,379,242

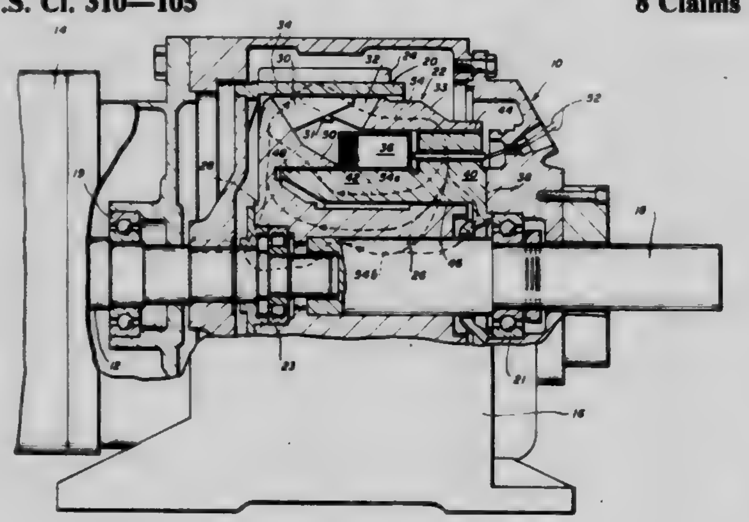
EDDY CURRENT COUPLING HAVING ROTATING AND NON-ROTATING FLUX PATHS

Daniel J. MacDonald, Brookfield, Wis., assignor to Litton Industries Products, Inc., Beverly Hills, Calif.

Filed Nov. 3, 1980, Ser. No. 203,059

Int. Cl.^{3} H02K *49/02*

U.S. Cl. 310—105 **8 Claims**



1. An eddy current coupling comprising:

rotatable input and output shafts;

a generally tubular inductor member mounted on one of said input and output shafts for rotation therewith;

a magnetic rotor member mounted on the other of said input and output shafts for rotation therewith, said rotor member being located within said inductor member and having a plurality of peripheral, arcuately spaced, poles separated from said inductor member by a circumferential air gap;

a field coil positioned radially inwardly from said rotor member and surrounding the associated shaft, said field coil generating an encircling magnetic flux causing torque transmission between said inductor and rotor members and said input and output shafts; and

a stationary support for said field coil, said support being in proximity to said rotor member poles for providing a stationary field coil flux return path between said poles, said support being positioned with respect to the rotating elements of the coupling for dividing the flux between a field coil flux return path in the rotating elements in parallel with the stationary flux return path of said support, said stationary support and rotating elements being so dimensioned as to provide flux return paths transmitting flux at maximum density.

4,379,243

STATOR END TURN SUPPORT SYSTEM

George F. Dailey, Plum; Charles R. Ruffing, Edgewood Borough, and Leonard B. Simmonds, Monroeville, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

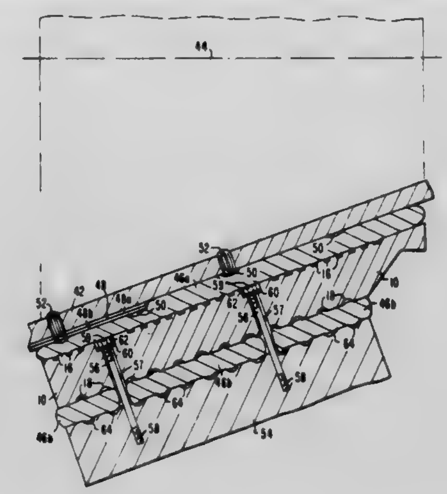
Filed Nov. 2, 1981, Ser. No. 317,099

Int. Cl.^{3} H02K *3/46*

U.S. Cl. 310—260 **20 Claims**

1. A system for supporting end turns of a plurality of cylindrically configured stator coils, said system comprising:

a first support member, said first support member being nonmagnetic, nonconducting and generally rigid, said first support member having a bore therethrough, said first support member having the shape of a frustum of a cone and having an inside surface, said end turns being disposed proximate and generally parallel to said inside surface, said first support member having a central axis and a first and a second axial end, said first support member being a filament wound structure with the filament wound about said first support member in a spiral helix manner, said filament being wound at a first preselected angle in the region of said first axial end and at a second preselected angle in the region of said second axial end, said inner surface having circumferentially running grooves therein;



a conformable means for attaching said end turns to said inside surface;

means for permitting relative motion between said end turns and said attaching means; and

means for supporting said support member, said supporting means being disposed radially outward from said support member.

4,379,244

METHOD OF DETECTION OF THE ASYMMETRY OF PIEZO-ELECTRIC CRYSTAL RESONATORS IN THE FORM OF TUNING FORKS AND RESONATORS FOR CARRYING IT OUT

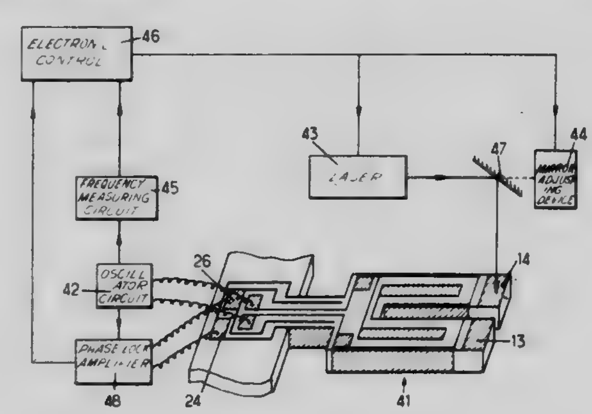
Rudolf J. Dinger, St. Aubin, Switzerland, assignor to Ebauches, S.A., Switzerland

Filed Oct. 10, 1980, Ser. No. 181,715

Claims priority, application France, Aug. 31, 1979, 79 21864

Int. Cl.^{3} H01L *41/08*

U.S. Cl. 310—312 **5 Claims**



1. A piezoelectric crystal resonating structure having two substantially parallel main surfaces and comprising

a tuning fork resonator having two tines located on each side of an axis of symmetry;

a base for holding said resonator at least during its manufacture;

means integral with said base and said resonator for connecting said base with said resonator;

means for causing vibration of said resonator in response to an excitation voltage, comprising excitation electrodes disposed on said tines; and

means for sensing an asymmetry voltage produced in response to said vibration in the event of an asymmetry of said tines, comprising auxiliary electrode means disposed on said connecting means.

4,379,245

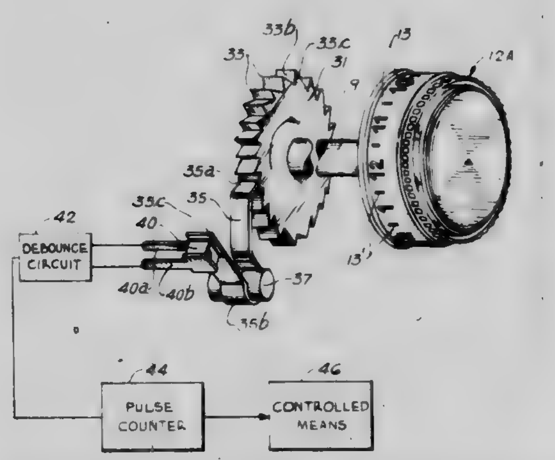
MANUALLY OPERABLE ROTARY PULSE GENERATING APPARATUS FOR PULSE COUNTING AND SIMILAR APPLICATIONS

Richard Goldstein, Northbrook, Ill., assignor to Dynascan Corporation, Chicago, Ill.

Filed Mar. 20, 1980, Ser. No. 132,090

Int. Cl.³ H01L *41/08*

U.S. Cl. 310—319 10 Claims



1. In electrical apparatus having control means responsive to the number of pulses fed to the input thereof, a manually operable pulse generating apparatus whose output is to be coupled to the input of said control means and comprising: a manually operable dial knob member movable in at least a first operating direction, a cam member having sawtooth ratchet teeth-forming lobes, means coupling said dial knob member to said cam member when said dial knob member is moved in said operating direction, a spring force-urged detenting and force-transmitting pawl member mounted to ride upon said sawtooth ratchet teeth-forming lobes, said pawl member normally located between adjacent lobes in a manner to detent the movement of said dial knob member and cam member, so that the dial knob member has discrete positions which it assumes as it is advanced in said operating direction, each of said lobes having a gradually rising leading side over which said pawl member rides when said knob member is moved in said operating direction and a sharply dropping trailing side, the spring force on said pawl member being such that the pawl member riding on any point of the gradually rising side of a lobe of said cam member will rotate the cam member to position the pawl member in the crotch between said gradually rising side of a lobe and the trailing side of the adjacent lobe, a stationary piezoelectric element with output terminals across which an appreciable damped waveform appears when the stress on the same is suddenly changed, said spring-urged pawl member applying an initial stress to said piezoelectric element as said pawl member rides up the leading side of a lobe of said cam, which stress reaches a maximum value and is suddenly relieved to generate a damped waveform at said output terminals when said pawl member falls off the high point of one of said lobes, and debouncing circuit means coupled between the output terminal of said piezoelectric element and the input of said control means to convert said damped waveform to a single pulse output.

4,379,246

POLYMERIC PIEZOELECTRIC DRIVE ELEMENT FOR WRITING JETS IN MOSAIC INK PRINTING DEVICES

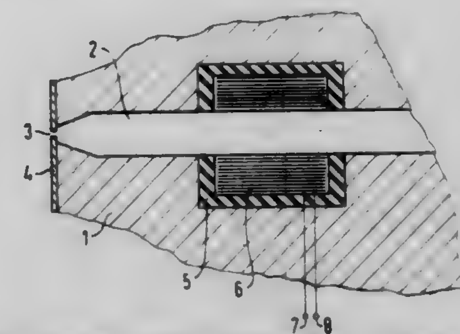
Max Guntersdorfer, Zorneding; Peter Kleinschmidt, Munich, and Klaus Dietrich, Gauting, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed May 9, 1980, Ser. No. 148,496

Claims priority, application Fed. Rep. of Germany, Jul. 5, 1979, 2927269

Int. Cl.³ H01L *41/08;* G01D *15/18*

U.S. Cl. 310—328 6 Claims



1. In a fluid ejecting writing jet having a cylindrical channel containing said fluid which terminates in a discharge aperture, a drive element for separately forcing droplets of said fluid out of said channel comprising a power consuming winding having a plurality of adjacent plies of a first foil comprised of piezoelectric material and a second foil comprised of insulating material which cylindrically surround a portion of said channel, said foils being coiled together such that said plies are in contact with adjacent plies over a substantial portion of their respective surfaces, and a means for connecting said winding to a pulsed voltage source for expanding and contracting the interior diameter of said winding and generating pressure for expelling said droplets of fluid from said channel.

4,379,247

RESONATOR PLATE CAPABLE OF EXCITATION TO THICKNESS SHEAR VIBRATIONS

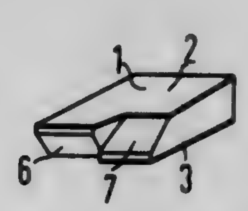
Werner Mattuschka, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 1, 1980, Ser. No. 211,762

Claims priority, application Fed. Rep. of Germany, Feb. 6, 1980, 3004331

Int. Cl.³ H01L *41/08*

U.S. Cl. 310—367 10 Claims



1. A piezoelectric resonator for excitation into thickness shear vibrations, comprising:

a body of piezoelectric material including

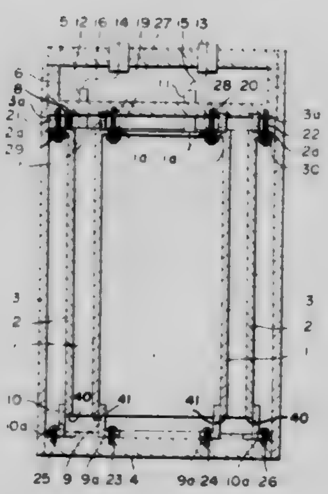
a pair of major spaced-apart surfaces;

a pair of electrodes carried on and completely covering respective ones of said major surfaces;

a pair of border regions adjacent said major surfaces and free of electrode coating, each of said border regions extending from one of said major surfaces toward the other major surface and shaped such that there is a longitudinal offset of at least portions of said major surfaces; and

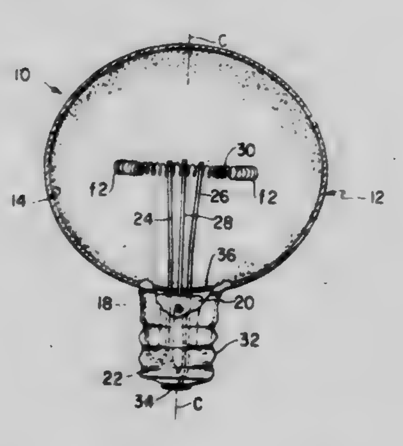
a pair of connection members each comprising U-shaped clips and each engaging a respective electrode on a major surface and a respective border region.

4,379,248
IONIZATION CHAMBER HAVING COAXIALLY ARRANGED CYLINDRICAL ELECTRODES
Naoki Wakayama, Tohkaimura; Hideshi Yamagishi, Mito; Toshimasa Tomoda, and Hiroji Tanaka, both of Amagasaki, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha and Japan Atomic Energy Research Institute, both of Tokyo, Japan
Filed May 4, 1979, Ser. No. 36,236
Claims priority, application Japan, May 4, 1978, 53-53570
Int. Cl.³ H01J *47/02, 1/92, 17/04*
U.S. Cl. 313—93 **8 Claims**



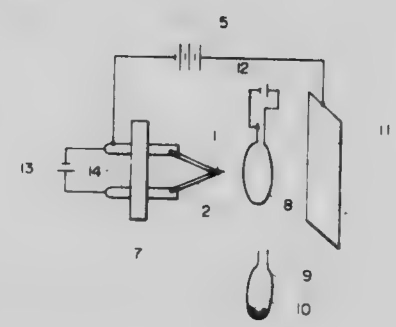
5. An ionization chamber comprising:
inner and outer cylindrical electrodes arranged coaxially;
a sealed casing containing an ionizable gas within which said inner and outer cylindrical electrodes are disposed;
means disposed within said casing for securing said inner and outer electrodes within said casing such that at least one axial end surface portion of each of said inner and outer electrodes is free from axial contact with and axial restraint from said securing means and for allowing substantially free unimpeded axial movement of said at least one end surface portion and such that radial shifting of said inner and outer electrodes is prevented by said securing means.

4,379,249
INCANDESCENT LAMP WITH ELLIPSOIDAL ENVELOPE AND INFRARED REFLECTOR
Peter Walsh, Stirling, N.J., assignor to Duro-Test, Corporation, North Bergen, N.J.
Filed Aug. 20, 1980, Ser. No. 179,718
Int. Cl.³ H01J *1/14, 1/32*
U.S. Cl. 313—112 **12 Claims**



1. An incandescent electric lamp comprising
an envelope of material which is transmissive to visible light, said envelope having the shape of an ellipse rotated about an axis to define an ellipsoid with a plurality of foci located on a circle and defining a focal circle,
means on the major portion of said envelope for reflecting radiant energy in the infrared range, at least a portion of said envelope transmitting energy in the visible light range,
a filament within said envelope which incandesces upon the application of current thereto to produce and radiate energy in both the visible and the infrared range, said filament located on or closely adjacent to said focal circle and in substantially the same plane as said focal circle,
means for supplying current to said filament, the infrared radiant energy radiated by the filament from any one point on the focal circle being reflected by said reflecting means to intercept such filament at a point on or closely adjacent to said focal circle.

4,379,250
FIELD EMISSION CATHODE AND METHOD OF FABRICATING THE SAME
Shigeyuki Hosoki, Hachioji; Shigehiko Yamamoto, Tokorozawa; Hideo Todokoro, Hinodemachi; Susumu Kawase, Higashimurayama, and Yasuharu Hirai, Chofu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Oct. 17, 1980, Ser. No. 198,176
Claims priority, application Japan, Oct. 19, 1979, 54-134167; Oct. 24, 1979, 54-136410; Apr. 9, 1980, 55-45591
Int. Cl.³ H01J *1/16*
U.S. Cl. 313—336 **18 Claims**

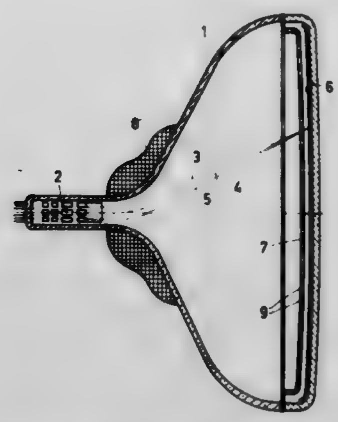


1. A field emission cathode comprising a heating filament which is formed in the shape of a hairpin and which consists of a fine metal wire having resistance against high temperatures, and a tip which consists of a metal having resistance against high temperatures and which is joined to the top of said filament so that electrons are emitted from the tip thereof in the electric field, wherein in order to reduce the work function on the surface of said tip, a metal is adsorbed via oxygen onto the surface of said tip to a thickness which does not exceed the thickness of the monolayer of atoms, said metal having a work function which is smaller than the work function of the metal forming said tip, and an oxide of said metal having resistance against high temperatures, wherein said metal is at least one which is selected from the group consisting of chromium, aluminum, cerium, magnesium and titanium.

4,379,251
CATHODE-RAY TUBE
Marcel Brouha; Waltherus W. van den Hoogenhof, and Peter C. van Loosdregt, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 21, 1980, Ser. No. 208,970
Claims priority, application Netherlands, Dec. 21, 1979, 7909232
Int. Cl.³ H01J *29/07, 31/20*
U.S. Cl. 313—403 **4 Claims**

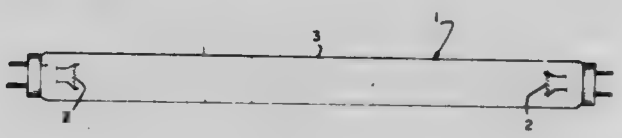
1. A cathode-ray tube for displaying coloured pictures comprising in an evacuated envelope means to generate a number of electron beams, a display screen comprising a large number of areas luminescing in different colours, and colour selection means comprising a large number of apertures which assign each electron beam to luminescent regions of one colour, in which colour selection means a magnetic quadrupole field is generated to form a magnetic quadrupole electron lens in each aperture, which luminescent regions have the shape of substan-

tially parallel strips the longitudinal direction of which is substantially parallel to the defocusing direction of the quadrupole lenses, characterized in that the apertures are elongate, substantially hexagonal and symmetrical relative to their longitu-



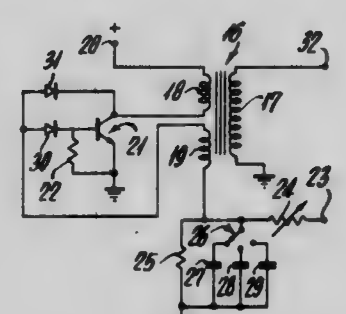
dinal axes and are situated with their longitudinal axes in a number of parallel rows which extend substantially parallel to strips, and the apertures of two juxtaposed rows are shifted relative to each other.

4,379,252
ARC DISCHARGE DEVICE CONTAINING HG196
Dale E. Work, Topsfield, and Stephen G. Johnson, Georgetown, both of Mass., assignors to GTE Products Corporation, Stamford, Conn.
Filed Sep. 5, 1978, Ser. No. 939,558
Int. Cl.³ H01J *61/42, 61/20*
U.S. Cl. 313—485 **7 Claims**



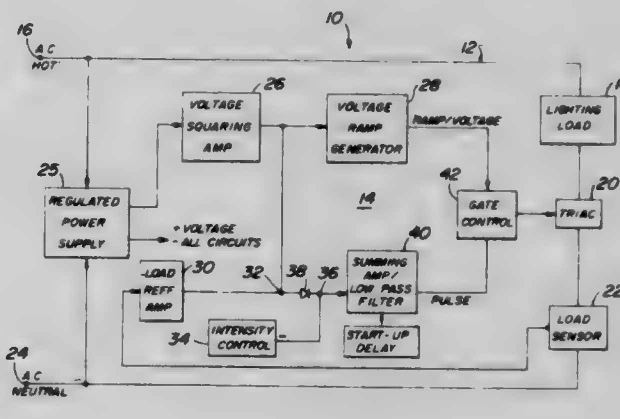
1. A mercury-containing arc discharge device for converting electrical energy into resonance radiation, the Hg^{196} content of the mercury within the device being greater than that in natural mercury in order to increase the efficiency of converting said electrical energy into said resonance radiation.

4,379,253
ORNAMENTAL LAMP AND METHOD AND APPARATUS FOR OPERATION THEREOF
Robert E. Myer, Denville, N.J., assignor to Matthews Research & Development Corp., New York, N.Y.
Filed Jan. 28, 1981, Ser. No. 229,084
Int. Cl.³ H05B *37/00*
U.S. Cl. 315—289 **2 Claims**



1. A power supply for a three dimensional, colored, moving light display comprising a hollow light transmitting envelope having a gas sealed therein, electrode means for ionizing the gas within said envelope and power supply means for applying high voltage, high frequency energy to said electrode means to produce moving light emitting discharge paths with said envelope, the last said means including a transformer having at least two low voltage primaries and a high voltage secondary, an electronic amplifier, means including one of said primary windings for feeding a first voltage to said amplifier for the operation thereof, and means including the other of said primary windings for feeding a second voltage to the input of said amplifier, the other of said primary windings being phased relative to said one primary winding to provide positive feedback to said amplifier to cause it to oscillate, the last said means including an adjustable RC network to pulse modulate said oscillating amplifier whereby said secondary will produce high voltage, high frequency energy carrying pulse modulation.

4,379,254
DIMMER CIRCUIT FOR FLUORESCENT LAMP
Frederick L. Hurban, Vineland, N.J., assignor to Andrew L. D'Orio, Vineland, N.J.
Filed Mar. 23, 1981, Ser. No. 246,524
Int. Cl.³ H05B *41/392*
U.S. Cl. 315—291 **3 Claims**



1. In an intensity control for fluorescent lamps wherein a triac in series with the lamp provides control of the current through the lamp, a triac gating circuit comprising:

(a) square wave generating means for generat-unipolar square waves at twice the frequency of an a.c. power input to the triac, each square wave having a pulse width approximately equal to a half cycle of said a.c. power input;

(b) ramp wave generating means for generating a ramp voltage signal corresponding to each of said square waves, each ramp rising abruptly at the leading edge of the corresponding square wave and decaying linearly to reach zero potential at the trailing edge of said square wave, and said ramp waves being applied to the base of a PNP transistor;

(c) means for producing a voltage signal proportional to current through the lamp, said voltage signal being superimposed on said square waves;

(d) an intensity control potentiometer for producing a selectable intensity d.c. control signal of an opposite polarity to said square waves and superimposed voltage signal, said intensity control signal being at least equal to and opposite said square waves, and further being variable to higher than said square waves, whereby only all or a portion of said superimposed voltage signal passes to an input of an inverting and integrating operational amplifier;

(e) said amplifier generating a d.c. output proportional to the received signal and of opposite polarity, said output signal being applied to the base of said PNP transistor; and

(f) said PNP transistor acting as a gating switch to selectively apply a control signal to the gate of the triac whenever the combined ramp signal and amplifier output signal at the base of the PNP transistor fall below zero potential.

4,379,255

CONTROLLER WITH AT LEAST ONE SWITCH ACTUATABLE WITHIN A PREDETERMINED RANGE OF MOTION, IN COMBINATION WITH A SET POINT SELECTOR

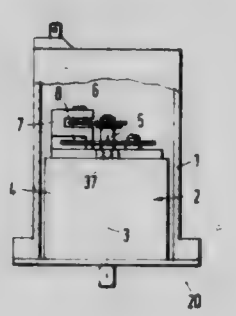
Hans-Joachim Klose, Henstedt-Ulzburg, and Udo-Frank Hellmig, Pinneberg, both of Fed. Rep. of Germany, assignors to Jungheinrich Unternehmensverwaltung KG, Hamburg, Fed. Rep. of Germany

Continuation of Ser. No. 937,129, Aug. 28, 1978, abandoned. This application Dec. 31, 1980, Ser. No. 221,630

Claims priority, application Fed. Rep. of Germany, Sep. 2, 1977, 2739538

Int. Cl.³ H02P *5/16*

U.S. Cl. 318—313 **10 Claims**



1. A controller comprising: a first movable actuating member, a control member movable by said actuating member, sensing means sensibly coupleable to said control member for producing signals in response to the position of the control member, a circuit having a first input coupled to said sensing means, said control member defining a specific characteristic having a given form and slope configuration representing a specific variation of one variable relative to a variation in another variable, said sensing means being arranged for producing an output corresponding to the characteristic when the control member is moved by the actuating member through a given range, said circuit having an output for producing an output signal corresponding to the characteristic and its variables including the form and slope configuration when the control member is moved by the actuating member through the range, said circuit having a reference value forming portion for forming a reference value and a second input connected to the reference value forming portion, variable second input means for applying a second signal to said second input, said second input means being adjustable independent of said circuit for varying the reference value, said second input means having circuit means for shifting the signal at the output to a different level but with the same form and slope configuration of the signal so that in the output signal the absolute value of the one variable changes without changing the variation of the one variable relative to the variation of the other variable.

4,379,256

APPARATUS AND METHOD FOR MEASURING THE SPEED OF A MOVABLE SYSTEM WITH RESPECT TO A DATA CARRIER

Christian Maury, Vélizy, France, assignor to Compagnie Internationale Pour l'Informatique CII Honeywell Bull, Paris, France

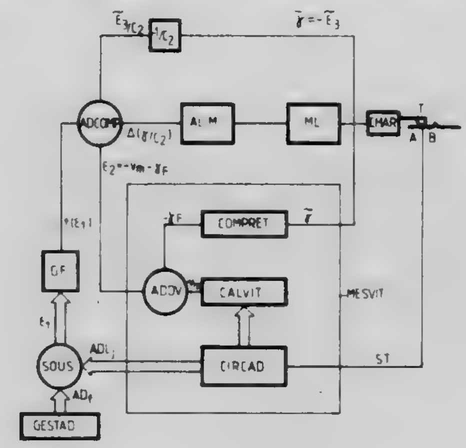
Filed Sep. 11, 1980, Ser. No. 186,295

Claims priority, application France, Sep. 21, 1979, 79 23580

Int. Cl.³ G05B *13/00*

U.S. Cl. 318—561 **10 Claims**

1. Apparatus for measuring the speed of a movable system with respect to a carrier for data recorded on a plurality of tracks having addresses written on the carrier in a plurality of reference zones, the number of reference zones being at least equal to the number of tracks, each track being associated with at least one zone, the recorded data being read by a data read head, the apparatus comprising: means responsive to the recorded data read by the head for determining the address read by the head at predetermined sampling times, means responsive to the address read by the head at the sampling times for calculating the speed v of the system as a function of the difference between the addresses read by the head at sampling times separated by predetermined time intervals, the means for calculating the speed v of the movable system comprising means for calculating the measured speed v_m of the system as a function of the difference between the addresses $ADL(nT+k_0T)$ and $ADL(nT)$ read by the head at the sampling times $t_{k0}=nT+k_0T$ and $t_n=nT$, n and k_0 being integers, the sam-



pling times t_{k0} and t_n being separated by time intervals equal to T seconds, said calculating means deriving a signal having an amplitude representing v_m, means for compensating the average estimation delay θ of the measured speed v_m with respect to the speed v of the system and for deriving a compensation signal γ_F, signal combining means responsive to the measured speed representing signal and the compensation signal γ_F for deriving a signal having a magnitude representing $(v_m+\gamma_F)$ that is more substantially equal to the actual speed of the movable system than v_m.

4,379,257

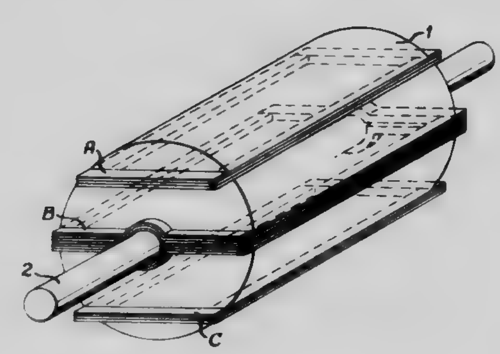
DYNAMO ELECTRIC MACHINES

Donald L. Hore, 10, Charnhill Vale, Mangotsfield, Bristol BS17 3JT, England

Continuation of Ser. No. 573,602, Apr. 30, 1975, abandoned. This application Mar. 8, 1977, Ser. No. 775,441

Int. Cl.³ H02K *37/00*

U.S. Cl. 318—695 **17 Claims**



1. An alternating current dynamo electric machine comprising:

a stator having at least one winding wound thereon, arranged to be energized with alternating current to provide a magnetic flux field which is continually alternating or changing in magnitude; and a further member, formed of a ferromagnetic material, movable with respect to the stator and having at least one short circuited winding formed thereon and movable unitarily therewith, providing at each position of the movable member, alternative paths of low and high reluctance to the passage of the alternating magnetic flux, to cause the ferromagnetic movable member to adopt a 'null' position in which linkage of the said at least one short circuited winding of the

movable member, with the energized at least one stator winding is minimized.

4,379,258

POWER CONTROL CIRCUIT FOR INDUCTION MOTOR

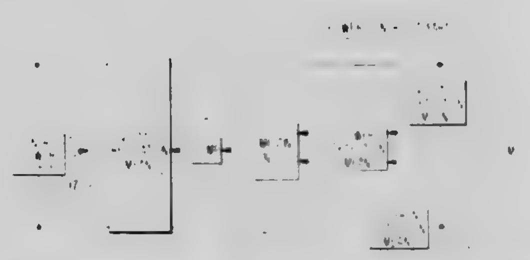
Hidehiko Sugimoto, Nagoya, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 21, 1981, Ser. No. 256,224

Claims priority, application Japan, Apr. 22, 1980, 55-53403

Int. Cl.³ H02P *5/40*

U.S. Cl. 318—805 **4 Claims**



1. A power control circuit for an induction motor, said power control circuit comprising:

a detecting means connected between an alternating current power source and said induction motor for detecting the supply power and the feedback power flowing between said source and said motor;

a voltage regulating means for controlling an input voltage applied to said induction motor such that the ratio between the supply power and the feedback power is maintained at a predetermined value;

wherein said supply power is defined to be equal to the product of the instantaneous value of said voltage applied to said motor and a current flowing through said motor when said product is positive in value; and

wherein said feedback power is defined to be equal to the product of the instantaneous value of said voltage applied to said motor and said current flowing through said motor when said product is negative in value.

4,379,259

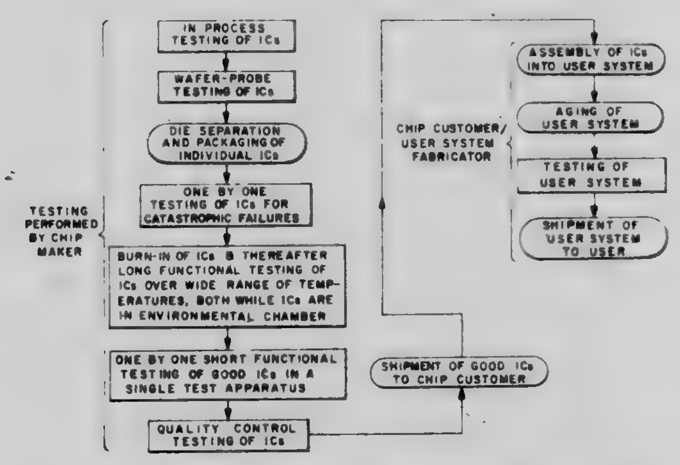
PROCESS OF PERFORMING BURN-IN AND PARALLEL FUNCTIONAL TESTING OF INTEGRATED CIRCUIT MEMORIES IN AN ENVIRONMENTAL CHAMBER

Andrew G. Varadi, Saratoga, and Walid H. Maghribi, Milpitas, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Mar. 12, 1980, Ser. No. 129,721

Int. Cl.³ G01R *15/12*

U.S. Cl. 324—73 AT **4 Claims**



1. A process for testing a plurality of digital memory ICs comprising:

plugging the ICs into PC storage cards each adapted for interconnecting the ICs in row-column arrays to form a memory board, the storage cards being constructed to have high temperature resistance and high signal integrity;

loading the storage cards into an environmental chamber and operatively coupling a PC driver card to each of the storage cards, the driver cards being mounted outside the chamber and having drive electronics for enabling pattern testing of the ICs on each of the storage cards;

subjecting the ICs to short duration pattern testing to verify that the ICs function in combination as a memory system;

elevating the temperature within the chamber and applying dynamic signals to the ICs to accomplish accelerated dynamic burn-in thereof; and

subjecting the ICs to parallel long functional testing while still in the chamber, including pattern testing of the ICs over a predetermined range of temperatures to determine the system interaction capabilities of the ICs, and logging hard and soft errors exhibited by individual ones of the ICs.

4,379,260

DUAL-SLOPE INTEGRATOR

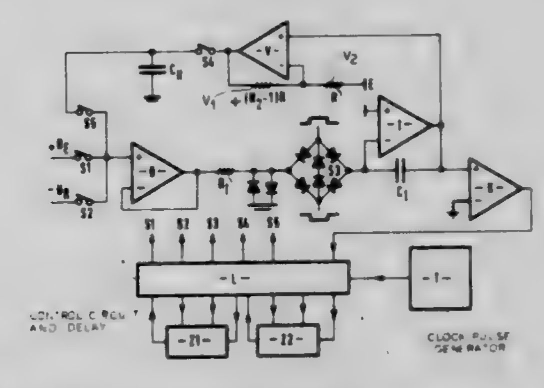
Herwig Labus, Jülich, Fed. Rep. of Germany, assignor to Kernforschungsanlage Jülich GmbH, Jülich, Fed. Rep. of Germany

Filed Dec. 20, 1979, Ser. No. 105,670

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1978, 2855282

Int. Cl.³ G01R *17/06;* **H03K** *13/20*

U.S. Cl. 324—99 D **6 Claims**



1. A dual-slope integrator comprising:

an integrating network including an integrating capacitor;

first and second switches respectively triggerable to apply a measurement voltage and a reference voltage to an input of said integrating network;

a control circuit connected to said switches for triggering same;

a clock pulse generator connected to said control circuit for triggering said switches in the cadence of the clock pulses of said generator;

a first counter having a count capacity N_1 and a second counter having a count capacity N_2 connected to said control circuit for counting clock pulses during integration of said voltages, said clock pulse generator being connected to said counters by said control circuit upon application of a signal thereto;

an amplifier having an amplification factor $N^*_2 \simeq N_2$ connected to said integrator capacitor and having an output;

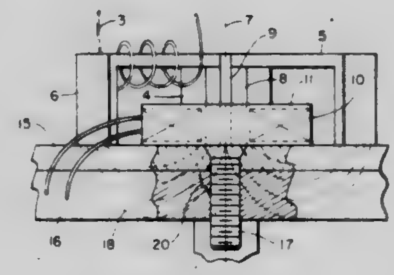
a third switch connected between said output of said amplifier and a terminal of a holding capacitor, said third switch being triggerable by said control circuit;

a fourth switch connected between said terminal of said holding capacitor and said input of said integrating network and triggerable by said control circuit; and

a comparator connected in parallel with said amplifier to said integrating network and controllingly coupled with said control circuit to apply said signal thereto and so that said holding capacitor is connected to said input of said integrating network to apply a residual voltage of the integrating network amplified by the factor N^*_2 to the integrating network after the first zero passage of the reference voltage and simultaneously form a combined count in said counters of a value $Z_1 \times N_2 - Z_2$ under the

control of the reference voltage where Z_1 and Z_2 are the counts in the first and second counters respectively, said control circuit being provided with a delay for triggering said third and fourth switches following the zero passages of the comparator output beyond the subsequent flank of a clock pulse by a fixed delay greater than the width of disturbance pulses, said delay corresponding to a fixed pulse count increasing the backward count in the combined counters, said reference voltage being the same for each control of the formation of said combined count.

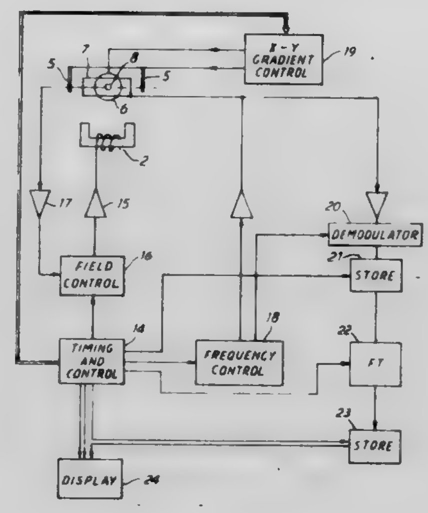
4,379,261
ROTATING MAGNETIC FIELD DEVICE FOR DETECTING CRACKS IN METAL
Kenneth M. Lakin, 2601 Oakwood Rd., Ames, Iowa 50010
Filed Sep. 10, 1980, Ser. No. 185,968
Int. Cl.³ G01N *27/90;* G01R *33/12*
U.S. Cl. 324—240 14 Claims



1. Eddy current inspection apparatus for detecting cracks in a metallic article having a flat surface, comprising:
(a) a central magnetic core extending longitudinally along a central axis, the central core having two ends designated the first and second ends, respectively;
(b) at least three L-shaped peripheral magnetic cores,
(i) each peripheral core having first and second leg portions joined to form the two legs of an L-shaped member, the first leg portion being magnetically coupled to the first end of the central core and extending radially away from the central axis, and the second leg portion extending parallel to the central axis and terminating in a foot, and
(ii) the feet of each of the peripheral cores and the second end of the central core being substantially coplanar;
(c) a drive coil wound on each of the peripheral cores;
(d) means for electrically energizing each drive coil with an alternating-current signal, the signals applied to the different drive coils having at least two different electrical phases so as to produce in the metallic article, when the feet of the peripheral cores are positioned abutting the surface of the article, a magnetic field rotating about the central axis;
(e) a sensor coil wound on the central core; and
(f) means for detecting the voltage appearing across the sensor coil, the value of the voltage indicating whether a crack exists in the metallic article.

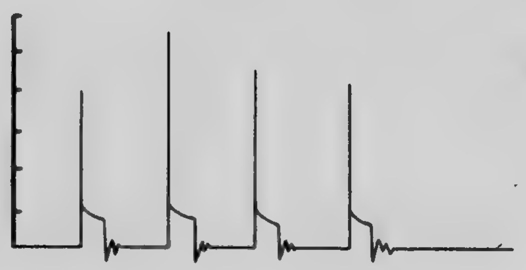
4,379,262
NUCLEAR MAGNETIC RESONANCE SYSTEMS
Ian R. Young, Sunbury-on-Thames, England, assignor to Picker International Limited, Wembley, England
Filed Aug. 5, 1980, Ser. No. 175,672
Claims priority, application United Kingdom, Aug. 10, 1979, 7927965
Int. Cl.³ G01N *27/00*
U.S. Cl. 324—309 13 Claims

1. A nuclear magnetic resonance apparatus comprising:
first magnetic means for generating a steady magnetic field which bulges outwardly from one side of said first magnetic means so as to protrude into a body positioned adjacent said first magnetic means on said one side, thereby to establish therein a magnetic field which varies in strength with distance in at least a first direction in said body and is of constant strength in curved surfaces in said body;
means for preferentially exciting resonance of nuclei within the body lying in a selected one of said curved surfaces of constant magnetic field strength;
second magnetic means for applying a magnetic field having a gradient in a second direction orthogonal to said first



direction, thereby to restrict resonance to a line in said one surface wherein said one surface intersects a surface in which the magnetic field produced by said second magnetic means is constant;
means for dispersing the phase of the resonance along said line; and
means for sensing the dispersed resonance as a function of position in said line.

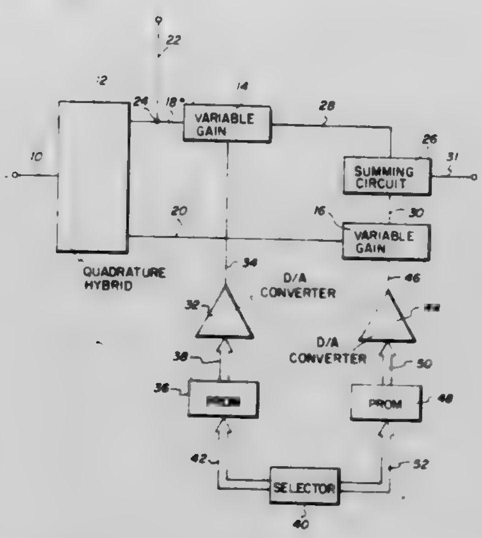
4,379,263
ENGINE ANALYZERS
Geoffrey J. Everett, Somerton, and Christopher J. Hunt, Tiverton, both of England, assignors to TI Crypton Limited, Bridgewater, England
Filed Nov. 25, 1980, Ser. No. 210,528
Claims priority, application United Kingdom, Nov. 27, 1979, 7940836
Int. Cl.³ F02P *17/00*
U.S. Cl. 324—379 9 Claims



PRIOR ART

1. An engine analyser, adapted to process ignition voltage or current signals from a pair of engine components comprising the spark plug and the lead feeding that spark plug of a spark ignition internal combustion engine of the kind in which said signals comprise a succession of alternating real and wasted sparks, said analyser including a probe to be connected to one component of said pair of components, for emitting an input signal to the analyser representative of the ignition voltage or current, circuitry means connected between said probe and said analyser which will pass those pulses of the input signal representative of the real spark and to inhibit passage of those pulses of said input signal representative of the wasted spark.

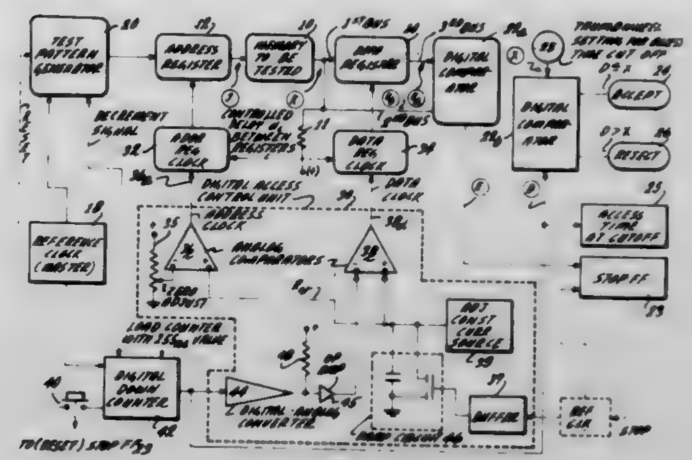
4,379,264
BROADBAND PHASE SHIFTER
Wilfried K. Lenhardt, Richardson, Tex., assignor to Mobil Oil Corporation, New York, N.Y.
Filed Aug. 11, 1980, Ser. No. 176,896
Int. Cl.³ G01R *25/04*
U.S. Cl. 328—24 **15 Claims**

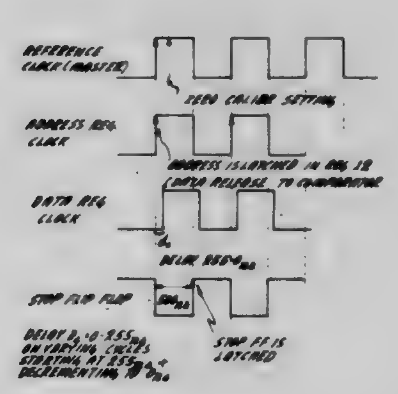


1. A phase shifting circuit comprising:
receiving means for receiving an incoming electrical signal having a frequency selected from a wide band of frequencies and producing two signals one 90 degrees out of phase with the other; having amplitudes approximately equal to said incoming electrical signal
first gain means for amplitude varying one of said two signals over a continuous range;
second gain means for amplitude varying an other of said two signals over a continuous range and
combining means for combining said one amplitude varied signal and said other amplitude varied signal and producing a signal having a phase shift from said incoming signal.

4,379,265
DUAL CLOCKING TIME DELAY GENERATION CIRCUIT
Robert D. Catiller, Garden Grove, Calif., assignor to Burroughs Corporation, Detroit, Mich.
Filed May 26, 1981, Ser. No. 267,071
Int. Cl.³ H03L *7/00;* H03K *5/15*
U.S. Cl. 328—55 **11 Claims**

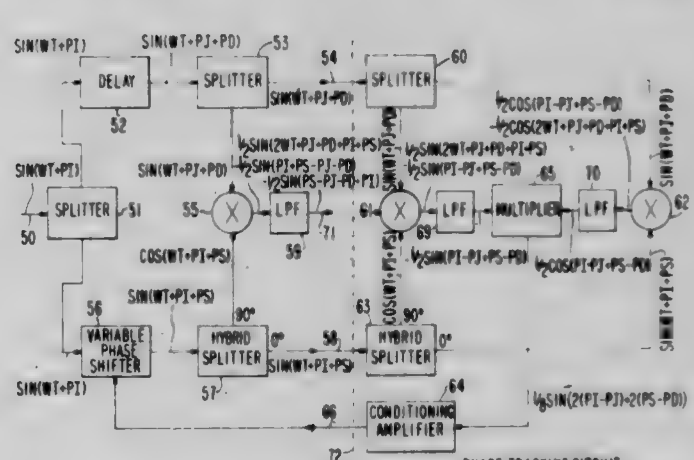
1. A circuit for generating two separate clocking signals having a delay period, d_i, therebetween, said dual clocking delay circuit comprising:
(a) first means to generate a ramp voltage;
(b) second means to generate an analog voltage proportional to a time period;
(c) third means to set an initial voltage representing a time (T_0) which will initiate a first output clock signal when said ramp voltage is equal to said initial voltage;
(d) fourth means to provide a first output clock signal at said time (T_0);
(e) fifth means to initiate a second output clock signal at a time (T_1) upon sensing voltage equality between said ramp voltage and said time period analog voltage;





(f) reference clock means to energize said first and second means.

4,379,266
PSK DEMODULATOR WITH AUTOMATIC COMPENSATION OF DELAY INDUCED PHASE SHIFTS
Michael D. Rubin, Saratoga, Calif., assignor to Ford Aerospace & Communications Corporation, Detroit, Mich.
Filed Apr. 3, 1980, Ser. No. 136,867
Int. Cl.³ H04L *27/22;* H03D *3/00*
U.S. Cl. 329—104 **8 Claims**



1. A coherent PSK signal demodulator having automatic compensation of phase variations in its delay element comprising:
means for splitting the signal to be demodulated into two paths:
a delay element connected to said first path but not to said second path;
a variable phase shifting device connected to said second path but not to said first path; and
a phase tracking circuit having a first input responsive to an

output of said delay element and having a second input responsive to an output of said variable phase shifting device, said phase tracking circuit further having an output for controlling the variable phase shifting device to maintain constant the phase differential between the phase variation introduced by the delay element and the phase variation introduced by the variable phase shifting device.

4,379,267

LOW POWER DIFFERENTIAL AMPLIFIER

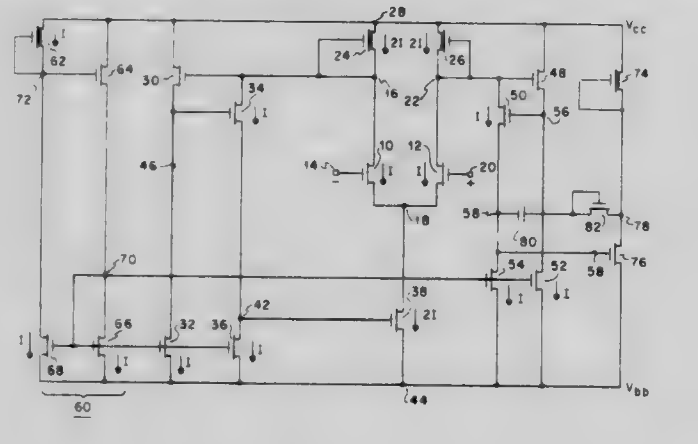
Ian A. Young, Farmers Branch, Tex., assignor to Mostek Corporation, Carrollton, Tex.

PCT No. PCT/US80/00805, § 371 Date Jun. 25, 1980, § 102(e) Date Jun. 25, 1980, PCT Pub. No. WO82/00071, PCT Pub. Date Jan. 7, 1982

PCT Filed Jun. 25, 1980, Ser. No. 252,972

Int. Cl.[3] **H03F** ***3/45, 3/16***

U.S. Cl. 330—253 **31 Claims**



1. A differential amplifier for connection to a first voltage source (**28**) to amplify a difference signal, said differential amplifier having two input terminals (**14** and **20**) and first and second output terminals (**16** and **22**) and having a feedback node (**18**), and having a feedback means comprised of:

a first MOSFET (**30**) having a source, drain and gate, said gate coupled to said first output terminal (**16**), said drain for connection to a first voltage source (**28**) and said source (**46**) for connection to a first current source means for supplying a substantially constant current, for providing a first feedback signal at said source (**46**) proportional to the signal at said first output terminal (**16**);

a second MOSFET (**34**) having a source, drain and gate, said gate coupled to said source (**46**) of said first MOSFET and said drain coupled to said first output terminal (**16**) and said source coupled to a second current source means for supplying a substantially constant current, for providing a negative second feedback signal to said first output terminal (**16**) tending to keep the voltage on said terminal substantially constant;

a third MOSFET (**38**) having a gate, drain and source, said drain coupled to said feedback node (**18**), said gate coupled to said source (**42**) of said second MOSFET and said source for coupling to a second voltage source (**44**) for receiving said first feedback signal and for converting it to a third negative feedback signal at said feedback node (**18**) causing said differential amplifier to reject substantially all common mode input signals and causing substantially all of the amplified difference signals to appear at said second output terminal (**22**).

4,379,268

DIFFERENTIAL AMPLIFIER CIRCUIT

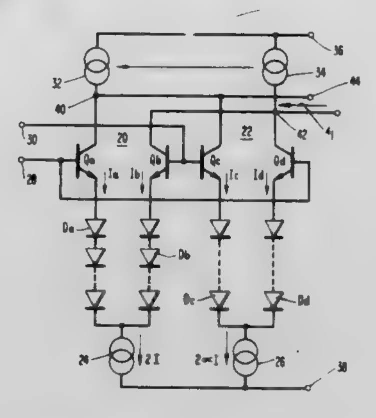
Mitsuru Nagata, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jul. 24, 1980, Ser. No. 171,755

Claims priority, application Japan, Aug. 30, 1979, 54-110702

Int. Cl.[3] **H03F** ***3/45***

U.S. Cl. 330—260 **8 Claims**



1. A differential amplifier circuit comprising:

a pair of differential amplifier units, each unit including a pair of equal impedance transistor circuits, each transistor circuit of a pair including a transistor having its emitter connected to a common current source individual to the pair, one current source being larger than the other, the emitters of the transistors of the one unit connected to the larger current source being coupled through individual ones of a first pair of equal impedances to the associated current source, the individual impedances of the first pair being larger than any impedance between the emitters of the transistors of the other unit and the smaller current source,

wherein the bases of the individual transistors in each unit are connected to the bases of different ones of the transistors of the other unit and the collectors of the individual transistors of each unit are connected to the collectors of different ones of the transistors of the other unit in which the bases of the transistors in the pairs of units are not connected to each other.

4,379,269

RF AMPLIFIER HAVING AUTOMATIC GATE BIAS SWITCHING IN RESPONSE TO BAND SELECTION

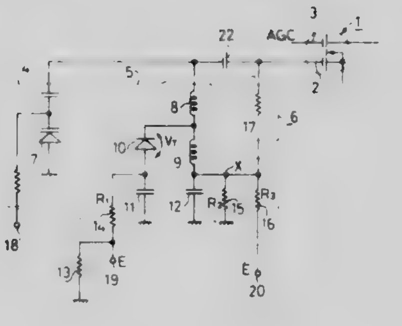
Sadayoshi Ijichi, Soma, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Mar. 2, 1981, Ser. No. 239,607

Claims priority, application Japan, Mar. 4, 1980, 55-27111

Int. Cl.[3] **H03F** ***3/193;*** **H03J** ***5/24;*** **H04N** ***5/44***

U.S. Cl. 330—277 **5 Claims**



1. An RF amplifier of the type equipped with a dual gate MOS FET, comprising:

input means receptive to frequencies of high and low bands;

selecting means for feeding the first gate of said FET selectively with either frequencies in said high band or frequencies in said low band;

means for feeding the second gate of said FET with an automatic gain control (AGC) voltage; and

means for feeding the first gate of said FET with a bias

voltage differing in accordance with the selecting of either said high or said low band.

4,379,270

PHASE LOCKED LOOP HAVING RAPID TUNING

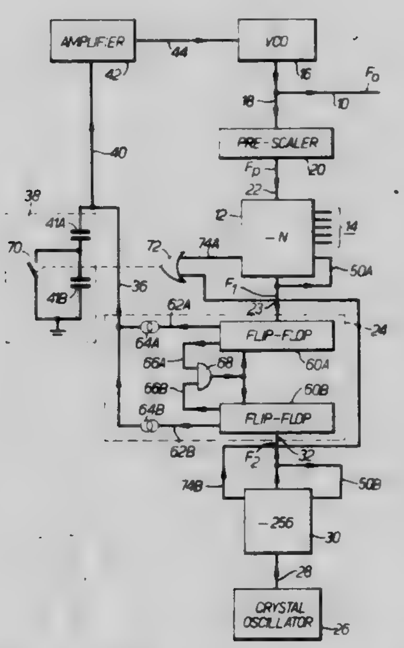
Margaret P. Carter, South Ruislip, and David Hodgson, Oxford, both of England, assignors to British Communications Corporation, Ltd., Bracknell, England

Filed Mar. 2, 1981, Ser. No. 238,154

Claims priority, application United Kingdom, Apr. 30, 1980, 8014231

Int. Cl.³ H03L *7/18*

U.S. Cl. 331—1 A **8 Claims**



1. A frequency tuning arrangement for tuning a variable frequency to a desired frequency, comprising
   a source of the variable frequency,
   a source of reference frequency,
   frequency changing means connected to receive the frequency from one said source and to alter it by an adjustable factor so as to produce a control frequency,
   phase comparison means for repeatedly comparing the phases of the control frequency and the frequency from the other said source whereby to produce in response to each comparison a control signal dependent on the magnitude and direction of any phase error detected,
   adjusting means responsive to the control signal and connected to adjust the variable frequency source so as to change the variable frequency in a sense and by an amount so as to produce a temporary phase error in the opposite direction to the detected phase error, the magnitude of the temporary phase error being substantially equal to the detected phase error, and
   control means operative to make such change in the control signal as causes a change in the variable frequency in the opposite sense and by such an amount and at such time before the next phase comparison as to eliminate the temporary phase error and to tend to equalize the control frequency and the frequency from the other said source.

4,379,271

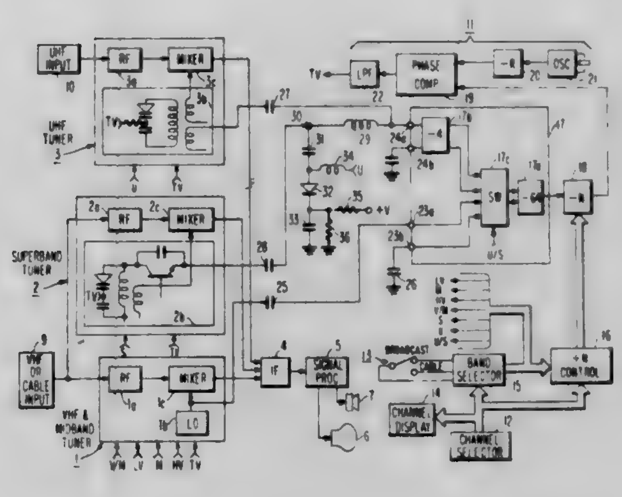
INPUT SELECTION ARRANGEMENT FOR APPLYING DIFFERENT LOCAL OSCILLATOR SIGNALS TO A PRESCALER OF A PHASE-LOCK LOOP TUNING SYSTEM

William L. Lehmann, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 25, 1980, Ser. No. 180,580

Int. Cl.³ H04B *1/16;* **H04N** *5/44*

U.S. Cl. 331—49 **7 Claims**



1. Apparatus, comprising:
   frequency divider means having an input terminal for dividing the frequency of a local oscillator signal applied to said input terminal;
   a first local oscillator for generating at a first output point a first local oscillator signal having a frequency in a first band of frequencies when enabled to operate;
   a second local oscillator for generating at a second output point a second local oscillator signal having a frequency in a second band of frequencies lower in frequency than said first band when enabled to operate;
   band selection means for selectively enabling said first and second local oscillator means to operate to generate respective ones of said first and second local oscillator signals;
   input means including reactive components coupled between said first and second output points and said input terminal; and
   configuration selection means coupled to said input means and said band selection means for selectively configuring said input means to form a first reactive network having a first frequency response characteristic for passing signals in said first band when said first local oscillator is enabled and configuring said input means to form a second reactive network having a second frequency response characteristic different from said first frequency response characteristic for passing signals in said second band and rejecting signals in said first band when said second local oscillator is enabled.

4,379,272

AGC CIRCUIT WITH LEVEL-COMPENSATING INPUT

Mark A. Wheatley, Maidenhead, England, assignor to Racal-Dana Instruments Limited, Berkshire, England

Filed Nov. 28, 1980, Ser. No. 211,272

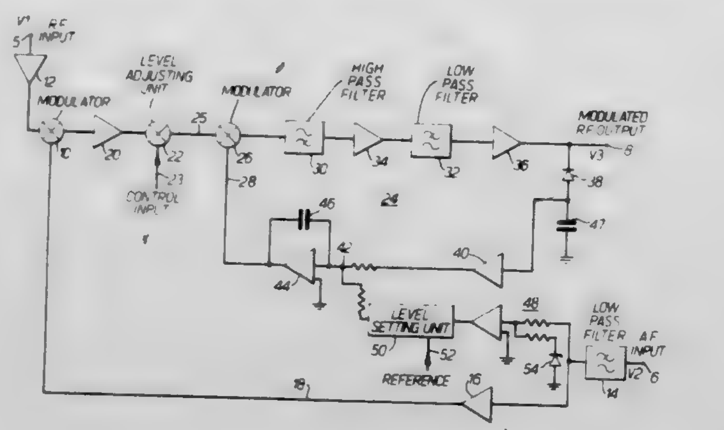
Claims priority, application United Kingdom, Dec. 15, 1979, 7943279

Int. Cl.³ H03C *1/06;* **H03G** *3/20*

U.S. Cl. 332—38 **3 Claims**

1. In an electrical circuit arrangement for automatic gain control including an AGC loop responsive to an input signal and operative to maintain an output signal at a desired mean level represented by a reference signal applied in the loop,
   level changing means outside the loop and connected to change the level of the input signal by an amount corre-

sponding to changes in level represented by changes in the reference signal, so that the level of the input signal as



received by the AGC loop is at least approximately at the right value.

4,379,273

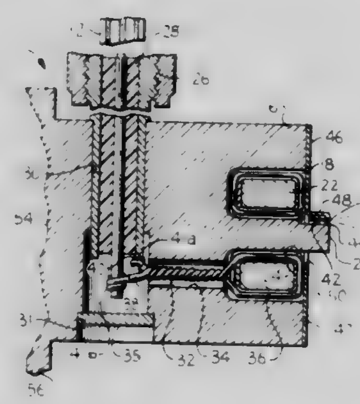
PULSE TRANSFORMER LASER DIODE PACKAGE

Gerald M. Bender, University City, Mo., assignor to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Jun. 25, 1981, Ser. No. 277,074

Int. Cl.[3] H03H *7/38*

U.S. Cl. 333—32 **11 Claims**



1. A device for matching the impedance of a transmission line to the impedance of an electronic device, said matching device including:

a body of electrically conductive material having a first surface in which is defined a generally toroidal shaped cutout with a center post extending out of said first surface;

a toroidal transformer positioned about said center post and in said defined generally toroidal shaped cutout having a primary winding thereabout and means for connecting said primary winding to the transmission line; and

a cover positioned in electrical communication with said first surface and the electronic device to enclose said toroidal transformer with a single electrical loop including the electronic device, whereby said body and said cover form a secondary winding about said toroidal transformer connected to the electronic device.

4,379,274

ACOUSTIC SURFACE WAVE MULTIPLEXING FILTER

Kai Hansen, Arlington Heights, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Aug. 7, 1981, Ser. No. 290,649

Int. Cl.[3] H03H *9/72, 9/64*

U.S. Cl. 333—194 **13 Claims**

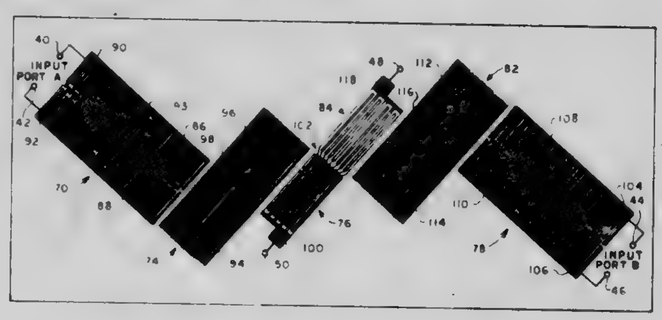
1. An acoustic surface wave multiplexing filter for receiving an electrical signal at one of first and second input ports and for developing a filtered electrical signal at an output port, comprising:

a substantially rectangular substrate having a plurality of boundaries;

a first frequency sensitive electro-acoustic transducer responsive to a signal at the first input port and situated on the substrate so as to launch acoustic surface waves in a direction which is oblique to the substrate boundaries;

a first acoustic multistrip coupler situated on the substrate adjacent the first electro-acoustic transducer so as to receive surface waves launched therefrom and to launch additional acoustic surface waves in a direction parallel to the received surface waves and oblique to the substrate boundaries;

a first output transducer disposed on the substrate adjacent the first acoustic coupler for receiving the surface waves launched therefrom and for developing a corresponding electrical signal at the output port;



a second frequency sensitive electro-acoustic transducer responsive to a signal at the second input port and situated on the substrate so as to launch acoustic surface waves in a direction which is oblique to the substrate boundaries;

a second acoustic multistrip coupler situated on the substrate adjacent the second electro-acoustic transducer so as to receive surface waves launched therefrom and to launch additional acoustic surface waves in a direction parallel to its received surface waves and oblique to the substrate boundaries; and

a second output transducer disposed on the substrate adjacent the second acoustic coupler for receiving the surface waves launched therefrom and for developing a corresponding electrical signal at the output port,

whereby an electrical signal applied to one of the input ports is converted to a filtered signal at the output port, and acoustic waves reflected by the substrate's boundaries are rendered less easily detectable by the transducers.

4,379,275

DEVICE FOR TRANSMITTING LARGE FORCES

Werner Elsel, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jul. 10, 1981, Ser. No. 281,936

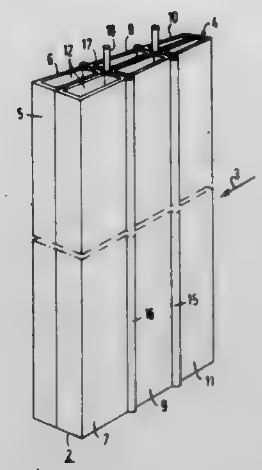
Claims priority, application Fed. Rep. of Germany, Jul. 21, 1980, 3027605

Int. Cl.[3] H01F *7/22*

U.S. Cl. 335—216 **9 Claims**

1. In a device for transmitting large forces between a superconducting magnet winding which is cooled to a very low temperature, and an abutment which takes up the forces and is at a higher temperature level, especially of an energy storage device, including several support bodies which are arranged one behind the other in the direction of the force transmission and are thermally subdivided by a metal sheet serving as a heat shield, the improvement comprising at least one box shaped hollow support element being provided as each support body,

and at least one cooling tube thermally connected to the metal sheet of the heat shield for keeping said metal sheet at a prede-



termined intermediate temperature using a coolant conducted therethrough.

4,379,276

PROCESS AND APPARATUS FOR THE MULTIPOLAR MAGNETIZATION OF A MATERIAL IN STRIPS

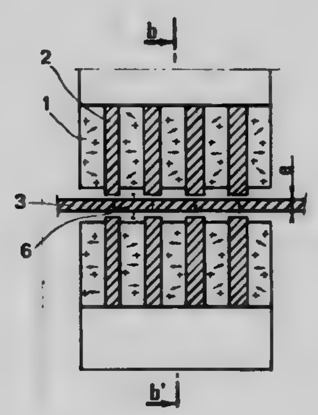
Claude Bouchara, Bernin; Robert Henaff, Saint-Martin-d'Heres, and Pierre Jacob, Eybens, all of France, assignors to Aimants Ugimag S.A., Saint-Pierre-d'Allevard, France

Filed Jan. 29, 1981, Ser. No. 229,742

Claims priority, application France, Feb. 15, 1980, 80 03758

Int. Cl.^{3} H01F *7/20*

U.S. Cl. 335—284 **13 Claims**



1. An apparatus for the multipolar magnetization of a hard magnetic material in the the form of a strip or sheet comprising two opposing stacks separated from each other by an air gap wherein the magnetizable material is moved laterally between the stacks, each stack being formed from main permanent magnets having parallel bases and a high coercive field and pole pieces formed of mild magnetic material, said pole pieces being positioned alternately between said permanent magnets, said magnets and pole pieces of each of said stacks being situated in opposing relationship, and the direction of magnetization of said main permanent magnets define opposing components of magnetization perpendicular to said bases of the facing main magnets and said strip.

4,379,277

MAGNETIC CHUCK

Philibert M. Braillon, Montmelian (Savoie), France

Filed Aug. 22, 1980, Ser. No. 181,085

Claims priority, application France, Aug. 27, 1979, 79 21962

Int. Cl.^{3} H01F *7/04*

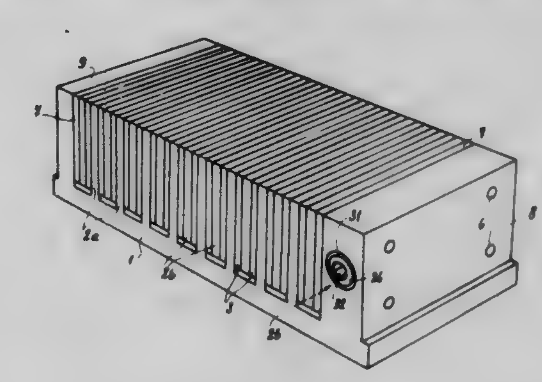
U.S. Cl. 335—295 **7 Claims**

1. A magnetic device, especially a chuck for magnetic retention of workpieces, comprising:

a stack of alternately magnetic and nonmagnetic plates defining an exposed upper surface and at least two exposed lateral surfaces adjoining said upper surface of a body, said stack extending longitudinally and said plates being perpendicular to the longitudinal dimension of said stack, said plates each having at least one opening and said openings being aligned along said stack to form at least one longitudinally extending hollow,

a first magnetic assembly received in said hollow and comprising at least one stack of alternating permanent magnets and pole pieces with the pole pieces of said first assembly alternating in magnetic polarity;

a second magnetic assembly mounted in said body and comprising at least one stack of permanent magnets for creating magnetic polarities alternating along said second as-



sembly, said pole pieces corresponding in thickness measured along the longitudinal dimension generally to the thicknesses of said plates, the magnetic pitch of said first assembly being equal to the distance between corresponding portions of successive pole pieces; and

means mounted on said body engaging one of said assemblies for displacing same longitudinally through a distance at least equal to said magnetic pitch thereby shifting selectively between an ON position in which a magnetic field appears at each of said surfaces to affix a workpiece thereto and an OFF position in which the magnetic field at said surfaces is substantially canceled, the other of said assemblies being fixed relative to said body.

4,379,278

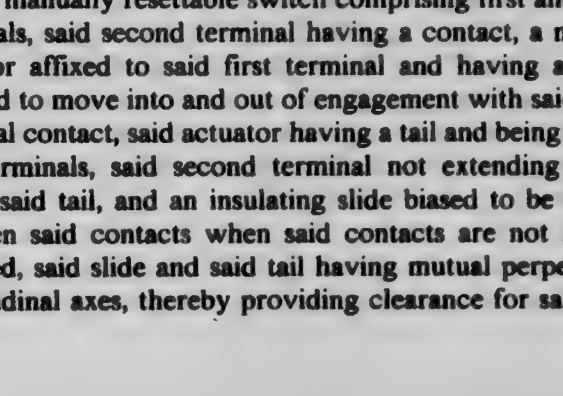
RESETABLE CIRCUIT BREAKER

Walter J. Kuczynski, 871 Pennsylvania Ave., and Robert A. Kuczynski, 1075 W. Chestnut St., both of Union, N.J. 07083

Filed Nov. 3, 1980, Ser. No. 203,596

Int. Cl.^{3} H01H *61/04*

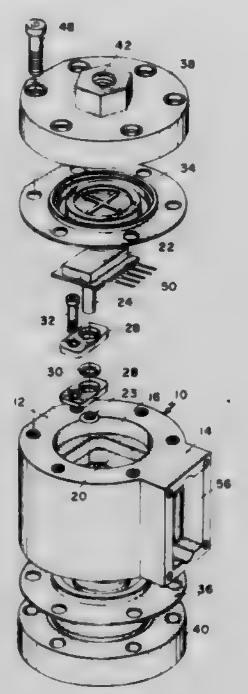
U.S. Cl. 337—91 **10 Claims**



1. A manually resettable switch comprising first and second terminals, said second terminal having a contact, a moveable actuator affixed to said first terminal and having a contact adapted to move into and out of engagement with said second terminal contact, said actuator having a tail and being between said terminals, said second terminal not extending directly above said tail, and an insulating slide biased to be disposed between said contacts when said contacts are not mutually engaged, said slide and said tail having mutual perpendicular longitudinal axes, thereby providing clearance for said actua-

tor tail whereby said actuator is free to move over a relatively large area.

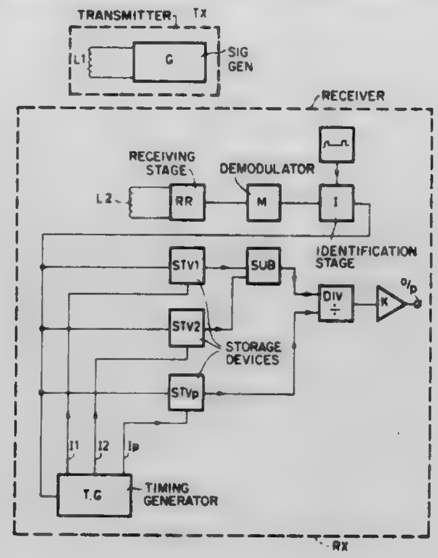
4,379,279
SUBMERSIBLE PRESSURE TRANSDUCER PACKAGE
Saeed Nasiri, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.
Filed Jul. 27, 1981, Ser. No. 287,487
Int. Cl.³ H01L *10/10*
U.S. Cl. 338—42 **4 Claims**



1. A submersible pressure transducer comprising in combination:
a generally cylindrical housing having first and second substantially cylindrical chambers formed in opposite ends therein and disposed coaxially of said housing;
a cylindrical bore communicating between said chambers;
a pressure responsive silicon transducer chip mounted in a fixed position in a first one of said chambers and having first a portion subject to pressure in said first chamber and a second portion thereof communicating via said bore and subject to pressures in said second chamber;
a diaphragm sealingly closing each of said chambers;
a separate body of isolation fluid of substantially equal volumes filling each of said chambers and contacting a respective one of said first and second portions of said transducer chip; and
first and second pressure ports for communicating a reference fluid and a pressure fluid to a respective one of said diaphragms for establishing a responsive pressure on said transducer chip.

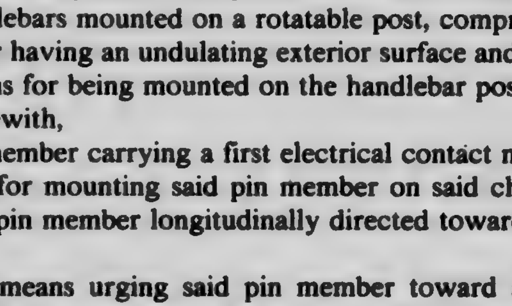
4,379,280
VEHICLE DETECTION SYSTEMS
Kamran Eshraghian, Hectorville South, and Robert E. Bogner, College Park South, both of Australia, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 20, 1978, Ser. No. 953,328
Claims priority, application Australia, Nov. 9, 1977, PD2355
The portion of the term of this patent subsequent to Nov. 18, 1997, has been disclaimed.
Int. Cl.³ G08G *1/01;* **G06G** *7/76*
U.S. Cl. 340—38 L **5 Claims**

1. A vehicle detection system comprising a transmitter for supplying a continuous wave signal, a receiver and sensing means for coupling said continuous wave signal to said receiver so that the approach of a vehicle produces a disturbance having a leading edge with a changing voltage level in the envelope of the signal received by said receiver, said envelope rising to at least a first peak level, said receiver including:
first means for deriving from said received signal a first signal representative of the maximum slope of said leading edge of said disturbance at a first instant preceding the occurrence of said first peak,
peak detecting means for deriving from the received signal a peak signal representative of the first peak of the envelope voltage during the leading edge portion of said disturbance less the envelope voltage prior to said disturbance, and



means for producing from said first and peak signals a signal representative of the ratio between said first and peak signals which is proportional to the velocity of the vehicle.

4,379,281
ALARM SYSTEM FOR BICYCLES AND THE LIKE
John C. Thomas, 2984 Canna St., Thousand Oaks, Calif. 91360
Filed Sep. 18, 1981, Ser. No. 303,343
Int. Cl.³ B60R *25/10*
U.S. Cl. 340—63 **4 Claims**

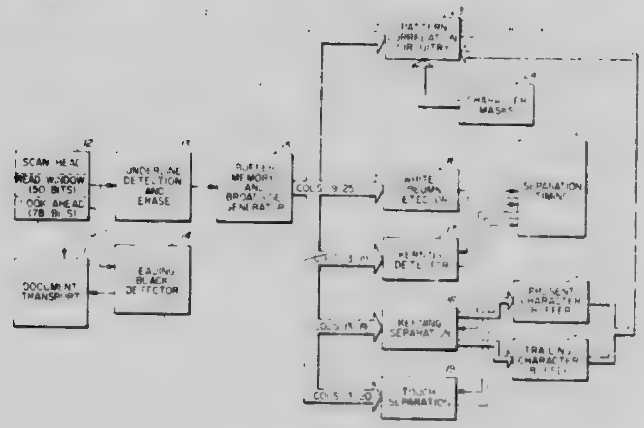


1. An alarm system for bicycles and the like having a chassis and handlebars mounted on a rotatable post, comprising:
a collar having an undulating exterior surface and including means for being mounted on the handlebar post to rotate therewith,
a pin member carrying a first electrical contact means,
means for mounting said pin member on said chassis with said pin member longitudinally directed toward said collar,
spring means urging said pin member toward an inward position seated against the undulating collar surface, whereby said pin is moved to an outward position by the undulating collar surface in response to rotation of the handlebar post,
an electrically operated alarm,
an energizing circuit for said alarm, said circuit comprising means for receiving a source of electrical power, a second electrical contact means positioned to be contacted by the first electrical contact means in response to outward movement of the pin member when the handlebar post is rotated, and circuit means connected to complete an energization circuit for the alarm in response to contact being

made between the first and second electrical contact means, and

a third electrical contact means held opposed to and electrically connected to the second electrical contact means on the collar side of the first electrical contact means, said third contact means positioned to be contacted by the first contact means moving inwardly under the influence of the spring means in response to removal of the collar, and thereby complete the alarm energizing circuit when the collar is removed.

4,379,282
APPARATUS AND METHOD FOR SEPARATION OF OPTICAL CHARACTER RECOGNITION DATA
David C. Bailey, San Jose, Calif., assignor to Dest Corporation, San Jose, Calif.
Filed Jun. 1, 1979, Ser. No. 44,488
Int. Cl.³ G06K *9/00*
U.S. Cl. 382—9 **4 Claims**



1. In an optical character recognition system of the type having a scanner for sequentially viewing the character in a line of type, some of which characters may be underlined or kerning or touching and generating a digital data field having data bits which are representative of vertical columns and horizontal rows of black and white image values of said characters, and having digital storage means for accumulating columns of said data and digital comparison means for comparing the data with patterns of known characters for the purpose of identifying the characters being scanned, an apparatus for separating character data prior to recognition, comprising:

white column detection means for determining when a continous vertical column of white bits appears within the data field of two adjacent characters;

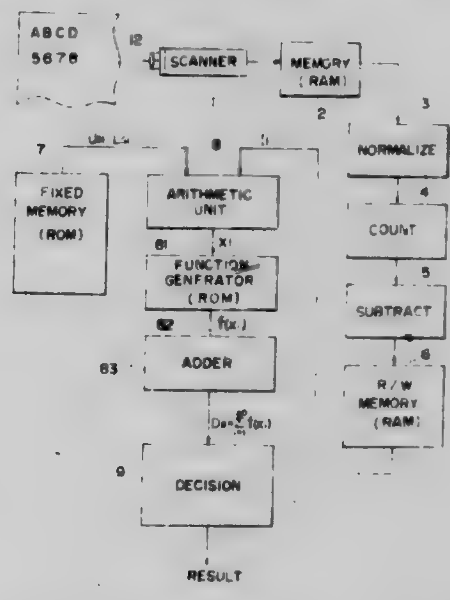
kerning detection means for determining when a path of contiguous white bits extending from the bottom row to the top row of the character data field of two adjacent characters exist;

kerning character separation means for determining which data bits within the data field of two adjacent characters should be grouped with the first character and which data bits should be grouped with the second character;

touching character separation means for determining the column having the lowest black bit count within a group of data columns located in the area of the data field of two adjacent characters having the greatest probability of being the area in which the two characters touch; and

means responsive to the white column detection means and the kerning character detection means for first evaluating whether a white column can be detected, and if so, for outputing a signal defining the column at which the separation of the character must be made, and if not, for next evaluating whether kerning character can be detected, and if so, for outputing a signal to the kerning character separation means to provide separation of the data bits for each character by said kerning character separation means, and if not, for outputing a signal to the touching character separation means to provide separation of the two adjacent characters by said touching character separation means.

4,379,283
TYPE FONT OPTICAL CHARACTER RECOGNITION SYSTEM
Koji Ito, and Akira Kondo, both of Yokohama, Japan, assignors to Toyo Keiki Company Limited, Tokyo, Japan
Filed Jan. 30, 1981, Ser. No. 229,996
Claims priority, application Japan, Feb. 5, 1980, 55-12601
Int. Cl.³ G06K *9/46*
U.S. Cl. 382—18 **10 Claims**



1. An optical character recognition system comprising:

first memory means for temporarily storing an input character information read by optical scanning of a printed character on a paper in the form of a digitized data including background digital bits indicative of a paper white background area and character digital bits indicative of a character black data area;

location normalizing means for normalizing a location occupied by said input character information on a storage plane of said first memory means;

counting means for dividing said normalized input character information on said storage plane into a plurality of segments each having an area of 4×4 meshes, counting the number of character digital bit indicative meshes in each of said segments and generating the resulting count values as a set of segment information;

subtracting means for subtracting 1 from each of said count values of said segment information set when the same is greater than 1;

second memory means for temporarily storing as an input information a collection of said segment information for one character applied via said subtracting means;

third memory means preliminarily storing permanently a set of standard character information representing a plurality of different characters in the same segment information form as the information form of said input information;

matching means for performing the process of pattern matching between said input information and each of said set of standard character information; and

decision means responsive to the result of said pattern matching process to determine whether said printed character is to be recognized as one corresponding to the most matched one of said set of standard character information or the same is to be rejected.

4,379,284

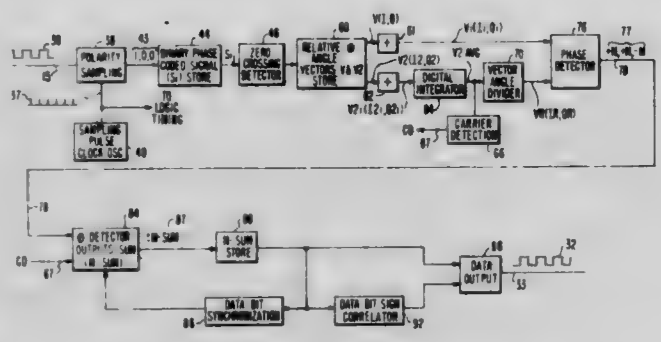
COHERENT PHASE SHIFT KEYED DEMODULATOR FOR POWER LINE COMMUNICATION SYSTEMS

John R. Boykin, Arnold, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Division of Ser. No. 77,824, Sep. 21, 1979, Pat. No. 4,311,964. This application Jul. 17, 1981, Ser. No. 284,261

Int. Cl.³ H03D *3/00;* **H04L** *27/22;* **H04M** *11/04*

U.S. Cl. 340—310 R **7 Claims**



1. A power line carrier communication system for transmitting coherent phase shift keyed (CPSK) carrier data transmissions, comprising:

power line coupler means for being mounting in signal communication with power line conductors transmitting a carrier having binary phase modulated data;

receiver means for receiving carrier signals from said power line coupler and including high pass filter means for attenuating electric power frequencies conducted on said power line conductors along with said carrier, said receiver further including band filter means having a center frequency substantially equal to a predetermined frequency of said carrier and still further including signal clipping and amplifying means for producing hard limited signals varying between two levels in response to said carrier; and

a coherent phase demodulator for receiving said hard limited signals and including a source of sampling pulses having a predetermined sampling frequency wherein the ratio of said carrier frequency and said sampling frequency is not equal to an integer, polarity sampling means for producing polarity sample bit signals having binary values responsive to the two levels of said hard limited signals and occurring at the frequency of said sampling pulses, said sample bit signals having reoccurring predetermined groups thereof with an integer number of said groups occurring during each one of equal data symbol times in said carrier, whereby said groups define plural carrier segments within each data symbol time, said demodulator further including means producing first vector signals representing a relative phase angle corresponding to the binary coded values of each of said groups of sample bits and still further including means producing reference vector signals representing a phase angle responsive to weighted sum averages of phase angle representations corresponding to binary coded values of each of a predetermined integer number of said groups of sample bits occurring an integer number of said data symbols, said demodulator still further including phase detector means responsive to said first vector signals and said reference vector signals for producing correlation signals representing relative measures of positive and negative correlation of the phase angles of said first and reference vector signals, said demodulator still further including summing means for algebraically adding said correlation signals derived from each of said first vector signals produced during said plural carrier segments and within each data symbol and correspondingly producing correlation sum signals having positive and negative values representing opposite binary conditions of the carrier data symbols, and said demodulator still further including data bit output means having means for continuously relating the positive and negative values of said correlation sum signals to one and the other of said opposite binary conditions of said data symbols, respectively, for producing data bit output signals having the same binary logic states during the received carrier data symbols of a single carrier data transmission.

4,379,285

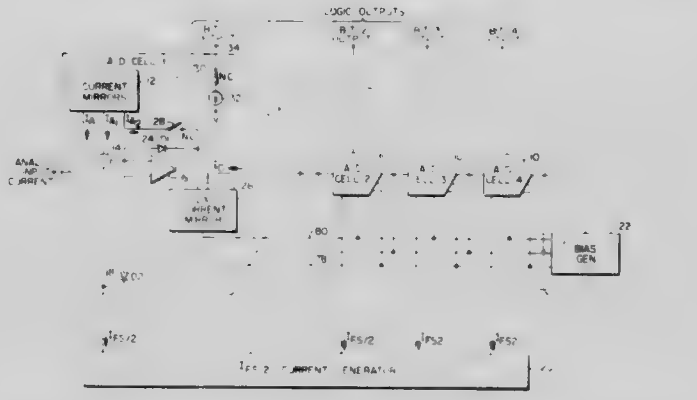
ANALOG TO DIGITAL CONVERTER

Daniel J. Dooley, 21193 Deepwell Ct., Saratoga, Calif. 95070

Filed May 26, 1981, Ser. No. 266,908

Int. Cl.³ H03K *13/09*

U.S. Cl. 340—347 AD **7 Claims**



1. An analog to digital conversion circuit of the stage by stage, successive approximation type, wherein at least the initial stage comprises

mirror current means, including an input terminal for receiving an analog input current and for generating a first mirror current of the same magnitude as the magnitude of the input current,

reference current means for generating a reference current whose magnitude is one half of the full scale current range of the conversion circuit,

comparator means connected to the mirror current means and to the reference current means for comparing the magnitude of the first mirror current with the magnitude of the reference current and for generating a first binary output signal and, additionally, a stage output signal which is twice the magnitude of the difference of the first mirror current and the reference current when the magnitude of the first mirror current is greater than the magnitude of the reference current and for generating a second binary output signal and, additionally, a stage output signal having twice the magnitude of the first mirror current, when the magnitude of the first mirror current is less than that of the reference current.

4,379,286

DIGITAL SIGNAL PROCESSING CIRCUIT

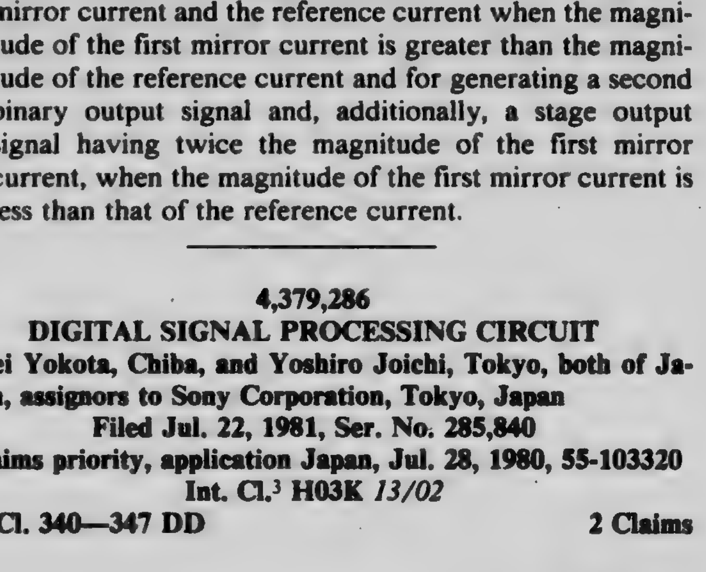
Teppei Yokota, Chiba, and Yoshiro Joichi, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jul. 22, 1981, Ser. No. 285,840

Claims priority, application Japan, Jul. 28, 1980, 55-103320

Int. Cl.³ H03K *13/02*

U.S. Cl. 340—347 DD **2 Claims**



1. A digital signal processing circuit, in which first and

second error correction words are generated from a predetermined number of words among data consisting of a plurality of words each consisting of n bits and which can process digital data of a data format where at least said predetermined number of words and said first and second error correction words constitute one block, comprising an input terminal 1 to which said plurality of n-bit data words are supplied, a first error correction word generating circuit 20 for generating said first error correction word from said predetermined number of data words, a second error correction word generating circuit 10 for generating said second error correction word, and a timing signal generating circuit for generating a timing signal for controlling said first and second error correction word generating circuits, a plurality of data words each consisting of m bits (m being a positive integer greater than n) being supplied to said input terminal 1, said second error correction word generating circuit 10 effecting operations necessary for generating said second error correction word with at least one clock signal among a bit clock of m-n bits and controlled by a timing pulse output from said timing signal generating circuit.

4,379,287

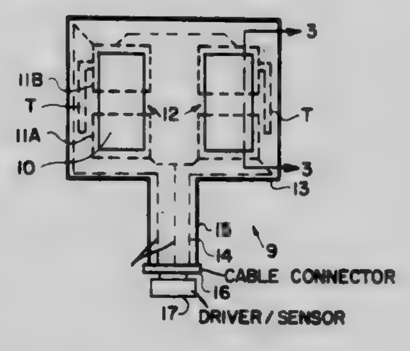
CAPACITIVE SWITCH AND PANEL

Hugh J. Tyler, Santa Ana, Calif., and William H. Conway, Midlothian, Va., assignors to Robertshaw Controls Company, Richmond, Va.

Continuation of Ser. No. 932,086, Aug. 8, 1978, abandoned. This application Jan. 23, 1980, Ser. No. 114,596

Int. Cl.³ G06F *3/02;* **H01G** *1/005, 1/01, 1/013*

U.S. Cl. 340—365 C **8 Claims**



1. In a user, touch actuable switch panel of the capacitive type including one or more touch actuable capacitive switches each switch including at least two capacitive plate means formed on a dielectric panel and conductive paths formed on said dielectric panel for interconnecting the capacitive plate means to means for applying signals to said capacitive plate means forming a respective capacitive switch and sensing a resulting change in signal level when said respective switch is actuated by said user, the improvement comprising:

means formed on said dielectric panel for balancing the effect of stray capacitance between said conductive paths and said capacitive plate means forming said one or more capacitive switches and maintaining the level of said change of signal at a determined value upon the actuation of one of said respective capacitive switches.

4,379,288

MEANS FOR ENCODING IDEOGRAPHIC CHARACTERS

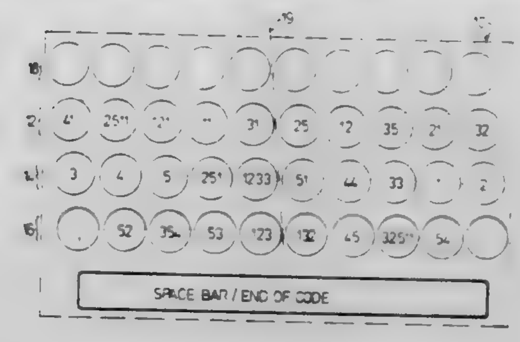
Daniel L. Leung, and Lai-Wo S. Leung, both of 1260 Lawrence Ave., East, Don Mills, Ontario, Canada (M3A 1C4)

Filed Mar. 11, 1980, Ser. No. 129,350

Int. Cl.³ G06F *3/02;* **B41J** *5/00*

U.S. Cl. 340—365 R **19 Claims**

12. A keyboard for encoding Chinese type characters in accordance with five basic strokes and the sequence thereof comprising three horizontal ranks, each rank comprising about ten keys wherein all character coding keys locate, wherein five said keys locating in positions in the middle rank are monographic and representative of a basic stroke, and about twenty three said keys are polygraphic, representative of a sequence of basic strokes of two or more, at least a portion of said polygraphic keys being digraphic, means responsive to the actua-



tion of said keys to generate a code signal representative of the stroke or sequence of strokes represented thereby.

4,379,289

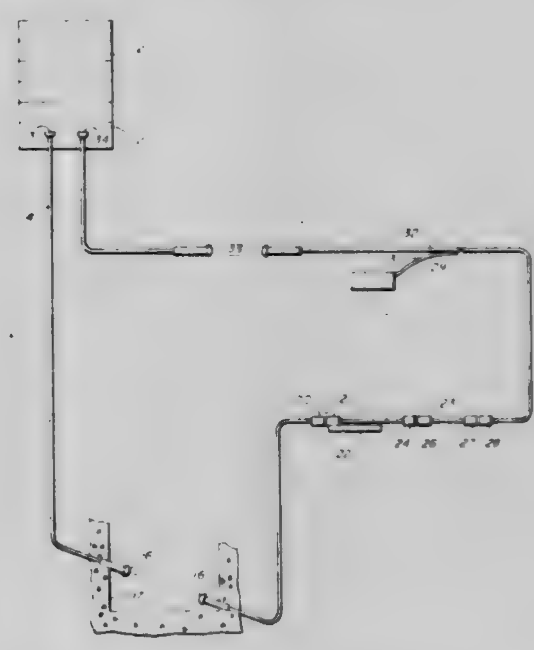
FIBER OPTICS SECURITY SYSTEM

S. Christopher Peek, Andover, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

Filed Mar. 8, 1979, Ser. No. 18,533

Int. Cl.³ G08B *19/00, 13/18*

U.S. Cl. 340—555 **5 Claims**



1. A fiber optics security system comprising

a radiant energy source including a solid state source and means for pulsing said solid source at a repetition rate;

a radiant energy receiver including means for detecting radiant energy at said rate;

closed loop fiber optic link means having one end coupled to receive energy from said source and having an opposite end coupled to provide energy to said receiver, said fiber optic link means including, in serial connection, a plurality of fiber optic links and a plurality of detection means; and

means responsive to cessation of energy to said receiver for providing a signal; wherein one of said detection means comprises

a first optical fiber having a first end;

a second optical fiber having a first end;

first holding means for holding said first end of said first optical fiber;

second holding means for holding said first end of said second optical fiber in axial alignment with said first end of said first optical fiber; and

bimetallic element means attached to said second holding means, whereby

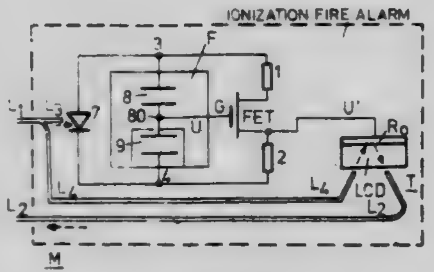
upon heating of said bimetallic element means, said bimetallic element means causes displacement of said second holding means, and, thus, causes displacement of said first

end of said first optical fiber with respect to said first end of said second optical fiber.

4,379,290
ALARM DEVICE WITH A CONDITION SENSOR ELEMENT

Jürg Muggli, Männedorf, and Gustav Pfister, Uerikon-Stäfa, both of Switzerland, assignors to Cerberus AG, Männedorf, Switzerland

Filed Oct. 27, 1980, Ser. No. 200,985
Claims priority, application Switzerland, Dec. 17, 1979, 11137/79
Int. Cl.³ G08B *17/10*
U.S. Cl. 340—629 20 Claims



1. An alarm device comprising:
a condition sensor element for delivering an output voltage which upon occurrence of a condition which is to be reported alters said output voltage in order to initiate giving of an alarm signal;
an opto-electrical transducer operatively connected with said sensor element for applying an electrical potential thereto;
at least one radiation-conducting element for transmitting electromagnetic radiation to said opto-electrical transducer in order to thereby deliver said electrical potential for the voltage supply of the sensor element;
an electro-optical transducer operatively connected with said sensor element;
an input radiation-conducting element for infeeding electromagnetic radiation to said electro-optical transducer;
an output radiation-conducting element for outfeeding electromagnetic radiation from the electro-optical transducer; and
said electro-optical transducer modulating, in response to said sensor element, the electromagnetic radiation passing from said input radiation-conducting element to said output radiation-conducting element.

4,379,291
BEARING FAILURE INDICATOR FOR ROTATING ELECTRIC MACHINES

Larry E. Hubbard, Oolitic, and Clifford A. Rhorer, Springville, both of Ind., assignors to Texas Eastern Scientific Research, Inc., Pasadena, Tex.

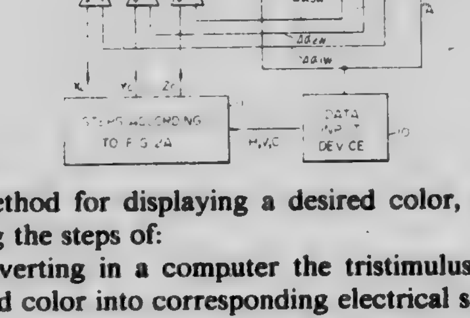
Filed Sep. 4, 1979, Ser. No. 72,124
Int. Cl.³ G08B *21/00*
U.S. Cl. 340—682 7 Claims

1. In an electrical machine having a stator which is generally symetrical about an axis, and a rotor coaxial with the stator, with a plurality of pole portions on the stator, the improvement comprising:
sensor means having a fixed position relative to said stator and including a contact portion operable as a circuit switch contactor in response to radial movement of said rotor relative to said stator;
a source of electrical energy;
electronic switch means having a control element in series circuit relationship with said contact portion and said rotor and said source in a sensor circuit, said contact portion and said rotor serving as a normally-open sensor switch whereby said sensor circuit is non-conducting when said rotor is not contacting said contact portion, but conducting when said rotor contacts said contact portion;
a relay including an operator coil in series circuit with said source and a load circuit path of said electronic switch means, and said relay including relay contactor means operable by said coil responsive to conduction of current through said load circuit path and coil to operate said contactor means; and
an indicator circuit including an indicator and a normally-open contact portion of said relay contactor means, for energizing said indicator in response to said operation of said contactor means by said relay coil.

4,379,292
METHOD AND SYSTEM FOR DISPLAYING COLORS UTILIZING TRISTIMULUS VALUES

Sachie Minato, Tokyo, and Haruo Kamata, Kamakura, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Continuation of Ser. No. 12,212, Feb. 14, 1979. This application Dec. 4, 1980, Ser. No. 213,116
Claims priority, application Japan, Feb. 22, 1978, 53-18544
Int. Cl.³ G09G *1/28*
U.S. Cl. 340—701 16 Claims



1. A method for displaying a desired color, said method comprising the steps of:
(A) converting in a computer the tristimulus values of a desired color into corresponding electrical signals;
(B) providing said so-converted electrical signals to a color display means that displays a color representative of the desired color in a color display area in response to said so-provided electrical signals;
(C) causing said color display means to display a reference light in a display area thereof other than said color display area;

(D) determining the tristimulus values of said reference light;

(E) generating tristimulus values representative of a predetermined standard light, said generating step being independent of step (C);

(F) comparing the so-determined tristimulus values of said reference light with said tristimulus values representative of said predetermined, standard light;

(G) generating in said computer an error signal representative of the compared difference between said tristimulus values of said reference light and said predetermined standard light; and

(H) combining said error signal with said electrical signals representative of the tristimulus values of the desired color to correct the displayed color for the differences between the reference light provided by said display means and said predetermined standard light.

4,379,293

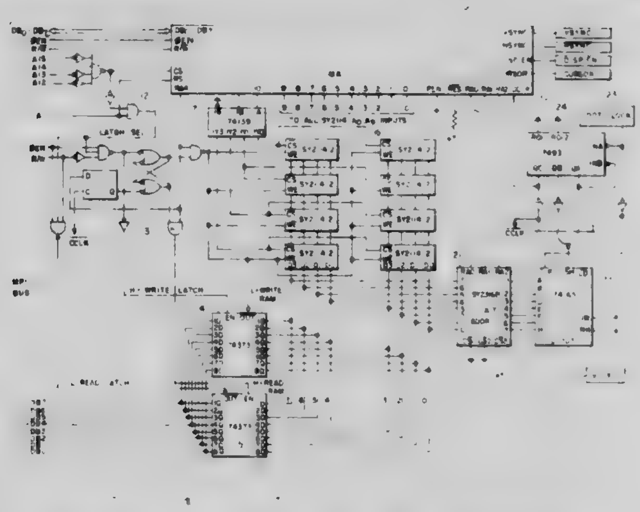
TRANSPARENT ADDRESSING FOR CRT CONTROLLER

Conrad Boisvert, and William J. Greger, both of San Jose, Calif., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Jul. 28, 1980, Ser. No. 173,209

Int. Cl.[3] G09G *1/16*

U.S. Cl. 340—750 37 Claims



1. A controller for cathode ray tubes comprising:

processor terminal means for connecting said controller to a processor;

CRT terminal means for connecting said controller to a cathode ray tube;

refresh address generator means for generating refresh addresses to be connected to a refresh memory so that a display on the CRT can be refreshed;

update address generator means for generating update addresses to the refresh memory so that information within the refresh memory can be updated;

refresh memory terminal means for connecting the update address generator means and the refresh address generator means to the refresh memory; and,

control means for exclusively connecting said update address generator means and said refresh address generator means to said refresh memory terminal means so that only one of said generator means has control of said refresh memory at a time.

4,379,294

DATA HIGHWAY ACCESS CONTROL SYSTEM

James F. Sutherland, Limerick, Ireland; Donald F. Furgerson, Murrysville, Pa., and Mladen Kezunovic, Sarajevo, Yugoslavia, assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Feb. 12, 1981, Ser. No. 234,060

Int. Cl.[3] H04Q *9/00*

U.S. Cl. 340—825.5 3 Claims

1. In a digital communication system, a serial data communications network comprising:

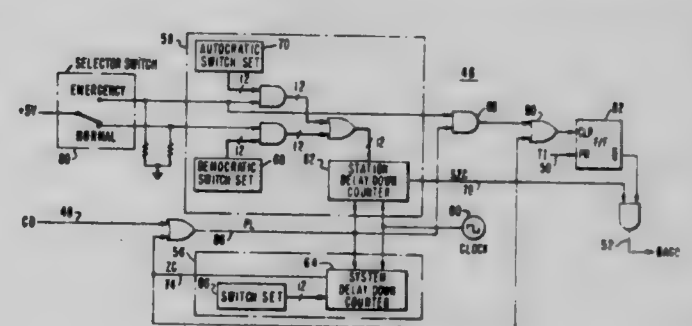
a plurality of stations,

a serial data communications bus to which each of said stations is interfaced and through which each of said stations communicates to every other of said stations, and

a plurality of circuit means, each in communication with one of said stations, for controlling orderly and collision-free access by said station to said serial bus and each operative in a selected one of the modes including a normal transmission mode and an emergency transmission mode, each circuit means comprising:

first means for monitoring said bus for transmission inactivity over a preassigned first time period which is substantially common to all of the stations of said plurality, said first means including means for reinitializing its monitoring time upon detection of bus transmission activity within said first time period and for repeating monitoring of said bus over another first time period upon detection of transmission inactivity throughout a first time period, said first means further including means for generating a first signal upon initiation of each repeat of a monitoring operation,

second means for monitoring said bus for transmission inactivity over a selected one of preassigned second and third time periods, each circuit means corresponding to a station of said plurality being preassigned a unique set of second and third time periods, all said preassigned second time periods being shorter in time than the shortest of said preassigned third time periods, said preassigned first time period being longer in time than the longest of said preas-



signed third time periods, said second means including means for reinitializing its monitoring time upon detection of bus transmission activity within said selected time period and for generating a second signal upon detection of transmission inactivity throughout said selected time period, said second means further including means for repeating monitoring said bus over another selected time period concurrent with said repeat of monitoring operation of said first means;

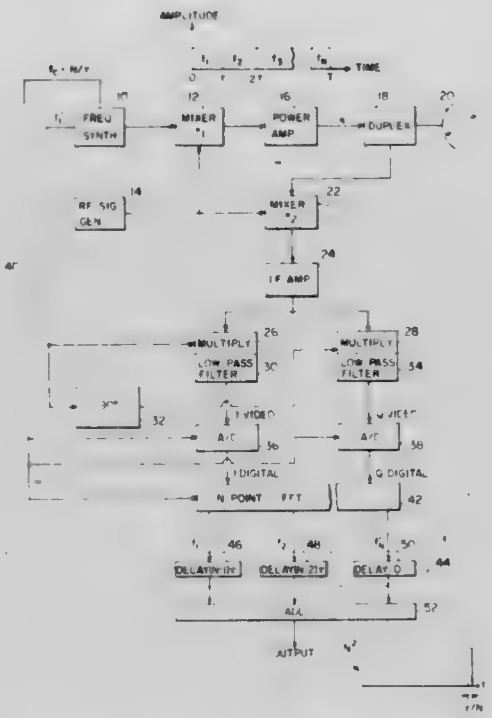
means for selecting one of said preassigned second and third time periods corresponding to the desired transmission mode of said normal and emergency transmission modes of said corresponding station, respectively;

means governed by said second signal to conditionally generate a third signal to permit said corresponding station exclusive transmission access to said bus, whereby collision-free access by each corresponding station to said bus is achieved;

means for enabling said generating means to generate said third signal in accordance with a function based on a combination of time period selection and bus transmission activity, and a first signal generation; and

means for disabling said generating means to prevent generation of said third signal upon transmission activity of said corresponding station and for maintaining disablement thereof after said transmission until enabled by said enabling means, whereby an orderly and emergency access by each corresponding station to said bus is achieved.

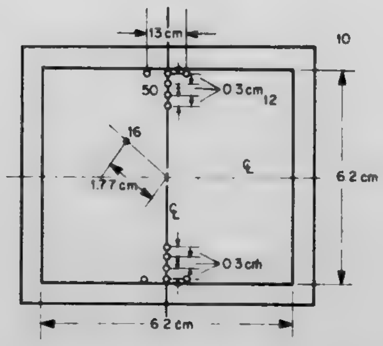
4,379,295
LOW SIDELOBE PULSE COMPRESSOR
Bernard L. Lewis, Oxon Hill, and Frank F. Kretschmer, Laurel, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Feb. 3, 1981, Ser. No. 230,984
Int. Cl.³ G01S *13/28*
U.S. Cl. 343—17.2 PC **6 Claims**



3. A pulse compression system which will yield low sidelobes comprising:
means for generating a step-approximation to linear FM signal with N frequency steps;
means for transmitting said signal;
means for receiving echos from said transmitted signal;
means for converting said received echo signal to a baseband signal and including means for narrow band filtering said signal;
means for digitizing said baseband signal at the Nyquist sampling rate for the baseband;
Fast Fourier Transform means for weighting a discrete set of N^2 digitized samples from said digitizing means and generating N outputs therefrom representing the passbands for the N transmitted frequency steps;
means for differentially delaying said N passband outputs such that the N passband outputs occur simultaneously; and
means for adding said differentially delayed outputs to form a single pulse, such that when an echo is properly indexed within a discrete set of N^2 digitized samples, then a short pulse will be generated with a peak amplitude.

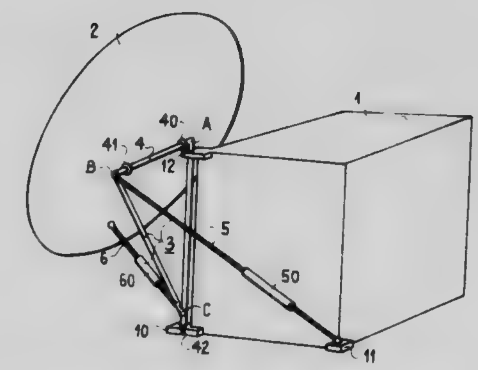
4,379,296
SELECTABLE-MODE MICROSTRIP ANTENNA AND SELECTABLE-MODE MICROSTRIP ANTENNA ARRAYS
Frederick G. Farrar, and Daniel H. Schaubert, both of Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Oct. 20, 1980, Ser. No. 198,673
Int. Cl.³ H01Q *1/38*
U.S. Cl. 343—700 MS **13 Claims**

1. A selectable mode microstrip antenna comprising:
a dielectric substrate;
a conductive patch on one surface of said substrate, said conductive patch being substantially rectangular with a first pair of sides with dimensions "a" and a second pair of sides with dimensions "b", said conductive patch having a first centerline parallel to said first pair of sides and a second centerline parallel to said second pair of sides;
a conductive layer, forming a ground plane, on an opposed surface of said substrate;
means for providing a radio frequency transmission path to said conductive patch; and
means for selecting the radiation pattern of said conductive patch comprising first multiple pairs of switchable short-



ing means for providing electrically conductive paths between said conductive patch and said ground plane, said multiple pairs of switchable shorting means selectively positioned symmetrically on said first centerline around a center of said first centerline and substantially away from said center.

4,379,297
ORIENTABLE ANTENNA SUPPORT
Rene Chevallier, Paris, France, assignor to Thomson-CSF, Paris, France
Filed Jan. 6, 1981, Ser. No. 222,875
Claims priority, application France, Jan. 11, 1980, 80 00611
Int. Cl.³ H01Q *1/12, 1/22*
U.S. Cl. 343—882 **3 Claims**



1. An orientable antenna support constituted by a carrying member and a coupling device for coupling an antenna to the carrying member, said coupling device including means defining a vertical rotation axis integral with the carrying member and means defining an upper end and a lower end; and a horizontal rotation axis integral with the antenna, said horizontal rotation axis having an end coinciding with the upper end of the vertical rotation axis, and the two rotation axes being respectively formed by a first and a second rod forming the two sides of the right angle of a right-angled triangle, whose hypotenuse is formed by a third rod integral with the first and second rods.

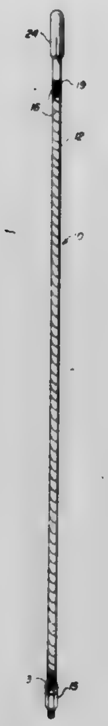
4,379,298
TUNABLE CITIZEN BAND ANTENNA
Richard G. Vincent, Mesa; Frank Sacks, and Robert F. Steele, both of Phoenix, all of Ariz., assignors to PAL International, Phoenix, Ariz.
Filed Jul. 20, 1981, Ser. No. 285,267
Int. Cl.³ H01Q *1/36*
U.S. Cl. 343—895 **15 Claims**

1. A tunable antenna comprised of:
a flexible core;

a conductive internally threaded tuning extender mounted to the top of said flexible core;

a conductive base mounted to the bottom of said flexible core;

a conductive wire forming an electrical path from said conductive base to said tuning extender;



a conductive externally threaded tuning screw threaded within said conductive tuning extender;

a conductive internally threaded jam nut coupled on said tuning screw; and

a rubber "O"-ring mounted between said conductive jam nut and said conductive tuning extender.

4,379,299

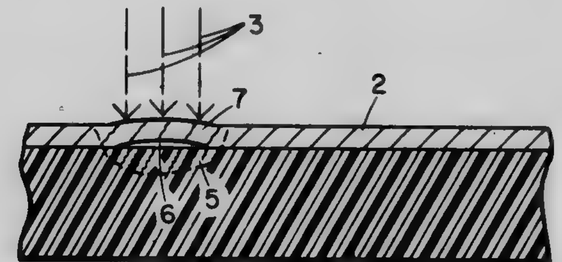
RECORDING STRUCTURE FOR DIRECT READ AFTER WRITE RECORDING

Brian J. Fitzpatrick; Rameshwar N. Bhargava, both of Ossining, N.Y.; Alfred E. Milch, Teaneck, N.J., and Pedro Tasaico, Windsor, N.Y., assignors to North American Philips Corporation, New York, N.Y.

Filed Apr. 6, 1981, Ser. No. 251,419

Int. Cl.³ G01D ***15/34***

U.S. Cl. 346—1.1 **2 Claims**



1. A method of writing information on a recording medium comprising the steps of forming a Group II-IV semiconductor film of CdTe on a plastic substrate, directing a laser beam to the surface of said semiconductor film, locally generating an area of heat at said semiconductor film where said laser beam is applied, generating high pressure gaseous components of said plastic substrate adjacent to said heated areas of said semiconductor film, and causing said gaseous components to burst through said semiconductor film.

4,379,300

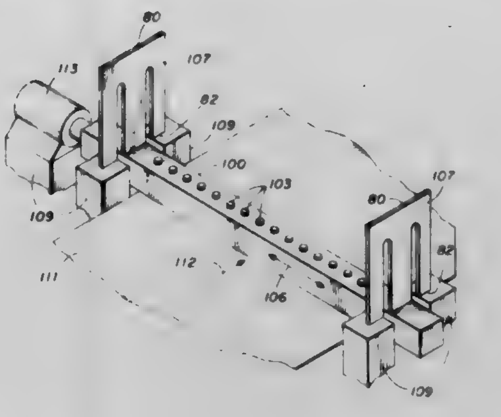
INK JET PRINTING

Kenneth H. Fischbeck, Dallas, Tex., assignor to Xerox Corporation, Stamford, Conn.

Filed Sep. 22, 1981, Ser. No. 304,490

Int. Cl.³ G01D ***15/18***

U.S. Cl. 346—1.1 **2 Claims**



1. A method of drop-on-demand ink jet printing comprising:

(a) providing a drop-on-demand ink jet for expelling ink droplets;

(b) oscillating said drop-on-demand ink jet in a first direction while simultaneously moving a record-receiving member continuously and in a direction orthogonal to the direction of oscillation of the ink jet, the record-receiving member being in a location to receive ink droplets expelled from the ink jet;

(c) expelling ink droplets from said ink jet; and

(d) electrostatically deflecting at least a portion of said ink droplets in a direction orthogonal to the direction of oscillation of said ink jet an amount sufficient to at least partially square off the trace of ink droplets impacting on the record-receiving surface.

4,379,301

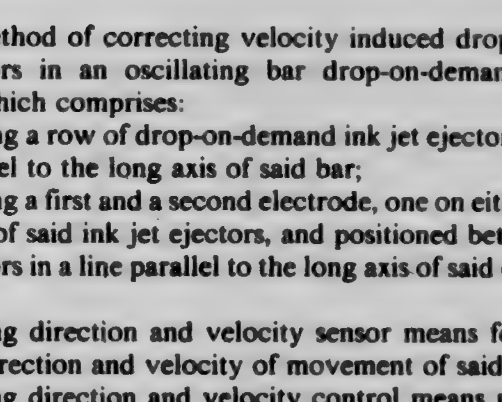
METHOD FOR INK JET PRINTING

Kenneth H. Fischbeck, Dallas, Tex., assignor to Xerox Corporation, Stamford, Conn.

Filed Sep. 22, 1981, Ser. No. 304,492

Int. Cl.³ G01D ***15/18***

U.S. Cl. 346—1.1 **1 Claim**



1. A method of correcting velocity induced droplet placement errors in an oscillating bar drop-on-demand ink jet printer, which comprises:

providing a row of drop-on-demand ink jet ejectors on a bar parallel to the long axis of said bar;

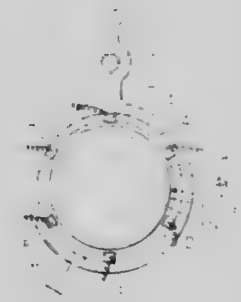
providing a first and a second electrode, one on either side of each of said ink jet ejectors, and positioned between said ejectors in a line parallel to the long axis of said oscillating bar;

providing direction and velocity sensor means for sensing the direction and velocity of movement of said bar; and

providing direction and velocity control means responsive to said direction and velocity sensor means to control the

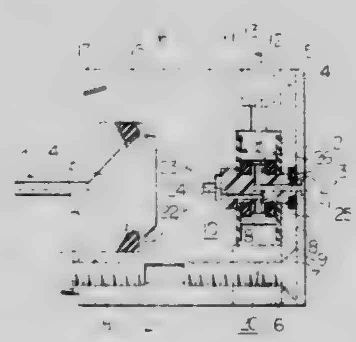
application of electrical potential to the trailing electrode of said first and second electrodes to substantially completely compensate for velocity induced droplet placement error.

4,379,302
POWDERED MAGNETIC INK PRINTING DEVICES
Christian Dol, Gif sur Yvette, and Jean-Yves Valet, Beauchamp, both of France, assignors to Societe D'Applications Generales D'Elect., Paris, France
Filed Jul. 22, 1980, Ser. No. 171,099
Claims priority, application France, Jul. 24, 1979, 79 19113
Int. Cl.³ G03G *19/00*; G01P *15/06*
U.S. Cl. 346—74.2 8 Claims



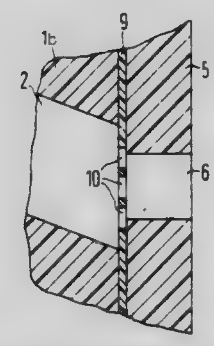
1. A printing device comprising: a travelling surface, for example the surface of a drum, driven in rotation by the action of first motor means, said traveling surface supporting a thin magnetic layer; a scanning support driven with a step-by-step reciprocal movement, perpendicular to the movement of the travelling surface of said drum, by the action of second motor means, said scanning support supporting at least one group of integrated magnetic induction heads, this group of heads being connected to sequential control means; powdered magnetic ink supply means; ordinary paper supply means; said scanning support having an annular shape surrounding the travelling surface of the drum over a considerable part at least of its circumferential extent; said scanning support comprising two lateral parts surrounding a central part; said lateral parts being arranged to create a seal between themselves and said travelling surface of said drum; said central part supporting one, or preferably more, groups of integrated magnetic induction heads; a compressed gas supply device connected to said central part; said powdered magnetic ink supply means being connected to the outside of said scanning support.

4,379,303
INK-JET RECORDING HEAD APPARATUS
Mitsuhiro Nakagaki; Osamu Isoo; Shinji Matsuoka, all of Hitachi, and Takahiro Yamada, Ibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jul. 29, 1981, Ser. No. 287,874
Claims priority, application Japan, Jul. 29, 1980, 55/103186
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—75 9 Claims



1. An ink-jet recording head apparatus of charge modulation type comprising a source supplying writing fluid or ink under pressure, a cylindrical electrostrictive element imparting energy to said ink for forming droplets of ink, an orifice for ejecting said ink droplets therefrom, annular sealing members of elastic material making partial engagement with said electrostrictive element for defining an annular ink pump chamber, and a fluid passage-providing member of cylindrical shape supporting said sealing members and defining an inlet path between said ink pump chamber and said ink supply source and an outlet path between said ink pump chamber and said orifice, said ink pump chamber being defined by the inner peripheral face of said cylindrical electrostrictive element, the annular side faces of said sealing members and the outer peripheral face of said fluid passage-providing member.

4,379,304
SCREEN FOR A MOSAIC INK RECORDER
Joachim Heinzl, Munich, and Erich Kattner, Neubiberg, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Jan. 21, 1981, Ser. No. 226,848
Claims priority, application Fed. Rep. of Germany, Feb. 22, 1980, 3006726
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R 6 Claims



1. In a mosaic ink recorder having a recording head with a plurality of ink channels disposed therein, said ink channels having respective terminations covered with a nozzle plate, said nozzle plate having a plurality of outlet openings in registry with the terminations of the ink channels, and each ink channel having a piezoelectric drive element selectively actuatable for discharging ink droplets from a respective channel, the improvement of:

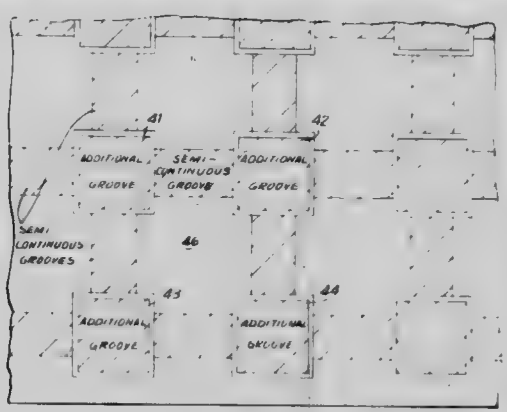
a blocking screen disposed between the terminations of the ink channels and the nozzle plate, said blocking screen having a plurality of groups of apertures, each group of apertures being disposed in registry with a respective channel termination and a respective outlet opening, each group of said apertures consisting of a plurality of apertures disposed in symmetrical fashion around a center aperture, said center aperture being centered with respect to a central axis of an outlet opening and said apertures having a cross-section which is approximately one-third of a cross-section of said outlet openings, said apertures being of a size for maintaining an ink seal of the respective ink channels after discharge of an ink droplet therefrom for preventing entry of air into said ink channel.

4,379,305
MESH GATE V-MOS POWER FET
Muni M. Mitchell, Huntington Station, N.Y., assignor to General Instrument Corp., Clifton, N.J.
Filed May 29, 1980, Ser. No. 154,280
Int. Cl.³ H01L *29/06*
U.S. Cl. 357—23 16 Claims

1. A V-MOS, field-effect, semi-conductor device having gate, source and drain electrodes, which comprises:

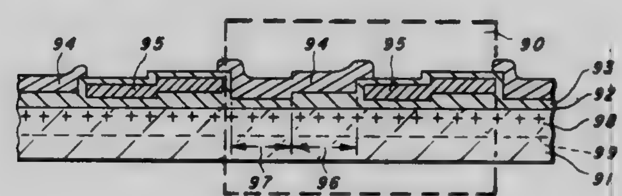
a planar, doped, silicon substrate;

a first, doped, silicon layer epitaxially grown on said silicon substrate;
a second, doped silicon layer epitaxially grown on said first silicon layer;
a plurality of regularly spaced, parallel, first V-grooves extending through said and second and into said first layers;
a corresponding plurality of regularly spaced, parallel, second V-grooves extending through said second into said first layer, said first and second V-grooves having doped poly-silicon on the walls thereof and being orthogonally



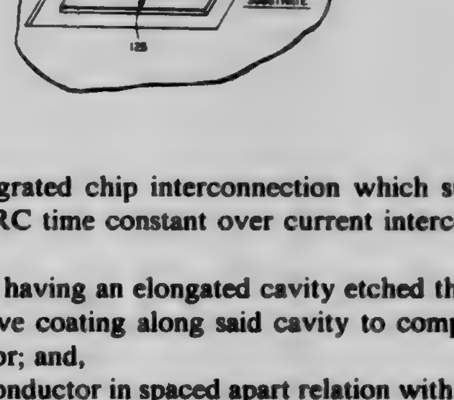
oriented with respect to one another and defining by their intersection a plurality of generally rectangular, first regions of the first doped layer which act as body electrodes; and
a plurality of second regions of said first first doped layer, said second regions acting as additional source regions, each region electrically contacting at least one corner of the four immediately adjacent, an individual device being defined by one source region and portions of the four immediately adjacent additional source regions; (b) the V-groove gate electrode; and (c) the substrate which acts as the drain electrode for the device.

4,379,306
NON-COPLANAR BARRIER-TYPE CHARGE COUPLED DEVICE WITH ENHANCED STORAGE CAPACITY AND REDUCED LEAKAGE CURRENT
Pallab K. Chatterjee, Dallas, and Aloysious F. Tasch, Jr., Richardson, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Aug. 26, 1977, Ser. No. 827,998
The portion of the term of this patent subsequent to Dec. 14, 1999, has been disclaimed.
Int. Cl.^{3} H01L *29/78;* G11C *19/28, 11/34*
U.S. Cl. 357—24 8 Claims



1. A charge coupled device comprising:
a substrate of semiconductor material having a dopant impurity of P-type conductivity, said substrate having a first surface;
a body of insulating material disposed on said first surface of said substrate;
means defining a surface charge transfer channel in said substrate lying along said first surface of said substrate;
first and second spaced apart phase electrodes overlying said surface channel in transverse relation thereto, each of said first and second phase electrodes including a first electrode portion and an integral second electrode portion offset with respect to the first electrode portion and arranged with respect to said body of insulating material so as to provide a layer of insulating material of non-uniform thickness between each of said phase electrodes and said first surface of said substrate including a relatively thin insulation portion between the first electrode portion of each electrode and said first surface and a relatively thick insulation portion between the offset second electrode portion of each electrode and said first surface;
a dopant layer having a dopant impurity of N-type conductivity in said surface charge transfer channel lying relatively near to said first surface of said substrate;
said substrate under each of said first and second phase electrodes being divided into a barrier region and an adjacent well region respectively defined under one and the other of said first electrode portion and said offset second electrode portion of each electrode, said dopant layer of said N-type conductivity extending through said barrier regions and said well regions;
an enhanced relatively deep layer having a dopant impurity of P-type conductivity and of greater concentration than the P-type conductivity dopant impurity in the semiconductor material of said substrate disposed within said substrate at a depth spaced from said first surface and extending through said barrier regions and said well regions beneath said first and second phase electrodes; and
the N-type conductivity dopant impurity of said N-type conductivity dopant layer having a Gaussian distribution with a peak lying within 500 A–2000 A from said first surface of said substrate, and the P-type conductivity dopant impurity of said enhanced relatively deep P-type conductivity layer having a Gaussian distribution with a peak lying within 5000 A–15,000 A from said first surface.

4,379,307
INTEGRATED CIRCUIT CHIP TRANSMISSION LINE
Sidney I. Soclof, San Gabriel, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.
Filed Jun. 16, 1980, Ser. No. 160,031
Int. Cl.^{3} H01L *27/04*
U.S. Cl. 357—68 3 Claims



1. An integrated chip interconnection which substantially reduces the RC time constant over current interconnections, comprising:
a substrate having an elongated cavity etched therein;
a conductive coating along said cavity to comprise a first conductor; and,
a second conductor in spaced apart relation with said cavity and generally disposed in the mouth thereof, being formed from a metal layer applied to said substrate and etched through to form said cavity.

4,379,308

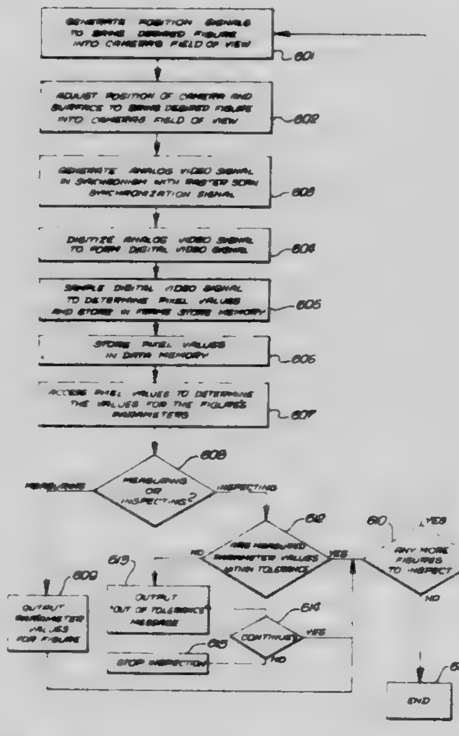
APPARATUS FOR DETERMINING THE PARAMETERS OF FIGURES ON A SURFACE

Wojciech Kosmowski, San Juan Capistrano; Richard Eddy, Gardena, and Martin O'Neill, Placentia, all of Calif., assignors to Cooper Industries, Inc., Houston, Tex.

Continuation of Ser. No. 124,443, Feb. 25, 1980, abandoned. This application Dec. 28, 1981, Ser. No. 335,097

Int. Cl.[3] **H04N** *7/18*

U.S. Cl. 358—106 **11 Claims**



1. An inspection apparatus for determining parameters of a generally circular figure on a surface, comprising:

camera means for generating a video signal representative of the field of view before said camera means;

table means for supporting said camera means and said surface in an adjustable spaced position with respect to each other such that selected portions of said surface may be brought within said field of view, said table means accepting position signals to adjust said spaced position;

control means for generating position signals to bring at least a portion of said figure within said field of view and for supplying said position signals to said table means;

digitizer circuitry generating from said camera means video signal an associated digital signal which discriminates between portions of said video signal representing a portion of said figure within said field of view and other portions of said video signal;

sampling means for sampling said digital signal to determine associated values for a grid of picture elements, each said picture element corresponding to a fixed portion of said field of view and having a value indicating whether said corresponding fixed portion of said field of view includes a portion of said figure;

addressable storage means for storage and retrieval of said picture element values; and

processing means, accessing said storage means, for determining the size and position of said figure from said picture element values associated with the video signal generated when said figure is entirely within said field of view of said camera means,

wherein said processing means includes means for accessing said storage means to locate first and second boundary picture elements in a grid column, each representing distinct boundary portions of said figure; means for locating a midpoint picture element in the grid midway between said first and second boundary picture elements; means for accessing a third boundary picture element in the same grid row as said midpoint picture element, representing another distinct portion of said figure; and means for determining the size and center of said figure from the grid addresses of said three boundary picture elements.

4,379,309

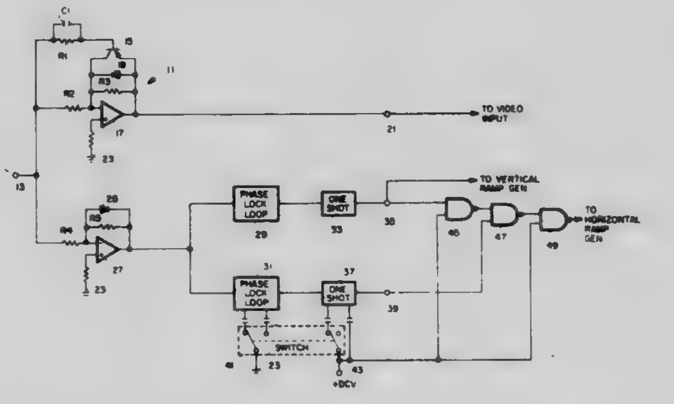
COMPOSITE VIDEO SIGNAL SEPARATOR

Herbert Berke, Maitland, and Joseph Portoghese, Altamonte Springs, both of Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 22, 1981, Ser. No. 256,355

Int. Cl.[3] **H04N** *5/08*

U.S. Cl. 358—154 **11 Claims**



1. A composite video signal separator comprising, in combination:

an input terminal adapted for receiving a composite video signal, said composite video signal having therein a horizontal sync component, a vertical sync component, and a video component;

first separating means having an input connected to said input terminal, and an output for passing therethrough the video component of said composite video signal, for amplifying the video component of said composite video signal, and for inverting the video component of said composite video signal so as to provide at the output thereof a video signal;

second separating means having an input connected to said input terminal and an output for passing therethrough the horizontal sync and vertical sync components of said composite video signal, for amplifying the horizontal sync and vertical sync components of said composite video signal, and for inverting the horizontal sync and vertical sync components of said composite video signal;

first phase lock loop circuit means having a data input connected to the output of said second separating means and an output for locking in upon the vertical sync component of said composite video signal so as to provide at the output thereof a vertical sync signal, said vertical sync signal having therein a plurality of vertical sync pulses;

second phase lock loop circuit means having a data input connected to the output of said second separating means, first and second control inputs, and an output for locking in upon the horizontal sync component of said composite video signal so as to provide at the output thereof a horizontal sync signal, said horizontal sync signal having therein a plurality of horizontal sync pulses;

first one-shot multivibrator means having a data input connected to the output of said first phase lock loop circuit means and an output for expanding the pulse width of each pulse of said vertical sync signal; and

second one-shot multivibrator means having a data input connected to the output of said second phase lock loop circuit means, first and second control inputs, and an output for expanding the pulse width of each pulse of said horizontal sync signal.

4,379,310

IMAGE TUBE SUPPRESSION CIRCUIT

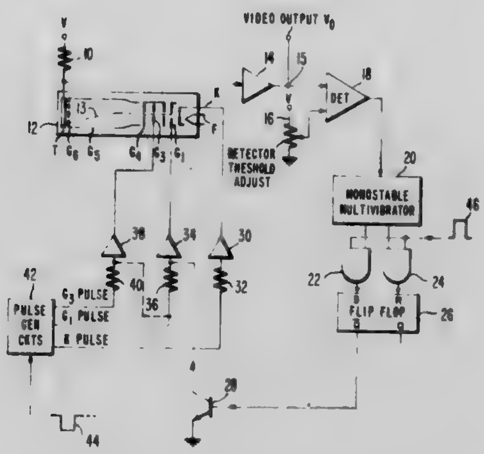
Sidney L. Bendell, Riverton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Sep. 9, 1977, Ser. No. 831,944

Claims priority, application United Kingdom, Mar. 21, 1977, 11902/77

Int. Cl.³ H04N *5/19, 5/34;* **H01J** *31/26, 29/52*

U.S. Cl. 358—219 **9 Claims**



1. A tube circuit for automatically enabling the excessive highlight suppression mode of operation of a camera pickup tube in response to a video signal level indicative of excessive highlights in the viewed scene, wherein the pickup tube includes a tube target and an electrode configuration with a control grid, an auxiliary grid, and a cathode, adapted to generate a high intensity beam for bombarding the tube target during the line flyback period, comprising the combination of:

highlight detector means coupled to the tube target and including threshold means for automatically generating an enable command only in response to the existence of excessive highlights; and

control/timing means coupled to the highlight detector means for generating and introducing selected signals to the control grid, the auxiliary grid and the cathode in response to the enable command to increase the scanning beam to said high intensity during a selected portion of the line flyback periods, and thus to enable the excessive highlight suppression mode of operation of the pickup tube only in response to the excessive highlights.

4,379,311

RECORDING BIAS SETTING DEVICE FOR A MAGNETIC RECORDING AND REPRODUCING APPARATUS

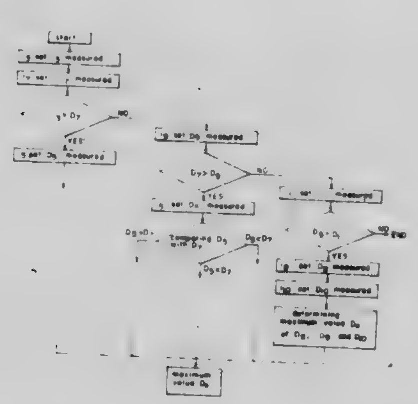
Takashi Ohkawara, Chofu, Japan, assignor to Nakamichi Corporation, Tokyo, Japan

Filed Jul. 2, 1980, Ser. No. 164,492

Claims priority, application Japan, Jul. 6, 1979, 54-93082[U]

Int. Cl.³ G11B *5/47*

U.S. Cl. 360—66 **2 Claims**



1. A recording bias setting device for a magnetic recording and reproducing apparatus comprising:

means to record and reproduce an AC test signal;

means to select a bias current value from among a plurality of predetermined bias current values for recording said AC test signal;

an information processor to control said means to select a bias current value in accordance with a reproduced output level of said AC test signal whereby the bias current value is set;

said information processor including means to detect a semipeak reproduced output level depending on a semipeak bias current value which provides the maximum reproduced output level of said test signal among the selected bias current values, means to detect among said selected bias current values a first bias current value less than said semipeak bias current value and a second bias current value greater than said semipeak bias current value, both of which provide reproduced output levels lower than said semipeak reproduced output level by substantially equal amounts, and means to control said means to select a bias current value so that the bias current is set at a value substantially equal to an average value of said first and second bias current values.

4,379,312

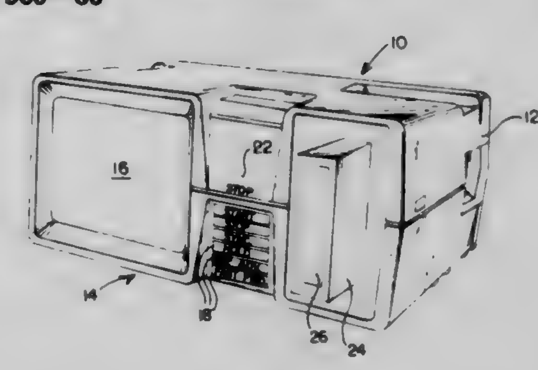
CONTROL SYSTEM FOR AUDIO-VISUAL PROJECTOR

Michael G. Lee, Redmond, Wash., assignor to Indal Corp., Bellevue, Wash.

Filed Jan. 12, 1981, Ser. No. 224,082

Int. Cl.³ G11B *31/00*

U.S. Cl. 360—80 **9 Claims**



1. A control system for an audio-visual device for sequentially projecting a plurality of frames of a filmstrip and for presenting an audio program recorded on an audio tape including spaced-apart coded signals located at the start of each portion of each audio program associated with a frame of said filmstrip, said control system comprising:

first tone-detector means detecting said coded signals for generating an advance pulse responsive thereto;

a film-advance mechanism for advancing said filmstrip responsive to an advance-actuating signal;

film-advance feedback means for generating an advance-complete pulse after said filmstrip has advanced each frame; and

advance-counter means incremented by each of said advance pulses and decremented by each of said advance-complete pulses, said counter means generating said advance-actuating signal when the contents of said counter means do not correspond to a predetermined number, whereby advance pulses occurring at a rate faster than the cycle time of said advance mechanism are recorded by said counter means until said advance mechanism is able to respond thereto.

4,379,313

TAPE CASSETTE LOADING DEVICE IN A MAGNETIC RECORDING AND/OR REPRODUCING APPARATUS

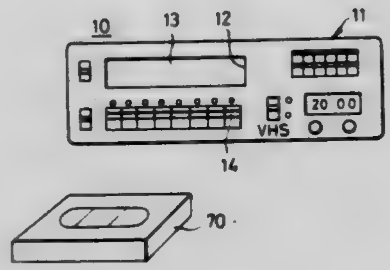
Eiichi Tsuchiya, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Aug. 25, 1980, Ser. No. 180,577

Claims priority, application Japan, Aug. 23, 1979, 54-107578

Int. Cl.^{3} G11B *17/00*

U.S. Cl. 360—96.5 **7 Claims**



1. A tape cassette loading device in a magnetic recording and/or reproducing apparatus comprising:

a cassette holder means for holding a tape cassette therein, said cassette holder being movable vertically between a receiving position and a playing position, without a horizontal movement thereof;

detection means for detecting a partial insertion of said tape cassette in a horizontal direction into said cassette holder;

a driving source means for operating in rotation in response to the detection of said partial cassette insertion by said detection means;

drawing means for drawing said partially inserted tape cassette into said cassette holder at said receiving position, said drawing means being driven by the rotational driving force transmitted from said driving source means; and

tape cassette loading means for lowering said cassette holder to said playing position while holding said tape cassette therein, said lowering being responsive to the driving force transmitted from said driving source means after said tape cassette is drawn into said cassette holder assuming said receiving position.

4,379,314

CASSETTE TAPE PLAYER

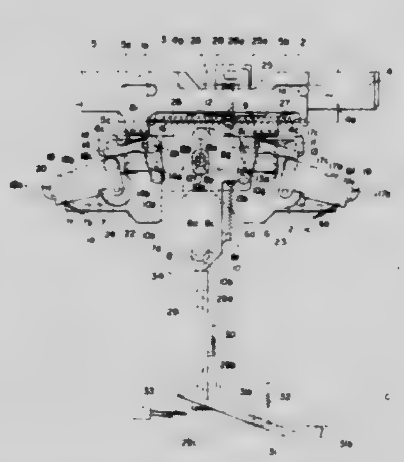
Teturo Kamimura; Masahiro Komatsubara; Shizuo Ando; Takuzi Inanaga, and Akira Takahashi, all of Kawagoe, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Mar. 20, 1981, Ser. No. 245,928

Claims priority, application Japan, Mar. 31, 1980, 55-41506; Mar. 31, 1980, 55-42675[U]

Int. Cl.^{3} G11B *5/008, 15/32, 15/00;* **G03B** *1/04*

U.S. Cl. 360—96.5 **10 Claims**



1. A cassette tape player comprising

a chassis;

a cassette holder to receive a cassette inserted from outside the chassis;

an actuator arm pivotally disposed within the chassis and normally urged to rotate in a predetermined direction to counteract insertion of the cassette;

a slide plate adapted for sliding movement to a predetermined position through a locking position in synchronized association with a rotation of the actuator arm in a direction opposite the predetermined direction;

a hook plate normally urged to rotate away from said slide plate and adapted to engage the slide plate the moment the slide plate passes the locking position; and

a cassette positioning lever pivotally provided in said chassis and adapted to initiate a rotation upon completion of said rotation of the actuator arm to perform a positioning operation of the cassette received in the cassette holder.

4,379,315

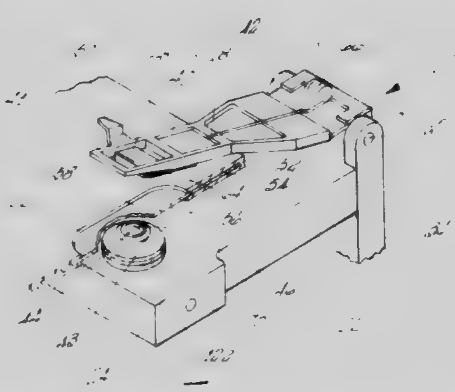
CARRIAGE LOADING ARM ASSEMBLY HAVING TWO MAGNETIC TRANSDUCERS FOR A DOUBLE SIDED FLOPPY DISC

Heinz Schuler, Ventura, Calif., assignor to Applied Magnetics Corporation, Goleta, Calif.

Filed Oct. 21, 1980, Ser. No. 199,381

Int. Cl.^{3} G11B *5/48;* **B11B** *5/54;* **G11B** *5/58, 21/20*

U.S. Cl. 360—105 **15 Claims**



1. Apparatus for maintaining two magnetic transducers in operative relation with both sides of a rotatable flexible planar magnetic recording media comprising

a carriage having a first end and a second end;

a first transducer coupled to said first end of the carriage through a differential torsion spring support means, said carriage being adapted to position said first transducer in different data transfer positions relative to and in engagement with one side of a said media, said differential torsion spring support means being adapted to support said first transducer against the one side of a said media in a semi-compliant relationship with high flexure stiffness about two axes, one of which is radial with respect to a said media and the other of which is normal to a said media and in a fully compliant relationship with low flexure stiffness about a third axis which is circumferential with respect to a said media;

a loading arm having a first end and a second end with said first end being pivotally connected to said second end of the carriage, said loading arm being positioned relative to the other side of a said media and adapted to have its second end movable toward and away from the other side of a said media;

a second transducer coupled to said second end of the loading arm through a gimbal support means, said loading arm being adapted to position said second transducer in different data transfer positions relative to and in engagement with the other side of said media, said gimbal support means being adapted to support said second transducer in a fully compliant relationship with low flexure stiffness about all three of the axes with respect a said media; and

means operatively coupled to said carriage and said loading arm for moving said second end of the loading arm

toward the other side of said media to position said second transducer into contiguous engagement with the other side of a said media and to urge a said media into contiguous engagement with the first transducer positioning a said media in close operative relationship therebetween, said first transducer and said second transducer being responsive to a said media being rotated therebetween such that the variations in flexure of a said media along the axes which are radial and normal to a said media are compensated primarily by movement of the second transducer against its gimbal support means and partially by movement of the first transducer against its differential torsion spring support means and variations in flexure of a said media along the third axis circumferential thereto are compensated by movements of each transducer against its associated supported means to maintain contiguous engagement between each said of a said media and its respective transducer.

4,379,316

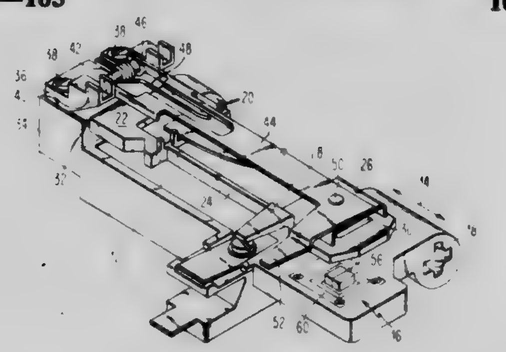
READ/WRITE HEAD CARRIAGE ASSEMBLY FOR A FLOPPY DISK DRIVE

Jan G. Krane, San Juan Capistrano, Calif., assignor to Siemens Corporation, Iselin, N.J.

Filed Jun. 11, 1981, Ser. No. 272,493

Int. Cl.³ G11B *5/54, 5/48, 21/20*

U.S. Cl. 360—105 **10 Claims**



1. A read/write head carriage assembly for a data storage device for use with a flexible, double-sided magnetic recording medium, said carriage assembly comprising, in combination:

(a) a carriage base mounted in said data storage device for relative motion in a substantially linear direction parallel to the plane of said recording medium, said base having a first transducer mounting location;

(b) a support arm having two ends, one end being pivoted with respect to said base and the other end having a second transducer mounting location movable with said support arm toward and away from said first transducer location;

(c) a first gimbal mounted on said base at said first transducer mounting location;

(d) a first magnetic transducer mounted on said first gimbal so as to be in operative relationship with one side of said recording medium, said first transducer having two degrees of freedom about two perpendicular first axes substantially parallel to the plane of said recording medium;

(e) a first load point means, coupled to said base, engaging a central region of said first transducer to provide a load point that is fixed relative to said base in a direction normal to the plane of said recording medium;

(f) a second gimbal mounted on said support arm at said second transducer mounting location;

(g) a second magnetic transducer mounted on said second gimbal so as to be in operative relationship with the opposite side of said recording medium, said second transducer having two degrees of freedom about two perpendicular second axes substantially parallel to the plane of said recording medium;

(h) spring means for mechanically biasing said support arm toward said base, thereby causing said second transducer to exert a tracking force through said recording medium against said first transducer,

said base being mounted in said data storage device such that said recording medium remains substantially planar in the area where it passes between said first and second transducers.

4,379,317

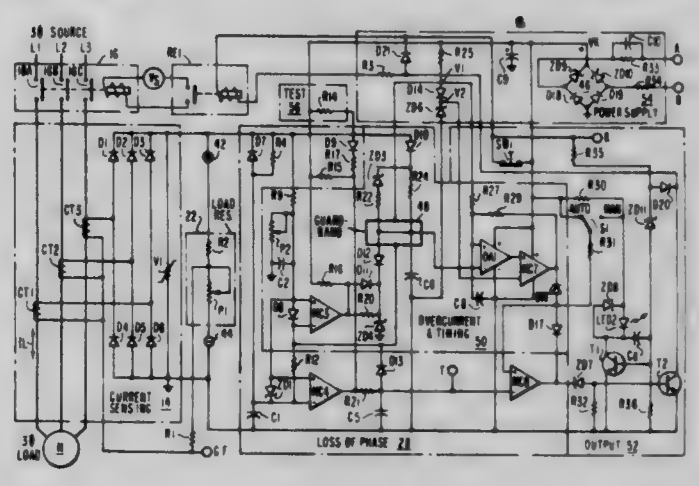
SOLID-STATE LOAD PROTECTION SYSTEM HAVING LOSS OF PHASE SENSING

Ernest F. Conroy, Jr., Monroeville; Daniel P. Orange, Jeannette, and Robert T. Elms, Monroeville, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 27, 1981, Ser. No. 258,108

Int. Cl.³ H02H *3/13*

U.S. Cl. 361—85 **12 Claims**



1. A poly-phase alternating current system, comprising:

sensor means for sensing circuit current in an electrical circuit, said sensor means providing an output signal which is related to said circuit current;

first storage means connected to said output signal for providing a potential level which is related to said output signal;

second storage means connected to said output signal for providing a potential level which is related to the minimum value of said output signal during the cycle being sensed;

loss of phase sensing means connected to said first storage means and said second storage means for detecting when the potential level of said first storage means is greater than the potential level of said second storage means exceeding a predetermined period of time, thereby indicating a loss of phase and initiating a trip signal; and

circuit control trip means connected to said loss of phase sensing means and to said electrical circuit for opening said electrical circuit when said trip signal is provided.

4,379,318

OVERCURRENT SAFETY CONSTRUCTION FOR A PRINTED CIRCUIT BOARD

Tetsuo Ootsuka, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Sep. 16, 1980, Ser. No. 187,713

Claims priority, application Japan, Sep. 21, 1979, 54-129973[U]

Int. Cl.³ H02H *7/20*

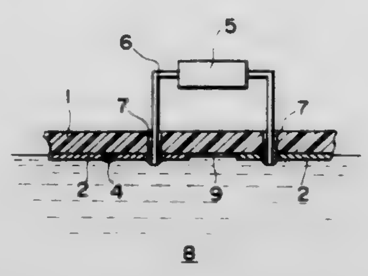
U.S. Cl. 361—104 **2 Claims**

1. A method of manufacturing a printed circuit board having an overcurrent safety construction for protecting electrical components of the printed circuit board against overcurrent damage, which comprises the steps of:

(a) forming a metal foil pattern on the board and simultaneously forming a narrow gap in said metal foil between the position at which said pattern is to be connected to a power source and the position at which said components to be protected are to be mounted on said board;

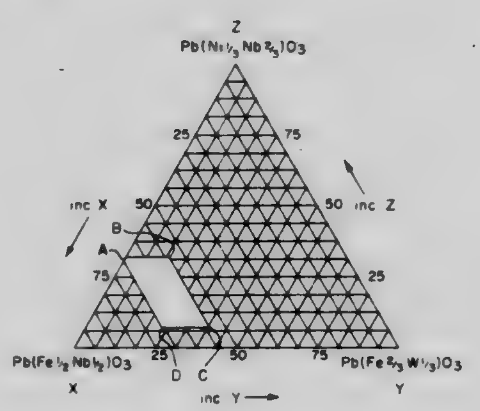
(b) mounting said circuit components on said board; and

(c) dipping the printed circuit board in a reservoir of molten solder so as to form simultaneously a bridge across the gap



and connections to said components in circuit mounted on the board.

4,379,319
MONOLITHIC CERAMIC CAPACITORS AND IMPROVED TERNARY CERAMIC COMPOSITIONS FOR PRODUCING SAME
James M. Wilson, Victor, N.Y., assignor to Ferro Corporation, Cleveland, Ohio
Filed Feb. 18, 1982, Ser. No. 349,849
Int. Cl.[3] **C04B** *35/00;* **H01G** *4/12*
U.S. Cl. 361—321 **3 Claims**



1. A ceramic composition capable of producing capacitors having a temperature coefficient range of +22% to −56% at an operating temperature range of +10° C. to +85° C., and an insulation resistance of $7.5\times10^9\Omega$ or higher, and consisting essentially of $[Pb(Fe_{1/2}Nb_{1/2})O_3]X$, $[Pb(Fe_{2/3}W_{1/3})O_3]Y$ and $[Pb(Ni_{1/3}Nb_{2/3})O_3]Z$, and from 0.1 to 0.75 wt.% $Mn(NO_3)_2$, where $X+Y+Z=1.0$, and the proportions of X, Y, and Z fall within the ranges of about:

$0.55\leqq X\leqq0.70$,
$0.15\leqq Y\leqq0.36$, and,
$0.07\leqq Z\leqq0.32$.

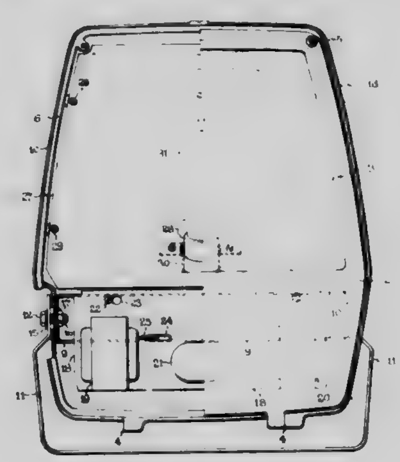
3. A multilayer ceramic capacitor made from a ceramic composition of the type claimed in claim 1.

4,379,320
CHEMICAL LIGHTING DEVICE
Arthur G. Mohan, Somerville, and Michael M. Rauhut, Bridgewater, both of N.J., assignors to American Cyanamid Company, Stamford, Conn.
Filed Feb. 19, 1981, Ser. No. 235,863
Int. Cl.[3] **F21K** *2/06;* **C09K** *11/07*
U.S. Cl. 362—34 **7 Claims**

1. A chemical light device comprising a chemiluminescent mixture with a first fluorescer activated by reaction of a chemiluminescer compound with a peroxide component, all contained inside a transparent or translucent container, a second fluorescer incorporated in the walls of the container or in a wrap surrounding the container, said second fluorescer having an emission maximum at a longer wavelength than that of the first fluorescer and having an absorption spectrum overlap-

ping a substantial portion of the emission spectrum of the first fluorescer.

4,379,321
PLASTIC HEAVY-DUTY LUMINAIRE WITH DIRECT BALLAST CONNECTION
Jerry R. Plemmons, Asheville, and Carl D. Taylor, Hendersonville, both of N.C., assignors to General Electric Company, Schenectady, N.Y.
Filed Feb. 9, 1981, Ser. No. 232,709
Int. Cl.[3] **F21Y** *29/00*
U.S. Cl. 362—267 **9 Claims**



1. A luminaire comprising:

a housing assembly of plastics having good resistance to weathering or corrosion but capable of withstanding only low structural stress, said assembly providing a weatherproof enclosure for a ballast compartment and an optics compartment,

metal mounting means for securing to a structural support,

a main metal bracket within the ballast compartment for the support of heavy electrical components, said main bracket being supported directly from said mounting means independently of the housing assembly,

a reflector within the optics compartment attached to said housing assembly

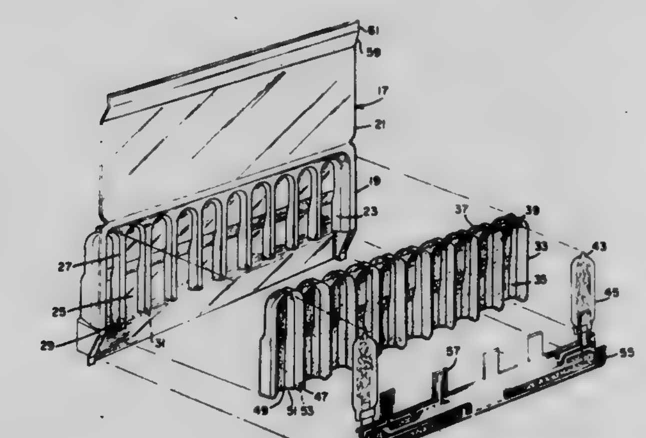
and means fastening said housing assembly to said mounting means.

4,379,322
COMPOUND REFLECTOR FOR LUMINAIRE
James P. Kelly, Waterford, Wis., assignor to McGraw-Edison Company, Rolling Meadows, Ill.
Filed Mar. 27, 1981, Ser. No. 248,482
Int. Cl.[3] **F21V** *7/00*
U.S. Cl. 362—300 **10 Claims**

1. A luminaire adapted to illuminate a generally planar surface with substantially constant light magnitude with a light pattern having relatively sharp bottom and top cut-offs comprising:

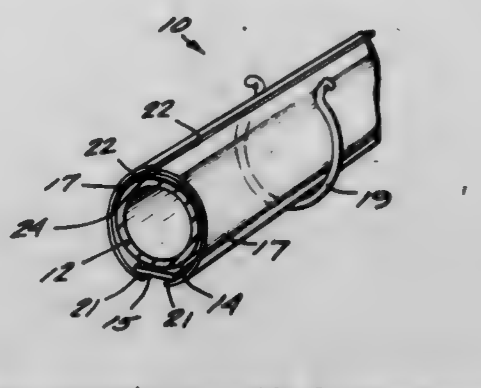
a light source,
a concave reflector having an open end, a closed end and a light center defined therein, said light source mounted within said concave reflector,
said open end having a top edge and a bottom edge,
said concave reflector including a top reflector segment and a bottom reflector segment,
said top reflector segment having a first cylindrical portion circular in section, a second cylindrical portion circular in section, and a third cylindrical portion circular in section,
said first cylindrical portion being situated between said top edge of said concave reflector and said second cylindrical portion and having its circular center forward of the light center in the direction of said open end of said concave reflector,
said second cylindrical portion being situated between said first cylindrical portion and said third cylindrical portion and having its circular center behind said light center in the direction of said closed end,
said third cylindrical portion being situated between said second cylindrical portion and said bottom reflector segment and having its circular center behind said light center in the direction of said closed end,
said bottom reflector segment having a bottom transient portion and a cylindrical portion parabolic in section,
said bottom transient portion being situated between said top reflector segment and said parabolic cylindrical portion,
said parabolic cylindrical portion being situated between said bottom transient portion and said bottom edge of said concave reflector, and having its foci at the light center.

4,379,323
REFLECTOR INSERT FOR MULTI-FLASH UNIT
David R. Broadt, Lewisburg, Pa., assignor to GTE Products Corporation, Stamford, Conn.
Filed Dec. 29, 1980, Ser. No. 221,073
Int. Cl.³ F21V *7/00*
U.S. Cl. 362—346 **12 Claims**



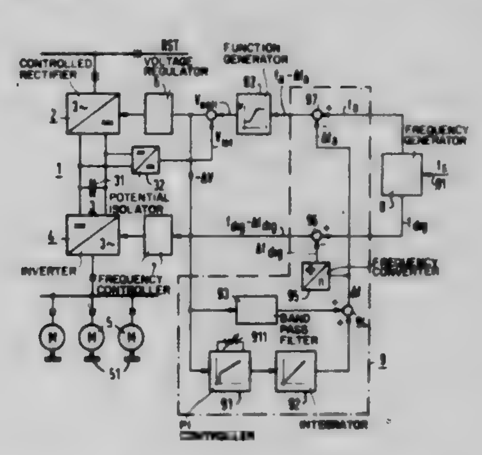
1. In a multi-lamp photoflash unit having a housing member with a back portion with a plurality of spaced cavities, each contoured to receive a flashlamp and a light transmitting front portion formed to fold over and enclose said flashlamps within said cavities, the improvement comprising a reflector unit having a plurality of spaced cavities with each cavity having a back surface contoured to nest within one of said spaced cavities of said back portion of said housing member and a front surface covered with a light reflective material and formed to receive a flashlamp.

4,379,324
BULB MOUNTING OF SOLAR CELL
Marion E. Thompson, 2807 N. Prospect St., Colorado Springs, Colo. 90907
Filed Sep. 18, 1981, Ser. No. 303,501
Int. Cl.³ F21V *33/00;* H01L *31/04*
U.S. Cl. 362—253 **28 Claims**



1. An energy converting assembly for attachment to an elongated light source, and comprising:
a solar cell;
an elongated base member to which said solar cell is mounted;
electrical interconnections operatively attached to said solar cell;
light reflective wrap means operatively connected to said base member for mounting said base member on an elongated light source with the dimension of elongation of the base member coextensive with the dimension of elongation of the elongated light source, said light reflective wrap means dimensioned so as to substantially surround the elongated light source along substantially the length of said base member in the dimension of elongation thereof; and
means for holding said wrap means in place substantially surrounding the light source.

4,379,325
SYSTEM FOR BRIDGING BRIEF NETWORK FAILURES
Dietrich Krampe, Neukirchen/Brand; Hans-Peter Schneider, Herzogenaurach, and Hans-Hermann Zander, Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Jul. 20, 1981, Ser. No. 284,981
Claims priority, application Fed. Rep. of Germany, Aug. 1, 1980, 3029358
Int. Cl.³ H02J *3/36;* H02H *7/12*
U.S. Cl. 363—35 **4 Claims**



1. An arrangement for bridging a network failure, the arrangement being of the type wherein kinetic energy in load motors is reconverted into electrical energy by lowering the frequency of operation of a converter, the arrangement comprising:
controller means having an input for receiving a first voltage

signal corresponding to the difference between desired and actual voltage values of the converter; and

frequency converter means connected to said controller means for producing a frequency correction signal for lowering the frequency of operation and said associated desired voltage value of the converter whereby the load motors operate oversynchronously as generators to supply electrical energy to the converter during the network failure.

4,379,326

MODULAR SYSTEM CONTROLLER FOR A TRANSITION MACHINE

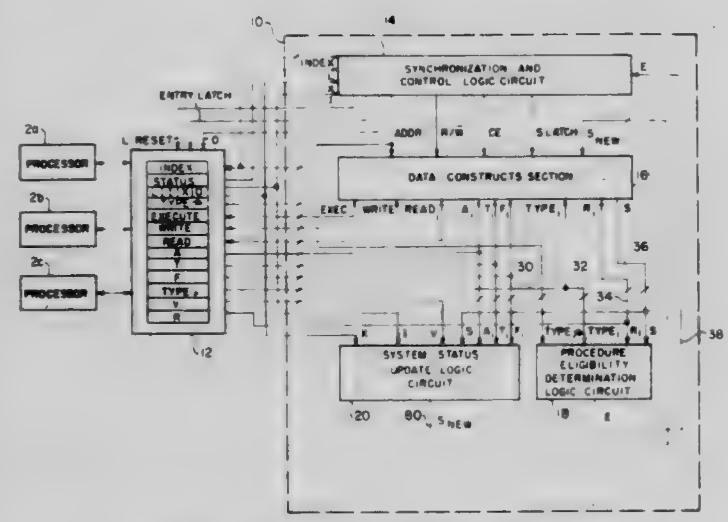
Mark S. Anastas, Auburn, and Russell F. Vaughan, Enumclaw, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Mar. 10, 1980, Ser. No. 128,878

The portion of the term of this patent subsequent to Mar. 9, 1999, has been disclaimed.

Int. Cl.³ G06F *15/16, 9/06, 9/46*

U.S. Cl. 364—200 **47 Claims**



1. A modular hardware executive apparatus for use in a multiprocessing system for concurrent operation of a plurality of data processors for solving computational problems defined by a plurality of application programs and a control program, said data processors connected for accessing said plurality of application programs stored in application program memory storage means and data stored in data memory storage means including at least a common data memory area accesible by said plurality of data processors, said plurality of data processors generating variable status indications upon execution of said application programs said hardware executive apparatus connected to said plurality of data processors and executing said control program and comprising:

(a) at least one status storage means for storing status indications S_j corresponding to data conditions defined on elements of a data set appropriate for determining eligibility of said application programs, whereby said stored status indications correspond to data conditions which are relevant for enabling execution of application programs by said plurality of processors which are utilized in solving said computational problems;

(b) a plurality of modular units, each unit including a relevance storage means for storing groups of relevance indications R_{ij} each group corresponding to the relevance of at least some of said status indications to at least one of said application programs where i is an integer designating one of said groups and corresponding one of said application programs and j is an integer designating one of said status indications;

(c) means connected to said status storage means and connected to receive said variable status indications from said data processors, and responsive to said variable status indications for updating said status indications stored in said status storage means at the completion of execution of said application program each of said variable status indications having a given value corresponding to and indicating satisfaction of a given one of said data conditions, said given data conditions being logical relationships involving at least one element of said data set being determined by said data processors upon execution of said application programs, said updating means including means for modifying a plurality of said status indications upon execution of at least one of said application programs;

(d) means connected to at least two of said relevance storage means and said at least one status storage means for determining the eligibility of at least some of said application programs for execution by said plurality of processors; and

(e) means responsive to said eligibility determining means and operatively connected to said data processors for enabling execution of eligible application programs by said plurality of data processors whereby at least some of said application programs which are determined eligible may be executed concurrently.

4,379,327

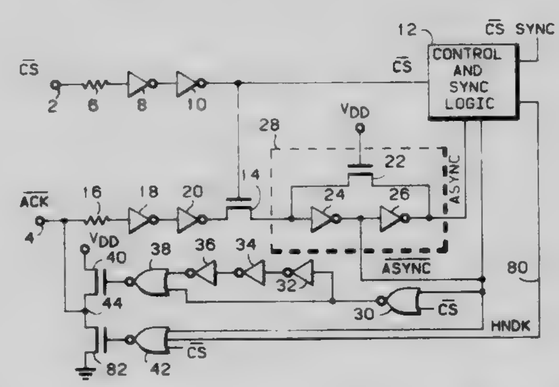
UNIVERSAL INTERFACE CIRCUIT FOR SYNCHRONOUS AND ASYNCHRONOUS BUSES

Donald Tietjen; Sharon Lamb; Pern Shaw; Duane Cawthron, and Paul D. Shannon, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 21, 1980, Ser. No. 170,481

Int. Cl.³ G06F *3/00*

U.S. Cl. 364—200 **7 Claims**



1. An interface circuit for use in conjunction with a data processing system bus, comprising:

first means coupled to said bus for receiving a select signal from said data processing system;

second means for receiving an indication as to whether said bus is synchronous or asynchronous;

third means coupled to said first means for passing said select signal if said bus is synchronous; and

fourth means coupled to said first and second means for synchronizing said select signal if said bus is asynchronous.

4,379,328

LINEAR SEQUENCING MICROPROCESSOR FACILITATING

Robert D. Catiller, Garden Grove, and Brian K. Forbes, Huntington Beach, both of Calif., assignors to Burroughs Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 52,687, Jun. 27, 1979, Pat. No. 4,292,667. This application Dec. 15, 1980, Ser. No. 216,681

Int. Cl.³ G06F *9/30, 13/00, 3/04*

U.S. Cl. 364—200 **11 Claims**

1. A universal-type microprocessor system which cooperates with an application-dependent logic module to form a peripheral-controller capable of handling data transfers between the main memory of a host computer and a plurality of peripheral terminal units which can be either "word-oriented" or "byte-oriented", and wherein said application-dependent

logic module provides external register means having bus connections to said plurality of peripheral terminal units and to said host computer, and wherein said application-dependent logic module further includes an external memory for storage of programs related to control of said peripheral terminal units and for temporary storage of data undergoing transfer, and wherein said application-dependent logic module further includes control logic means for communicating with and controlling said external register means, said external memory, and communicating with a decoder-controller in said microprocessor system, the said microprocessor system comprising:

(a) data processing means including:

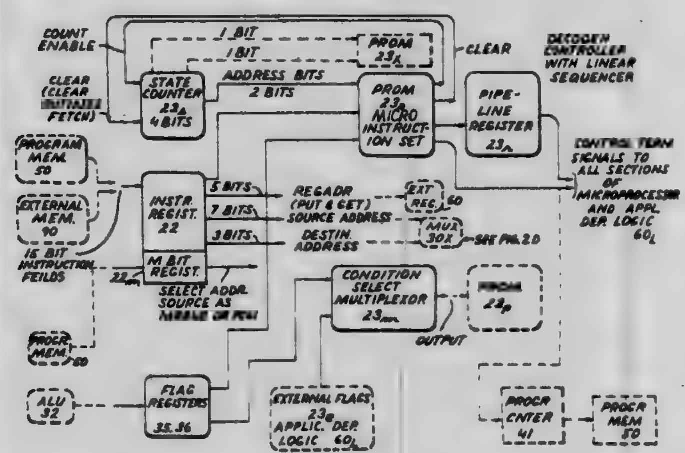
(a1) an arithmetic logic unit providing an output to a shift logic circuit and to a byte-swap circuit;

(a2) said shift logic circuit providing output to an I/O bus, said shift logic circuit functioning to rotate one or more bits of a word being processed to the right or to the left;

(a3) said byte-swap circuit providing output to said I/O bus, said byte-swap circuit functioning to exchange the sequential positions of the higher order byte and the lower order byte of a received two-byte word;

(b) said I/O bus providing connecting lines from said data processing means to said external registers, to said external memory, to an accumulator register means, and to an addressing means;

(c) said addressing means receiving input data from said I/O bus and storing addresses useful for accessing data from internal program or external memory storage, said addressing means including:



(c1) a program counter storing consecutive addresses of data located in said internal program memory;

(c2) a memory reference register for storing addresses of data located in said external memory, and including:

(c2-1) a memory address bus which connects to said external memory;

(c2-2) and wherein a dedicated non-address bit in said memory reference register is set to signal said decoder-controller to initiate a byte-swap operation in said byte-swap circuit, or when not-set, to pass data without a byte-swap operation;

(c3) an address register means in said decoder-controller connecting by means of said I/O bus to said accumulator register means which include a plurality of accumulator registers for selection of data from an addressed accumulator register;

(d) said internal program memory storage for storing program instructions and data words, said internal memory being addressed from said program counter and providing instruction words and data, via an instruction bus, to an instruction register and to a memory operand register;

(e) register means for temporary storage of data, said register means including:

(e1) said plurality of addressable accumulator registers providing an output to the input of said arithmetic logic unit, and said accumulator registers receiving input data words from said I/O bus, said plurality of accumulator registers including:

(e1-1) address bus input means from said decoder-controller for addressing selected registers in said plurality of registers;

(e2) said memory operand register for receiving operand data from said internal program memory via said instruction bus or from said external memory via a memory data bus and providing an output to the input of said arithmetic logic unit;

(e3) said instruction register for receiving instruction words from said internal program memory via said instruction bus and providing instruction words to said decoder-controller;

(f) said instruction decoder-controller receiving instruction signals from said instruction register and including incoming and outgoing control signal lines connected to said data processing means, to said addressing means, to said register means, to said internal and external memory means, to said external registers and said control logic means;

(f1) and wherein said decoder-controller further includes:

(f1o) linear sequencing means for selecting microcode instructions for execution in a predetermined sequence, said sequencing means including a microcode instruction memory for storing microcode instructions, said linear sequencing means including:

(f1o-1) a state counter connected to said microcode instruction memory for receiving count control signals from said microcode instruction memory and for providing a first portion of address signals to said microcode instruction memory;

(f1o-2) input control lines from said instruction register to provide a second portion of address signals to said microcode instruction memory;

(f1o-3) and wherein said microcode instruction memory provides said microcode instructions for the output lines of said decoder-controller in response to said first and second address portions;

(f1a) connection means for receiving control signals from said control logic in said application-dependent logic module for performing clocking, interrupt and halt functions;

(f1b) address lines to said external registers for selecting a specific register;

(f1c) control lines to said external registers for strobing address signals;

(g) said memory data bus for carrying data from said external memory to said instruction register and to said memory operand register;

(h) a repetition counter having an input from said I/O bus and an output to said memory reference register;

(i) instruction word means in said internal program memory for signalling said decoder-controller, said instruction word means including:

(i1) a GET operator which functions to place the contents of said repetition counter into a selected accumulator register as its destination;

(i2) a PUT operator which functions to take the contents of said destination accumulator and place it via said data processing means into a selected external register;

(j) means for controlling the number of repetitive operations of a selected instruction word means, said means for controlling including flip-flop means, in said decoder-controller, which receives information signals from said repetition counter.

4,379,329
RADIOLOGY

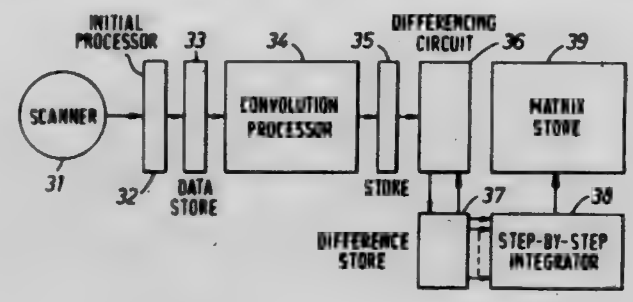
Christopher A. G. LeMay, Osterley, England, assignor to EMI Limited, Hayes, England

Continuation of Ser. No. 735,745, Oct. 26, 1976, Pat. No. 4,066,903, which is a continuation of Ser. No. 596,623, Jul. 17, 1975, Pat. No. 4,002,910. This application Jul. 25, 1977, Ser. No. 818,810

The portion of the term of this patent subsequent to Jan. 11, 1994, has been disclaimed.

Int. Cl.³ A61B *6/00*

U.S. Cl. 364—414 3 Claims



1. A method of constructing a representation of the distribution of attenuation of penetrating radiation in a planar region of a body, the method including the steps of: measuring the attenuation of the radiation along a plurality of beam paths in said planar region, said paths constituting a plurality of sets of paths where the centre lines of the paths of each set are spaced in said region, with the sets having different orientations therein; providing electrical signals indicative of the said measurements; modifying the electrical signals by combining each electrical signal to be modified with weighted contributions from other electrical signals representing the attentuation suffered by the radiation in travelling along other paths of the same set; forming signals representing the differences between electrical signals representing attenuation of the radiation along adjacent paths in the same set and repeating the differencing procedure at least once to form electrical signals representing higher order differences for the original electrical signals; intepolating between the difference signals to form a larger number of electrical signals representing differences which vary more smoothly; accumulating the larger number of differences to form further electrical signals which are of the same form as the original modified signals but which correspond to the attenuation which would be suffered by the radiation in travelling along paths some of which are interpolated between those for which the intensity was measured, and whose center lines are more closely spaced; and allocating to each of a plurality of predetermined points in a field notionally delineated in said planar region, contributions from the modified electrical signals or further electrical signals associated with the paths whose centre lines pass within a predetermined distance of the respective point, to form said representation, and forming a tangible and visible picture of said representation.

4,379,330
RAILROAD CAR WHEEL DETECTOR

W. Woodward Sanville, Brentwood, N.Y., assignor to Servo Corporation of America, Hicksville, N.Y.

Filed Jan. 14, 1981, Ser. No. 224,912

Int. Cl.³ B61L *13/04*

U.S. Cl. 364—424 5 Claims

3. A system for use in determining whether an output signal of a magnetic wheel detector mounted along a length of railroad track is being triggered by an actual train wheel moving along the length of track or a spurious signal comprising:

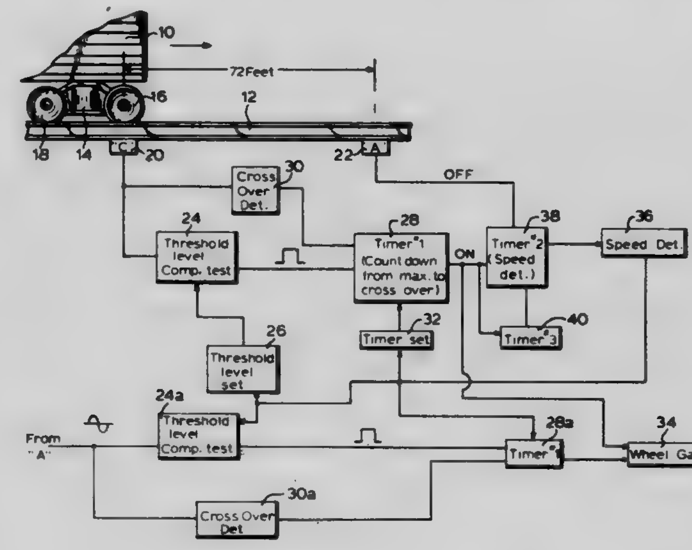
(a) a magnetic wheel detector mounted along the length of railroad track and adapted to generate an output signal upon the passage of a train wheel;

(b) an amplitude comparator connected to said wheel detector and to an amplitude threshold setting circuit for comparing the amplitude of said wheel detector output signal with the amplitude threshold of said circuit and for determining when said output signal amplitude exceeds said amplitude threshold;

(c) an amplitude threshold setting circuit connected to said amplitude comparator;

(d) a timer connected to the output of said amplitude comparator for determining the time duration from the time at which said output signal amplitude exceeds said amplitude threshold to a zero crossing of said output signal;

(e) a time comparator connected to said timer and to a time threshold value setting circuit for comparing (1) the time duration from the time at which said output signal amplitude exceeds said output signal amplitude threshold to a zero crossing of said output signal to (2) a time threshold value;



(f) a time threshold setting circuit connected to said time comparator;

(g) means for determining the speed of said train; said means being connected in controlling relationship to said amplitude threshold setting circuit and said time threshold setting circuit whereby said amplitude threshold and time threshold are set as functions of the train speed, and,

(h) means connected to said amplitude and time comparators for determining if said amplitude and time thresholds have been exceeded whereby said output signal is presumed to have been triggered by a train wheel passing said detector.

4,379,331
FAILURE WARNING FOR A VEHICLE INFORMATION PROCESSING SYSTEM

Peter M. F. Watson, Wokingham, England, assignor to Minister of Transport in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Aug. 18, 1980, Ser. No. 179,223

Claims priority, application United Kingdom, Aug. 23, 1979, 7929410

Int. Cl.³ G06F *11/32;* B60T *8/00*

U.S. Cl. 364—426 5 Claims

1. A failure warning means for a vehicle wheel rotation control system including:

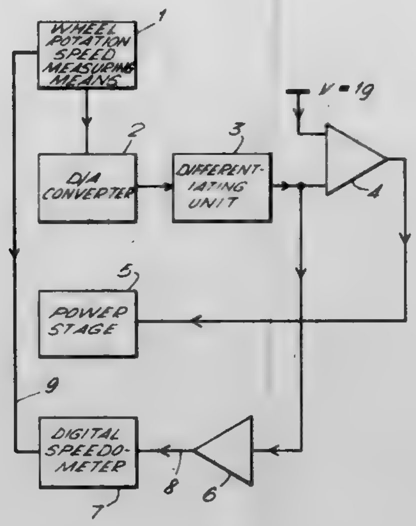
a wheel rotation control section for processing wheel rotation information signals and providing wheel rotation control signals;

a speedometer;

a speedometer power line for supplying a driving voltage to the speedometer to give a speedometer reading;

wherein the speedometer power line connects the speedom-

eter and a point in the wheel rotation control section such that the speedometer driving voltage derives from signals



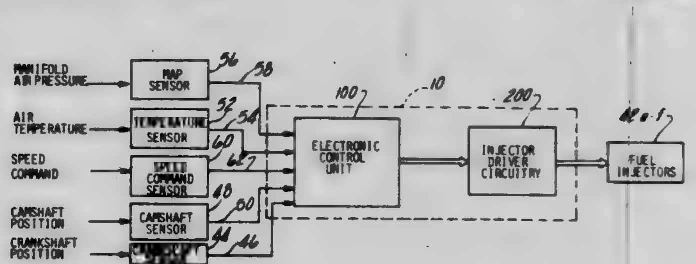
in the wheel rotation control section so that failure of the control section produces a null speedometer reading.

4,379,332

ELECTRONIC FUEL INJECTION CONTROL SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Darryl W. Busser, Southfield, and Joseph P. Szafranski, West Bloomfield, both of Mich., assignors to The Bendix Corporation, Southfield, Mich.

Filed Sep. 25, 1978, Ser. No. 945,988
Int. Cl.³ F02B *3/12;* F02D *5/02;* G05B *15/02*
U.S. Cl. 364—431.05 37 Claims



1. In the operation of an internal combustion engine having at least one cylinder and means for delivering a quantity of fuel to the at least one cylinder in response to a control signal, the method of generating the control signal controlling the quantity of fuel to be delivered to the cylinder comprising the steps of:

generating an actual speed signal indicative of the engine's actual speed;

generating a commanded speed signal indicative of the engine's commanded speed;

integrating the difference between the actual engine speed signal and the commanded speed signal to generate an integral fuel quantity signal indicative of the engines fuel requirements;

generating from said actual speed signal and said commanded speed signal a proportional fuel quantity signal indicative of the fuel needed to bring the actual engine speed into agreement with the commanded engine speed;

summing said integral fuel quantity signal with said proportional fuel quantity signal to generate a percent load signal;

generating an air quantity signal indicative of the quantity of air being supplied to the engine;

generating from said air quantity signal a full load signal indicative of the maximum quantity of fuel to be delivered as a function of the quantity of air being delivered to the engine;

selecting from between said percent load signal and said full load signal, the signal having the lowest value to generate a fuel quantity signal, indicative of the quantity of fuel to be delivered to the engine; and

activating the means for delivering a quantity of fuel with said fuel quantity signal to deliver to the engine a quantity of fuel corresponding to the value of said fuel quantity signal;

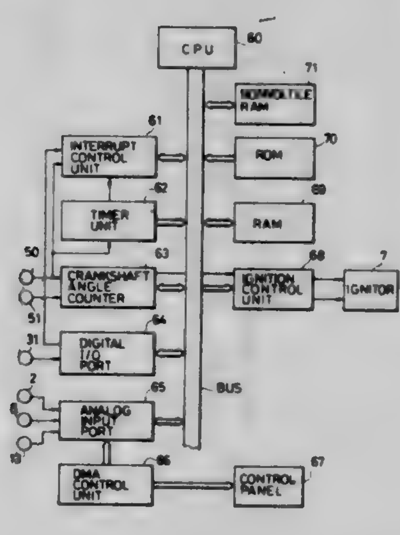
wherein the control signal comprises at least said fuel quantity signal.

4,379,333

METHOD AND SYSTEM FOR OPERATING A POWER-PRODUCING MACHINE AT MAXIMUM TORQUE UNDER VARYING OPERATING CONDITIONS

Masakazu Ninomiya; Atsushi Suzuki, both of Kariya, and Yuji Hirabayashi, Aichi, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jun. 13, 1980, Ser. No. 159,435
Claims priority, application Japan, Aug. 29, 1979, 54-110939; Feb. 7, 1980, 55-14605
Int. Cl.³ F02P *5/08;* F02B *5/02;* G05B *13/02*
U.S. Cl. 364—431.05 23 Claims



10. A method of operating an internal combustion engine at maximum output torque under varying operating conditions, said engine having an output shaft and an adjustable spark ignition variable the setting of which controls the output torque, said method comprising the steps of:

(a) reading a reference spark ignition datum from a memory;

(b) repeatedly causing ignitions to occur a predetermined number of times at a reference timing based on the datum read from said memory;

(c) storing a datum representative of the speed of revolution of said output shaft during an interval in which said ignitions occurred;

(d) generating an advance spark ignition datum representing an ignition timing which is advanced with respect to said reference timing by a predetermined amount;

(e) repeatedly causing ignitions to occur at advanced timing said predetermined number of times in accordance with said advance ignition datum generated in the step (d);

(f) storing a datum representative of the speed of revolution of said output shaft during an interval in which said ignitions occurred at said advanced ignition timing;

(g) generating a retard spark ignition datum representing an ignition timing which is retarded with respect to said reference timing by a predetermined amount;

(h) repeatedly causing ignitions to occur at retarded timing said predetermined number of times in accordance with said retard spark ignition datum generated in the step (g);

(i) storing a datum representative of the speed of revolution of said output shaft during an interval in which the ignitions occurred at said retarded timing;

(j) comparing the data stored in the steps (c), (f) and (i) with each other to detect whether said compared data establish one of first and second sequential relationships of a plurality of possible sequential relationships indicating that said reference timing is on one of the advance and retard sides, respectively, of an optimum position;

(k) varying said reference spark ignition datum of the step (a)

in a first direction only when said first sequential relationship is detected and in a second direction only when said second sequential relationship is detected; and
(l) repeating the steps (a) to (k).

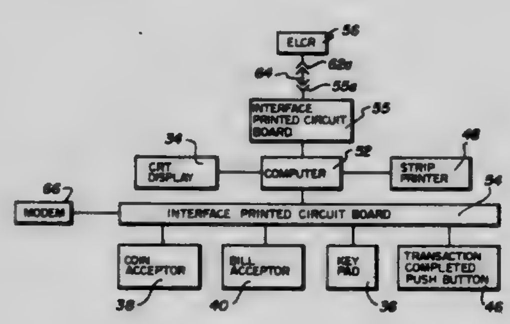
20. A control system for operating an internal combustion engine at maximum output torque under varying operating conditions, said engine having an output shaft and an adjustable spark ignition advance timing means the setting of which controls the output torque, comprising:
a random access memory;
means for generating a speed signal related to the speed of revolution of said output shaft;
means for sensing the intake air pressure of said engine; and
a microcomputer programmed to perform the following steps:
(a) storing in said random access memory a set of reference ignition setting data as a function of said speed signal and as a function of the sensed intake air pressure;
(b) selectively reading a datum from said random access memory at periodic intervals in response to said speed signal and intake air pressure;
(c) oscillating the setting of said spark ignition timing means by a predetermined amount with respect to the setting of said datum read out of said memory;
(d) successively storing data representative of said speed signal during at least three successive phases of the oscillation in said memory;
(e) detecting when said stored speed representative data establish one of first and second sequential relationships of a plurality of possible sequential relationships indicating that the setting of said ignition timing means is on one of the advance and retard sides, respectively, of an optimum position; and
(f) correcting said stored reference ignition setting data by a predetermined amount in one of a first and second directions exclusively in response to one of said detected first and second relationships.

4,379,334
ELECTRONIC PARKING METER

Thomas J. Feagins, Jr., Houston, Tex., and Calvin O. Vogt, Tulsa, Okla., assignors to Allright Auto Parks, Inc., Houston, Tex.

Filed Oct. 28, 1980, Ser. No. 201,545
Int. Cl.^{3} G07C *1/30*

U.S. Cl. 364—467 **11 Claims**



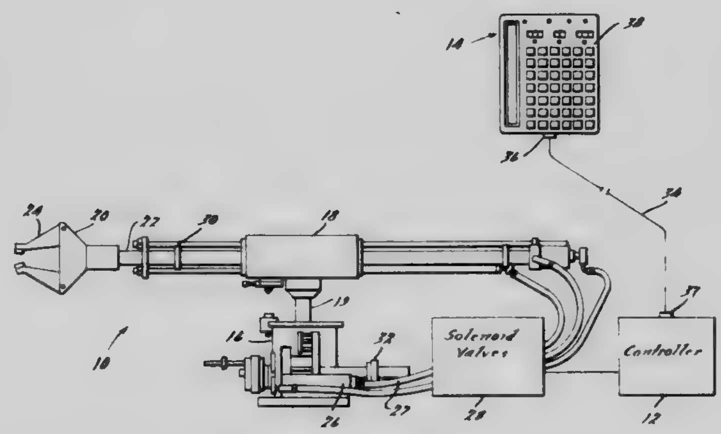
1. An electronic parking meter and lot check register in combination providing unattended supervision and sale of space usage for a plurality of parking spaces and efficient lot inventory comprising:
(a) an electronic parking meter comprising:
computer means including a memory;
identification means for customer entry of identification data;
cash acceptance means receiving and storing money entered therein by the customer;
display means visually displaying the amount of money and identification data entered by the customer through said identification means; and
(b) an electronic lot check register for providing a lot status log and having identification means, memory and display, and a data link for connection to said electronic parking meter for transfer of information from said parking meter to said lot check register such that during lot inventory said display of said lot check register provides a visual indication of a violation, said identification means of said lot check register providing entry of parked vehicle identification information for each parking space for storage in said memory of said lot check register for transfer thereof to said parking meter through said data link for updating a subsequent lot status log to contain current parked vehicle identification information for each parking space.

4,379,335
ELECTRONIC CONTROLLER AND PORTABLE PROGRAMMER SYSTEM FOR A PNEUMATICALLY-POWERED POINT-TO-POINT ROBOT

Kerry F. Kirsch, Livonia; Kirk R. Stauffer, Royal Oak, and Robert J. Tindall, Troy, all of Mich., assignors to Auto-Place, Inc., Troy, Mich.

Filed Oct. 28, 1980, Ser. No. 202,013
Int. Cl.^{3} G06F *15/46;* G05B *19/42*

U.S. Cl. 364—513 **25 Claims**



23. In a control system for a pneumatically-powered point-to-point robot having a plurality of cylinder means for performing a plurality of robot functions and valve means for controlling the supply of air to said cylinder means, including microcomputer controller means for storing a sequence of robot functions forming a user program and transmitting control signals to said cylinder means in accordance with said user program for executing said sequence of robot functions, a portable teach control programmer unit removably connected to said controller means for entering, editing and testing said sequence of robot functions, comprising:
interface means for providing serial communication with said controller;
a keyboard having a key dedicated to each of said plurality of robot functions;
a digital display for indicating the step numbers and corresponding robot function codes stored in said user program; and
circuit means coupled to said interface means for decoding said keyboard and driving said display.

4,379,336
MODULAR CALCULATOR WITH SEPARABLE KEYBOARD AND DISPLAY MODULES

Hideo Yamamoto, Mission Viejo; Susumu Takase, Costa Mesa, and R. Dale Thomas, Irvine, all of Calif., assignors to Canon Business Machines, Inc., Costa Mesa, Calif.

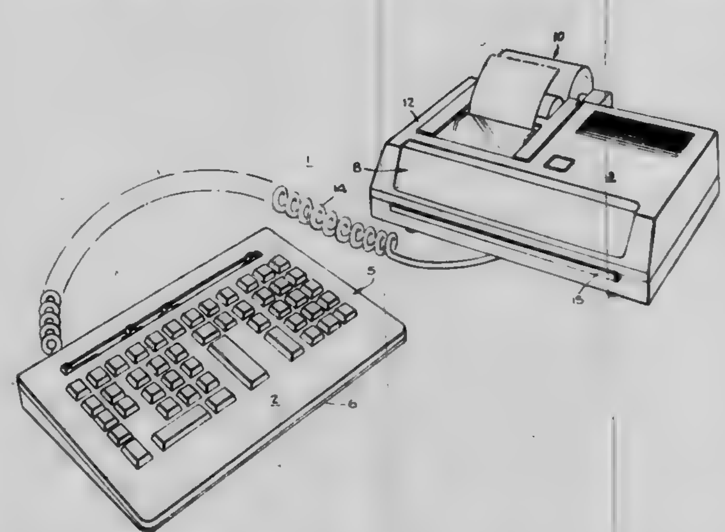
Filed May 30, 1980, Ser. No. 154,866
Int. Cl.^{3} G06F *15/02*

U.S. Cl. 364—708 **28 Claims**

1. A modular calculator, comprising:
a. an input module including an input module housing, a

keyboard having data keys and function keys mounted on said input module housing, input module electrical circuits contained in said input module housing and connected to said data keys and to said function keys for receiving data corresponding to operation of said data keys, for processing the received data according to operation of said function keys and for organizing the processed data into electrical signals for serial transmission, said input module electrical circuits including an output terminal on which electrical signals corresponding to the processed data are provided;

b. an output module including an output module housing, a display device mounted on said output module housing, output module electrical circuits contained in said output module housing and including an input terminal for receiving said processed data electrical signals by serial



transmission from said output terminal and for further processing said signals for data presentation on said display device;

c. releasable mechanical connecting means for connecting said input module housing to said output module housing to form a uniform calculator housing; and

d. electrical connector means for electrically connecting said output terminal of said input module with said input terminal of said output module; whereby said modules cooperate to provide a calculator whose keyboard and calculator function control components are housed in said input module and whose display components are housed in said output module, said electrical connector means comprising an elongated wire which enables said calculator to operate when said input and output module are physically separated.

4,379,337

METRIC COMPUTER

Ilda O'Biso, 24 Northwest St., Lincoln Park, N.J. 07035

Continuation of Ser. No. 55,827, Jul. 9, 1979, abandoned, and a continuation of Ser. No. 818,397, Jul. 25, 1977, abandoned. This application Jan. 29, 1981, Ser. No. 229,318

Int. Cl.³ G06F *15/20*

U.S. Cl. 364—715 **2 Claims**

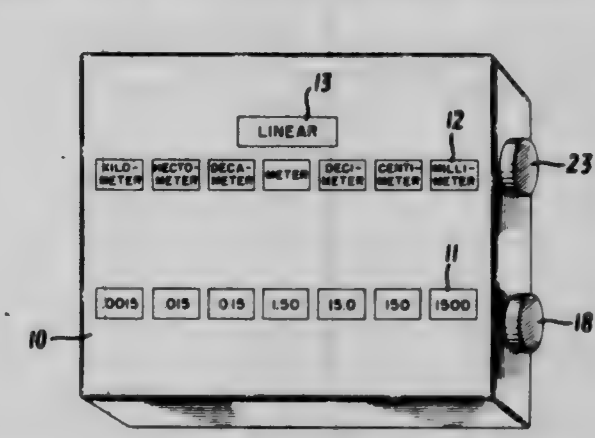
1. An apparatus for determining the metric equivalents of a given metric measurement comprising:

(a) a first set of display means arranged on a console to display a plurality of metric units within a given desired parameter selected from the parameters length, liquid and mass or weight;

(b) a second set of display means arranged on said console to display a given known numerical measurement as expressed in one of the metric units displayed in said first set of display means as well as the numerical equivalents of said measurement as expressed in the remaining metric units displayed in said first set of display means; said second set of display means being arranged such that each of the numerical equivalents is displayed in visual conjunction with the metric unit corresponding to said numerical equivalent; said first set and second set of display means comprising rows of windows with metric units and numerical measurements, respectively, appearing therein;

(c) parameter selecting means comprising an endless web having a plurality of rows of printed metric unit designations, said printed metric unit designations arranged so as to be aligned with the first row of display windows in said first set of display means when moved in place behind the windows, and means for moving the endless web in place behind the first row of viewing windows for viewing therethrough, each said row of printed metric unit designations being limited to metric units within a single parameter;

(d) measurement input means and metric equivalent deter-



mining means comprising a web having a plurality of rows of printed numbers, each said number being the numerical metric equivalent, of each of the other numbers as expressed respectively in each of the remaining printed metric unit designations, the rows and the numbers in the rows being arranged so that the numbers in a given row will be aligned with the windows in said second set of display means when said row is moved in place behind the windows, and means for moving the web in place behind said windows for viewing therethrough, each of said numbers being further arranged so that each said number is displayed in the window which visually corresponds to an appropriate metric unit designation displayed in the first set of display means such that all of the numbers in a given row as expressed in the visually corresponding metric units are metric equivalents.

4,379,338

ARITHMETIC CIRCUIT WITH OVERFLOW DETECTION CAPABILITY

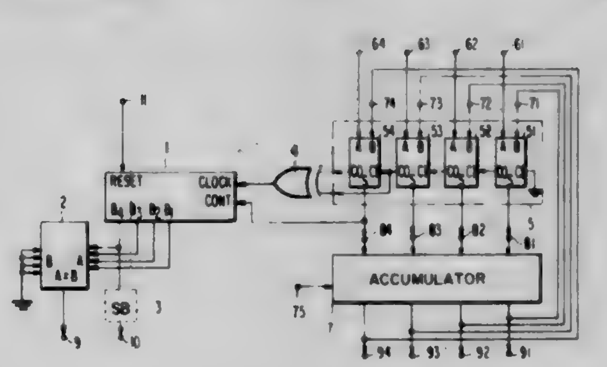
Takao Nishitani, and Yuichi Kawakami, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Nov. 21, 1980, Ser. No. 209,250

Claims priority, application Japan, Nov. 22, 1979, 54-151534

Int. Cl.³ G06F *7/48*

U.S. Cl. 364—745 **7 Claims**



1. In an arithmetic circuit of the type for performing an arithmetic operation comprising a plurality of consecutive internal addition or subtraction operations, said circuit including a calculating means for receiving first and second inputs

in a first direction only when said first sequential relationship is detected and in a second direction only when said second sequential relationship is detected; and

(l) repeating the steps (a) to (k).

20. A control system for operating an internal combustion engine at maximum output torque under varying operating conditions, said engine having an output shaft and an adjustable spark ignition advance timing means the setting of which controls the output torque, comprising:

a random access memory;

means for generating a speed signal related to the speed of revolution of said output shaft;

means for sensing the intake air pressure of said engine; and

a microcomputer programmed to perform the following steps:

(a) storing in said random access memory a set of reference ignition setting data as a function of said speed signal and as a function of the sensed intake air pressure;

(b) selectively reading a datum from said random access memory at periodic intervals in response to said speed signal and intake air pressure;

(c) oscillating the setting of said spark ignition timing means by a predetermined amount with respect to the setting of said datum read out of said memory;

(d) successively storing data representative of said speed signal during at least three successive phases of the oscillation in said memory;

(e) detecting when said stored speed representative data establish one of first and second sequential relationships of a plurality of possible sequential relationships indicating that the setting of said ignition timing means is on one of the advance and retard sides, respectively, of an optimum position; and

(f) correcting said stored reference ignition setting data by a predetermined amount in one of a first and second directions exclusively in response to one of said detected first and second relationships.

4,379,334

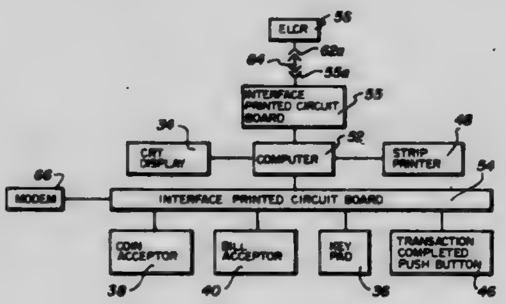
ELECTRONIC PARKING METER

Thomas J. Feagins, Jr., Houston, Tex., and Calvin O. Vogt, Tulsa, Okla., assignors to Allright Auto Parks, Inc., Houston, Tex.

Filed Oct. 28, 1980, Ser. No. 201,545

Int. Cl.³ G07C *1/30*

U.S. Cl. 364—467 **11 Claims**



1. An electronic parking meter and lot check register in combination providing unattended supervision and sale of space usage for a plurality of parking spaces and efficient lot inventory comprising:

(a) an electronic parking meter comprising:

computer means including a memory;

identification means for customer entry of identification data;

cash acceptance means receiving and storing money entered therein by the customer;

display means visually displaying the amount of money and identification data entered by the customer through said identification means; and

(b) an electronic lot check register for providing a lot status log and having identification means, memory and display, and a data link for connection to said electronic parking meter for transfer of information from said parking meter to said lot check register such that during lot inventory said display of said lot check register provides a visual indication of a violation, said identification means of said lot check register providing entry of parked vehicle identification information for each parking space for storage in said memory of said lot check register for transfer thereof to said parking meter through said data link for updating a subsequent lot status log to contain current parked vehicle identification information for each parking space.

4,379,335

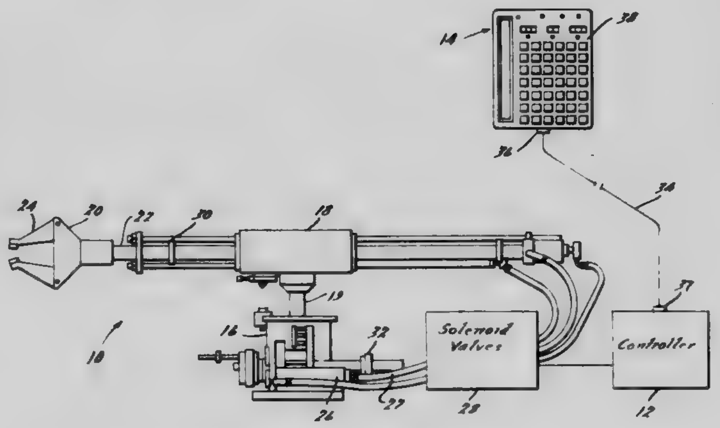
ELECTRONIC CONTROLLER AND PORTABLE PROGRAMMER SYSTEM FOR A PNEUMATICALLY-POWERED POINT-TO-POINT ROBOT

Kerry F. Kirsch, Livonia; Kirk R. Stauffer, Royal Oak, and Robert J. Tindall, Troy, all of Mich., assignors to Auto-Place, Inc., Troy, Mich.

Filed Oct. 28, 1980, Ser. No. 202,013

Int. Cl.³ G06F *15/46;* G05B *19/42*

U.S. Cl. 364—513 **25 Claims**



23. In a control system for a pneumatically-powered point-to-point robot having a plurality of cylinder means for performing a plurality of robot functions and valve means for controlling the supply of air to said cylinder means, including microcomputer controller means for storing a sequence of robot functions forming a user program and transmitting control signals to said cylinder means in accordance with said user program for executing said sequence of robot functions, a portable teach control programmer unit removably connected to said controller means for entering, editing and testing said sequence of robot functions, comprising:

interface means for providing serial communication with said controller;

a keyboard having a key dedicated to each of said plurality of robot functions;

a digital display for indicating the step numbers and corresponding robot function codes stored in said user program; and

circuit means coupled to said interface means for decoding said keyboard and driving said display.

4,379,336

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U.S. Cl. 364—708 **28 Claims**

1. A modular calculator, comprising:

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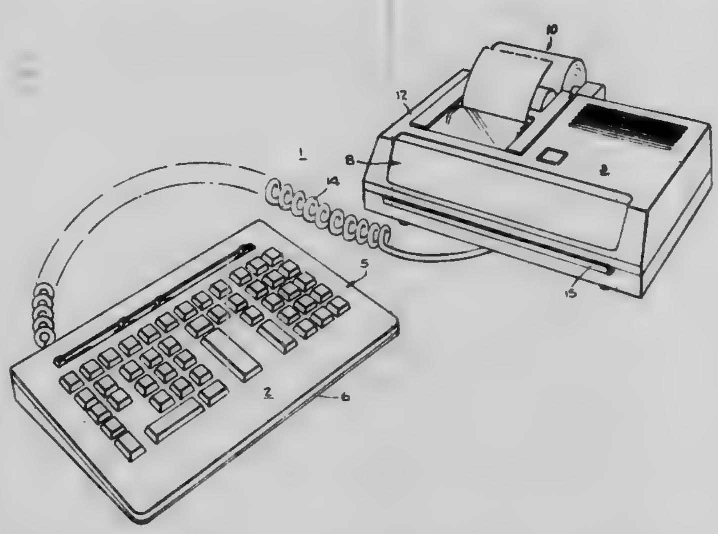
keyboard having data keys and function keys mounted on said input module housing, input module electrical circuits contained in said input module housing and connected to said data keys and to said function keys for receiving data corresponding to operation of said data keys, for processing the received data according to operation of said function keys and for organizing the processed data into electrical signals for serial transmission, said input module electrical circuits including an output terminal on which electrical signals corresponding to the processed data are provided;

b. an output module including an output module housing, a display device mounted on said output module housing, output module electrical circuits contained in said output module housing and including an input terminal for receiving said processed data electrical signals by serial



transmission from said output terminal and for further processing said signals for data presentation on said display device;

c. releasable mechanical connecting means for connecting said input module housing to said output module housing to form a uniform calculator housing; and

d. electrical connector means for electrically connecting said output terminal of said input module with said input terminal of said output module; whereby said modules cooperate to provide a calculator whose keyboard and calculator function control components are housed in said input module and whose display components are housed in said output module, said electrical connector means comprising an elongated wire which enables said calculator to operate when said input and output module are physically separated.

4,379,337

METRIC COMPUTER

Ilda O'Biso, 24 Northwest St., Lincoln Park, N.J. 07035

Continuation of Ser. No. 55,827, Jul. 9, 1979, abandoned, and a continuation of Ser. No. 818,397, Jul. 25, 1977, abandoned. This application Jan. 29, 1981, Ser. No. 229,318

Int. Cl.^{3} G06F *15/20*

U.S. Cl. 364—715 **2 Claims**

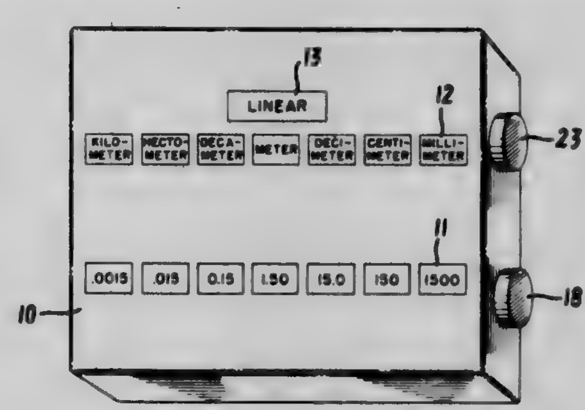
1. An apparatus for determining the metric equivalents of a given metric measurement comprising:

(a) a first set of display means arranged on a console to display a plurality of metric units within a given desired parameter selected from the parameters length, liquid and mass or weight;

(b) a second set of display means arranged on said console to display a given known numerical measurement as expressed in one of the metric units displayed in said first set of display means as well as the numerical equivalents of said measurement as expressed in the remaining metric units displayed in said first set of display means; said second set of display means being arranged such that each of the numerical equivalents is displayed in visual conjunction with the metric unit corresponding to said numerical equivalent; said first set and second set of display means comprising rows of windows with metric units and numerical measurements, respectively, appearing therein;

(c) parameter selecting means comprising an endless web having a plurality of rows of printed metric unit designations, said printed metric unit designations arranged so as to be aligned with the first row of display windows in said first set of display means when moved in place behind the windows, and means for moving the endless web in place behind the first row of viewing windows for viewing therethrough, each said row of printed metric unit designations being limited to metric units within a single parameter;

(d) measurement input means and metric equivalent deter-



mining means comprising a web having a plurality of rows of printed numbers, each said number being the numerical metric equivalent, of each of the other numbers as expressed respectively in each of the remaining printed metric unit designations, the rows and the numbers in the rows being arranged so that the numbers in a given row will be aligned with the windows in said second set of display means when said row is moved in place behind the windows, and means for moving the web in place behind said windows for viewing therethrough, each of said numbers being further arranged so that each said number is displayed in the window which visually corresponds to an appropriate metric unit designation displayed in the first set of display means such that all of the numbers in a given row as expressed in the visually corresponding metric units are metric equivalents.

4,379,338

ARITHMETIC CIRCUIT WITH OVERFLOW DETECTION CAPABILITY

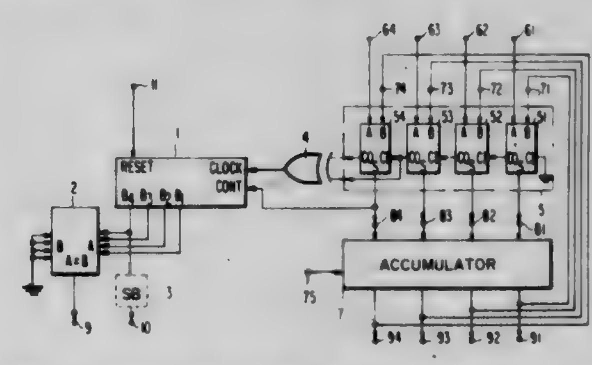
Takao Nishitani, and Yuichi Kawakami, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Nov. 21, 1980, Ser. No. 209,250

Claims priority, application Japan, Nov. 22, 1979, 54-151534

Int. Cl.^{3} G06F *7/48*

U.S. Cl. 364—745 **7 Claims**



1. In an arithmetic circuit of the type for performing an arithmetic operation comprising a plurality of consecutive internal addition or subtraction operations, said circuit including a calculating means for receiving first and second inputs

represented in two's complement-fixed point and adding or subtracting said inputs to provide an output and accumulator means for receiving and storing said calculating means output, the content of said accumulator means being provided as said second input and said first input being externally supplied, whereby said arithmetic circuit performs consecutive additions or subtractions in response to consecutive externally supplied first inputs, said circuit further comprising:

overflow occurrence detection means for providing an overflow occurrence signal output each time an overflow occurs in one of said internal operations;

overflow direction detection means for providing an overflow direction signal output indicating the direction of each said overflow; and

overflow monitoring means responsive to said overflow occurrence and overflow direction signals for offsetting positive and negative overflows against one another, said overflow monitoring means providing a net overflow occurrence signal and a net overflow direction signal indicating the occurrence and direction of a net overflow if an unequal number of positive and negative overflows has occurred during said arithmetic operation, said overflow monitoring means providing no net overflow occurrence signal if an even number of alternately occurring positive and negative overflows has occurred during said arithmetic operation.

4,379,339

ELECTRONIC TIMER

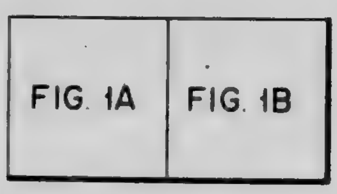
Ryuho Narita, Nagoya, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Dec. 18, 1979, Ser. No. 104,868

Claims priority, application Japan, Dec. 18, 1978, 53-156198; Feb. 14, 1979, 53-15674; Feb. 14, 1979, 53-15675; Feb. 23, 1979, 54-20483

Int. Cl.[3] G06F *3/02*

U.S. Cl. 364—900 15 Claims



1. An electronic timer, comprising:

timer input data designating means for randomly designating timer input data, including day of the week, AM or PM and time of the day constituents, to control the operation of at least one selected device;

buffer memory means, electrically connected to said timer input designating means, for temporarily storing the timer input data specified by said timer input data designating means;

data storage means, electrically connected to said buffer memory means, for storing timer input data from said buffer memory means;

data transfer means, electrically connected to said buffer memory means for transferring the timer input data from said buffer memory means to said data storage means and vice versa;

display means, electrically connected to said buffer memory means, for displaying at least timer input data stored in said buffer memory means;

judgment means, electrically connected to said buffer memory means, for judging if each constituent of the timer input data is correctly and completely entered before the transfer operation of the timer input data from said buffer memory means to said data storage means is initiated by said data transfer means; and

designation error display control means, electrically connected to said judgment means and said display means, for controlling said display means whereby an erroneous or missing constituent of the timer input data is indicated on the display means whenever erroneous or missing constituents of the timer input data is detected by said judgment means.

4,379,340

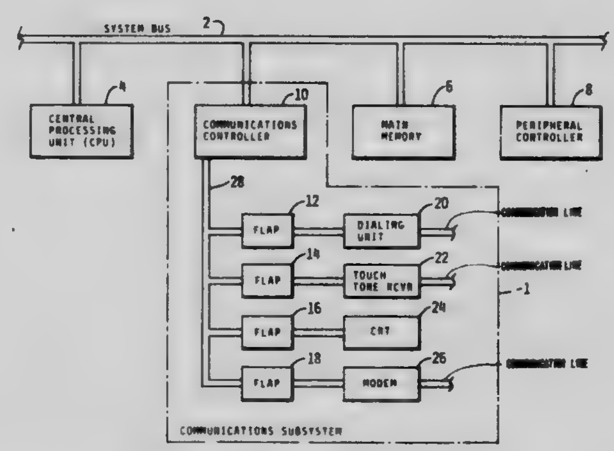
COMMUNICATIONS SUBSYSTEM IDLE LINK STATE DETECTOR

Thomas O. Holtey, Newton, Mass.; Richard P. Kelly, Nashua, N.H.; Steven S. Noyes, Boylston, and James C. Raymond, Framingham, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Oct. 6, 1980, Ser. No. 194,698

Int. Cl.[3] G06F *3/04*

U.S. Cl. 364—900 5 Claims



1. In combination with a communication line coupled via a modem to a data processing system comprising a system bus, at least one central processing unit (CPU), one main memory system, one peripheral controller and a communications subsystem all coupled in common to a system bus, said communication subsystem including a communications controller coupled to said system bus and also including typical communications devices such as said modem, a dialing unit, a touch tone receiver, a cathode ray tube (CRT) and a universal synchronous receive transmit device (USRT) each communicating with the communications controller, said communications subsystems comprising:

(a) a data signal line coupled to said communications controller and to said typical communication devices for transmitting a stream of said serial data bits to said USRT from said modem;

(b) a clock signal line also coupled to said communications controller and to said typical communication devices for transmitting a stream of serial clock pulses over said clock signal line from said modem to said USRT;

(c) counter means coupled to said data signal and clock signal lines for counting the number of successive binary one pulses received by said communications controller;

(d) disabling means coupled to said counter means for disabling said counter means and preventing any further count when said counter counts a predetermined number of successive binary one bits, thus indicating that the communication line and the data processing system is in an idle state, means for communicating said idle state to said USRT;

(e) a microprocessor coupled to said USRT for controlling the operations of said communications controller such as transmit and receive information;

(f) a first PROM means coupled to said microprocessor (μP) and to said USRT for storing first signals for controlling the generation of a first intercept request signal, said first PROM means responsive to a data service request from said USRT when said USRT has assembled a byte of information from the stream of said data bits for generating said first intercept request signal;

(g) intercept control logic means coupled to said first PROM

means and to said μP for receiving and transmitting the first intercept request signal to said microprocessor; and

(h) second PROM means in said first PROM means for storing second signals for controlling the generation of a second intercept request signals, said second PROM means only responsive to said idle state for generating said second intercept request signals, whereby said microprocessor being responsive to the first intercept request signal to receive the second intercept signals for identifying and processing the particular communication channel request associated with the interrupting USRT and to reset the counter means.

4,379,341

SERIES RESONANCE DRIVE CIRCUIT FOR MAGNETIC BUBBLE MEMORY

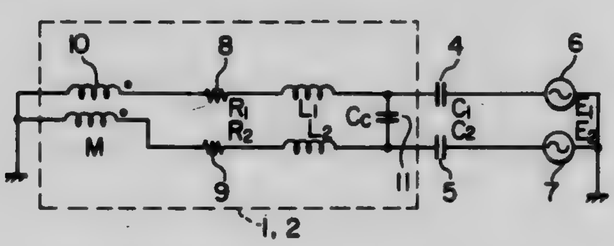
Takashi Toyooka; Mamoru Sugie, both of Sayama; Hirokazu Aoki, Hachioji, and Shigeru Yoshizawa, Tokorozawa, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 18, 1981, Ser. No. 303,527

Claims priority, application Japan, Sep. 19, 1980, 55-129329

Int. Cl.³ G11C *19/08*

U.S. Cl. 365—6 **7 Claims**



1. A series resonance drive circuit for a magnetic bubble memory, comprising:

(a) a magnetic bubble memory chip or chips in which magnetic bubbles are driven in accordance with a rotating magnetic filed;

(b) X and Y coils arranged orthogonally to each other to generate said rotating magnetic field in a plane of said magnetic bubble memory chip or chips;

(c) resonance capacitors each connected in series with respective one of said X and Y coils to form a series resonance circuit with the respective one of said X and Y coils at a frequency of said rotating magnetic field;

(d) power supplies each connected to the respective one of said resonance circuits to supply a cyclic wave current containing only an A.C. component to the respective one of said resonance circuits; and

(e) a reactance device connected to said resonance circuits to compensate a mutual inductance due to a mutual inductive coupling between said X and Y coils and a capacitance due to a capacitive coupling between said X and Y coils.

4,379,342

SEMICONDUCTOR DYNAMIC MEMORY DEVICE

Tomio Nakano, Kawasaki, and Yoshihiro Takemae, Yokohama, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Mar. 31, 1981, Ser. No. 249,718

Claims priority, application Japan, Mar. 31, 1980, 55/41622

Int. Cl.³ G11C *11/40*

U.S. Cl. 365—182 **8 Claims**

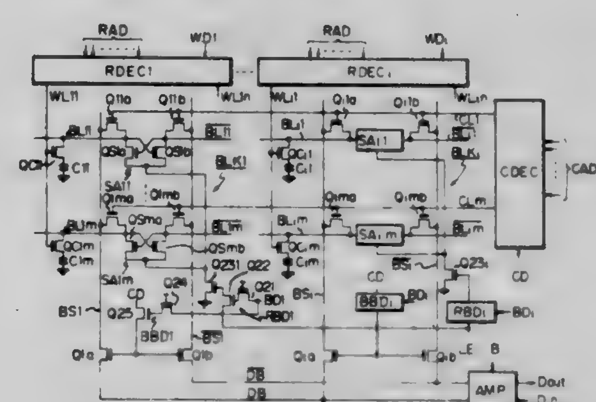
1. A semiconductor memory device, operatively connected to receive address signals including block selecting address signals, comprising:

a plurality of memory blocks each including row lines, data bus pairs, a pair of bus lines and a sense amplifier array comprising a plurality of sense amplifiers each having a pair of input/output terminals, and a pair of memory cell groups including dynamic type memory cells;

an input/output amplifier operatively connected to each of said pairs of bus lines;

row decoder means for selecting a corresponding one of said row lines of said plurality of memory blocks;

a column decoder comprising column lines, each having a potential, and operatively connected in common to said plurality of memory blocks, said column decoder selectively connecting a corresponding pair of said input/output terminals of the plurality of sense amplifiers in each of said memory blocks to a corresponding one of said pairs of bus lines corresponding to the memory block in response to a change in the potential of a corresponding one of said column lines connected between said column decoder and said plurality of memory blocks;



row block decoders operatively connected to receive said block selecting address signals, to said sense amplifier array and to said plurality of memory blocks, said row block decoders selectively enabling said sense amplifier array of a corresponding one of said plurality of memory blocks in accordance with block selecting address signals; and

block bus line decoders operatively connected to receive said block selecting address signals, to corresponding ones of said pairs of bus lines, and to corresponding ones of said plurality of a sense amplifiers, said block bus line decoders selectively connecting said corresponding ones of said pairs of bus lines of each of said memory blocks to a corresponding pair of said data bus pairs connected to said input/output amplifier in accordance with said block selecting address signals.

4,379,343

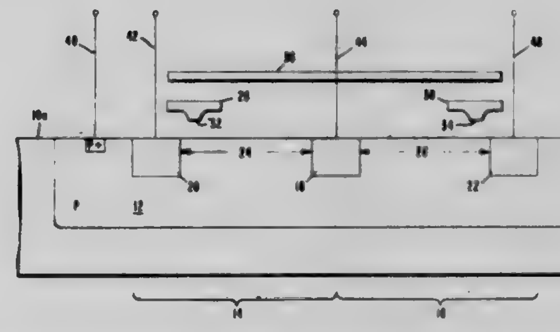
ELECTRICALLY ERASABLE PROGRAMMABLE READ-ONLY MEMORY CELL HAVING A SHARED DIFFUSION

Norman E. Moyer, Balboa, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Nov. 28, 1980, Ser. No. 211,477

Int. Cl.³ G11C *7/00*

U.S. Cl. 365—185 **7 Claims**



1. An electrically erasable programmable memory comprising:

a semiconductive substrate of a first conductivity type;

a well region of a second conductivity type in said substrate;

a common diffusion in said well region of said first conductivity type;
first and second diffusions in said well region of said first conductivity type located on opposite sides of said common diffusion and forming first and second source-to-drain channels, respectively, with said common diffusion;
first and second floating gates overlying said first and second channels respectively, each of said floating gates associated with a tunneling region permitting charge flow between said substrate and said floating gates; and
means overlying said first and second floating gates, for controlling charge flow in said channels

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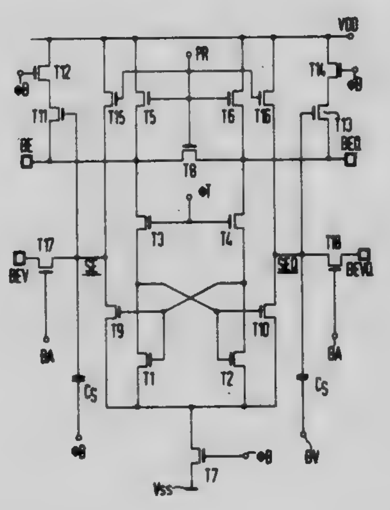
4,379,344
PRECHARGE CIRCUIT
Takashi Ozawa, and Yasuhiko Nagahashi, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan
Filed Feb. 17, 1981, Ser. No. 235,175
Claims priority, application Japan, Feb. 13, 1980, 55-16368
Int. Cl.³ G11C *7/00*
U.S. Cl. 365—203 **10 Claims**

6. In a circuit including a first and a second data nodes, a voltage source of a first voltage, a first insulated gate field effect transistor coupled between said first node and said voltage source, a second insulated gate field effect transistor coupled between said second node and said voltage source, and a third insulated gate field effect transistor connected between said first and second nodes, said first to third transistors being made conductive in a precharge period thereby to precharge said first and second nodes, the improvement comprises means for operatively supplying a gate of said third transistor with a second voltage, an absolute value of said second voltage being larger than that of said first voltage.

4,379,345
DYNAMIC READ AMPLIFIER FOR METAL-OXIDE-SEMICONDUCTOR MEMORIES
Karlheinz Url, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Jul. 8, 1981, Ser. No. 281,424
Claims priority, application Fed. Rep. of Germany, Jul. 29, 1980, 3028754
Int. Cl.³ G11C *7/06*
U.S. Cl. 365—205 **1 Claim**

1. A dynamic, flip-flop differential read amplifier for metal-oxide-semiconductor memories, and for operation with first through fifth clock pulses, said read amplifier comprising:
a pair of first data terminals for connection to a pair of first data lines;
a voltage supply terminal and a ground terminal;
first, second, third, fourth, fifth, sixth, seventh and eighth field effect transistors each including a source, a drain and a gate;
the drain-source paths of said fifth, third, first and seventh transistors connected in series between said voltage supply terminal and said ground terminal, and the drain-source paths of said sixth, fourth, second and seventh transistors likewise connected in series between said voltage supply terminal and said ground terminal;
said gates of said first and second transistors respectively connected to the drain of the other such transistor to form a flip-flop, with said fifth and sixth transistors operating as load resistors and said third and fourth transistors operating as cut-off transistors;
the drain-source path of said eighth transistor connected between said first data terminals and across the junctions of said fifth and third transistors and said sixth and fourth transistors and operable as a balance transistor;
said gates of said seventh, third and fourth, and fifth and sixth and eighth transistors respectively connected to receive the first, second and third clock pulses;
a pair of second data terminals for connection to a second pair of information lines;
first and second capacitors connected to receive the fifth clock pulses;
ninth, tenth, eleventh, twelfth, thirteenth, fourteenth, fifteenth, sixteenth, seventeenth, and eighteenth field effect transistors each including a source, a drain and a gate;
said ninth and tenth transistors constituting switching transistors having their drain-source paths connected in series with the drain-source paths of said fifteenth and sixteenth



transistors, constituting load transistors, respectively, and their gates connected to the gates of said first and second transistors, respectively;
said gates of said fifteenth and sixteenth and transistors connected to said gates of said fifth, sixth and eighth transistors to receive the third clock pulses;
the drain-source paths of said eleventh and twelfth transistors connected in series across said voltage supply terminal and one of said first data terminals, and the drain-source path of said thirteenth and fourteenth transistors connected in series across said voltage supply terminal and the other of said first data terminals;
said gates of said twelfth and fourteenth transistors connected to receive the first clock pulses and said gates of said eleventh and thirteenth transistors connected to receive the fifth clock pulses via said first and second capacitors, respectively;
the drain-source path of said seventeenth transistor connected as a cut-off transistor between one of said second data terminals and said gate of said eleventh transistor, said first capacitor and the junction of said ninth and fifteenth transistors, and said gate of said seventeenth transistor connected to receive the fourth clock pulses; and
the drain-source path of said eighteenth transistor connected as a cut-off transistor between the other of said second data terminals and said gate of said thirteenth transistor,

said second capacitor and the junction of said tenth and sixteenth transistors, and

said gate of said eighteenth transistor connected to receive the fourth clock pulses,

whereby the clock pulses are in a sequence such that a third clock pulse operates said fifth, sixth, eighth, fifteenth and sixteenth transistors to connect the supply voltage terminal to said first data terminals and said second data terminals, during such pulse, to prepare said amplifier for dynamic operation,

a fourth clock pulse operates said seventeenth and eighteenth transistors to connect the respective second data terminals to the respective junctions of said ninth and fifteenth transistors and tenth and sixteenth transistors,

a second clock pulse operates said third and fourth transistors to cut-off from the differential amplifier flip-flop the capacitance of the data lines connected to said first data terminals in order to provide for a fast switching of the flip-flop and to prevent signal level reduction,

a first clock pulse, at the same time as a second clock pulse, operates said seventh transistor to connect that end of the flip-flop to ground and permit the flip-flop to be set in accordance with the data applied at the first data terminals causing said third and fourth transistors to operate as loads and causing the data to be applied, via said ninth and tenth transistors and said seventeenth and eighteenth transistors, to said second data terminals, and a fifth clock pulse, at the same time as, and in conjunction with a first clock pulse, causes regeneration by, during the time of such pulses, operating said eleventh, twelfth, thirteenth and fourteenth transistors to connect said supply voltage terminal to said first data terminals and to ground via respective sides of the flip-flop.

4,379,346

SEMICONDUCTOR MEMORY DEVICE

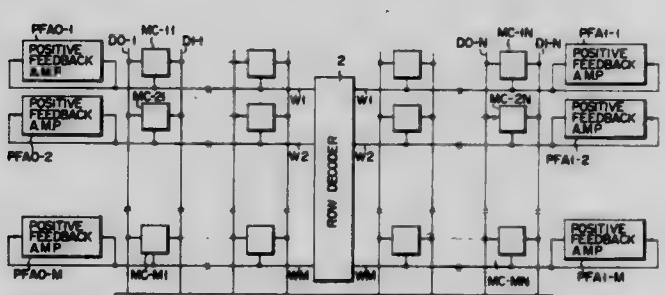
Kiyofumi Ochii, Yokohama; Masami Masuda, Tokyo, and Takeo Kondo, Yokosuka, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jul. 21, 1980, Ser. No. 170,687

Claims priority, application Japan, Jul. 26, 1979, 54/95526

Int. Cl.³ G11L ***13/00***

U.S. Cl. 365—222 **38 Claims**



1. A semiconductor memory device for use with a row decoder supplying row access signals and a column decoder for supplying column access signals, the device comprising:

at least one memory cell;

at least one word line connected to said at least one memory cell and receiving the row access signals;

at least one data line connected to said at least one memory cell to transfer data to and from said at least one memory cell in accordance with said column access signals; and

positive feedback amplifier means coupled with said at least one word line to amplify said received row access signals supplied to said at least one word line and to positively feed back to said at least one word line said amplified row access signals.

4,379,347

RECEIVER FOR PCM-ENCODED MULTIFREQUENCY DIALING SIGNALS

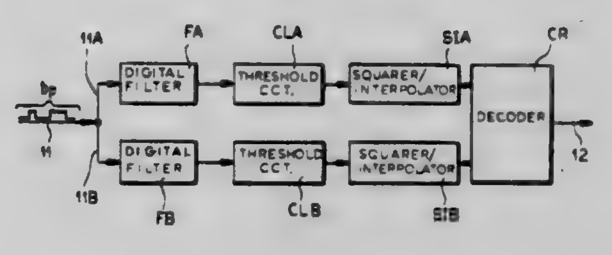
Guglielmo Girardi, San Mauro Torinese, and Franco Miroglio, Turin, both of Italy, assignors to Cselt - Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

Filed Nov. 3, 1980, Ser. No. 203,459

Claims priority, application Italy, Nov. 5, 1979, 69149 A/79

Int. Cl.³ H03K ***13/01***

U.S. Cl. 375—94 **5 Claims**



1. A receiver for periodically recurring quantized signal samples of a sine wave, each signal sample occurring during a predetermined sampling period substantially shorter than a half-cycle of said sine wave and including a sign bit and a predetermined number of amplitude bits, comprising:

a sign-bit extractor connected to an incoming-signal path for converting the sign bits of consecutive signal samples into a square wave with rising and falling pulse flanks subjected to delays of up to one sampling period with reference to an incoming sine wave;

interpolation means including a zero-crossing detector controlled by said sign-bit extractor and further including amplitude-bit-extraction means connected to said incoming-signal path for establishing a corrective time interval equal to a fraction of a sampling period in response to any detected sign change, the magnitude of said fraction being determined by the values of two consecutive signal samples having different sign bits;

logical circuitry connected to outputs of said sign-bit extractor and of said interpolation means for delaying by said time interval the generation of a pulse flank beyond the instant of appearance of the second one of said consecutive signal samples to separate the time of generation of such a pulse flank by substantially a whole sampling period from the occurrence of the corresponding zero crossing; and

decoding means connected to said logical circuitry for converting said square wave into numerical information.

4,379,348

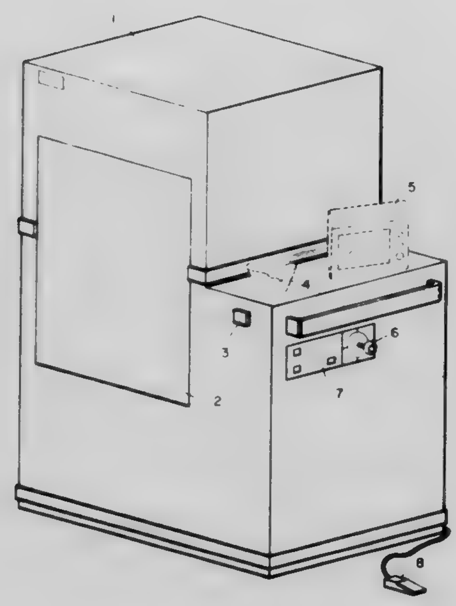
X-RAY SECURITY SCREENING SYSTEM HAVING MAGNIFICATION

David J. Haas, Suffern; Costas Blionas, New York, and Joseph P. Muenzen, Pearl River, all of N.Y., assignors to North American Philips Corporation, New York, N.Y.

Filed Sep. 23, 1980, Ser. No. 189,995

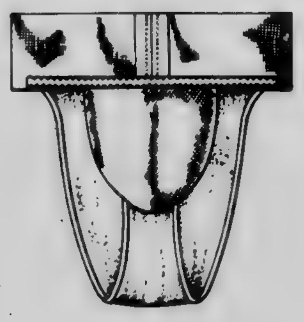
Int. Cl.[3] **G03B** *41/16*

U.S. Cl. 378—57 **17 Claims**

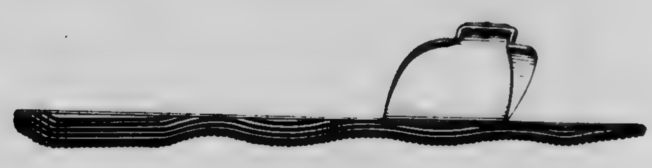


1. An X-ray inspection system comprising a source of X-rays, a chamber in the path of said X-rays for containing articles, fluorescent screen means in said chamber opposite to said source for converting X-ray images of said articles into visible images, means for directing said visible image to a viewing station, and means for viewing said visible images of said articles, said viewing means including a lens magnification switching system for selectively viewing the entire visible image or only a magnified portion of said visible image at various positions.

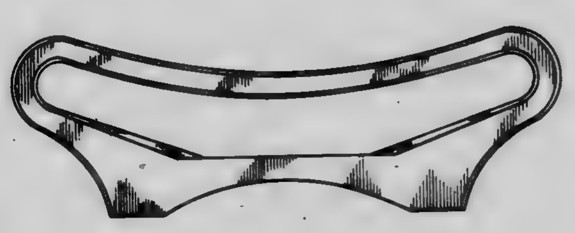
268,454
ATHLETIC SUPPORTER
Raul Novo, 5801 Pollard Dr., Richmond, Va. 23226
Filed Feb. 5, 1981, Ser. No. 231,848
Term of patent 14 years
Int. Cl. D2—*01*
U.S. Cl. D2—10



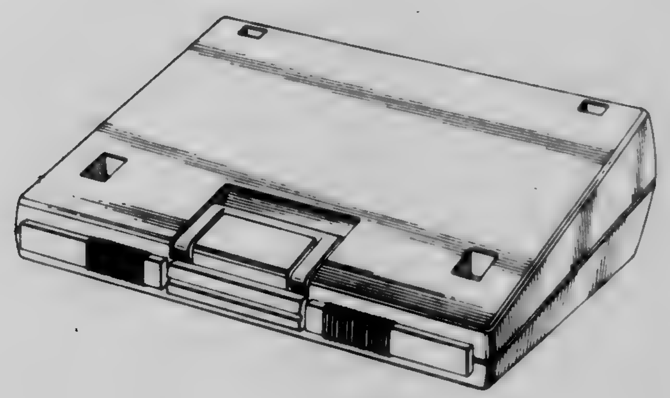
268,455
SANDAL
Joseph P. Famolare, Jr., Putney, Vt., assignor to Famolare, Inc., New York, N.Y.
Filed Jan. 9, 1981, Ser. No. 223,930
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—293



268,456
CRUTCH PAD
Donald Oleniak, Squamscott Rd., Stratham, N.H. 03885, and Gerald R. Bedard, 419 Campbell St., Manchester, N.H. 03103
Filed Dec. 16, 1980, Ser. No. 216,946
Term of patent 14 years
Int. Cl. D3—*03*
U.S. Cl. D3—10

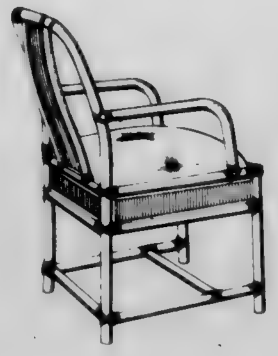


268,457
CASE FOR A PORTABLE TYPEWRITER
Mario Bellini, Milan, Italy, assignor to Ing. C. Olivetti & C. S.p.A., Ivrea, Italy
Filed Mar. 17, 1981, Ser. No. 244,738
Claims priority, application Italy, Sep. 17, 1980, 53514/80[U]
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—72



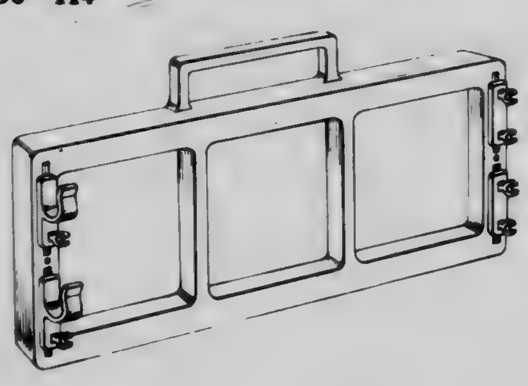
268,458
ADJUSTABLE SUPPORT STAND
Darrell A. Schoenig, Fort Collins, Colo., assignor to Teledyne Industries, Inc.
Filed Feb. 27, 1981, Ser. No. 239,124
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—29

268,459
ARMCHAIR
Henry Olko, Chicken Valley Rd., Locust Valley, N.Y. 11650
Filed Oct. 23, 1980, Ser. No. 199,858
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—57

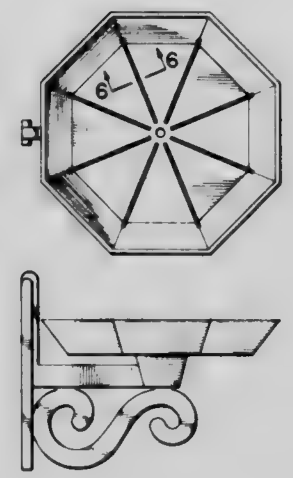


268,460
CHRISTMAS TREE STAND
Ralph Ives, Rte. 2, Box 281A, Lovettsville, Va. 22080
Filed Oct. 20, 1980, Ser. No. 198,375
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—105

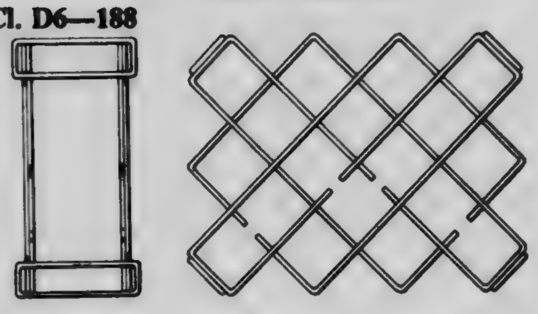
268,461
COMBINED FISHING ROD RACK AND CARRIER
Kenneth F. Wess, San Angelo, Tex., and Charles E. Day, deceased, late of San Angelo, Tex. (by Frances B. Day, executrix), assignors to Margaret L. Wess and Frances B. Day, both of San Angelo, Tex.
Filed Nov. 14, 1980, Ser. No. 207,066
Term of patent 14 years
Int. Cl. D6—*06*; D3—*02*
U.S. Cl. D6—114



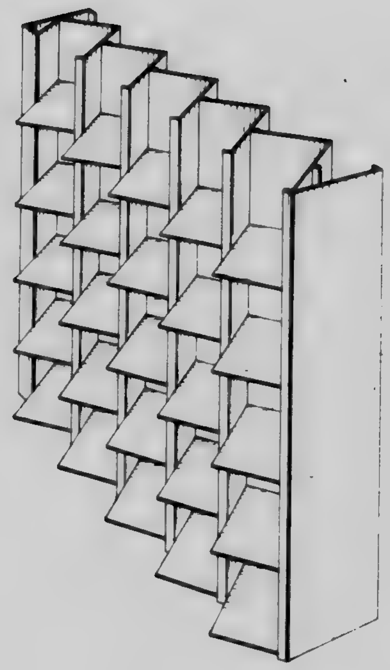
268,462
PLANT HOLDER
James T. Douglas, 12800 La Cadena, Colton, Calif. 92324
Filed Dec. 22, 1980, Ser. No. 218,787
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—137



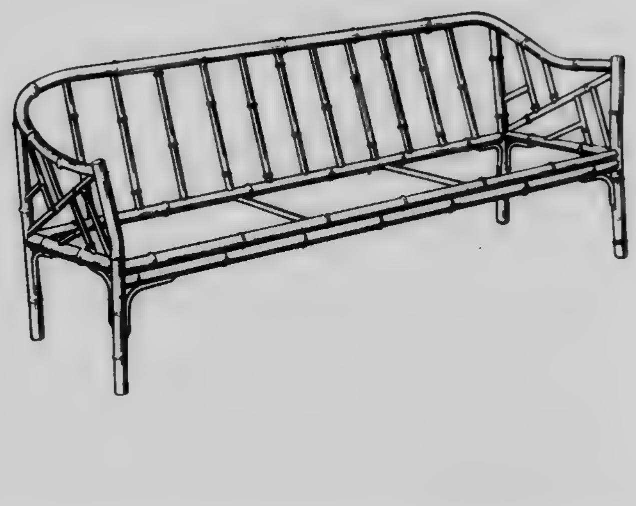
268,463
WINE RACK
Ralph B. Olson, Lombard, Ill., assignor to Amco Corporation, Chicago, Ill.
Filed Feb. 12, 1981, Ser. No. 233,757
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—188



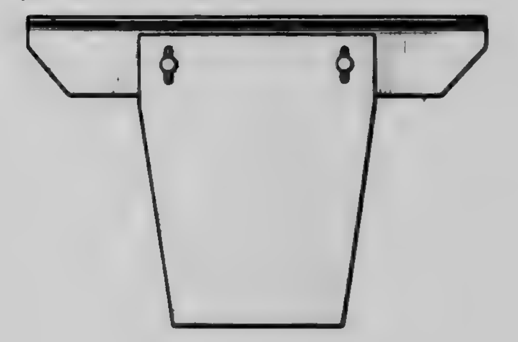
268,464
MERCHANDISE DISPLAY RACK
Hal D. Sandy, 4937 Glendale Rd., Shawnee Mission, Kans. 66205
Filed Jan. 5, 1981, Ser. No. 222,568
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—189



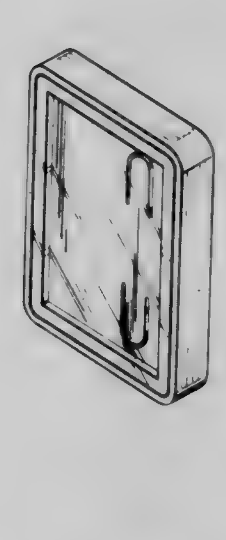
268,465
SOFA FRAME
Gregory D. Bergguist, Mountain Brook, and John A. Jones, Trussville, both of Ala., assignors to Simmons Universal Corporation, New York, N.Y.
Filed Sep. 22, 1980, Ser. No. 189,442
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—191



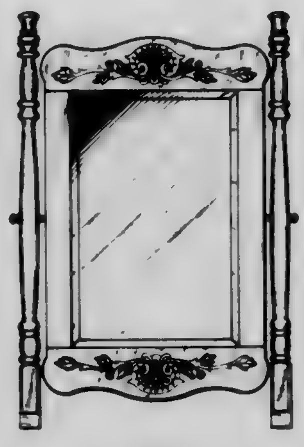
268,466
CHILD'S PROTECTIVE SHIELD FOR ATTACHMENT BETWEEN THE BACKRESTS OF AUTOMOTIVE FRONT SEATS
Ivan Rados, Intagsgränd 56, S-163 57 Spanga, Sweden
Filed Feb. 24, 1981, Ser. No. 237,814
Claims priority, application Sweden, Aug. 25, 1980, 80-1586
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—191



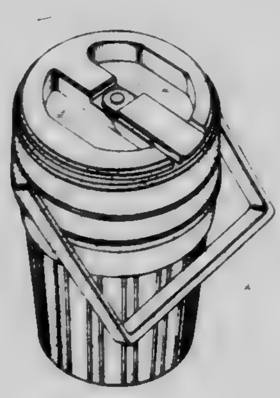
268,467
PICTURE FRAME OR THE LIKE
Robert H. C. M. Daenen, Hekelgem, Belgium, assignor to Dart Industries Inc., Northbrook, Ill.
Filed Feb. 3, 1981, Ser. No. 231,189
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—235

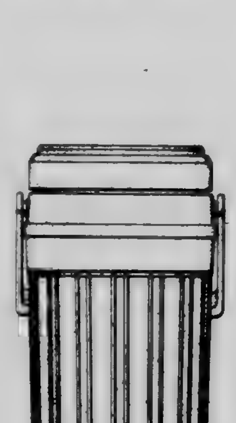


268,468
DRESSER MIRROR
Henry W. Mower, Stevens Point, Wis.; Allen Seymour, Clayton, Ohio; Jerome P. Koziatek, Hinckley, Ohio, and Joseph G. Lendvay, Ravenna, Ohio, assignors to Questor Corporation, Toledo, Ohio
Filed Oct. 16, 1980, Ser. No. 197,759
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—244

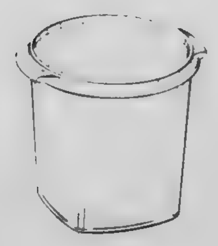


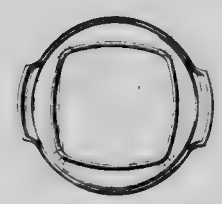
268,469
BEVERAGE CONTAINER
Craig Ruxton, and Ronald McGowan, both of Harris County, Tex., assignors to Igloo Corporation, Houston, Tex.
Filed Mar. 2, 1981, Ser. No. 239,863
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—77



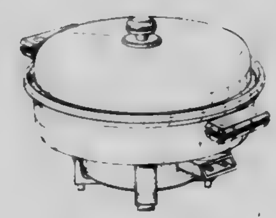


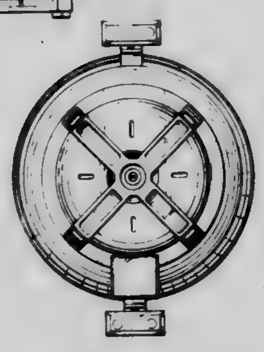
268,470
CANISTER OR THE LIKE
Masao Kato, Okazaki, Japan, assignor to Dart Industries Inc., Northbrook, Ill.
Filed Aug. 4, 1980, Ser. No. 175,173
Term of patent 14 years
Int. Cl. D07—*07*
U.S. Cl. D7—79



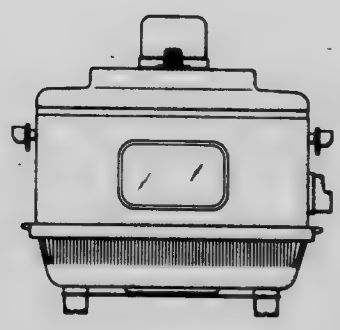


268,471
CASSEROLE COOKING APPLIANCE
Dan E. Gremonprez, West Bend, Wis., assignor to Dart Industries, Inc., Northbrook, Ill.
Filed Mar. 12, 1981, Ser. No. 243,023
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—355

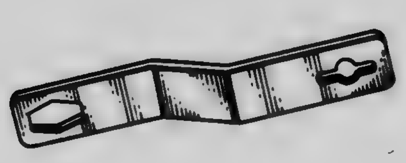




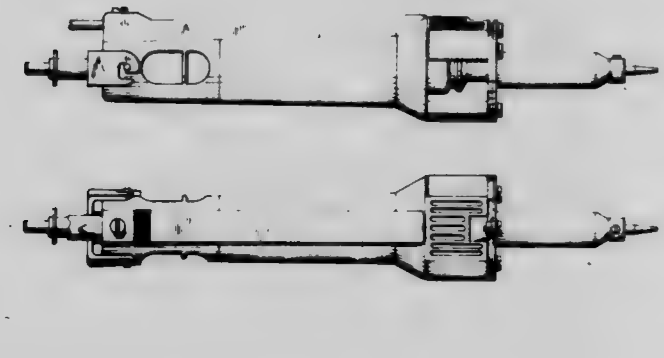
268,472
HOT AIR SUPPLY TYPE ELECTRIC OVEN
Nishikawa Hideo, Osaka, Japan, assignor to Imanishi Flexible Tube Mfg. Co. Ltd., Japan
Filed Aug. 19, 1980, Ser. No. 179,512
Claims priority, application Japan, Apr. 23, 1980, 55-16340
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—348



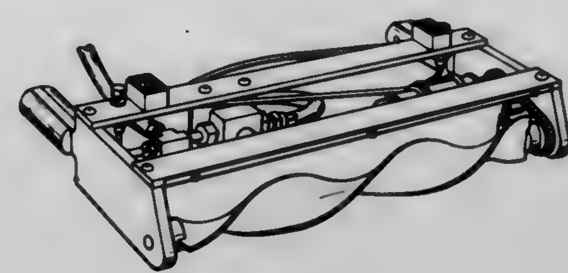
268,473
WRENCH FOR DRAWINGS HOLDER NUTS
Bennie W. Rust, 2304 Troy Ave., South El Monte, Calif. 91733
Filed Apr. 28, 1980, Ser. No. 144,224
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—17



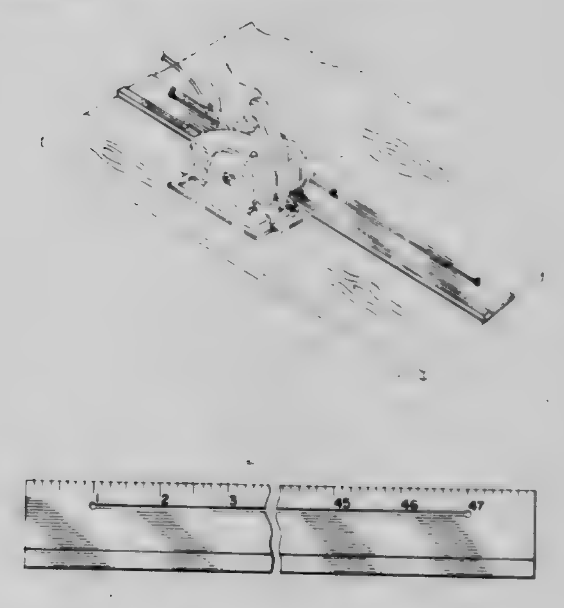
268,474
SOLDER EXTRACTOR
Frank Sylvia, Columbia, Md., assignor to Pace Incorporated, Laurel, Md.
Filed Dec. 24, 1980, Ser. No. 219,963
Term of patent 14 years
Int. Cl. D08—*05*
U.S. Cl. D8—30



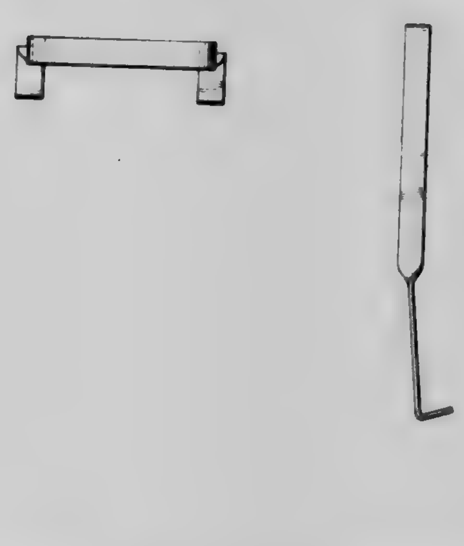
268,475
FOAM TRIMMER
Leo C. Markwat, 4241 Four Mile Rd., NE., Grand Rapids, Mich. 49505
Filed Jun. 13, 1980, Ser. No. 159,050
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—67



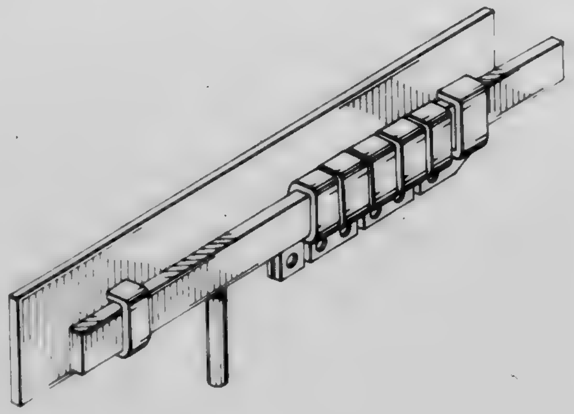
268,476
POWER SAW GUIDE
Vance Owen, P.O. Box 27536, Honolulu, Hi. 96827
Filed Oct. 30, 1980, Ser. No. 202,170
Term of patent 14 years
Int. Cl. D8—*05*; D10—*04*
U.S. Cl. D8—71



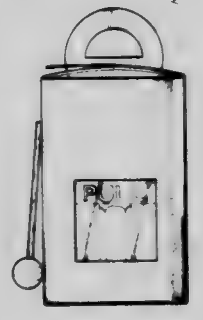
268,477
PANEL CARRIER
DeForest D. Underdahl, 16150 Valley Rd., Eden Prairie, Minn. 55344
Filed Dec. 1, 1980, Ser. No. 211,699
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—71



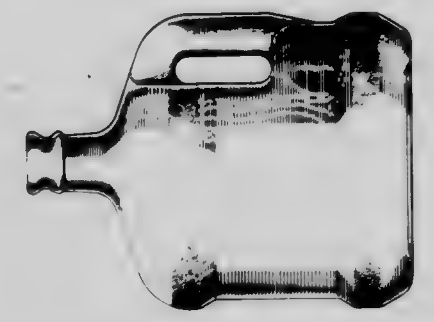
268,478
MULTIPLE ACCESS SLIDE-LOCK
David C. Domes, Reno, Nev., assignor to Caravan Camper Manufacturing Co., Reno, Nev.
Filed Nov. 3, 1980, Ser. No. 203,050
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—341



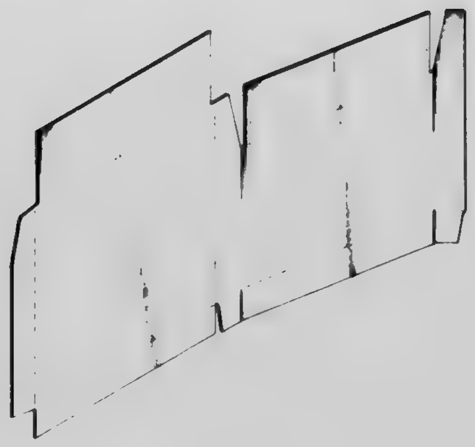
268,479
CONFECTION DISPLAY PACKAGE
Pamela S. Pullman, 1127 Redfield Ter., Dunwoody, Ga. 30338
Filed Feb. 27, 1981, Ser. No. 238,997
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—307



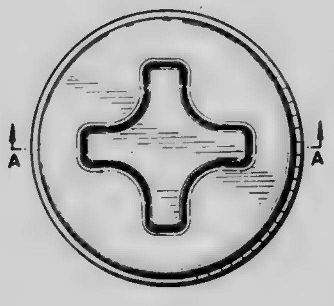
268,480
PLASTIC CONTAINER FOR LIQUIDS
John A. Cox, Bethel Park, Pa., assignor to Mobay Chemical Corporation, Pittsburgh, Pa.
Filed Feb. 26, 1981, Ser. No. 238,241
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—378



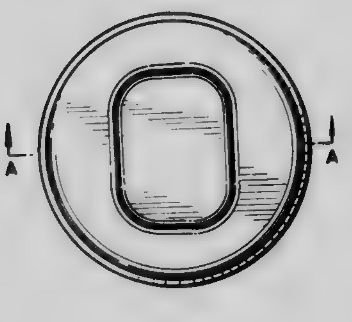
268,481
BOX BLANK
Edwin A. Van Inwagen, Pine City, N.Y., assignor to F. M. Howell & Company, Elmira, N.Y.
Filed Oct. 30, 1980, Ser. No. 202,111
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—433



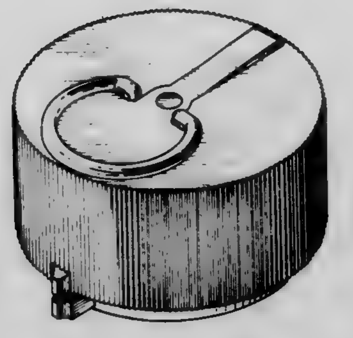
268,482
CAP FOR A DRUM
Kinji Mineo, Tokyo, Japan, assignor to Yamato Iron Works Co., Ltd., Tokyo, Japan
Filed May 5, 1980, Ser. No. 147,266
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—439



268,483
CAP FOR A DRUM
Kinji Mineo, Tokyo, Japan, assignor to Yamato Iron Works Co., Ltd., Tokyo, Japan
Filed May 8, 1980, Ser. No. 147,865
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—439

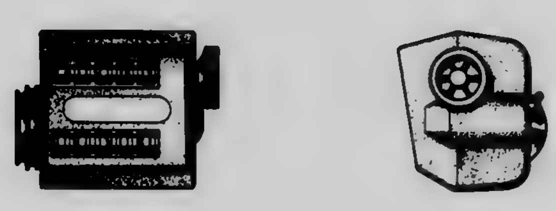


268,484
CLOSURE CAP
Glenn H. Morris, 4203 Highwood Dr., Chattanooga, Tenn. 37415
Filed Jul. 17, 1980, Ser. No. 169,881
Term of patent 14 years
Int. Cl. D7—*07*
U.S. Cl. D9—443



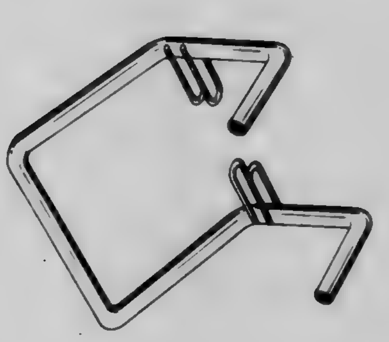
268,485
WRIST WATCH
Georges Claude, 107bis, rue du Parc, La Chaux-de-Fonds, Switzerland
Filed Jul. 14, 1980, Ser. No. 168,730
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—38

268,486
CYCLOMETER
Roger Huret, Nanterre, France, assignor to Etablissements Huret et Ses Fils, Nanterre, France
Filed Jan. 17, 1979, Ser. No. 4,160
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—70



268,487
BRACELET
Anita M. Kolman, 5052 N. Marine Dr., Chicago, Ill. 60640
Filed Mar. 23, 1979, Ser. No. 22,969
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—4

268,488
BICYCLE STORAGE RACK
John Arnott, and Mark I. Campbell, both of Toronto, Canada, assignors to John Arnott & Associates Limited, Toronto, Canada
Filed Jul. 15, 1980, Ser. No. 169,070
Claims priority, application Canada, Apr. 21, 1980, 21-04-80-3
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D12—115



268,489
TIRE

Harm J. Arends, Voerendaal, Netherlands; Henri J. Mirtain, Noyon, France, and Norbert Zinnen, Aachen, Fed. Rep. of Germany, assignors to Uniroyal Englebert Reifen GmbH, Aachen, Fed. Rep. of Germany

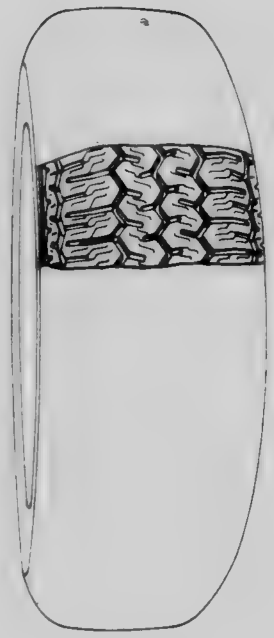
Filed Jul. 17, 1981, Ser. No. 284,511

Claims priority, application Fed. Rep. of Germany, Feb. 3, 1981, 73 MR 3265

Term of patent 14 years

Int. Cl. D12—*15*

U.S. Cl. D12—143



268,490
MOTORCYCLE TIRE

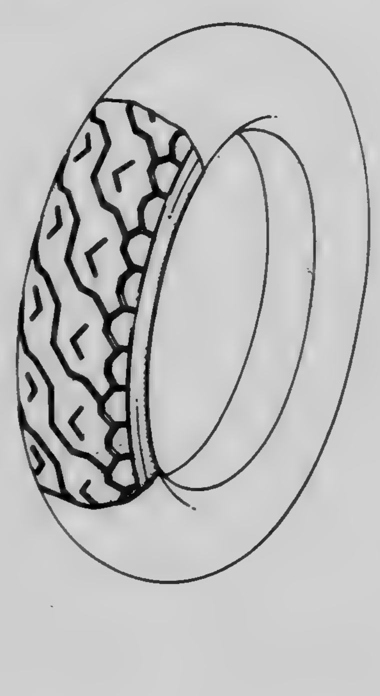
Anthony M. Mills, Williamsville, and Daniel C. Egan, Akron, both of N.Y., assignors to Dunlop Tire and Rubber Corporation, Buffalo, N.Y.

Filed Mar. 26, 1981, Ser. No. 247,876

Term of patent 14 years

Int. Cl. D12—*15*

U.S. Cl. D12—146



268,491
VEHICLE TIRE

Hiroshi Kojima, Hino; Hideaki Nishio, Urawa, and Toshihiko Yashima, Higashi Murayama, all of Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

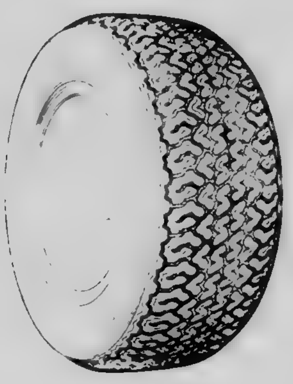
Filed Dec. 4, 1980, Ser. No. 212,965

Claims priority, application Japan, Aug. 22, 1980, 55-34073

Term of patent 14 years

Int. Cl. D12—*15*

U.S. Cl. D12—147



268,492
TIRE

Philippe Grenie, Chateaugay, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

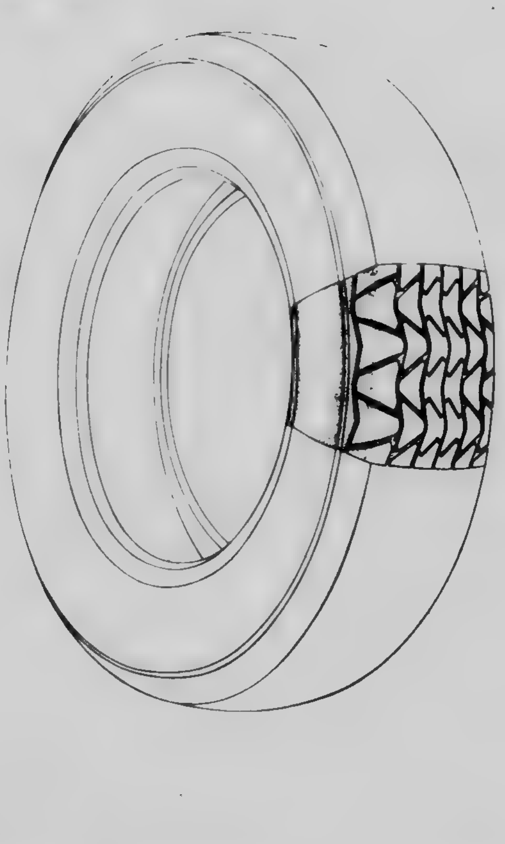
Filed Sep. 11, 1981, Ser. No. 301,209

Claims priority, application France, Apr. 23, 1981, 50

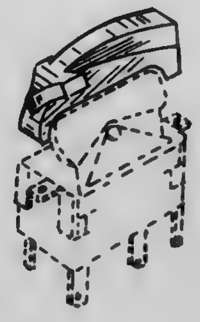
Term of patent 14 years

Int. Cl. D12—*15*

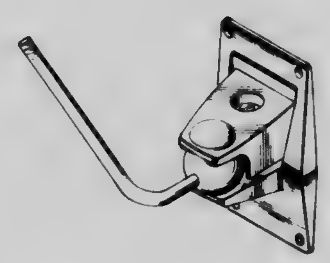
U.S. Cl. D12—147



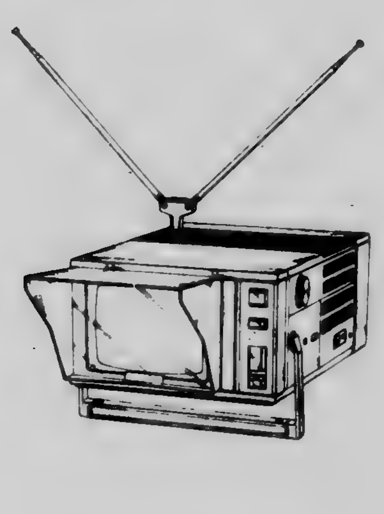
268,493
SWITCH KEY
Richard L. Mitchell, and Thomas A. Heron, both of St. Louis, Mo., assignors to Emerson Electric Co., St. Louis, Mo.
Filed Mar. 31, 1980, Ser. No. 135,874
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—37



268,494
SPEAKER MOUNTING BRACKET
Alexander Cyrell, 3540 N. Knoll Dr., Hollywood, Calif. 90068
Filed Nov. 12, 1980, Ser. No. 205,925
Term of patent 14 years
Int. Cl. D14—*01, 99*
U.S. Cl. D14—37

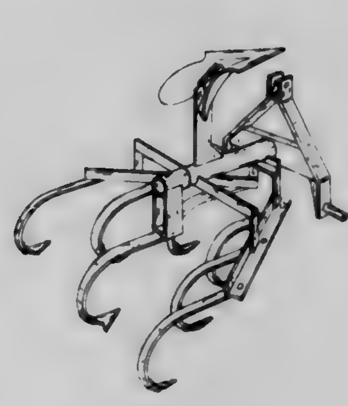


268,495
TELEVISION RECEIVER
Makoto Terauchi; Nobuo Momota, both of Ibaraki; Osamu Sugihara, Takatsuki, and Joseph J. Nukazawa, Tokyo, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Dec. 15, 1980, Ser. No. 216,880
Claims priority, application Japan, Jun. 13, 1980, 55-23634
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—80

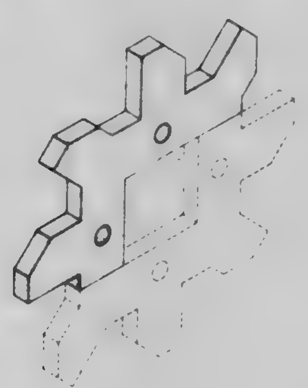


268,496
MINIATURE COMPUTER OR THE LIKE
Tsuneo Hanzawa, Tokyo, Japan, assignor to Entex Industries, Inc., Compton, Calif.
Filed Oct. 6, 1980, Ser. No. 194,542
Claims priority, application Japan, Feb. 9, 1980, 55-4440
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—100

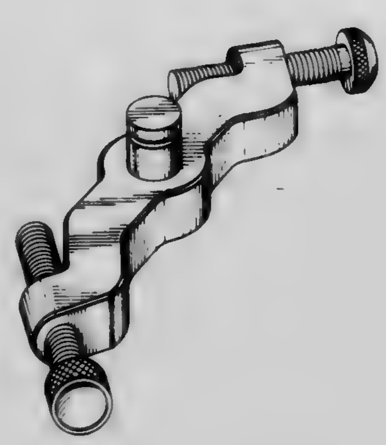
268,497
PLOW ASSEMBLY
Ronald C. Adair, 914 Morris Rd., Toney, Ala. 35773
Filed Sep. 8, 1980, Ser. No. 185,365
Term of patent 14 years
Int. Cl. D15—*03*
U.S. Cl. D15—11



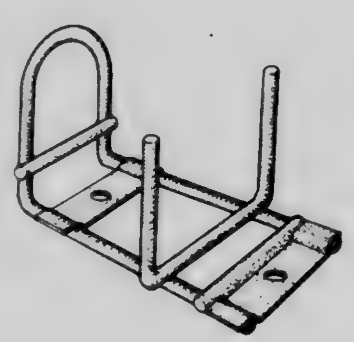
268,498
ROTOR ELEMENT COMPONENT FOR A COAL CRUSHER
Wilbur W. Bagby, Birmingham, Ala., assignor to Bagby Engineering Co., Birmingham, Ala.
Filed Sep. 11, 1980, Ser. No. 186,719
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—123



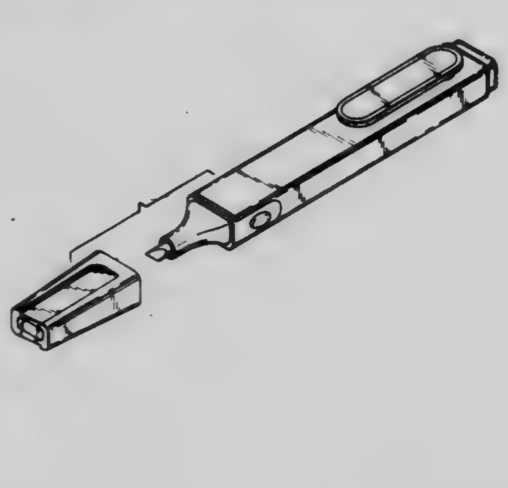
268,499
CHUCK JAW BORE-TRUING FIXTURE
Kenneth W. Vezner, 6107 Fremont Ave. North, Minneapolis, Minn. 55430
Filed Sep. 2, 1980, Ser. No. 182,993
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D15—138



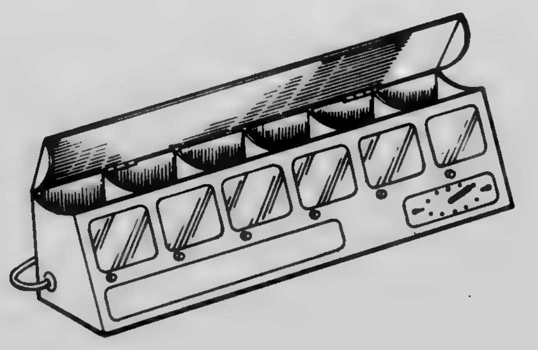
268,500
TOOL HOLDER
Gary J. Kraus, 4420 Woodtrail La., Cincinnati, Ohio 45239
Filed Oct. 6, 1980, Ser. No. 194,364
Term of patent 14 years
Int. Cl. D15—*99*; D6—*06*; D8—*08*
U.S. Cl. D15—140



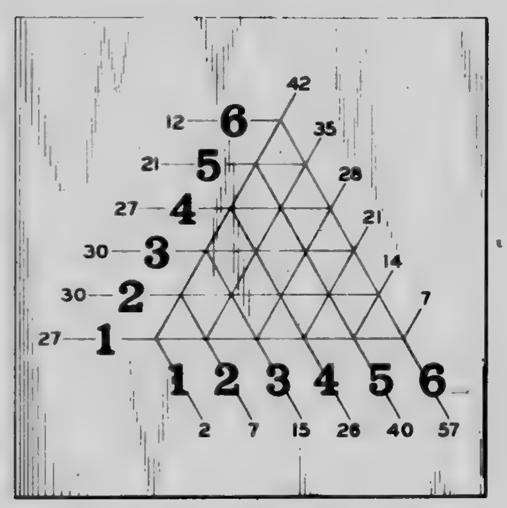
268,501
MARKING INSTRUMENT
Peter A. Krückel, Heroldsberg, and Gerhard Möck, Kirchehrenbach, both of Fed. Rep. of Germany, assignors to Schwan-Stabilo Schwänhausser GmbH & Co., Nuremberg, Fed. Rep. of Germany
Filed Feb. 18, 1981, Ser. No. 235,538
Claims priority, application Fed. Rep. of Germany, Nov. 4, 1980, MR VI 442
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—43



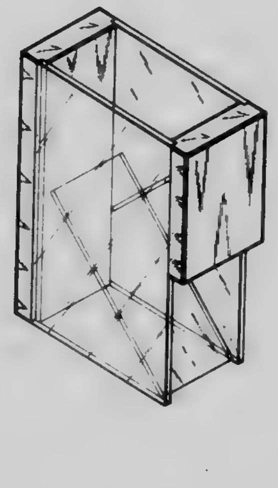
268,502
PERSONAL MESSAGE CENTER
Jacob Y. Wong, 4589 Camino Molinero, Santa Barbara, Calif. 93110
Filed Sep. 24, 1980, Ser. No. 190,487
Term of patent 14 years
Int. Cl. D20—*03*
U.S. Cl. D20—18



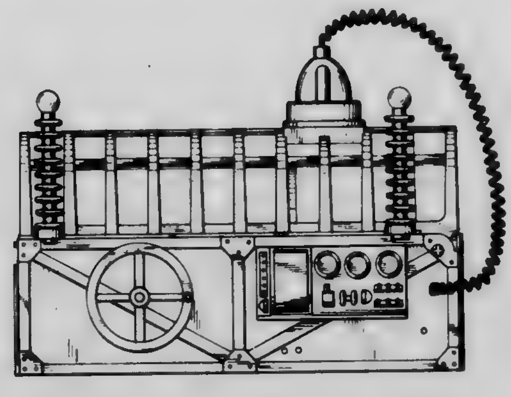
268,503
GAME BOARD
Michael H. Saint Ive, Englewood, Colo., assignor to Lagess Corp., Englewood, Colo.
Filed Jun. 27, 1979, Ser. No. 52,616
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—34



268,504
DICE AGITATOR
Robert A. Noga, 13404 Calais Dr., Del Mar, Calif.
Filed Apr. 28, 1981, Ser. No. 224,005
Term of patent 7 years
Int. Cl. D21—*01*
U.S. Cl. D21—41



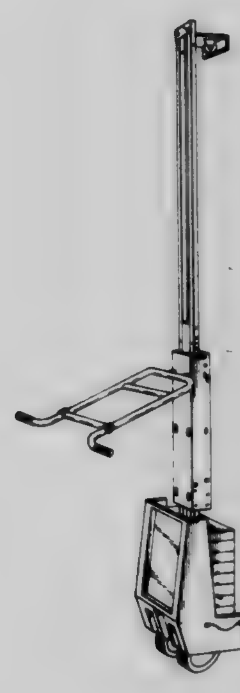
268,505
TOY COFFIN
Harold W. Wells, 73 Chestnut Cir., Northport, N.Y. 11768
Filed Jun. 30, 1980, Ser. No. 164,895
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—59



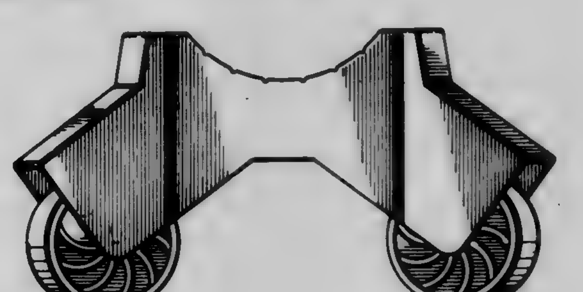
268,506
DOG TOY
Wai-Kuen Tung, Kwai Chung, Hong Kong, assignor to The Best Toys Co. Ltd., Kowloon, Hong Kong
Filed Feb. 2, 1981, Ser. No. 230,391
Claims priority, application United Kingdom, Oct. 29, 1980, 80997305
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—161

268,507
GAME APPARATUS
Anne T. Alwell, St. Paul, Minn.; A. Edward Fogarty; Bonnie R. Fogarty, both of Sarasota, Fla.; David A. Pagani, Newport Beach, Calif., and Peter D. Pook, Minneapolis, Minn., assignors to Leisure Dynamics, Inc., Minneapolis, Minn.
Filed Oct. 24, 1980, Ser. No. 200,038
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—168

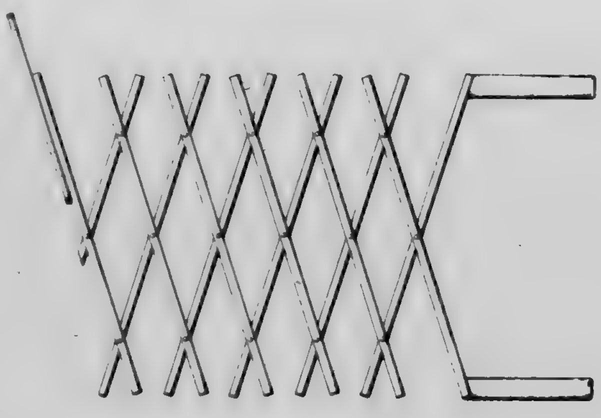
268,508
PORTABLE WALL MOUNTED WEIGHT LIFTING EXERCISER
Ira J. Silberman, Opelika; William J. Hill, Lanett, and Robert C. Kelley, Opelika, all of Ala., assignors to Diversified Products Corporation, Opelika, Ala.
Filed Mar. 4, 1981, Ser. No. 240,552
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—195



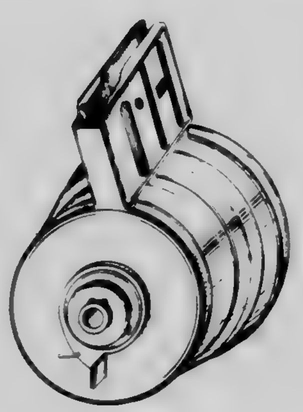
268,509
PORTABLE, FIGURE-REDUCING ROLLER EXERCISER
Larry W. Breaux, P.O. Box 856, Newhall, Calif. 91322
Filed Jul. 13, 1979, Ser. No. 57,365
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—198



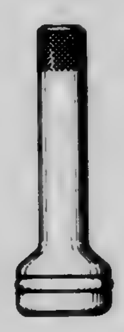
268,510
NOVELTY EXTENSION TOY
Lee C. Gallagher, 7 Rockford Rd. H-24, Wilmington, Del. 19806
Filed May 23, 1980, Ser. No. 152,840
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—240



268,511
FIREARM MAGAZINE
Mack W. Gwinn, Jr., Levant, Me., assignor to Firepower, Inc., Hancock, Me.
Filed Jan. 16, 1981, Ser. No. 225,660
Term of patent 14 years
Int. Cl. D22—*01*
U.S. Cl. D22—7

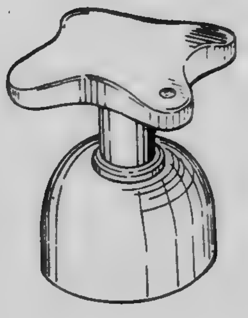


268,512
HYDRAULIC LOCKING VALVE
Douglas E. Lien, Blaine, Minn., assignor to Roger W. Boeckers, White Bear Lake, Minn., a part interest
Filed Aug. 25, 1980, Ser. No. 180,709
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—19

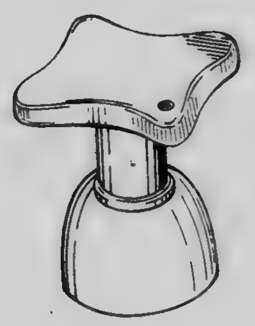


268,513
FAUCET HANDLE
Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia
Filed Apr. 20, 1981, Ser. No. 255,535
Claims priority, application Australia, Dec. 4, 1980, 82768
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—28

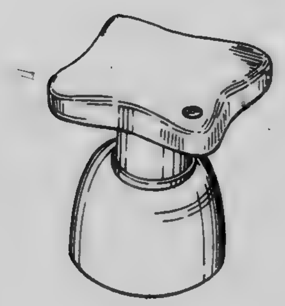
268,514
FAUCET HANDLE
Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia
Filed Apr. 20, 1981, Ser. No. 255,528
Claims priority, application Australia, Jan. 5, 1981, 82982
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—31



268,515
FAUCET HANDLE
Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia
Filed Apr. 20, 1981, Ser. No. 255,531
Claims priority, application Australia, Dec. 17, 1980, 82850
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—31

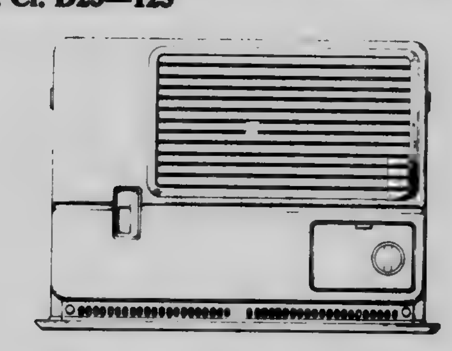


268,516
FAUCET HANDLE
Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia
Filed Apr. 20, 1981, Ser. No. 255,532
Claims priority, application Australia, Nov. 20, 1980, 82661
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—31

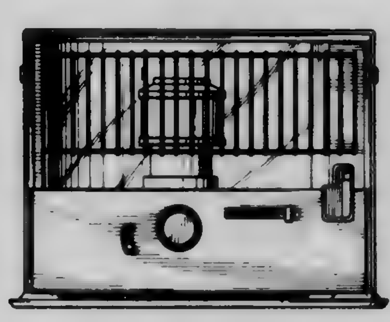


268,517
FAUCET HANDLE
Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia
Filed Apr. 20, 1981, Ser. No. 255,539
Claims priority, application Australia, Jan. 5, 1981, 82980
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—31

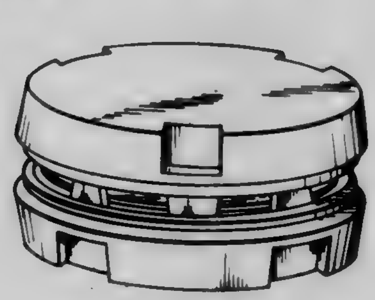
268,518
OIL-FIRED SPACE HEATER
Kazuharu Nakamura, 1-48, Sonoyama-cho, Chikusa-ku, Nagoya-shi, Aichi-ken, Japan
Filed Nov. 17, 1980, Ser. No. 207,490
Claims priority, application Japan, May 16, 1980, 55-19341
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—123



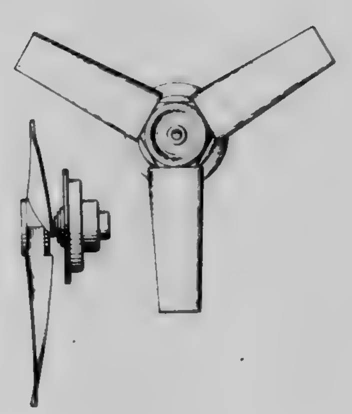
268,519
OIL-FIRED SPACE HEATER
Kazuharu Nakamura, 1-48, Sonoyama-cho, Chikusa-ku, Nagoya-shi, Aichi-ken, Japan
Filed Nov. 17, 1980, Ser. No. 207,491
Claims priority, application Japan, May 16, 1980, 55-19340
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—123



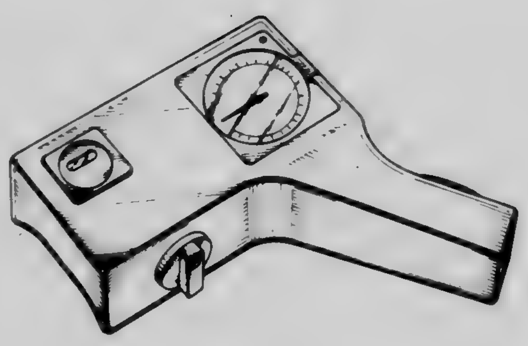
268,520
AIR FRESHENER
Robert A. LeCaire Jr., Appleton, Wis., assignor to The Coca-Cola Company, Atlanta, Ga.
Filed Nov. 20, 1980, Ser. No. 208,581
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—150



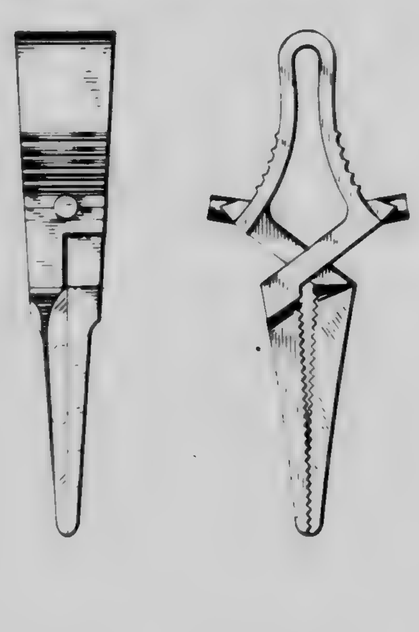
268,521
ELECTRIC FAN FOR ENGINE COOLING
Roger Clemente, 1789 Vauxhill Rd., Union, N.J. 07083
Filed Sep. 25, 1980, Ser. No. 190,939
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—158



268,522
OCCLUSIVE SPHYGMANOMETER FOR THE MEASURING OF ARTERIAL BLOOD PRESSURE
Ulf S. Tamm, 122 Chi. de la Montague, 1224 Chêne Bougeries, Switzerland
Filed Sep. 12, 1979, Ser. No. 74,785
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—21

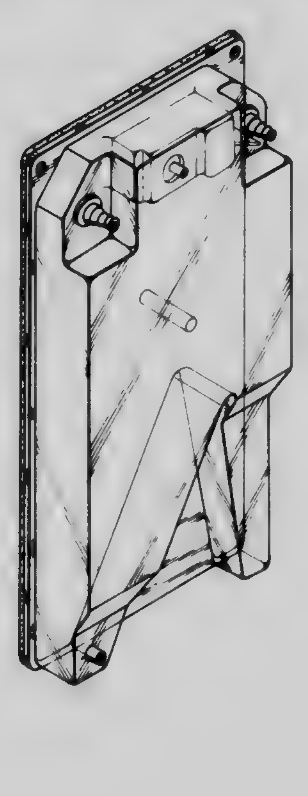


268,523
SERREFINE
Dennis R. Scanlan, Jr., Boca Raton, Fla., and Robert A. Arp, Eden Prairie, Minn., assignors to Scanlan International, Inc., St. Paul, Minn.
Filed Aug. 13, 1980, Ser. No. 177,731
Term of patent 14 years
Int. Cl. D24—*02;* D8—*05*
U.S. Cl. D24—27

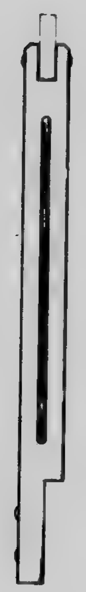


268,524
ACUPRESSURE INSTRUMENT FOR APPLYING ROLLING PRESSURE TO THE HUMAN BODY
Salvatore R. D'Addio, and Janie D'Addio, both of 2609 E. Monroe, Orange, Calif. 92667
Filed Aug. 15, 1980, Ser. No. 178,348
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D24—41

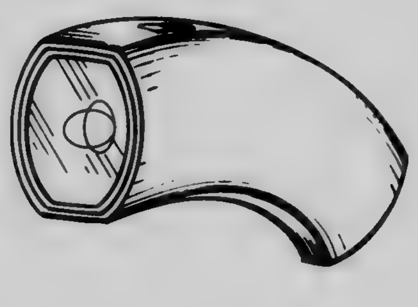
268,525
SUCTION DRAINAGE DEVICE FOR SURGICAL PURPOSES
Harold W. Andersen; Charles H. Harrison, both of Oyster Bay, and Melvin H. Worth, Jr., Staten Island, all of N.Y., assignors to University Testing Service Inc., Oyster Bay, N.Y.
Filed Aug. 8, 1980, Ser. No. 176,447
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—56



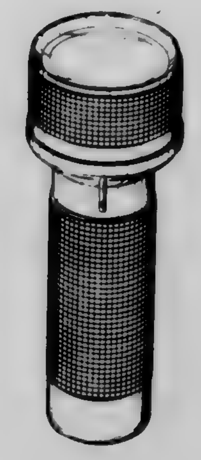
268,526
RAILING BALUSTER
Robert V. Faber, 1905 NE. 49th Ave., Portland, Oreg. 97213, and Ronald D. Sylwester, P.O. Box 1404, Lake Grove, Oreg. 97034
Filed Dec. 22, 1980, Ser. No. 218,530
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—77



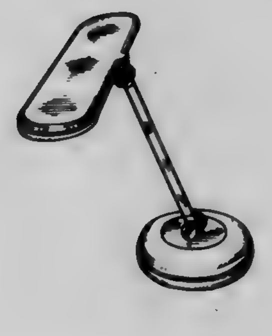
268,527
FLASHLIGHT
Alan B. Bachman, 59 Richard Sweet Dr., Woodbridge, Conn. 06525
Filed May 27, 1980, Ser. No. 153,541
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D26—46



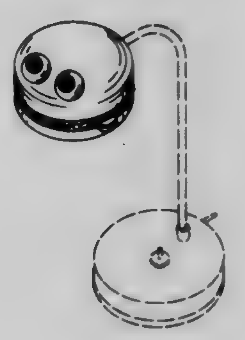
268,528
TORCH
Kung C. Hung, Tsuen Wan, Hong Kong, assignor to Freezinhot Bottle Company Limited, Kowloon, Hong Kong
Filed Feb. 3, 1981, Ser. No. 231,060
Claims priority, application United Kingdom, Nov. 12, 1980, 997522
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D26—49



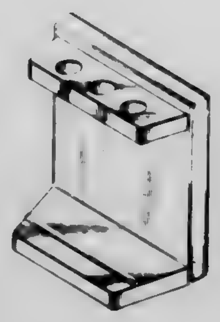
268,529
ADJUSTABLE DESK LAMP
Samuel Lebowitz, Brooklyn, N.Y., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
Filed Apr. 4, 1980, Ser. No. 137,499
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—65



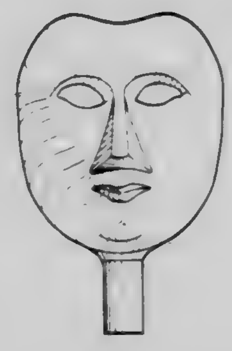
268,530
LIGHTING FIXTURE
Duane S. Ament, Hollywood, Calif., assignor to Miracle Recreation Equipment Company, Grinnell, Iowa
Filed Oct. 22, 1980, Ser. No. 199,620
Term of patent 14 years
Int. Cl. D21—*01*; D26—*05*
U.S. Cl. D26—94



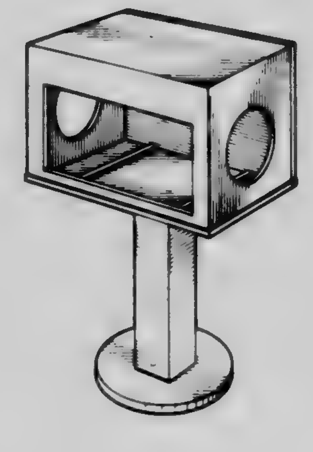
268,531
COMBINED PIPE RACK AND BOOKEND
Hope E. Leppard, 13600 Sylvan St., Van Nuys, Calif. 91401
Filed Jul. 23, 1980, Ser. No. 171,426
Term of patent 14 years
Int. Cl. D27—*99*; D6—*06*
U.S. Cl. D27—06



268,532
FACE SHIELD
Ruth E. Kravitz, 1631 Michigan Ave., Miami Beach, Fla. 33139
Filed Jul. 30, 1980, Ser. No. 173,858
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—9



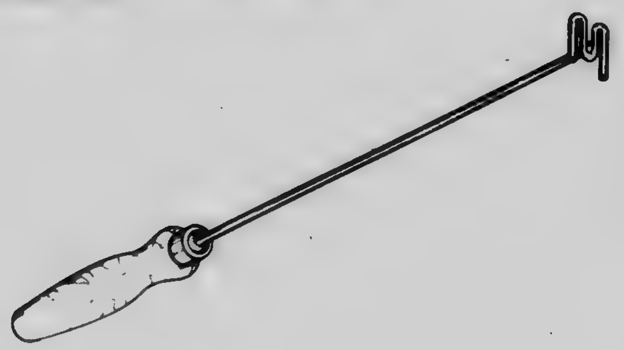
268,533
AQUARIUM STAND
Barbara A. Ford, 6823 Grebe Pl., Philadelphia, Pa. 19142
Continuation-in-part of Ser. No. 943,479, Sep. 15, 1978. This application Jan. 5, 1981, Ser. No. 222,605
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—12



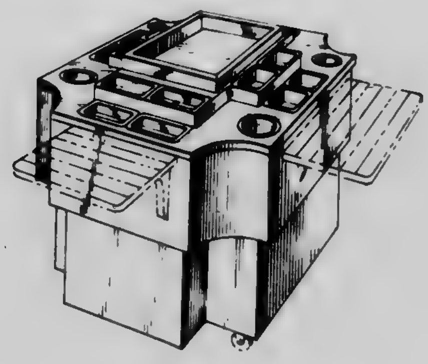
268,534
HORSESHOE
Thomas M. Charlson, P.O. Box 991, Goliad, Tex. 77963
Filed Dec. 29, 1980, Ser. No. 220,743
Term of patent 14 years
Int. Cl. D30—*01*
U.S. Cl. D30—35

268,535
HORSESHOE
Thomas M. Charlson, P.O. Box 991, Goliad, Tex. 77963
Filed Dec. 29, 1980, Ser. No. 220,744
Term of patent 14 years
Int. Cl. D30—*01*
U.S. Cl. D30—35

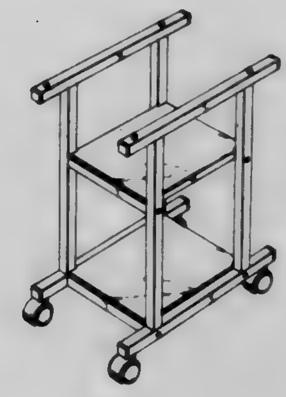
268,536
BRANDING IRON
Edward M. Davis, 1453 Flushing Rd., Flushing, Mich. 48433
Filed Oct. 27, 1980, Ser. No. 201,308
Term of patent 14 years
Int. Cl. D30—*8*
U.S. Cl. D30—43



268,537
MOBILE SALAD BAR
Joe D. Craig, Woodridge; Joan Grez, La Grange; Edward H. Rensi, Downers Grove, and Richard R. Salsbury, Schaumburg, all of Ill., assignors to McDonald's Corporation, Oak Brook, Ill.
Filed Oct. 17, 1980, Ser. No. 197,925
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D34—14



268,538
COPIER STAND
Michio Imada, Kodaira, Japan, assignor to Olympus Optical Company Ltd., Tokyo, Japan
Filed Sep. 19, 1980, Ser. No. 188,890
Claims priority, application Japan, Mar. 24, 1980, 55/011355
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D34—17



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TO WHOM

PATENTS WERE ISSUED ON THE 5TH DAY OF APRIL, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

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Chappelle, Claude L., 4,379,043, Cl. 204-229.000.
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Smith, Carl M., 4,379,101, Cl. 264-40.300.
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Bozler, Carl O.; Alley, Gary D.; Lindley, William T.; and Murphy, R. Allen, 4,378,629, Cl. 29-580.000.
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Anderson, David N. Apparatus and system for the display and selection of merchandise. 4,378,884, Cl. 206-459.000.
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Anokhin, Vladimir N.: *See*—
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Aoki, Shinichiro, to Fujitsu Limited. Monitoring circuit for a descrambling device. 4,379,206, Cl. 178-22.130.
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Ito, Kiyohiko; Koizumi, Masuo; Murakami, Yasushi; Akima, Michitaka; Aono, Jinichiro; Ohba, Yasuhiro; Yamazaki, Tamotsu; Sakai, Kazushige; Hata, Shun-ichi; and Takanashi, Shigeru, 4,379,150, Cl. 424-244.000.
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Wyner, Aaron D., 4,379,205, Cl. 178-22.100.
Bendell, Sidney L., to RCA Corporation. Image tube suppression circuit. 4,379,310, Cl. 358-219.000.
Bender, Gerald M., to McDonnell Douglas Corporation. Pulse transformer laser diode package. 4,379,273, Cl. 333-32.000.
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Busser, Darryl W.; and Szafranski, Joseph P., 4,379,332, Cl. 364-431.050.
Normann, Richard W.; and Niles, Paul D., 4,378,823, Cl. 140-139.000.
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Damen, Johannes P. M.; and Berben, Theodorus J., 4,379,021, Cl. 156-616.00R.
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Schneider, Franz; Bergmann, Ewald; and Gering, Gerhard, 4,378,717, Cl. 83-530.000.
Berke, Herbert; and Portoghese, Joseph, to United States of America, Navy. Composite video signal separator. 4,379,309, Cl. 358-154.000.
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Holzhauer, Henry J., 4,378,750, Cl. 114-249.000.
Berkmann, Adolf, to Nordson Corporation. Coating booth for electrostatic application of pulverized materials. 4,378,728, Cl. 98-115.0SB.
Bernacky, Elizabeth C. Apparatus for vaginal hygiene. 4,378,799, Cl. 604-32.000.
Berner, Rolf E. Method and apparatus for the continuous production of a uniform slab or sheet from heat expandable thermoplastic particles. 4,379,107, Cl. 264-51.000.
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Betts, Max W., to Courtaulds Limited. Presser foot for a knitting machine. 4,378,682, Cl. 66-64.000.
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Fitzpatrick, Brian J.; Bhargava, Rameshwar N.; Milch, Alfred E.; and Tasaico, Pedro, 4,379,299, Cl. 346-1.100.
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Fleischmann, Dale; and Blanton, Marvin E., 4,378,785, Cl. 126-421.000.
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Bleha, William P., Jr.; Wiener-Avnear, Eliezer; and Robusto, Paul F., to Hughes Aircraft Company. Method of and apparatus for a multimode image display with a liquid crystal light valve. 4,378,955, Cl. 350-334.000.
Blionas, Costas: *See*—
Haas, David J.; Blionas, Costas; and Muenzen, Joseph P., 4,379,348, Cl. 378-57.000.
Blume, Orville E.: *See*—
Saylor, James R.; Wiens, Lewis H.; and Blume, Orville E., 4,378,742, Cl. 105-377.000.
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Runnels, Joe N.; and Fagerlund, Kenneth R., 4,378,920, Cl. 244-135.00R.
Tambussi, William C., 4,379,013, Cl. 156-189.000.
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Boger, Manfred; Burckhardt, Urs; Kristinsson, Haukur; Mattern, Gunter; and Traber, Walter, to Ciba-Geigy Corporation. Substituted 2-(anilinomethyl)-2-imidazoline derivatives, compositions containing these derivatives, and the use thereof for combating pests. 4,379,147, Cl. 424-200.000.
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Eshraghian, Kamran; and Bogner, Robert E., 4,379,280, Cl. 340-38.00L.
Bogunovic, Mirjana V.: *See*—
Islip, Peter J.; and Bogunovic, Mirjana V., 4,379,156, Cl. 424-270.000.
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Tsvetkov, Nikolai S.; Maleev, Igor I.; Opainich, Irina E.; Lobkovskaya, Lidia A.; Bogush, Alexandr R.; Sozanskaya, Alexandra D.; Onischak, Evgeny I.; Gladyshevsky, Evgeny I.; and Opainich, Mikhail D., 4,379,184, Cl. 427-169.000.
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Bohm, Nandor; Bohm, Janos; and Bohm, Robert, 4,378,694, Cl. 73-114.000.
Boisvert, Conrad; and Greger, William J., to Honeywell Inc. Transparent addressing for CRT controller. 4,379,293, Cl. 340-750.000.
Bolton, Gerald L.; Sefton, Verner B.; and Zubryckyj, Nicolaus, to Sherritt Gordon Mines Limited. Removal of manganese and chloride ions from aqueous acidic zinc sulphate solutions. 4,379,037, Cl. 204-119.000.
Bolton, Joseph A., to Albany International Corp. Method and apparatus for filtering contaminating particles from a liquid/particle mixture. 4,379,058, Cl. 210-791.000.
Bonaldi, Antonio; and Molinari, Egidio, to Erregierre S.p.A. Process for preparing high purity ursodeoxycholic acid. 4,379,093, Cl. 260-397.100.
Bono, James L.: *See*—
McCoy, Stephen A.; and Bono, James L., 4,379,177, Cl. 426-656.000.
Botterman, David L.; and Wolff, Natalie A., to Container Corporation of America. Reusable enclosed carrier carton. 4,378,877, Cl. 206-141.000.
Bouchara, Claude; Henaff, Robert; and Jacob, Pierre, to Aimants Ugimag S.A. Process and apparatus for the multipolar magnetization of a material in strips. 4,379,276, Cl. 335-284.000.
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Aloup, Jean-Claude; Bouchaudon, Jean; Farge, Daniel; and James, Claude, 4,379,154, Cl. 424-250.000.
Boudreau, Robert J.: *See*—
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Bouwhuis, Gijsbertus; De Lang, Hendrik; and Dekkers, Nicolaas H., to U.S. Philips Corporation. Automatic beam correction in a scanning transmission electron microscope. 4,379,230, Cl. 250-307.000.
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Cipriani, Cipriano; and Boyd, Henry J., 4,379,197, Cl. 428-220.000.
Boykin, John R., to Westinghouse Electric Corp. Coherent phase shift keyed demodulator for power line communication systems. 4,379,284, Cl. 340-310.00R.
Bozler, Carl O.; Alley, Gary D.; Lindley, William T.; and Murphy, R. Allen, to Massachusetts Institute of Technology. Semiconductor embedded layer technology including permeable base transistor, fabrication method. 4,378,629, Cl. 29-580.000.
BP Chemicals Limited: *See*—
Biggin, Ian S.; and Wilson, Alan S., 4,379,000, Cl. 106-311.000.
Brady, Jack D., to Andersen 2000 Inc. Process for regenerating scrubbing solutions. 4,379,130, Cl. 423-242.000.
Braillon, Philibert M. Magnetic chuck. 4,379,277, Cl. 335-295.000.
Braintree Scientific, Inc.: *See*—
Klingenberg, Roger E., 4,378,624, Cl. 29-239.000.
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Brane, Earl P. Filter bypass valve assembly. 4,379,053, Cl. 210-234.000.
Brenner, Heinz, to BOGE GmbH. Engine mountings for trucks, motor coaches or the like utility vehicles. 4,378,936, Cl. 267-140.100.
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Jensen, Marcus M., 4,379,140, Cl. 424-92.000.
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British Communications Corporation, Ltd.: *See*—
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British Steam Specialties Limited, The: *See*—
Furness, Richard A.; and Lauder, Robert A., 4,378,703, Cl. 73-861.790.
Broadt, David R., to GTE Products Corporation. Reflector insert for multi-flash unit. 4,379,323, Cl. 362-346.000.
Brock, Kurtis B. Enhanced oil recovery apparatus and method. 4,378,846, Cl. 166-303.000.
Brockway, William J.: *See*—
Coan, Michael H.; and Brockway, William J., 4,379,087, Cl. 260-112.00B.
Brouha, Marcel; van den Hoogenhof, Waltherus W.; and van Loosdregt, Peter C., to U.S. Philips Corporation. Cathode-ray tube. 4,379,251, Cl. 313-403.000.
Brown Group Recreational Products, Inc.: *See*—
Voytko, Charles L.; and Boudreau, Robert J., 4,378,946, Cl. 280-642.000.
Brown, Neil T.: *See*—
Haub, Donald J.; Brown, Neil T.; Krier, Keith N.; Hawkins, Raymond C.; and Seim, Howard N., 4,378,855, Cl. 180-65.00R.
Brown, Paul R.; and Fresch, Henry D., to Goodyear Tire & Rubber Company, The. Rolling lobe airspring. 4,378,935, Cl. 267-64.270.
Brown, William L., to SI Handling Systems, Inc. Article handling apparatus. 4,378,872, Cl. 198-570.000.
BRS, Inc.: *See*—
Johnson, Jeffrey O., 4,378,643, Cl. 36-129.000.
Brunswick Corporation: *See*—
Shackelford, John T.; and Carpenter, Robert L., 4,378,914, Cl. 242-84.21A.
Buchholz, Adolf. Fluid flow deflector apparatus and sheet dryer employing same. 4,378,640, Cl. 34-155.000.
Bucklers, Lothar: *See*—
Ehlers, Helmut H.; Eggensperger, Heinz; Bucklers, Lothar; Eigener, Ulrich; Diehl, Karl-Heinz; and Weigand, Norbert, 4,379,137, Cl. 424-78.000.
Burch, Lorraine. Hair trimming device. 4,378,635, Cl. 30-58.000.
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Burgess, Vernon J. Saw chain connector. 4,378,719, Cl. 83-831.000.
Burlington Industries, Inc.: *See*—
Lassiter, B. Dean, 4,378,672, Cl. 57-122.000.
Burns, Gerard. Clasp. 4,378,617, Cl. 24-336.000.
Burrough, Philip M.; and Edwards, David V., to RFD Inflatables Limited. Escape slides. 4,378,861, Cl. 182-48.000.
Burroughs Corporation: *See*—
Catiller, Robert D., 4,379,265, Cl. 328-55.000.

Catiller, Robert D.; and Forbes, Brian K., 4,379,328, Cl. 364-200.000.
Burroughs Wellcome Co.: *See*—
Harfenist, Morton; and Joyner, Charles T., 4,379,160, Cl. 424-274.000.
Islip, Peter J.; and Bogunovic, Mirjana V., 4,379,156, Cl. 424-270.000.
Bush, Eric L.; and Workman, Ernest J., to ITT Industries, Inc. Fluidizing fine powder. 4,379,186, Cl. 427-213.000.
Busser, Darryl W.; and Szafranski, Joseph P., to Bendix Corporation, The. Electronic fuel injection control system for an internal combustion engine. 4,379,332, Cl. 364-431.050.
Bussey, Harry, Jr. Method of expanding heat expandable thermoplastic elements with steam and a horizontal expander with a feed near the bottom for expanding the heat expandable element. 4,379,106, Cl. 264-51.000.
Butler, Bill J.: *See*—
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C. Delachaux: *See*—
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C. W. Zumbiel Co., The: *See*—
Summers, Gus E., 4,378,880, Cl. 206-170.000.
Cale, Albert D., Jr., to A. H. Robins Company, Inc. 3-Phenoxyazetidines for anorexigenic activity. 4,379,151, Cl. 424-244.000.
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Calspan Corporation: *See*—
Schneider, Clayton J., Jr., 4,378,740, Cl. 102-216.000.
Cannella, Vincent D.; and Izu, Masatsugu, to Energy Conversion Devices, Inc. Method for plasma deposition of amorphous materials. 4,379,181, Cl. 427-39.000.
Canon Business Machines, Inc.: *See*—
Yamamoto, Hideo; Takase, Susumu; and Thomas, R. Dale, 4,379,336, Cl. 364-708.000.
Canon Kabushiki Kaisha: *See*—
Knechtel, Wilhelm, 4,378,752, Cl. 118-60.000.
Miyamoto, Koichi, 4,378,706, Cl. 74-89.220.
Carder, Mervin L., Sr., to M. Carder Industries, Incorporated. Fluid dispensing nozzle. 4,378,824, Cl. 141-206.000.
Carl Still GmbH & Co. KG, Firma: *See*—
Stratmann, Josef; and Brinkmann, Willi, 4,379,023, Cl. 202-247.000.
Carlson, John L.; Parson, Roger F.; and Nicholson, David F., to Jeno's, Inc. Apparatus for the drip dry conveyance of oil-fried dough products. 4,379,055, Cl. 210-400.000.
Carmel, A. Peter, to Modular Industries Ltd. Portable spiral staircase. 4,378,862, Cl. 182-106.000.
Carpenter, Robert L.: *See*—
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Carpenter Technology Corporation: *See*—
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Carter, Margaret P.; and Hodgson, David, to British Communications Corporation, Ltd. Phase locked loop having rapid tuning. 4,379,270, Cl. 331-1.00A.
Cassou, Betrand; Cassou, Maurice; and Cassou, Robert. Single shot stock of animal semen for artificial insemination of birds, especially turkeys, hens, and guinea fowl. 4,378,798, Cl. 604-275.000.
Cassou, Maurice: *See*—
Cassou, Betrand; Cassou, Maurice; and Cassou, Robert, 4,378,798, Cl. 604-275.000.
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Caterpillar Tractor Co.: *See*—
Daniel, Steven A., 4,378,711, Cl. 74-467.000.
Hosmer, Stephen L.; and Steuer, Paul R., 4,378,659, Cl. 49-504.000.
Satzler, Ronald L., 4,378,834, Cl. 157-1.100.
Catiller, Robert D., to Burroughs Corporation. Dual clocking time delay generation circuit. 4,379,265, Cl. 328-55.000.
Catiller, Robert D.; and Forbes, Brian K., to Burroughs Corporation. Linear sequencing microprocessor facilitating. 4,379,328, Cl. 364-200.000.
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Tietjen, Donald; Lamb, Sharon; Shaw, Pern; Cawthron, Duane; and Shannon, Paul D., 4,379,327, Cl. 364-200.000.
Cengel, John A.; Hunt, Mark W.; Strukl, Joseph S.; and Pappas, Peter G., to Standard Oil Company (Indiana). Oxidative passivation of polyamine-dispersants. 4,379,064, Cl. 252-51.50A.
Cerberus AG: *See*—
Muggli, Jurg; and Pfister, Gustav, 4,379,290, Cl. 340-629.000.
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Petranek, Jaroslav; Ryba, Olen; Semler, Miloslav; and Panoch, Miroslav, 4,379,041, Cl. 204-415.000.
Cha, Chang Y., to Occidental Oil Shale, Inc. Ignition technique for an in situ oil shale retort. 4,378,841, Cl. 166-261.000.
Chalmers, Bruce, to Mobil Solar Energy Corporation. Solar cells. 4,379,202, Cl. 136-256.000.
Chamberlin, Ronald D., to PPG Industries, Inc. Method of operating an electrolytic cell. 4,379,035, Cl. 204-98.000.
Champion International Corporation: *See*—
Mode, Duane R., 4,378,904, Cl. 229-41.00B.
Roccaforte, Harry I., 4,378,905, Cl. 229-52.00B.
Sherwood, Irvin W., 4,378,903, Cl. 229-6.00R.
Chappelle, Claude L., to Francisco, Robert G.; Williams, Loren V.; Hennigan, Dan; Cornish, James R.; and Allen, Charles R. Water-decomposition and gas-generating apparatus. 4,379,043, Cl. 204-229.000.
Chattanooga Corporation: *See*—
Sarrell, Ivan D., 4,378,791, Cl. 128-71.000.
Chatterjee, Pallab K.; and Tasch, Aloysious F., Jr., to Texas Instruments Incorporated. Non-coplanar barrier-type charge coupled device with enhanced storage capacity and reduced leakage current. 4,379,306, Cl. 357-24.000.
Check, Mathias M.; and Goodby, Elia L. Hand scoop for grass and leaves. 4,378,670, Cl. 56-400.010.
Chen, Ying-Ho: *See*—
Lunsford, Carl D.; and Chen, Ying-Ho, 4,379,167, Cl. 424-330.000.
Cheng, Chen-Yen; and Cheng, Sing-Wang. Distillative freezing process for separating volatile mixtures. 4,378,984, Cl. 62-12.000.
Cheng, Sing-Wang: *See*—
Cheng, Chen-Yen; and Cheng, Sing-Wang, 4,378,984, Cl. 62-12.000.
Cherkofsky, Saul C., to Du Pont de Nemours, E. I., and Company. Antiinflammatory 2-substituted-thio-4,5-dihydro-4,5-diaryl-1H-imidazoles. 4,379,159, Cl. 424-273.00R.
Cherry Electrical Products Corporation: *See*—
Cokefair, Jon, 4,378,649, Cl. 40-544.000.
Chevallier, Rene, to Thomson-CSF. Orientable antenna support. 4,379,297, Cl. 343-882.000.
Chevron Research Company: *See*—
Small, Vernon R., Jr., 4,379,066, Cl. 252-56.00R.
Chia, Weng-Kwen R.; and Forrest, Robert S., to Smith International, Inc. Cavitation nozzle plate adapter for rock bits. 4,378,853, Cl. 175-340.000.
Chiba, Tetsuya: *See*—
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Chistozvonov, David B., deceased: *See*—
Lytkin, Viktor P.; Menshov, Vladimir N.; Frolov, Jury S.; Polikarpova, Zinaida A.; Sobolevsky, Viktor S.; Seljutina, Maria G.; Anokhin, Vladimir N.; Barbosov, Nikolai D.; Vorontsov, Sergei P., deceased; Vorontsova, Nina F., administrator; Chistozvonov, David B., deceased; and Chistozvonova, Vera G., adminstrator, 4,379,078, Cl. 252-466.00J.
Chistozvonova, Vera G., adminstrator: *See*—
Lytkin, Viktor P.; Menshov, Vladimir N.; Frolov, Jury S.; Polikarpova, Zinaida A.; Sobolevsky, Viktor S.; Seljutina, Maria G.; Anokhin, Vladimir N.; Barbosov, Nikolai D.; Vorontsov, Sergei P., deceased; Vorontsova, Nina F., administrator; Chistozvonov, David B., deceased; and Chistozvonova, Vera G., adminstrator, 4,379,078, Cl. 252-466.00J.
Chitayat, Anwar, to Anorad Corp. Friction drive for positioning table. 4,378,709, Cl. 74-207.000.
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Peignier, Michel; and Renault, Claude, 4,378,968, Cl. 8-142.000.
Christensen, James H. Bag holder. 4,378,924, Cl. 248-101.000.
Chrones, Anthony, to Reliance Products Corporation. Safety closure latch. 4,378,948, Cl. 292-19.000.
Chubb Panorama Limited: *See*—
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Chugai Seiyaku Kabushiki Kaisha: *See*—
Ito, Kiyohiko; Koizumi, Masuo; Murakami, Yasushi; Akima, Michitaka; Aono, Jinichiro; Ohba, Yasuhiro; Yamazaki, Tamotsu; Sakai, Kazushige; Hata, Shun-ichi; and Takanashi, Shigeru, 4,379,150, Cl. 424-244.000.
Ciba-Geigy AG: *See*—
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Boger, Manfred; Burckhardt, Urs; Kristinsson, Haukur; Mattern, Gunter; and Traber, Walter, 4,379,147, Cl. 424-200.000.
Kump, Wilhelm, 4,379,149, Cl. 424-244.000.
Rosen, Melvin H., 4,379,162, Cl. 424-275.000.
Cincinnati Milacron Inc.: *See*—
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Cipriani, Cipriano; and Boyd, Henry J., to El Paso Polyolefins Company. Stretch wrap film composition. 4,379,197, Cl. 428-220.000.
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Clark, Charles R., to Research Corporation. Anti-convulsant. 4,379,165, Cl. 424-324.000.
Clark, James d'A. Method of producing smooth-uniform streams of semi-pourable fibrous particles. 4,378,871, Cl. 193-2.00R.
Clark, James M.; and Secrist, Duane R., to Great Lakes Carbon Corporation. Method of manufacturing aluminum in a Hall-Heroult cell. 4,379,033, Cl. 204-67.000.
Clarke, Theodore R.; and Hosler, John F., to Formica Corporation. High pressure decorative laminates containing an air-laid web of fibers and filler and method of producing same. 4,379,194, Cl. 428-203.000.
Clausen, Eva: *See*—
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Clinical Data, Inc.: *See—*
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Clino Foundry Supplies Limited: *See—*
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Cloudy & Britton Inc.: *See—*
Cloudy, Westley R., 4,378,873, Cl. 198-796.000.
Cloudy, Westley R., to Cloudy & Britton Inc. Continuous linear chain conveyor system operating throughout multiple tiers with dual spaced chains moving directly attached multiple adjacent trays which level to support the conveyed product. 4,378,873, Cl. 198-796.000.
Cloverline, Inc.: *See—*
Leopoldi, Norbert; and Heinrich, William P., 4,378,885, Cl. 206-540.000.
Coan, Michael H.; and Brockway, William J., to Cutter Laboratories, Inc. Method of preparing alpha-1-proteinase inhibitor. 4,379,087, Cl. 260-112.00B.
Coggiola, Marcel, to Robot-Coupe, S.A. Citrus press device. 4,378,730, Cl. 99-501.000.
Cohen, Solomon E.: *See—*
Seach, Barry G.; Muller, Hans; and Cohen, Solomon E., 4,379,115, Cl. 264-296.000.
Cokefair, Jon, to Cherry Electrical Products Corporation. Reflective shield for gas discharge display. 4,378,649, Cl. 40-544.000.
Cole, James E.: *See—*
Fifer, Robert A.; and Cole, James E., 4,379,007, Cl. 149-22.000.
Cole, Mark A.: *See—*
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Coleman, Marilyn A., to Smith, Gerald L.; and Mueller, Jerry K., Jr., a part interest. Incubation method and process. 4,378,758, Cl. 119-35.000.
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Schaar, Charles H., 4,378,800, Cl. 604-390.000.
Collin, Gerd: *See—*
Zander, Maximilian; Blumer, Gerd-Peter; Collin, Gerd; Glaser, Herbert; and Marrett, Rolf, 4,379,133, Cl. 423-445.000.
Collins, Robert F., to Kendall Company, The. Surgical drape. 4,378,794, Cl. 128-132.00D.
Colvin, David S. Adjustable socket including apertured sleeve. 4,378,714, Cl. 81-128.000.
Comeau, Joseph E., Jr. Apartment solar heating panel. 4,378,786, Cl. 126-429.000.
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Gauchon, Jean-Paul, 4,379,082, Cl. 252-631.000.
Roche, Michel, 4,379,118, Cl. 376-154.000.
Commonwealth of Australia, The: *See—*
Martin, David T., 4,378,983, Cl. 55-357.000.
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Conroy, Ernest F., Jr.; Orange, Daniel P.; and Elms, Robert T., to Westinghouse Electric Corp. Solid-state load protection system having loss of phase sensing. 4,379,317, Cl. 361-85.000.
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Miller, Stephen B.; and Schultz, Peter C., 4,378,987, Cl. 65-3.120.
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Tick, Paul A., 4,379,070, Cl. 252-301.160.
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Cortese, Thomas A., Jr. Facial treatment device. 4,378,804, Cl. 128-355.000.
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Crounse, Nathan N., to Sterling Drug Inc. Polyaminoalkylenesulfonamidated disazo colorants. 4,379,089, Cl. 260-161.000.
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Daniel, Steven A., to Caterpillar Tractor Co. Planetary mechanism having a fluid baffle. 4,378,711, Cl. 74-467.000.
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Daviduk, Nicholas; and Haddad, James H., to Mobil Oil Corporation. Fluid catalyst conversion of alcohols and oxygenates to hydrocarbons. 4,379,123, Cl. 422-142.000.
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Derby, Paul A. Birding game method. 4,378,941, Cl. 273-273.000.
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Detroit Gasket & Manufacturing Co.: *See*—
Doerfling, Ralph G., 4,379,103, Cl. 264-45.500.
Devic, Michel, to P C U K Produits Chimiques Ugine Kuhlmann. Process for the preparation of anthraquinone and its substituted derivatives. 4,379,092, Cl. 260-369.000.
deVries, Egbert, to Quad Environmental Technologies Corporation. Method for inhibiting explosions. 4,378,851, Cl. 169-45.000.
de Vries, Paul. Portable securing assembly for an electric musical instrument. 4,378,881, Cl. 206-314.000.
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Dilday, Joseph T., to Olin Corporation. Process for producing a flowable fungicide formulation. 4,379,144, Cl. 424-168.000.
Dilo, Richard, to Oskar Dilo Maschinenfabrik KG. Apparatus for producing velour-needlefelt webs. 4,378,618, Cl. 28-110.000.
Dinger, Rudolf J., to Ebauches, S.A. Method of detection of the asymmetry of piezo-electric crystal resonators in the form of tuning forks and resonators for carrying it out. 4,379,244, Cl. 310-312.000.
DiSalvo, Gail D.; and Reedy, James D., to Union Carbide Corporation. Ferrosiloxane thermal stabilizers for diorganopolysiloxanes. 4,379,094, Cl. 260-439.00R.
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Dooley, Daniel J. Analog to digital converter. 4,379,285, Cl. 340-347.0AD.
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Doss, James A., to Structural Concepts Corporation. Data station with wire and air duct. 4,378,727, Cl. 98-33.00R.
Dotolo, Vincent. Pesticides containing D-limonene. 4,379,168, Cl. 424-356.000.
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Dugan, Thomas J.; and Dugan, Dennis G. Double cylinder sliding door lock. 4,378,684, Cl. 70-100.000.
Duintjer, Engbert J. Apparatus for covering a liquid basin, and roller-blind type cover for use therein. 4,378,608, Cl. 4-500.000.
Dunseith, S. Michael, to Allis-Chalmers Corporation. Method and apparatus for purging and isolating a filter compartment within a baghouse installation. 4,378,979, Cl. 55-96.000.
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Eberly, Paul E., Jr.; Mauldin, Charles H.; and Baird, William C., Jr., to Exxon Research and Engineering Co. Reforming with multimetallic catalysts. 4,379,076, Cl. 252-439.000.
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Ehrlich, Josef, to Outboard Marine Corporation. Two-stroke internal combustion engine and method of operation thereof. 4,378,762, Cl. 123-73.0PP.
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Sutherland, James F.; Furgerson, Donald F.; and Kezunovic, Mladen, 4,379,294, Cl. 340-825.500.
Electronic Concepts, Inc.: *See*—
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Elfes, Lee E.: *See*—
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Ely, Peter M.: *See*—
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Tuggle, Lloyd H.; Loyd, Ronald C.; Johnson, Stanley A., Jr.; Patridge, A. Gary; Ingham, John W.; and Friend, Kenneth J., 4,378,644, Cl. 37-244.000.
EMI Limited: *See*—
LeMay, Christopher A. G., 4,379,329, Cl. 364-414.000.
Empson, Kenneth G. Telescoping uncoupling lever for railroad cars. 4,378,890, Cl. 213-166.000.
Endo, Keiji; Toriyama, Tomomi; and Mori, Kisaku, to Schering Aktiengesellschaft. Herbicidal composition. 4,378,990, Cl. 71-90.000.

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Engstrom, Robert J., to Honeywell Inc. Apparatus for interpreting Code 39 bar code data. 4,379,224, Cl. 235-463.000.
Epper, Wolfgang; and Paschedag, Theodor, to Klockner-Humboldt-Deutz AG. Solid jacket centrifuge for material exchange between liquids. 4,378,906, Cl. 494-54.000.
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Ersek, Robert A. Septal splint. 4,378,802, Cl. 128-346.000.
Erwin, Samuel F. Demountable solar oven. 4,378,790, Cl. 126-451.000.
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Everett, Geoffrey J.; and Hunt, Christopher J., to TI Crypton Limited. Engine analyzers. 4,379,263, Cl. 324-379.000.
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Oldweiler, Morey E., 4,379,046, Cl. 208-54.000.
Fa. Christian Majer K.G., Maschinenfabrik: *See—*
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Falke, Jurgen; Geiger, Helmut; Grunbein, Wolfgang; and Kandel, Heinz-Georg, to Behringwerke Aktiengesellschaft. Process for the preparation of blood plasma fractions. 4,379,083, Cl. 260-112.00B.
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Farrar, Frederick G.; and Schaubert, Daniel H., to United States of America, Army. Selectable-mode microstrip antenna and selectable-mode microstrip antenna arrays. 4,379,296, Cl. 343-700.0MS.
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Feathers, Leonard J.; and Ely, Peter M., to Chubb Panorama Limited. Fluid connector assembly. 4,378,795, Cl. 128-202.270.
Fedak, Tibor, to Jade Corporation, The. Apparatus for preventing wire sag in the wire bonding process for producing semiconductor devices. 4,378,902, Cl. 228-6.00A.
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Fenton, Donald M., to Union Oil Company of California. Additive for glycol solvent used in aromatic extraction. 4,379,047, Cl. 208-333.000.
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Ferruti, Paolo; Danusso, Ferdinando; Tanzi, Maria C.; and Quadro, Giuseppe, to Ausonia Farmaceutici s.r.l. Esters of arylpropionic acids endowed with an anti-inflammatory activity. 4,379,091, Cl. 548-472.000.
Fifer, Robert A.; and Cole, James E., to United States of America, Army. Catalysts for nitramine propellants. 4,379,007, Cl. 149-22.000.
Finney, Roy P., to Medical Engineering Corporation. Penile prosthesis. 4,378,792, Cl. 128-79.000.
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Fischbeck, Kenneth H., to Xerox Corporation. Ink jet printing. 4,379,300, Cl. 346-1.100.
Fischbeck, Kenneth H., to Xerox Corporation. Method for ink jet printing. 4,379,301, Cl. 346-1.100.
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Fisher, Ernest P., Jr., to Otis Engineering Corporation. Well tool. 4,378,839, Cl. 166-217.000.
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Flaherty, John J.; and Strauts, Eric J., to Magnaflux Corporation. Indicating system for use in nondestructive testing. 4,378,700, Cl. 73-620.000.
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Fleischmann, Dale; and Blanton, Marvin E. Solar heating system. 4,378,785, Cl. 126-421.000.
Fleischmann, Dale. Solar heating system. 4,378,787, Cl. 126-430.000.
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Annarelli, Dennis C.; and Hall, Richard E., 4,379,132, Cl. 423-305.000.
Milberger, Lionel J., 4,378,848, Cl. 166-362.000.
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Chia, Weng-Kwen R.; and Forrest, Robert S., 4,378,853, Cl. 175-340.000.
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Thominet, Michel; and Franceschini, Jacqueline, 4,379,161, Cl. 424-274.000.
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Frank, Arthur M., to Grumman Aerospace Corporation. Solar heating system. 4,378,784, Cl. 126-418.000.
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Crisman, Thomas L.; Moore, Stanley R.; and Weaver, Harry R., 4,378,625, Cl. 29-450.000.
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Garland, Milton W., 4,378,680, Cl. 62-352.000.
Friedmann, Oswald, to LuK Lamellen und Kupplungsbau GmbH. Clutch disc. 4,378,869, Cl. 192-106.200.
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Ohgami, Masaaki, 4,378,773, Cl. 123-440.000.
Fuji Oil Company Limited: *See—*
Teranishi, Susumu; Kawasaki, Yoichi; Katayama, Tsutomu; and Taniguchi, Hitoshi, 4,379,084, Cl. 260-112.00R.
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Abe, Akira, 4,379,129, Cl. 423-210.000.

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Aoki, Shinichiro, 4,379,206, Cl. 178-22.130.
Nakano, Tomio; and Takemae, Yoshihiro, 4,379,342, Cl. 365-182.000.
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Kimura, Tokusuke; and Kurosu, Fumio, 4,379,086, Cl. 260-112.00B.
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Furgerson, Donald F.: *See—*
Sutherland, James F.; Furgerson, Donald F.; and Kezunovic, Mladen, 4,379,294, Cl. 340-825.500.
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Gardner, David M., to Pennwalt Corporation. Process for the manufacture of alkylaminoalkanol. 4,379,024, Cl. 203-6.000.
Garland, Milton W., to Frick Company. Shell and tube ice-maker with hot gas defrost. 4,378,680, Cl. 62-352.000.
Garrett, Ted L. Animal restraining device. 4,378,759, Cl. 119-98.000.
Garrett, William R. Wedge lock stabilizer. 4,378,852, Cl. 175-325.000.
Gascon, Lorenzo. Rake. 4,378,671, Cl. 56-400.120.
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Heikes, George E., Jr.; and Henderson, Claude L., 4,379,112, Cl. 264-159.000.
Gauchon, Jean-Paul, to Commissariat a l'Energie Atomique. Method of removing ruthenium contamination from a liquid radioactive effluent. 4,379,082, Cl. 252-631.000.
Gebr. Bode & Co. GmbH, Firma: *See—*
Heinrich, Siegfried; and Horn, Manfred, 4,378,656, Cl. 49-28.000.
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Gebruder Welger GmbH & Co. Kommanditgesellschaft: *See—*
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General Electric Company: *See—*
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Halper, Warren, 4,379,196, Cl. 428-213.000.
Plemmons, Jerry R.; and Taylor, Carl D., 4,379,321, Cl. 362-267.000.
Stocking, George E.; and Ruark, Bruce L., 4,378,679, Cl. 62-280.000.
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Furda, Ivan; and Gengler, Shirley C., 4,379,171, Cl. 426-291.000.
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Bauer, Gunter; and Eckert, Joachim, 4,379,127, Cl. 423-55.000.
Gillery, F. Howard, to PPG Industries, Inc. Method of and apparatus for control of reactive sputtering deposition. 4,379,040, Cl. 204-192.00P.
Gillette Company, The: *See—*
Behrens, Henry; and Jacobson, Chester F., 4,379,219, Cl. 219-121.0LC.
Jacobson, Chester F., 4,378,633, Cl. 30-47.000.
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Gilmore, William J.: *See—*
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Girardi, Guglielmo; and Miroglio, Franco, to Cselt - Centro Studi e Laboratori Telecomunicazioni S.p.A. Receiver for PCM-encoded multifrequency dialing signals. 4,379,347, Cl. 375-94.000.
Givens, Wyatt W., to Mobil Oil Corporation. Measuring of gamma-ray energy due to thermal neutron capture of copper and nickel. 4,379,229, Cl. 250-270.000.
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Tsvetkov, Nikolai S.; Maleev, Igor I.; Opainich, Irina E.; Lobkovskaya, Lidia A.; Bogush, Alexandr R.; Sozanskaya, Alexandra D.; Onischak, Evgeny I.; Gladyshevsky, Evgeny I.; and Opainich, Mikhail D., 4,379,184, Cl. 427-169.000.
Glaeser, Andreas M.; Haggerty, John S.; and Danforth, Stephen C., to Massachusetts Institute of Technology. Polycrystalline semiconductor processing. 4,379,020, Cl. 156-603.000.
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Zander, Maximilian; Blumer, Gerd-Peter; Collin, Gerd; Glaser, Herbert; and Marrett, Rolf, 4,379,133, Cl. 423-445.000.
Gluz, Jacob; and Poku, Benjamin. Electronic device for playing bingo, lotto and allied card games. 4,378,940, Cl. 273-237.000.
Goft, Manfred; Maurer, Dieter; and Aucktor, Erich, to Lohr & Bromkamp GmbH. Driven steering shaft assembly. 4,378,858, Cl. 180-259.000.
Gold, Elijah H.: *See—*
Neustadt, Bernard R.; and Gold, Elijah H., 4,379,166, Cl. 424-324.000.
Goldstein, Richard, to Dynascan Corporation. Manually operable rotary pulse generating apparatus for pulse counting and similar applications. 4,379,245, Cl. 310-319.000.
Good News Unlimited Incorporated: *See—*
Avery, Alfred J., 4,378,932, Cl. 251-61.400.
Goodby, Elia L.: *See—*
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Goodrich, Roger S.: *See—*
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Goodyear Tire & Rubber Company, The: *See—*
Brown, Paul R.; and Fresch, Henry D., 4,378,935, Cl. 267-64.270.
Goshima, Takayuki: *See—*
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Gozzo, Franco: *See—*
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Graser, Earl J., to Manville Service Corporation. Crown support carrier. 4,378,878, Cl. 206-153.000.
Gratzfeld, Everhard; Clausen, Eva; Reinhardt, Helmut; and Schaefer, Hans, to Degussa Aktiengesellschaft. Iron blue pigment, process for making the same and use. 4,378,995, Cl. 106-15.050.
Graves, Kevin J., to UOP Inc. Vehicle seat mounting devices. 4,378,927, Cl. 248-561.000.
Great Lakes Carbon Corporation: *See—*
Clark, James M.; and Secrist, Duane R., 4,379,033, Cl. 204-67.000.
Grebe, Kurt R.; and Harper, James M. E., to International Business Machines Corporation. Fluxless ion beam soldering process. 4,379,218, Cl. 219-121.0ED.
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Hasegawa, Eichi; and Kobayashi, Takashi, 4,379,141, Cl. 424-94.000.
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Greenlee, William J.; Harris, Elbert E.; Patchett, Arthur A.; and Thorsett, Eugene D., to Merck & Co., Inc. Substituted phosphonamides as antihypertensives. 4,379,146, Cl. 424-177.000.
Greger, William J.: *See—*
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Greskovich, Charles D.; Palm, John A.; and Prochazka, Svante, to General Electric Company. Sintering of silicon nitride to high density. 4,379,110, Cl. 264-65.000.
Griesdorn, Carl P., to Planet Products Corporation. Heat transfer apparatus. 4,379,018, Cl. 156-359.000.
Griffin, Charles E., to Lingo Manufacturing Company. T-Bracket shelf assembly. 4,378,925, Cl. 248-242.000.
Grimsley, Ernest E. Apparatus for holding valve element and refinishing tool. 4,378,661, Cl. 51-125.000.
Gross, Helmut; and Hauck, Hermann, to AB Akerlund & Rausing. Method and apparatus for sealing cardboard containers. 4,379,008, Cl. 156-69.000.
Grosscurt, Arnoldus C.: *See—*
van Hes, Roelof; Grosscurt, Arnoldus C.; and Balk, Wouter, 4,379,157, Cl. 424-270.000.
Grumman Aerospace Corporation: *See—*
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Omodei-Sale, Amedeo; Consonni, Pietro; Galliani, Giulio; and Lerner, Leonard J., 4,379,155, Cl. 424-269.000.
GTE Laboratories Incorporated: *See—*
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GTE Products Corporation: *See—*
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Kim, Tai K.; Ritsko, Joseph E.; MacInnis, Martin B.; and Vogt, Martin C., 4,379,126, Cl. 423-54.000.
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Gulf Oil Corporation: *See—*
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Gulf & Western Manufacturing Company: *See—*
Spanke, Edwin A.; and Francey, Melvin H., 4,378,688, Cl. 72-420.000.
Gullett, Brad. Lawnmower-edge trimmer. 4,378,668, Cl. 56-12.700.
Gumienny, Anthony, to Transmet Corporation. Electromagnetic radiation shielding composites and method of production thereof. 4,379,098, Cl. 264-24.000.
Guntersdorfer, Max; Kleinschmidt, Peter; and Dietrich, Klaus, to Siemens Aktiengesellschaft. Polymeric piezoelectric drive element for writing jets in mosaic ink printing devices. 4,379,246, Cl. 310-328.000.
Gunther, Conrad J., to Dzus Fastener Co., Inc. Fastener receptacle having press-in mounting. 4,378,615, Cl. 24-221.00A.
Gustav Wagner Maschinenfabrik: *See—*
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H-C Industries, Inc.: *See—*
Wilde, Sheldon L.; McCandless, Thomas J.; and Saunders, Robert M., 4,378,893, Cl. 215-246.000.
Haas, David J.; Blionas, Costas; and Muenzen, Joseph P., to North American Philips Corporation. X-Ray security screening system having magnification. 4,379,348, Cl. 378-57.000.
Hachiga, Takasi; and Taguchi, Yasuo, to Nippondenso Co., Ltd.; and Toshiba Corporation. Ignition system for internal combustion engines. 4,378,779, Cl. 123-644.000.
Haddad, James H.: *See—*
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Hagen, Floyd W.: *See—*
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DeLeo, Richard V.; and Hagen, Floyd W., 4,378,697, Cl. 73-182.000.
Hager, Marshall W.: *See—*
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Haggerty, John S.: *See—*
Glaeser, Andreas M.; Haggerty, John S.; and Danforth, Stephen C., 4,379,020, Cl. 156-603.000.
Hagihara, Tadashi. Filtering scraper cleaning devices. 4,379,056, Cl. 210-415.000.
Hahn, Reinhard; and Behrens, Dieter, to Hermann C. Starck Berlin. Phosphorous-doped alkali tantalum double fluorides. 4,379,128, Cl. 423-63.000.
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Halliburton Company: *See—*
Ayers, William M., 4,379,054, Cl. 210-242.300.
Barrington, Burchus Q., 4,378,850, Cl. 166-373.000.
Halper, Warren, to General Electric Company. Protective coating for aluminum and method of making. 4,379,196, Cl. 428-213.000.
Hamann, Jorn. Milking method and machine. 4,378,757, Cl. 119-14.020.
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Hansen, Guenter; Kolbinger, Hans J.; Senninger, Rudolf; and Zeidler, Georg, to BASF Aktiengesellschaft. Fluid formulations of oxidation dyes for mineral oil products, fats and waxes. 4,378,969, Cl. 8-521.000.
Hansen, Kai, to Zenith Radio Corporation. Acoustic surface wave multiplexing filter. 4,379,274, Cl. 333-194.000.
Hara, Takeshi: *See—*
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Harder, Ernest H. Changeable surveyors rod. 4,378,638, Cl. 33-293.000.
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Harper, James M. E.: *See—*
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Harrington Manufacturing Company: *See—*
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Hart, James E.; and Zahradnik, Robert J., to American Standard Inc. Inshot valve arrangement for railway brake control apparatus employing combined air reservoir/brake cylinder device. 4,378,950, Cl. 303-36.000.
Harter, Werner, to Robert Bosch GmbH. Ignition system for internal combustion engines. 4,378,778, Cl. 123-609.000.
Hasegawa, Eichi; and Kobayashi, Takashi, to Green Cross Corporation, The. Method for recovering myeloperoxidase and pharmaceutical composition containing myeloperoxidase as major constituent. 4,379,141, Cl. 424-94.000.
Hashimoto, Nobuyuki, to Aisin Seiki Kabushiki Kaisha. Dual function thermal valve. 4,378,907, Cl. 236-48.00R.
Haskell, Hugh H.; and Gilmore, William J., to Acco Industries Inc. Self-adjusting cable control device. 4,378,713, Cl. 74-501.50R.
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Haub, Donald J.; Brown, Neil T.; Krier, Keith N.; Hawkins, Raymond C.; and Seim, Howard N., to Tennant Company. Multi-speed drive with forward/reverse lockout. 4,378,855, Cl. 180-65.00R.
Haubner, Georg; Wesemeyer, Jurgen; Meier, Werner; and Schrumpf, Hans, to Robert Bosch GmbH. Digital ignition control for a magnetopowered ignition system of an internal combustion engine. 4,378,769, Cl. 123-416.000.
Hauck, Hermann: *See—*
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Hayter, Alan B.; and Reagan, Bernard L., Jr., to NCR Corporation. High speed shift register. 4,379,222, Cl. 377-81.000.
Head, Donald L.; and Dudis, Edward A., to Mead Corporation, The. Method of fabricating a charge plate for an ink jet printing device. 4,378,631, Cl. 29-825.000.
Heidelberger Druckmaschinen AG: *See—*
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Heikes, George E., Jr.; and Henderson, Claude L., to Gates Rubber Company, The. Method for making a reinforced elastomer piston packing. 4,379,112, Cl. 264-159.000.
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Heilmann, Steven M.; and Moon, John D., to Minnesota Mining and Manufacturing Company. Multiacrylate cross-linking agents in pressure-sensitive photoadhesives. 4,379,201, Cl. 428-345.000.
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Heinrich, Siegfried; and Horn, Manfred, to Gebr. Bode & Co. GmbH, Firma. Anti-clamping device for a vehicle door. 4,378,656, Cl. 49-28.000.
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Heinzl, Joachim; and Kattner, Erich, to Siemens Aktiengesellschaft. Screen for a mosaic ink recorder. 4,379,304, Cl. 346-140.00R.
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Henderson, Dewey D., to Dayco Corporation. Method of making arched V-belts. 4,379,011, Cl. 156-140.000.
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Henley-Cohn, Julian L. Gapped resonant microwave apparatus for producing hyperthermia therapy of tumors. 4,378,806, Cl. 128-304.000.
Hennigan, Dan: *See—*
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Weber, Willis W.; and Herbst, Joseph A., 4,379,134, Cl. 423-626.000.
Hermann C. Starck Berlin: *See—*
Hahn, Reinhard; and Behrens, Dieter, 4,379,128, Cl. 423-63.000.
Hertzenberg, Elliott P.: *See—*
Sherry, Howard S.; and Hertzenberg, Elliott P., 4,379,143, Cl. 424-154.000.
Hess, W. John; and Croker, Morris C., to United States of America, Army. Granular fluid biofilter reversing. 4,379,050, Cl. 210-151.000.
Hettinga, David H.; Wargel, Robert J.; and Tripp, Richard C., to Kraft, Inc. Process for manufacture of cheese. 4,379,170, Cl. 426-40.000.
Heymanns, Willi, to Jagenberg Werke AG. Adhesive tape for and method of joining webs. 4,379,012, Cl. 156-157.000.
Hidematsu Hirai: *See—*
Masuho, Yasuhiko; Umemoto, Naoji; Hara, Takeshi; and Hirai, Hidematsu, 4,379,145, Cl. 424-177.000.
Hiesinger, Edwin; Keplinger, Klaus; and Nessler, Hermann, to Inkomag. Filtering apparatus. 4,379,051, Cl. 210-193.000.
Higuchi, Kazuya: *See—*
Saito, Sadayuki; Moriwaki, Hiroji; and Higuchi, Kazuya, 4,379,002, Cl. 148-9.00R.
Higuchi, Shigeharu: *See—*
Araki, Yasuo; Uno, Hajime; Higuchi, Shigeharu; and Matsumoto, Seiji, 4,379,183, Cl. 427-127.000.
Hirabayashi, Yuji: *See—*
Ninomiya, Masakazu; Suzuki, Atsushi; and Hirabayashi, Yuji, 4,379,333, Cl. 364-431.050.
Hirai, Hidematsu: *See—*
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Hirai, Yasuharu: *See—*
Hosoki, Shigeyuki; Yamamoto, Shigehiko; Todokoro, Hideo; Kawase, Susumu; and Hirai, Yasuharu, 4,379,250, Cl. 313-336.000.
Hirata, Yasufumi; Yanagisawa, Isao; Tamura, Toshinari; and Takeda, Masaaki, to Yamanouchi Pharmaceutical Co., Ltd. Antisecretory imidazole amidine compounds, composition and method of use. 4,379,158, Cl. 424-273.00R.
Hirschfield, Dean J.: *See—*
Szabo, Bela G.; and Hirschfield, Dean J., 4,378,876, Cl. 206-45.340.
Hitachi, Ltd.: *See—*
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Nakagaki, Mitsuhiro; Isoo, Osamu; Matsuoka, Shinji; and Yamada, Takahiro, 4,379,303, Cl. 346-75.000.
Shii, Kazuo; and Ohashi, Toshiyuki, 4,379,231, Cl. 250-311.000.
Toyooka, Takashi; Sugie, Mamoru; Aoki, Hirokazu; and Yoshizawa, Shigeru, 4,379,341, Cl. 365-6.000.
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Hockey, John A.; Shaw, Malcolm A.; Wilby, John L.; and Wilson, Allan A., to Lever Brothers Company. Fabric softening composition and a process for preparing it from cationic surfactant and thickener. 4,379,059, Cl. 252-8.800.
Hodack, Robert J. Article-hanger and illusion-amusement device. 4,378,926, Cl. 248-489.000.
Hodgson, David: *See—*
Carter, Margaret P.; and Hodgson, David, 4,379,270, Cl. 331-1.00A.
Hodson, Lee: *See—*
Salisbury, Wayne C.; and Hodson, Lee, 4,379,100, Cl. 264-39.000.
Hoechst Aktiengesellschaft: *See—*
Benninger, Siegfried; Reining, Karl; and Krasel, Werner, 4,379,125, Cl. 422-274.000.
Daniel, Hellmuth; Queck, Robert; Kuxdorf, Bernhard; and Pusche, Herbert, 4,379,131, Cl. 423-304.000.
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Korbanka, Helmut; Stetter, Karl-Heinz; Illmann, Gunther; Jacob, Rolf; Malitschek, Otto; and Strehle, Josef, 4,378,998, Cl. 106-270.000.
Hoffmann-La Roche Inc.: *See—*
Trybulski, Eugene J., 4,379,090, Cl. 260-239.0BB.
Holbrook, Stanley E.: *See—*
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Holmok, Gunter: *See—*
Kraft, Winfried; Reichel, Artur; and Holmok, Gunter, 4,378,718, Cl. 83-592.000.
Holston, Robert E., to United States of America, Army. Crane assembly. 4,378,933, Cl. 254-399.000.
Holtey, Thomas O.; Kelly, Richard P.; Noyes, Steven S.; and Raymond, James C., to Honeywell Information Systems Inc. Communications subsystem idle link state detector. 4,379,340, Cl. 364-900.000.
Holzhauer, Henry J., to Berkley and Company, Inc. Water ski tow harness float. 4,378,750, Cl. 114-249.000.
Honeywell Inc.: *See—*
Boisvert, Conrad; and Greger, William J., 4,379,293, Cl. 340-750.000.
Engstrom, Robert J., 4,379,224, Cl. 235-463.000.
Sanford, Herbert F., 4,378,899, Cl. 226-188.000.
Honeywell Information Systems Inc.: *See—*
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Hopper, George S., to Texas Instruments Incorporated. Ferroelectric imaging system. 4,379,232, Cl. 250-332.000.
Hore, Donald L. Dynamo electric machines. 4,379,257, Cl. 318-695.000.
Horn, Manfred: *See—*
Heinrich, Siegfried; and Horn, Manfred, 4,378,656, Cl. 49-28.000.
Horng, Cheng T.; Konian, Richard R.; Schwenker, Robert O.; and Weider, Armin W., to International Business Machines Corporation. Process for fabricating a high performance PNP and NPN structure. 4,378,630, Cl. 29-580.000.
Hosek, William: *See—*
DeFeo, Angelo; and Hosek, William, 4,378,744, Cl. 110-182.500.
Hosl, Josef: *See—*
Billeriss, Walter; Hosl, Josef; and Dresen, Werner, 4,378,619, Cl. 29-25.420.
Hosler, John F.: *See—*
Clarke, Theodore R.; and Hosler, John F., 4,379,194, Cl. 428-203.000.
Hosmer, Stephen L.; and Steuer, Paul R., to Caterpillar Tractor Co. Windows. 4,378,659, Cl. 49-504.000.
Hosoki, Shigeyuki; Yamamoto, Shigehiko; Todokoro, Hideo; Kawase, Susumu; and Hirai, Yasuharu, to Hitachi, Ltd. Field emission cathode and method of fabricating the same. 4,379,250, Cl. 313-336.000.
Hospers, Johannes; and ten Lohuis, Gerhard, to Anza B.V. Method of manufacturing sealed rope and knotted netting from such rope. 4,378,725, Cl. 87-12.000.
Hotai, Kazuhide: *See—*
Makino, Yoshimi; Hayakawa, Masatoshi; Aso, Koichi; Uedaira, Satoru; Ito, Shigeyasu; and Hotai, Kazuhide, 4,379,004, Cl. 148-108.000.
Houdaille Industries, Inc.: *See—*
McLean, Ronald L., 4,378,865, Cl. 188-379.000.
Houston, James L., to Superior Valve Corporation. Slide valve assembly. 4,378,817, Cl. 137-315.000.
Hoval Interliz AG: *See—*
Ospelt, Gustav, 4,378,837, Cl. 165-166.000.
Hovel, Harold J.; and Woodall, Jerry M., to International Business Machines Corporation. Semiconductor device fabrication. 4,379,005, Cl. 148-187.000.
Hubbard, Larry E.; and Rhorer, Clifford A., to Texas Eastern Scientific Research, Inc. Bearing failure indicator for rotating electric machines. 4,379,291, Cl. 340-682.000.
Hudson, Robert J.: *See—*
Allen, Ronald E.; Hudson, Robert J.; and Hager, Marshall W., 4,378,921, Cl. 244-151.00R.
Huffman, Ronald E., to KV33 Corporation. Mold for dental models base. 4,378,929, Cl. 249-124.000.
Hughes Aircraft Company: *See—*
Bleha, William P., Jr.; Wiener-Avnear, Eliezer; and Robusto, Paul F., 4,378,955, Cl. 350-334.000.
Moyer, Norman E., 4,379,343, Cl. 365-185.000.
Hunt, Christopher J.: *See—*
Everett, Geoffrey J.; and Hunt, Christopher J., 4,379,263, Cl. 324-379.000.
Hunt, James E. B., to Formica Corporation. High pressure decorative laminates containing an air-laid web and method of producing same. 4,379,193, Cl. 428-196.000.
Hunt, Mark W.: *See—*
Cengel, John A.; Hunt, Mark W.; Strukl, Joseph S.; and Pappas, Peter G., 4,379,064, Cl. 252-51.50A.
Hunter, James B., to Johnson Matthey Inc. Hot spot butane heater. 4,378,783, Cl. 126-25.00B.
Hurban, Frederick L., to D'Orio, Andrew L. Dimmer circuit for fluorescent lamp. 4,379,254, Cl. 315-291.000.
Iida, Katsuyoshi; Yada, Yoshikuni; and Okazaki, Kathumi, to Toyo Kogyo Co., Ltd. Internal combustion engine having exhaust gas recirculation system. 4,378,777, Cl. 123-571.000.
Ijichi, Sadayoshi, to Alps Electric Co., Ltd. RF Amplifier having automatic gate bias switching in response to band selection. 4,379,269, Cl. 330-277.000.
Ikai, Masanosuke: *See—*
Satomi, Seigo; and Ikai, Masanosuke, 4,378,859, Cl. 181-224.000.
Ikeura, Kenji, to Nissan Motor Co., Ltd. Method and apparatus for ignition system spark timing control during engine cranking. 4,378,770, Cl. 123-424.000.
Illmann, Gunther: *See—*
Korbanka, Helmut; Stetter, Karl-Heinz; Illmann, Gunther; Jacob, Rolf; Malitschek, Otto; and Strehle, Josef, 4,378,998, Cl. 106-270.000.
Imperial Clevite Inc.: *See—*
Krotkiewicz, James A.; Kruper, Wayne A.; and Niederer, Otto C., 4,379,031, Cl. 204-45.00R.
INA Walzlager Schaeffler KG: *See—*
Rabe, Jurgen, 4,378,930, Cl. 249-160.000.
Inaba, Shinichi: *See—*
Narita, Kiichi; Inaba, Shinichi; Shimizu, Masakata; Okimoto, Kenichi; and Kobayashi, Isao, 4,378,994, Cl. 75-41.000.
Inanaga, Takuzi: *See—*
Kamimura, Teturo; Komatsubara, Masahiro; Ando, Shizuo; Inanaga, Takuzi; and Takahashi, Akira, 4,379,314, Cl. 360-96.500.
Indal Corp.: *See—*
Lee, Michael G., 4,379,312, Cl. 360-80.000.
Ingham, John W.: *See—*
Tuggle, Lloyd H.; Loyd, Ronald C.; Johnson, Stanley A., Jr.; Patridge, A. Gary; Ingham, John W.; and Friend, Kenneth J., 4,378,644, Cl. 37-244.000.

Inkomag: *See—*
Hiesinger, Edwin; Keplinger, Klaus; and Nessler, Hermann, 4,379,051, Cl. 210-193.000.
Innovative Design Company Pty. Limited: *See—*
Woinarski, Peter A., 4,378,895, Cl. 220-306.000.
Inoue-Japax Research Incorporated: *See—*
Inoue, Kiyoshi, 4,379,042, Cl. 204-224.00M.
Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. Apparatus using an axially moving continuous elongated tool. 4,379,042, Cl. 204-224.00M.
Inoue, Minoru, to Meisei University. Windmill generator apparatus. 4,379,236, Cl. 290-55.000.
Institute of Gas Technology: *See—*
Rush, William F., 4,378,976, Cl. 55-15.000.
Integral Hydraulik & Co.: *See—*
Peiffer, Joachim, 4,378,816, Cl. 137-116.000.
International Business Machines Corporation: *See—*
Baglin, John E. E.; Feder, Ralph; Haller, Ivan; Hammer, William N.; and Spiller, Eberhard, 4,379,180, Cl. 427-38.000.
Grebe, Kurt R.; and Harper, James M. E., 4,379,218, Cl. 219-121.0ED.
Horng, Cheng T.; Konian, Richard R.; Schwenker, Robert O.; and Weider, Armin W., 4,378,630, Cl. 29-580.000.
Hovel, Harold J.; and Woodall, Jerry M., 4,379,005, Cl. 148-187.000.
Jambotkar, Chakrapani G., 4,378,627, Cl. 29-571.000.
Melcher, Robert L.; Romankiw, Lubomyr T.; and Von Gutfeld, Robert J., 4,379,022, Cl. 156-643.000.
International Flavors & Fragrances Inc.: *See—*
Patel, Raman R.; Pittet, Alan O.; and Muralidhara, Ranya, 4,379,079, Cl. 252-522.00R.
Sprecker, Mark A., 4,379,060, Cl. 252-8.900.
International Paper Company: *See—*
McFarland, William M., 4,378,743, Cl. 108-51.300.
Isaac, Paul J. Trading game. 4,378,942, Cl. 273-278.000.
Isakson, David A. Magnetic pickup for stringed musical instruments. 4,378,722, Cl. 84-1.150.
Isbell, Tim D.; and Sauer, Don R., to National Semiconductor Corporation. AM Stereo receiver logic. 4,379,208, Cl. 179-1.0GS.
Ishida, Tokuzi: *See—*
Yokoyama, Hiroshi; Ishida, Tokuzi; Kikuchi, Kunio; and Zama, Kazuaki, 4,379,096, Cl. 261-23.00A.
Ishigaki, Isao: *See—*
Machi, Sueo; Ishigaki, Isao; and Sugo, Takanobu, 4,379,200, Cl. 428-337.000.
Ishihama, Masao, to Nissan Motor Co., Ltd. Lubricating system for internal combustion engine. 4,378,763, Cl. 123-196.00R.
Ishii, Shizuo; and Yoneyama, Saburo, to Konishiroku Photo Industry Co., Ltd. Sprocket wheel for photographic camera. 4,378,965, Cl. 474-161.000.
Ishii, Toru. Spherical fruit assorting instrument. 4,378,887, Cl. 209-622.000.
Ishizaki, Goro; and Parker, Harold R., to University of California, The Regents of the. Assembly for performing biopsies using a combination probe-guide. 4,378,810, Cl. 128-754.000.
Islip, Peter J.; and Bogunovic, Mirjana V., to Burroughs Wellcome Co. Heterocyclic chemicals, their preparation and use. 4,379,156, Cl. 424-270.000.
Isoo, Osamu: *See—*
Nakagaki, Mitsuhiro; Isoo, Osamu; Matsuoka, Shinji; and Yamada, Takahiro, 4,379,303, Cl. 346-75.000.
Itkin, David E., to Sun Studs, Inc. Veneer lathe log charger system having enhanced accuracy and rate of production. 4,378,830, Cl. 144-357.000.
Ito, Hiroshi: *See—*
Kobashi, Mamoru; Tanaka, Shinichiro; and Ito, Hiroshi, 4,378,767, Cl. 123-339.000.
Ito, Kiyohiko; Koizumi, Masuo; Murakami, Yasushi; Akima, Michitaka; Aono, Jinichiro; Ohba, Yasuhiro; Yamazaki, Tamotsu; Sakai, Kazushige; Hata, Shun-ichi; and Takanashi, Shigeru, to Chugai Seiyaku Kabushiki Kaisha. Dibenz[b,f][1,4]oxazepine derivatives, process for preparing the same, and pharmaceutical compositions comprising the same. 4,379,150, Cl. 424-244.000.
Ito, Koji; and Kondo, Akira, to Toyo Keiki Company Limited. Type font optical character recognition system. 4,379,283, Cl. 382-18.000.
Ito, Shigeyasu: *See—*
Makino, Yoshimi; Hayakawa, Masatoshi; Aso, Koichi; Uedaira, Satoru; Ito, Shigeyasu; and Hotai, Kazuhide, 4,379,004, Cl. 148-108.000.
Ito, Yukio: *See—*
Negishi, Tokuji; Ito, Yukio; and Takagi, Satoshi, 4,378,917, Cl. 242-186.000.
Itoh, Hiroshi; and Kobashi, Mamoru, to Toyota Jidosha Kogyo Kabushiki Kaisha. Method of and apparatus for controlling the idling speed of an engine. 4,378,768, Cl. 123-339.000.
ITT Industries, Inc.: *See—*
Baker, James C., 4,378,954, Cl. 350-320.000.
Bush, Eric L.; and Workman, Ernest J., 4,379,186, Cl. 427-213.000.
Iwinski, Leon J.: *See—*
Kopp, Edward J.; Iwinski, Leon J.; Guzzo, Frank; Speechley, Ronald F.; and Femali, Frank, 4,378,928, Cl. 249-63.000.
Izu, Masatsugu: *See—*
Cannella, Vincent D.; and Izu, Masatsugu, 4,379,181, Cl. 427-39.000.
Izuta, Tadao, to Nippon Gakki Seizo Kabushiki Kaisha. Arrow rest for archery bow. 4,378,780, Cl. 124-24.00R.
Jackson Machine Products: *See—*
Jeffries, Richard W., 4,378,707, Cl. 74-117.000.
Jacob, Pierre: *See—*
Bouchara, Claude; Henaff, Robert; and Jacob, Pierre, 4,379,276, Cl. 335-284.000.
Jacob, Rolf: *See—*
Korbanka, Helmut; Stetter, Karl-Heinz; Illmann, Gunther; Jacob, Rolf; Malitschek, Otto; and Strehle, Josef, 4,378,998, Cl. 106-270.000.
Jacobson, Chester F., to Gillette Company, The. Razor blade assembly. 4,378,633, Cl. 30-47.000.
Jacobson, Chester F., to Gillette Company, The. Razor blade assembly. 4,378,634, Cl. 30-47.000.
Jacobson, Chester F.: *See—*
Behrens, Henry; and Jacobson, Chester F., 4,379,219, Cl. 219-121.0LC.
Jade Corporation, The: *See—*
Fedak, Tibor, 4,378,902, Cl. 228-6.00A.
Jaeschke, Hans; Spielau, Paul; and Ulb, Horst, to Dynamit Nobel Aktiengesellschaft. Composite material containing a thermoplastic synthetic resin layer. 4,379,198, Cl. 428-288.000.
Jagenberg Werke AG: *See—*
Heymanns, Willi, 4,379,012, Cl. 156-157.000.
Jambotkar, Chakrapani G., to International Business Machines Corporation. Self-aligned metal process for field effect transistor integrated circuits using polycrystalline silicon gate electrodes. 4,378,627, Cl. 29-571.000.
James, Claude: *See—*
Aloup, Jean-Claude; Bouchaudon, Jean; Farge, Daniel; and James, Claude, 4,379,154, Cl. 424-250.000.
James Hardie & Coy, Pty. Limited: *See—*
Seach, Barry G.; Muller, Hans; and Cohen, Solomon E., 4,379,115, Cl. 264-296.000.
Janke, Gilbert J., to Osborn Manufacturing Corporation, The. Foundry core or mold making machine. 4,378,835, Cl. 164-183.000.
Jansen, Johann J., to Stamicarbon, B.V. Float-and-sink separator. 4,379,048, Cl. 209-172.500.
Japan Atomic Energy Research Institute: *See—*
Kaetsu, Isao; and Yoshida, Masaru, 4,379,038, Cl. 204-159.120.
Machi, Sueo; Ishigaki, Isao; and Sugo, Takanobu, 4,379,200, Cl. 428-337.000.
Wakayama, Naoki; Yamagishi, Hideshi; Tomoda, Toshimasa; and Tanaka, Hiroji, 4,379,248, Cl. 313-93.000.
Jeffries, Richard W., to Jackson Machine Products. Indexing apparatus. 4,378,707, Cl. 74-117.000.
Jeno's, Inc.: *See—*
Carlson, John L.; Parson, Roger F.; and Nicholson, David F., 4,379,055, Cl. 210-400.000.
Jensen Corporation: *See—*
Allen, William W.; and Lundquist, Alvin G., Jr., 4,378,645, Cl. 38-8.000.
Jensen, Marcus M., to Brigham Young University. Turkey rhinotracheitis vaccine. 4,379,140, Cl. 424-92.000.
Jinnouchi, Seikyu: *See—*
Yotsuya, Minoru; Mae, Kiyoshi; Jinnouchi, Seikyu; and Ochiai, Toshio, 4,378,967, Cl. 8-111.000.
Johnson, Freeman K., to Red River Commodities, Inc. Semi-dwarf hybrid sunflower seed and plant and method of producing hybrid seed. 4,378,655, Cl. 47-58.000.
Johnson, Jeffrey O., to BRS, Inc. Sole with skewed cleating arrangement. 4,378,643, Cl. 36-129.000.
Johnson Matthey Inc.: *See—*
Hunter, James B., 4,378,783, Cl. 126-25.00B.
Johnson, Stanley A., Jr.: *See—*
Tuggle, Lloyd H.; Loyd, Ronald C.; Johnson, Stanley A., Jr.; Patridge, A. Gary; Ingham, John W.; and Friend, Kenneth J., 4,378,644, Cl. 37-244.000.
Johnson, Stephen G.: *See—*
Work, Dale E.; and Johnson, Stephen G., 4,379,252, Cl. 313-485.000.
Johnston, Robert J. Projectile and tethered target game apparatus. 4,378,944, Cl. 273-393.000.
Joichi, Yoshiro: *See—*
Yokota, Teppei; and Joichi, Yoshiro, 4,379,286, Cl. 340-347.0DD.
Jones, Richard E., III: *See—*
Mauldin, Donald M.; and Jones, Richard E., III, 4,378,793, Cl. 128-80.00H.
Jongsma, Cornelis, to Stamicarbon, B.V. Process for the purification of benzaldehyde. 4,379,026, Cl. 203-31.000.
Jorgensen, Adam A. Piston and combustion chamber with improved fuel circulation. 4,378,764, Cl. 123-307.000.
Joscelyn, Edwin; Ferrante, Michael J.; and Saiya, Robert F., to Telephonics Corporation. Arcuately tensioned piezoelectric diaphragm microphone. 4,379,211, Cl. 179-110.00A.
Joyner, Charles T.: *See—*
Harfenist, Morton; and Joyner, Charles T., 4,379,160, Cl. 424-274.000.
Jungheinrich Unternehmensverwaltung KG: *See—*
Klose, Hans-Joachim; and Hellmig, Udo-Frank, 4,379,255, Cl. 318-313.000.
Kabushiki Kaisha Kawai Seisakusho: *See—*
Kaneko, Kenkichi; Tanaka, Katsuyuki; Hayashi, Satoru; Hakamada, Kensaku; Matsumoto, Masakazu; Tagaki, Shinji; and Goshima, Takayuki, 4,378,721, Cl. 84-1.140.

Kaetsu, Isao; and Yoshida, Masaru, to Japan Atomic Energy Research Institute. Process for preparing a physiologically active substance controlled release composite composition. 4,379,038, Cl. 204-159.120.
Kaiser, Gerhard; and Spieth, Eric, to Gustav Wagner Maschinenfabrik. Apparatus for keeping open the gap cut by a saw in a work piece. 4,378,715, Cl. 83-113.000.
Kamata, Haruo: *See*—
Minato, Sachie; and Kamata, Haruo, 4,379,292, Cl. 340-701.000.
Kamimura, Teturo; Komatsubara, Masahiro; Ando, Shizuo; Inanaga, Takuzi; and Takahashi, Akira, to Pioneer Electronic Corporation. Cassette tape player. 4,379,314, Cl. 360-96.500.
Kamoshita, Katsuzo: *See*—
Yoshida, Ryo; Takemoto, Ichiki; Sumida, Seizo; and Kamoshita, Katsuzo, 4,378,992, Cl. 71-120.000.
Kandel, Heinz-Georg: *See*—
Falke, Jurgen; Geiger, Helmut; Grunbein, Wolfgang; and Kandel, Heinz-Georg, 4,379,083, Cl. 260-112.00B.
Kanegae, Hidetoshi: *See*—
Abo, Toshimi; and Kanegae, Hidetoshi, 4,378,673, Cl. 60-39.141.
Kaneko, Kenkichi; Tanaka, Katsuyuki; Hayashi, Satoru; Hakamada, Kensaku; Matsumoto, Masakazu; Tagaki, Shinji; and Goshima, Takayuki, to Kabushiki Kaisha Kawai Seisakusho. Pickup apparatus for an electric string type instrument. 4,378,721, Cl. 84-1.140.
Kano, Hikaru: *See*—
Fujiki, Toshiaki; Kano, Hikaru; and Nishi, Toru, 4,379,114, Cl. 264-248.000.
Kanouse, Richard C.: *See*—
Leliaert, Raymond M.; Kanouse, Richard C.; Butler, Bill J.; and Lindner, Robert N., 4,378,662, Cl. 51-432.000.
Kasama, Tsuneo; Saito, Takao; and Wada, Makoto, to Nippon Oil and Fats Co., Ltd. Hydration-expansive crushing cartridge. 4,378,997, Cl. 106-89.000.
Katayama, Shitomi: *See*—
Senaha, Susumu; Chiba, Tetsuya; Ohno, Akira; and Katayama, Shitomi, 4,379,199, Cl. 428-332.000.
Katayama, Tsutomu: *See*—
Teranishi, Susumu; Kawasaki, Yoichi; Katayama, Tsutomu; and Taniguchi, Hitoshi, 4,379,084, Cl. 260-112.00R.
Kato, Masaaki, to Nippondenso Co., Ltd. Fuel injection system for internal combustion engines. 4,378,774, Cl. 123-446.000.
Kattelmann, Harry R., to Fabricated Metals, Inc. Volumetric feeding apparatus for materials in bulk form. 4,378,897, Cl. 222-56.000.
Kattner, Erich: *See*—
Heinzl, Joachim; and Kattner, Erich, 4,379,304, Cl. 346-140.00R.
Katzen, Stanley J.: *See*—
Rekers, Louis J.; and Katzen, Stanley J., 4,379,075, Cl. 252-430.000.
Kawakami, Yuichi: *See*—
Nishitani, Takao; and Kawakami, Yuichi, 4,379,338, Cl. 364-745.000.
Kawamura, Yoshihisa, to Nissan Motor Co., Ltd. Fuel supply system for a multi-cylinder internal combustion engine. 4,378,761, Cl. 123-52.00M.
Kawasaki Steel Corporation: *See*—
Saito, Sadayuki; Moriwaki, Hiroji; and Higuchi, Kazuya, 4,379,002, Cl. 148-9.00R.
Kawasaki, Yoichi: *See*—
Teranishi, Susumu; Kawasaki, Yoichi; Katayama. Tsutomu; and Taniguchi, Hitoshi, 4,379,084, Cl. 260-112.00R.
Kawase, Susumu: *See*—
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Keinberger, Franz, to Volkswagenwerk AG. Wind-up device for safety belts. 4,378,916, Cl. 242-107.200.
Kelly, James P., to McGraw-Edison Company. Compound reflector for luminaire. 4,379,322, Cl. 362-300.000.
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Collins, Robert F., 4,378,794, Cl. 128-132.00D.
Kennecott Corporation: *See*—
Smith, Russell D.; and Tressler, Richard E., 4,379,111, Cl. 264-137.000.
Kennedy, Carl S.: *See*—
Yarham, Oliver L.; Sech, John M.; and Kennedy, Carl S., 4,379,072, Cl. 252-389.00R.
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Labus, Herwig, 4,379,260, Cl. 324-99.00D.
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a'Brassard, Hans-Joachim; Kloss, Robert; Ketzler, Paul; and Wolz, Johannes, 4,378,704, Cl. 73-862.070.
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Kirkpatrick, Alan D., to Robud Company. Roller apparatus with replacement blanket. 4,378,737, Cl. 101-415.100.
Kirsch, Kerry F.; Stauffer, Kirk R.; and Tindall, Robert J., to Auto-Place, Inc. Electronic controller and portable programmer system for a pneumatically-powered point-to-point robot. 4,379,335, Cl. 364-513.000.
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Abermeth, Hubert; Deckert, Andreas; Muller, Helmut; and Wahnschaffe, Jurgen, 4,378,765, Cl. 123-321.000.
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Klosek, John M.; and Wu, Margaret M., to Mobil Oil Corporation. Selective hydrogenation of vinyltoluene. 4,379,027, Cl. 203-32.000.
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Knuefelmann, Manfred; Brandner, Burkhard; and Blauhut, Reinhold, to Atlas Fahrzeugtechnik GmbH, Firma. Circuit for generating a trigger pulse. 4,379,239, Cl. 307-268.000.
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Koltz, Irving M. Coupon wallet and attachment device. 4,378,831, Cl. 150-39.000.
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Konishiroku Photo Industry Co., Ltd.: *See—*
Ishii, Shizuo; and Yoneyama, Saburo, 4,378,965, Cl. 474-161.000.
Ueno, Kenji; and Ymazaki, Yoshio, 4,378,753, Cl. 118-657.000.
Kontes Glass Company: *See—*
Apothaker, Richard L., 4,379,225, Cl. 250-227.000.
Koontz, Carl E.: *See—*
Ochs, Charles S.; and Koontz, Carl E., 4,378,892, Cl. 215-232.000.
Koorevaar, Arie. Method and device for moulding a tire for a wheel rim. 4,379,104, Cl. 264-45.500.
Kopp, Edward J.; Iwinski, Leon J.; Guzzo, Frank; Speechley, Ronald F.; and Femali, Frank, to Beatrice Foods Company. Molding apparatus. 4,378,928, Cl. 249-63.000.
Korbanka, Helmut; Stetter, Karl-Heinz; Illmann, Gunther; Jacob, Rolf; Malitschek, Otto; and Strehle, Josef, to Hoechst Aktiengesellschaft. Process for the preparation of oxidation products of ethylene copolymers, and their use. 4,378,998, Cl. 106-270.000.
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Kosmowski, Wojciech; Eddy, Richard; and O'Neill, Martin, to Cooper Industries, Inc. Apparatus for determining the parameters of figures on a surface. 4,379,308, Cl. 358-106.000.
Koszytorz, Gunther, to Siemens Aktiengesellschaft. Housing for laser apparatus. 4,379,203, Cl. 174-15.00R.
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Kovacs, Paul. Apparatus for and a method of monitoring the build-up of ice. 4,379,227, Cl. 250-231.00R.
Kozuti Kozlekedesi Tudomanyos Kutato Intezet: *See—*
Bohm, Nandor; Bohm, Janos; and Bohm, Robert, 4,378,694, Cl. 73-114.000.
Kraft, Inc.: *See—*
Hettinga, David H.; Wargel, Robert J.; and Tripp, Richard C., 4,379,170, Cl. 426-40.000.
Kraft, Winfried; Reichel, Artur; and Holmok, Gunter, to Ernst Leitz Wetzlar GmbH. Handle for pivotable machine parts. 4,378,718, Cl. 83-592.000.
Krampe, Dietrich; Schneider, Hans-Peter; and Zander, Hans-Hermann, to Siemens Aktiengesellschaft. System for bridging brief network failures. 4,379,325, Cl. 363-35.000.
Krane, Jan G., to Siemens Corporation. Read/write head carriage assembly for a floppy disk drive. 4,379,316, Cl. 360-105.000.
Krasel, Werner: *See—*
Benninger, Siegfried; Reining, Karl; and Krasel, Werner, 4,379,125, Cl. 422-274.000.
Krauss-Maffei Aktiengesellschaft: *See—*
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Kretschmer, Frank F.: *See—*
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Krier, Keith N.: *See—*
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Krotkiewicz, James A.; Kruper, Wayne A.; and Niederer, Otto C., to Imperial Clevite Inc. Evaporation driven counterflow rinse system and method. 4,379,031, Cl. 204-45.00R.
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Malkin, Daniel D.; Simbirtsev, Alexei V.; Peredkov, Boris A.; and Kruglov, Gennady A., 4,378,957, Cl. 368-300.000.
Kruper, Wayne A.: *See—*
Krotkiewicz, James A.; Kruper, Wayne A.; and Niederer, Otto C., 4,379,031, Cl. 204-45.00R.
Kubota, Masaki, to Nissan Motor Company, Ltd. Automatic noise eliminating device for an FM receiver. 4,379,207, Cl. 179-1.0GJ.
Kucheck, Leo: *See—*
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Kuczynski, Robert A.: *See—*
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Shilov, Vladislav A.; Smirnov, Vitaly K.; Pechersky, Viktor S.; Kugushin, Alexandr A.; Bespalov, Vladimir N.; Labetsky, Jury O.; and Melnikov, Boris M., 4,378,687, Cl. 72-366.000.
Kula, John S., Jr.: *See—*
Rasekhi, Houshang; Nelson, Alfred M.; Kula, John S., Jr.; and Sudano, John J., 4,378,754, Cl. 118-658.000.
Kump, Wilhelm, to Ciba-Geigy Corporation. Process for introducing an oxygen-containing functional group into ansamycins. 4,379,149, Cl. 424-244.000.
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Kunz, Harold R.; Damiano, Paul J.; and Luczak, Francis J., to United Technologies Corporation. Continuous electrochemical ammonia scrubber. 4,379,036, Cl. 204-103.000.
Kuroda, Seietsu: *See—*
Saikawa, Isamu; Takano, Shuntaro; Yoshida, Chosaku; Takashima, Okuta; Momonoi, Kaishu; Kuroda, Seietsu; Komatsu, Miwako; Yasuda, Takashi; and Kodama, Yutaka, 4,379,152, Cl. 424-246.000.
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Kurtz, Joel. Sailboat keel apparatus. 4,378,748, Cl. 114-141.000.
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Daniel, Hellmuth; Queck, Robert; Kuxdorf, Bernhard; and Pusche, Herbert, 4,379,131, Cl. 423-304.000.
KV33 Corporation: *See—*
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L. Schuler GmbH: *See—*
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Label-Aire Inc.: *See—*
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Shilov, Vladislav A.; Smirnov, Vitaly K.; Pechersky, Viktor S.; Kugushin, Alexandr A.; Bespalov, Vladimir N.; Labetsky, Jury O.; and Melnikov, Boris M., 4,378,687, Cl. 72-366.000.
Labus, Herwig, to Kernforschungsanlage Julich GmbH. Dual-slope integrator. 4,379,260, Cl. 324-99.00D.
La Fiandra, Carlo F.; Nelson, Burke E.; and Baker, Douglas F., to Perkin-Elmer Corporation, The. Apparatus for laser assisted machining of glass materials. 4,378,989, Cl. 65-271.000.
Lakin, Kenneth M. Rotating magnetic field device for detecting cracks in metal. 4,379,261, Cl. 324-240.000.
Lamart, Rene. Wind instrument practice accessory. 4,378,724, Cl. 84-465.000.
Lamb, Sharon; *See—*
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Lancaster Laboratories, Inc.: *See—*
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Lange, Richard M., to Lubrizol Corporation, The. Amino phenols in combination with ashless ester dispersants as useful additives for fuels and lubricants. 4,379,065, Cl. 252-51.50A.
Lassiter, B. Dean, to Burlington Industries, Inc. Ring/traveler system noise reduction. 4,378,672, Cl. 57-122.000.
Lauder, Robert A.: *See—*
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Lavene, Bernard, to Electronic Concepts, Inc. Method of making small sized wound capacitors. 4,378,620, Cl. 29-25.420.
Law, David J. C., to Lucas Industries Limited. Liquid fuel injection pumping apparatus. 4,378,962, Cl. 417-462.000.
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Beggs, Stanley L.; Riel, Frank J.; and Lawson, D. W. R., 4,379,191, Cl. 428-118.000.
Leblanc, Raymond F.; and Cummins, William T., to Teledyne Industries, Inc. Rotatable tire for barge bumper. 4,378,749, Cl. 114-220.000.
Lebowitz, Sam, to Copco, Inc. Spice rack and bracket assembly. 4,378,889, Cl. 211-75.000.
Lee, Michael G., to Indal Corp. Control system for audio-visual projector. 4,379,312, Cl. 360-80.000.
Leggett, Wilbur P. Hydrotherapy jet unit. 4,379,097, Cl. 261-78.00A.
Lehmann, William L., to RCA Corporation. Input selection arrangement for applying different local oscillator signals to a prescaler of a phase-lock loop tuning system. 4,379,271, Cl. 331-49.000.
Lehnhardt, Lutz, to BM-Elektronik Meletzky KG. Electroacoustical converter. 4,379,213, Cl. 179-115.50R.
Leliaert, Raymond M.; Kanouse, Richard C.; Butler, Bill J.; and Lindner, Robert N., to Wheelabrator-Freye Inc. Airless centrifugal blast device. 4,378,662, Cl. 51-432.000.
LeMay, Christopher A. G., to EMI Limited. Radiology. 4,379,329, Cl. 364-414.000.
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Zimmermann, Theo, 4,378,623, Cl. 29-159.010.
Lenhardt, Wilfried K., to Mobil Oil Corporation. Broadband phase shifter. 4,379,264, Cl. 328-24.000.
Lenz, Herman N., to Teledyne Industries, Inc. Variable geometry turbine inlet nozzle. 4,378,960, Cl. 415-115.000.
Leopoldi, Norbert; and Heinrich, William P., to Cloverline, Inc. Pill box. 4,378,885, Cl. 206-540.000.
Lerner, Leonard J.: *See—*
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Lester, Robert W. Direct imaging of information using light pipe displays. 4,378,956, Cl. 355-3.00R.
Leung, Daniel L.; and Leung, Lai-Wo S. Means for encoding ideographic characters. 4,379,288, Cl. 340-365.00R.
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Leung, Daniel L.; and Leung, Lai-Wo S., 4,379,288, Cl. 340-365.00R.
Lever Brothers Company: *See—*
Hockey, John A.; Shaw, Malcolm A.; Wilby, John L.; and Wilson, Allan A., 4,379,059, Cl. 252-8.800.
Rabitsch, Hermann; and Sosath, Helmut A., 4,379,061, Cl. 252-174.180.
Rapisarda, Anthony A.; Romeo, Joseph; and Lopez, Jose A., 4,379,069, Cl. 252-135.000.
Levinstein, Hyman J.; Murarka, Shyam P.; and Sinha, Ashok K., to Bell Telephone Laboratories, Incorporated. Cobalt silicide metallization for semiconductor integrated circuits. 4,378,628, Cl. 29-571.000.
Levitan, Ronald, to Accurette (Pty) Ltd. Surgical device. 4,378,811, Cl. 128-757.000.

Levitt, George, to Du Pont de Nemours, E. I., and Company. Herbicidal o-aryl or alkarylsulfonylureas. 4,378,991, Cl. 71-93.000.
Lewis, Bernard L.; and Kretschmer, Frank F., to United States of America, Navy. Low sidelobe pulse compressor. 4,379,295, Cl. 343-17.2PC.
Lichtenstein, Joseph, to Whitman Medical Corporation. Liquid crystal infiltration sensing system. 4,378,808, Cl. 128-736.000.
Lienhard, Paul; and Beffa, Fabio, to Ciba-Geigy AG. Red monoazo sulphonic acid dyestuffs for polyamide. 4,378,970, Cl. 8-683.000.
Light, Leon H.; and Maclellan, Gordon E., to National Research Development Corporation. Shock-absorbing footwear heel. 4,378,642, Cl. 36-35.00R.
Lileev, Valerian P.; Onikov, Eduard A.; and Zabotin, Alexandr A. Apparatus for beating-up weft thread in travelling wave shedding looms. 4,378,820, Cl. 139-436.000.
Lilly, James A., to UOP Inc. Bimetallic well screen use in injection wells and method of making same. 4,378,840, Cl. 166-233.000.
Lindblad, Hans: *See—*
  Lindblad, Lennart; Lindblad, Karl-Erik; Lindblad, Sven-Olof; and Lindblad, Hans, 4,378,833, Cl. 152-226.000.
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  Lindblad, Lennart; Lindblad, Karl-Erik; Lindblad, Sven-Olof; and Lindblad, Hans, 4,378,833, Cl. 152-226.000.
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Lindgren, Peter B. Motor driven fishing reel. 4,378,652, Cl. 43-26.100.
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  Bozler, Carl O.; Alley, Gary D.; Lindley, William T.; and Murphy, R. Allen, 4,378,629, Cl. 29-580.000.
Lindner, Robert N.: *See—*
  Leliaert, Raymond M.; Kanouse, Richard C.; Butler, Bill J.; and Lindner, Robert N., 4,378,662, Cl. 51-432.000.
Lingo Manufacturing Company: *See—*
  Griffin, Charles E., 4,378,925, Cl. 248-242.000.
Lion Corporation: *See—*
  Sasaki, Shuji; and Yamazaki, Yoji, 4,379,135, Cl. 436-536.000.
Litton Industries Products, Inc.: *See—*
  MacDonald, Daniel J., 4,379,242, Cl. 310-105.000.
Liu, Richard T., to Societe D'Assistance Technique pour Produits Nestle S.A. Separating volatile aromatics from roasted and ground coffee. 4,379,172, Cl. 426-386.000.
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Long, James, to Hammond, James M., a part interest. Gas borne particle filtering apparatus. 4,378,980, Cl. 55-103.000.
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Loof, Goran; and Skarin, Lars, to Partex Fabriksaktiebolag. Marking device for electrical wires. 4,378,648, Cl. 40-316.000.
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Lott, Donald L.; Schockelt, Guenter G.; and Worrix, Matthew L., to Siemens-Allis, Inc. Condition indicating device for a puffer type load break switch. 4,378,751, Cl. 116-271.000.
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Lucas Industries Limited: *See—*
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  Law, David J. C., 4,378,962, Cl. 417-462.000.
Lucerne Products, Inc.: *See—*
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Luczak, Francis J.: *See—*
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LuK Lamellen und Kupplungsbau GmbH: *See—*
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Lundquist, Alvin G., Jr.: *See—*
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Lunsford, Carl D.; and Chen, Ying-Ho, to A. H. Robins Company, Inc. 1-Aryloxy-4-amino-2-butanols and the pharmaceutical use thereof. 4,379,167, Cl. 424-330.000.
Lytkin, Viktor P.; Menshov, Vladimir N.; Frolov, Jury S.; Polikarpova, Zinaida A.; Sobolevsky, Viktor S.; Seljutina, Maria G.; Anokhin, Vladimir N.; Barbosov, Nikolai D.; Vorontsov, Sergei P., deceased; by Vorontsova, Nina F., administrator; Chistozvonov, David B., deceased; and by Chistozvonova, Vera G., adminstrator. Process for producing granulated catalyst for the synthesis of ammonia. 4,379,078, Cl. 252-466.00J.
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  Carder, Mervin L., Sr., 4,378,824, Cl. 141-206.000.
M.H.A. Enterprises Ltd.: *See—*
  Thompson, Albert N., 4,378,832, Cl. 150-52.00G.
MacDonald, Daniel J., to Litton Industries Products, Inc. Eddy current coupling having rotating and non-rotating flux paths. 4,379,242, Cl. 310-105.000.
Machi, Sueo; Ishigaki, Isao; and Sugo, Takanobu, to Japan Atomic Energy Research Institute. Novel method of producing ion exchange membrane. 4,379,200, Cl. 428-337.000.
Macho, Helmut, to Aktiengesellschaft Adolph Saurer. Detachable connection arrangement for a shed forming device of a loom. 4,378,819, Cl. 139-88.000.
MacInnis, Martin B.: *See—*
  Kim, Tai K.; Ritsko, Joseph E.; MacInnis, Martin B.; and Vogt, Martin C., 4,379,126, Cl. 423-54.000.
Maclellan, Gordon E.: *See—*
  Light, Leon H.; and Maclellan, Gordon E., 4,378,642, Cl. 36-35.00R.
MacPhee, John, to Baldwin Gegenheimer Corporation. Antilinting device for ink fountains. 4,378,735, Cl. 101-363.000.
Mae, Kiyoshi: *See—*
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Maghribi, Walid H.: *See—*
  Varadi, Andrew G.; and Maghribi, Walid H., 4,379,259, Cl. 324-73.0AT.
Magnaflux Corporation: *See—*
  Flaherty, John J.; and Strauts, Eric J., 4,378,700, Cl. 73-620.000.
Magnusson, Kjell-Eric: *See—*
  Magnusson, Ulla M.; and Magnusson, Kjell-Eric, 4,378,755, Cl. 118-684.000.
Magnusson, Ulla M.; and Magnusson, Kjell-Eric. De-icing and cleaning system for aircrafts. 4,378,755, Cl. 118-684.000.
Maho Werkzeugmaschinenbau Babel & Co.: *See—*
  Babel, Werner, 4,378,621, Cl. 29-26.00A.
Maillefer S.A.: *See—*
  Kertscher, Eberhard, 4,379,102, Cl. 264-40.700.
Makino, Yoshimi; Hayakawa, Masatoshi; Aso, Koichi; Uedaira, Satoru; Ito, Shigeyasu; and Hotai, Kazuhide, to Sony Corporation. Method of manufacturing an amorphous magnetic alloy. 4,379,004, Cl. 148-108.000.
Maleev, Igor I.: *See—*
  Tsvetkov, Nikolai S.; Maleev, Igor I.; Opainich, Irina E.; Lobkovskaya, Lidia A.; Bogush, Alexandr R.; Sozanskaya, Alexandra D.; Onischak, Evgeny I.; Gladyshevsky, Evgeny I.; and Opainich, Mikhail D., 4,379,184, Cl. 427-169.000.
Malitschek, Otto: *See—*
  Korbanka, Helmut; Stetter, Karl-Heinz; Illmann, Gunther; Jacob, Rolf; Malitschek, Otto; and Strehle, Josef, 4,378,998, Cl. 106-270.000.
Malkin, Daniel D.; Simbirtsev, Alexei V.; Peredkov, Boris A.; and Kruglov, Gennady A. Reduction gear of electronic wristwatch with stepping motor and sweep second hand. 4,378,957, Cl. 368-300.000.
Mammano, Robert A., to Silicon General, Inc. Latching pulse width modulation comparator. 4,379,240, Cl. 307-356.000.
Manville Service Corporation: *See—*
  Graser, Earl J., 4,378,878, Cl. 206-153.000.
  Killy, Earl J., 4,378,879, Cl. 206-158.000.
Marrett, Rolf: *See—*
  Zander, Maximilian; Blumer, Gerd-Peter; Collin, Gerd; Glaser, Herbert; and Marrett, Rolf, 4,379,133, Cl. 423-445.000.
Martin, David T., to Commonwealth of Australia, The. Housing for mounting HEPA filters. 4,378,983, Cl. 55-357.000.
Martin, Erwin, to Siemens Aktiengesellschaft. Electro-acoustic transducer. 4,379,212, Cl. 179-110.00A.
Massachusetts Institute of Technology: *See—*
  Bozler, Carl O.; Alley, Gary D.; Lindley, William T.; and Murphy, R. Allen, 4,378,629, Cl. 29-580.000.
  Glaeser, Andreas M.; Haggerty, John S.; and Danforth, Stephen C., 4,379,020, Cl. 156-603.000.
Masse, Lucien; Medlin, William L.; and Sexton, James H., to Mobil Oil Corporation. Amplitude and phase detector in a harmonic oscillator system. 4,378,698, Cl. 73-579.000.
Masuda, Masami: *See—*
  Ochii, Kiyofumi; Masuda, Masami; and Kondo, Takeo, 4,379,346, Cl. 365-222.000.
Masuho, Yasuhiko; Umemoto, Naoji; Hara, Takeshi; and Hirai, Hidematsu, to Teijin Limited; and Hidematsu Hirai. Antitumor protein hybrid and process for the preparation thereof. 4,379,145, Cl. 424-177.000.
Masuyama, Yoshinari. Process for preparing biscuits containing glucomannan. 4,379,173, Cl. 426-549.000.
Matsuda, Yoshio; and Yamaguchi, Yoshiharu, to Yoshida Kogyo K. K. Transversely stretchable stringer tape for slide fasteners. 4,378,683, Cl. 66-193.000.
Matsumoto, Hiromi: *See—*
  Ogawa, Shigeru; Uehori, Yuji; Matsumoto, Hiromi; and Nakajima, Koe, 4,378,685, Cl. 72-21.000.

Matsumoto, Masakazu: *See—*
Kaneko, Kenkichi; Tanaka, Katsuyuki; Hayashi, Satoru; Hakamada, Kensaku; Matsumoto, Masakazu; Tagaki, Shinji; and Goshima, Takayuki, 4,378,721, Cl. 84-1.140.
Matsumoto, Seiji: *See—*
Araki, Yasuo; Uno, Hajime; Higuchi, Shigeharu; and Matsumoto, Seiji, 4,379,183, Cl. 427-127.000.
Matsuoka, Shinji: *See—*
Nakagaki, Mitsuhiro; Isoo, Osamu; Matsuoka, Shinji; and Yamada, Takahiro, 4,379,303, Cl. 346-75.000.
Matsushita Electric Industrial Co., Ltd.: *See—*
Minakuchi, Hiroshi, 4,379,238, Cl. 307-243.000.
Terada, Jiro; and Nitta, Tsuneharu, 4,378,691, Cl. 73-27.00R.
Mattel, Inc.: *See—*
Renger, Larry H., 4,379,010, Cl. 156-108.000.
Mattern, Gunter: *See—*
Boger, Manfred; Burckhardt, Urs; Kristinsson, Haukur; Mattern, Gunter; and Traber, Walter, 4,379,147, Cl. 424-200.000.
Matthews, Benjamin H., to Lucerne Products, Inc. Trigger operated tool handle switch. 4,379,214, Cl. 200-157.000.
Matthews Research & Development Corp.: *See—*
Myer, Robert E., 4,379,253, Cl. 315-289.000.
Mattuschka, Werner, to Siemens Aktiengesellschaft. Resonator plate capable of excitation to thickness shear vibrations. 4,379,247, Cl. 310-367.000.
Mauldin, Charles H.: *See—*
Eberly, Paul E., Jr.; Mauldin, Charles H.; and Baird, William C., Jr., 4,379,076, Cl. 252-439.000.
Mauldin, Donald M.; and Jones, Richard E., III, to Driver, Kenneth D.; and Stills, Melvin L., part interest to each. Removable ankle brace. 4,378,793, Cl. 128-80.00H.
Mauldin, Herbert N. Vault caddy. 4,378,958, Cl. 414-461.000.
Maurer, Dieter: *See—*
Goft, Manfred; Maurer, Dieter; and Aucktor, Erich, 4,378,858, Cl. 180-259.000.
Maury, Christian, to Compagnie Internationale Pour l'Informatique CII Honeywell Bull. Apparatus and method for measuring the speed of a movable system with respect to a data carrier. 4,379,256, Cl. 318-561.000.
Mazeika, Albert, to Needlepointer. Collapsible work holding structure. 4,378,646, Cl. 38-102.000.
McCandless, Thomas J.: *See—*
Wilde, Sheldon L.; McCandless, Thomas J.; and Saunders, Robert M., 4,378,893, Cl. 215-246.000.
McCombs, Norman R., to Greene & Kellogg, Inc. Compact oxygen concentrator. 4,378,982, Cl. 55-162.000.
McCoy, Stephen A.; and Bono, James L., to Procter & Gamble Company, The. Stable dehydrated cocrystalline amino acid food additives. 4,379,177, Cl. 426-656.000.
McDonald, William S.: *See—*
Ware, Franklyn O.; and McDonald, William S., 4,379,015, Cl. 156-205.000.
McDonnell Douglas Corporation: *See—*
Bender, Gerald M., 4,379,273, Cl. 333-32.000.
McFarland, William M., to International Paper Company. Paperboard pallet having interlocked runners. 4,378,743, Cl. 108-51.300.
McGraw-Edison Company: *See—*
Kelly, James P., 4,379,322, Cl. 362-300.000.
McKelvy, James W.: *See—*
Miller, Walter E., Jr.; and McKelvy, James W., 4,378,918, Cl. 244-3.110.
McKenney, John. Automatic-release hook for sailboard harness. 4,378,614, Cl. 24-201.0TR.
McLean, Ronald L., to Houdaille Industries, Inc. Rubber and viscous/-rubber torsional dampers and method of making the same. 4,378,865, Cl. 188-379.000.
McMurray, John H.; and Miller, Jule, to Avco Corporation. Brazing filler metal composition and process. 4,379,121, Cl. 420-452.000.
McRae, Edwin C. Vehicle torque converter. 4,378,870, Cl. 192-3.240.
Mead Corporation, The: *See—*
Head, Donald L.; and Dudis, Edward A., 4,378,631, Cl. 29-825.000.
Meadows, Louis B.; and Diamond, Arthur S., to Dactek International, Inc. Fingerprinting system. 4,379,178, Cl. 427-1.000.
Medical Engineering Corporation: *See—*
Finney, Roy P., 4,378,792, Cl. 128-79.000.
Medical Research Associates Ltd. 2: *See—*
Oosten, Roger L., 4,378,801, Cl. 128-303.140.
Medlin, William L.; Mullins, Lynn D.; and Zumwalt, Gary L., to Mobil Oil Corporation. Sand control method employing special hydraulic fracturing technique. 4,378,845, Cl. 166-297.000.
Medlin, William L.: *See—*
Masse, Lucien; Medlin, William L.; and Sexton, James H., 4,378,698, Cl. 73-579.000.
Meier, Eugene, to Mettler Instrumente AG. Flat measuring string construction. 4,378,702, Cl. 73-826.000.
Meier, Werner: *See—*
Haubner, Georg; Wesemeyer, Jurgen; Meier, Werner; and Schrumpf, Hans, 4,378,769, Cl. 123-416.000.
Meisei University: *See—*
Inoue, Minoru, 4,379,236, Cl. 290-55.000.
Meiser, Ewald; and Bauer, Horst, to Gebruder Heyl KG. Method for the cyclic regeneration of water-softening systems and programmed water-softening system for applying the method. 4,379,057, Cl. 210-662.000.
Melcher, Robert L.; Romankiw, Lubomyr T.; and Von Gutfeld, Robert J., to International Business Machines Corporation. Method for maskless chemical machining. 4,379,022, Cl. 156-643.000.
Melnikov, Boris M.: *See—*
Shilov, Vladislav A.; Smirnov, Vitaly K.; Pechersky, Viktor S.; Kugushin, Alexandr A.; Bespalov, Vladimir N.; Labetsky, Jury O.; and Melnikov, Boris M., 4,378,687, Cl. 72-366.000.
Memering, Leroy J.: *See—*
Zimmerman, Alfred B.; and Memering, Leroy J., 4,379,188, Cl. 428-35.000.
Menconi, Augusto: *See—*
Piccardi, Paolo; Corda, Francesco; Gozzo, Franco; Menconi, Augusto; and Longoni, Angelo, 4,379,163, Cl. 424-285.000.
Menshov, Vladimir N.: *See—*
Lytkin, Viktor P.; Menshov, Vladimir N.; Frolov, Jury S.; Polikarpova, Zinaida A.; Sobolevsky, Viktor S.; Seljutina, Maria G.; Anokhin, Vladimir N.; Barbosov, Nikolai D.; Vorontsov, Sergei P., deceased; Vorontsova, Nina F., administrator; Chistozvonov, David B., deceased; and Chistozvonova, Vera G., adminstrator, 4,379,078, Cl. 252-466.00J.
Merck & Co., Inc.: *See—*
Greenlee, William J.; Harris, Elbert E.; Patchett, Arthur A.; and Thorsett, Eugene D., 4,379,146, Cl. 424-177.000.
Metabowerke GmbH & Co.: *See—*
Kieser, Hermann; and Schur, Norbert, 4,378,637, Cl. 30-216.000.
Metheisen, Heinrich: *See—*
Stemmler, Kurt; and Metheisen, Heinrich, 4,379,016, Cl. 156-205.000.
Mettler Instrumente AG: *See—*
Meier, Eugene, 4,378,702, Cl. 73-826.000.
Meyer, Paul M., to ACF Industries, Inc. Open loop electronic circuit for altitude compensation. 4,378,772, Cl. 123-438.000.
Middleman, Lee M.; and Goodrich, Roger S., to Raychem Corporation. Method of heating liquid. 4,379,220, Cl. 219-331.000.
Midland-Ross Corporation: *See—*
Walker, Peter J., 4,378,639, Cl. 34-12.000.
Mikuni Kogyo Kabushiki Kaisha: *See—*
Yokoyama, Hiroshi; Ishida, Tokuzi; Kikuchi, Kunio; and Zama, Kazuaki, 4,379,096, Cl. 261-23.00A.
Milberger, Lionel J., to FMC Corporation. Method and apparatus for controlling subsea well template production systems. 4,378,848, Cl. 166-362.000.
Milch, Alfred E.: *See—*
Fitzpatrick, Brian J.; Bhargava, Rameshwar N.; Milch, Alfred E.; and Tasaico, Pedro, 4,379,299, Cl. 346-1.100.
Milhaud, Alain, to PORGES Societe Anonyme. Endo-tracheal or tracheotomic tube with shield for anaesthesia. 4,378,796, Cl. 128-207.150.
Miller, J. Blaine, to Gulf Oil Corporation. Production of shale oil by in-situ retorting of oil shale. 4,378,949, Cl. 299-2.000.
Miller, James A. Storage device for fishing reels. 4,378,882, Cl. 206-315.00R.
Miller, Jule: *See—*
McMurray, John H.; and Miller, Jule, 4,379,121, Cl. 420-452.000.
Miller, Ray S., to Double Eagle Industries, Inc. Passageway for truck cab and sleeper unit. 4,378,856, Cl. 180-89.140.
Miller, Stephen B.; and Schultz, Peter C., to Corning Glass Works. Low temperature method for making optical fibers. 4,378,987, Cl. 65-3.120.
Miller, Walter E., Jr.; and McKelvy, James W., to United States of America, Army. Quasi-stabilization for line of sight guided missiles. 4,378,918, Cl. 244-3.110.
Minakuchi, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Integrated signal processing circuit. 4,379,238, Cl. 307-243.000.
Minato, Sachie; and Kamata, Haruo, to Nissan Motor Company, Limited. Method and system for displaying colors utilizing tristimulus values. 4,379,292, Cl. 340-701.000.
Minnesota Mining and Manufacturing Company: *See—*
Heilmann, Steven M.; and Moon, John D., 4,379,201, Cl. 428-345.000.
Miroglio, Franco: *See—*
Girardi, Guglielmo; and Miroglio, Franco, 4,379,347, Cl. 375-94.000.
Mitchell, Muni M., to General Instrument Corp. Mesh gate V-MOS power FET. 4,379,305, Cl. 357-23.000.
Mitsubishi Denki Kabushiki Kaisha: *See—*
Sugimoto, Hidehiko, 4,379,258, Cl. 318-805.000.
Wakayama, Naoki; Yamagishi, Hideshi; Tomoda, Toshimasa; and Tanaka, Hiroji, 4,379,248, Cl. 313-93.000.
Mitsubishi Gas Chemical Co., Inc.: *See—*
Yotsuya, Minoru; Mae, Kiyoshi; Jinnouchi, Seikyu; and Ochiai, Toshio, 4,378,967, Cl. 8-111.000.
Mitsuboshi Belting Limited: *See—*
Fujiki, Toshiaki; Kano, Hikaru; and Nishi, Toru, 4,379,114, Cl. 264-248.000.
Miyake, Hideo: *See—*
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Miyamoto, Koichi, to Canon Kabushiki Kaisha. Reciprocally driving device. 4,378,706, Cl. 74-89.220.
Mobay Chemical Corporation: *See—*
Taylor, Ronald P.; and Phillips, Barry A., 4,379,105, Cl. 264-45.500.
Mobil Oil Corporation: *See—*
Allen, Linus S., 4,379,228, Cl. 250-266.000.
Audeh, Costandi A., 4,379,045, Cl. 208-9.000.
Daviduk, Nicholas; and Haddad, James H., 4,379,123, Cl. 422-142.000.
Givens, Wyatt W., 4,379,229, Cl. 250-270.000.

Klosek, John M.; and Wu, Margaret M., 4,379,027, Cl. 203-32.000.
Lenhardt, Wilfried K., 4,379,264, Cl. 328-24.000.
Masse, Lucien; Medlin, William L.; and Sexton, James H., 4,378,698, Cl. 73-579.000.
Medlin, William L.; Mullins, Lynn D.; and Zumwalt, Gary L., 4,378,845, Cl. 166-297.000.
Otto, Bernard, 4,378,675, Cl. 60-421.000.
Mobil Solar Energy Corporation: *See*—
Chalmers, Bruce, 4,379,202, Cl. 136-256.000.
Mochida, Haruo; and Sasaki, Michiaki, to Nissan Motor Co., Ltd. Pressure control device with a fluid discharge prevention mechanism. 4,378,815, Cl. 137-43.000.
Mochida, Nobuo. Solid stick of powder for cosmetic and toilet use and a method for preparing thereof. 4,379,136, Cl. 424-65.000.
Mode, Duane R., to Champion International Corporation. Collapsible open side carton. 4,378,904, Cl. 229-41.00B.
Modisette, Inc.: *See*—
Modisette, Jerry, 4,378,681, Cl. 62-500.000.
Modisette, Jerry, to Modisette, Inc. Refrigeration system. 4,378,681, Cl. 62-500.000.
Modular Industries Ltd.: *See*—
Carmel, A. Peter, 4,378,862, Cl. 182-106.000.
Mohan, Arthur G.; and Rauhut, Michael M., to American Cyanamid Company. Chemical lighting device. 4,379,320, Cl. 362-34.000.
Molinari, Egidio: *See*—
Bonaldi, Antonio; and Molinari, Egidio, 4,379,093, Cl. 260-397.100.
Molz, Theodor, to W. Eckold AG. Core for a pipe that is to be bent. 4,378,689, Cl. 72-466.000.
Momonoi, Kaishu: *See*—
Saikawa, Isamu; Takano, Shuntaro; Yoshida, Chosaku; Takashima, Okuta; Momonoi, Kaishu; Kuroda, Seietsu; Komatsu, Miwako; Yasuda, Takashi; and Kodama, Yutaka, 4,379,152, Cl. 424-246.000.
Monsanto Company: *See*—
Otstot, Roger S.; and Runkle, Charles J., 4,378,981, Cl. 55-158.000.
Montedison, S.p.A.: *See*—
Piccardi, Paolo; Corda, Francesco; Gozzo, Franco; Menconi, Augusto; and Longoni, Angelo, 4,379,163, Cl. 424-285.000.
Moon, John D.: *See*—
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Moore, Stanley R.: *See*—
Crisman, Thomas L.; Moore, Stanley R.; and Weaver, Harry R., 4,378,625, Cl. 29-450.000.
Mori, Kisaku: *See*—
Endo, Keiji; Toriyama, Tomomi; and Mori, Kisaku, 4,378,990, Cl. 71-90.000.
Morishita Pharmaceutical Co., Ltd.: *See*—
Sato, Makoto; Kimura, Isami; and Yamaguchi, Azuma, 4,379,148, Cl. 424-232.000.
Moriwaki, Hiroji: *See*—
Saito, Sadayuki; Moriwaki, Hiroji; and Higuchi, Kazuya, 4,379,002, Cl. 148-9.00R.
Morris Brothers (Aldershot) Limited: *See*—
Morris, Leslie J., 4,378,822, Cl. 140-92.300.
Morris, Leslie J., to Morris Brothers (Aldershot) Limited. Spiral binding machine for spirally feeding a spiral binding element. 4,378,822, Cl. 140-92.300.
Mostek Corporation: *See*—
Young, Ian A., 4,379,267, Cl. 330-253.000.
Mosteller, Lawson P., Jr. Light intensity control device and circuit therefor. 4,379,237, Cl. 307-141.000.
Motorola, Inc.: *See*—
Pumo, Joseph, 4,379,241, Cl. 307-481.000.
Tietjen, Donald; Lamb, Sharon; Shaw, Pern; Cawthron, Duane; and Shannon, Paul D., 4,379,327, Cl. 364-200.000.
Mountain, David S.; Allnutt, Anthony J.; Baker, Lionel R.; Cox, Laurence J.; Picot, Alan J.; Wardropper, Peter F.; and Webber, Julian M., to Sira Institute Limited. Apparatus and method for indicating stress in an object. 4,378,701, Cl. 73-808.000.
Moussault, Robert. Manipulation method and device for a foundry. 4,378,836, Cl. 164-336.000.
Moyer, Norman E., to Hughes Aircraft Company. Electrically erasable programmable read-only memory cell having a shared diffusion. 4,379,343, Cl. 365-185.000.
Moynihan, Robert E., to Du Pont de Nemours, E. I., and Company. Process for the preparation of polyvinylbutyral sheeting and adhesion control. 4,379,116, Cl. 264-349.000.
MPW Tech. Associates: *See*—
Ware, Franklyn O.; and McDonald, William S., 4,379,015, Cl. 156-205.000.
Mueller, Jerry K., Jr.: *See*—
Coleman, Marilyn A., 4,378,758, Cl. 119-35.000.
Muenzen, Joseph P.: *See*—
Haas, David J.; Blionas, Costas; and Muenzen, Joseph P., 4,379,348, Cl. 378-57.000.
Muggli, Jurg; and Pfister, Gustav, to Cerberus AG. Alarm device with a condition sensor element. 4,379,290, Cl. 340-629.000.
Muller, Hans: *See*—
Seach, Barry G.; Muller, Hans; and Cohen, Solomon E., 4,379,115, Cl. 264-296.000.
Muller, Helmut: *See*—
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Muller, Karl-Hans; and Barthel, Walter, to Degussa AG. Pulverulent bitumen concentrate and its use. 4,378,999, Cl. 106-281.00R.
Mullins, Lynn D.: *See*—
Medlin, William L.; Mullins, Lynn D.; and Zumwalt, Gary L., 4,378,845, Cl. 166-297.000.
Murakami, Yasushi: *See*—
Ito, Kiyohiko; Koizumi, Masuo; Murakami, Yasushi; Akima, Michitaka; Aono, Jinichiro; Ohba, Yasuhiro; Yamazaki, Tamotsu; Sakai, Kazushige; Hata, Shun-ichi; and Takanashi, Shigeru, 4,379,150, Cl. 424-244.000.
Muralidhara, Ranya: *See*—
Patel, Raman R.; Pittet, Alan O.; and Muralidhara, Ranya, 4,379,079, Cl. 252-522.00R.
Murarka, Shyam P.: *See*—
Levinstein, Hyman J.; Murarka, Shyam P.; and Sinha, Ashok K., 4,378,628, Cl. 29-571.000.
Murphy, Alan P., to Procter & Gamble Company, The. Granular detergent compositions containing film-forming polymers. 4,379,080, Cl. 252-526.000.
Murphy, R. Allen: *See*—
Bozler, Carl O.; Alley, Gary D.; Lindley, William T.; and Murphy, R. Allen, 4,378,629, Cl. 29-580.000.
Myer, Robert E., to Matthews Research & Development Corp. Ornamental lamp and method and apparatus for operation thereof. 4,379,253, Cl. 315-289.000.
Nabisco Brands, Inc.: *See*—
Reggio, Richard A.; D'Amelia, Ronald P.; and Friello, Dominick R., 4,379,169, Cl. 426-3.000.
Naccache, Albert F. Sheet-flow concrete solar collector. 4,378,788, Cl. 126-445.000.
Nagahashi, Yasuhiko: *See*—
Ozawa, Takashi; and Nagahashi, Yasuhiko, 4,379,344, Cl. 365-203.000.
Nagahori, Katsuhiro, to SI Handling Systems, Inc. Interfaced conveyor systems and driverless vehicle for use therein. 4,378,741, Cl. 104-18.000.
Nagao, Tsukasa. Traveling wave coupled type optical wave circulators. 4,378,951, Cl. 350-96.150.
Nagata, Mitsuru, to Tokyo Shibaura Denki Kabushiki Kaisha. Differential amplifier circuit. 4,379,268, Cl. 330-260.000.
Nakada, Akira; Okamoto, Eisaku; Sugiura, Toshio; and Yoshida, Kiyoshi, to Nippon Gakki Seizo Kabushiki Kaisha. Electronic musical instrument having musical performance training system. 4,378,720, Cl. 84-1.030.
Nakagaki, Mitsuhiro; Isoo, Osamu; Matsuoka, Shinji; and Yamada, Takahiro, to Hitachi, Ltd. Ink-jet recording head apparatus. 4,379,303, Cl. 346-75.000.
Nakajima, Koe: *See*—
Ogawa, Shigeru; Uehori, Yuji; Matsumoto, Hiromi; and Nakajima, Koe, 4,378,685, Cl. 72-21.000.
Nakamichi Corporation: *See*—
Ohkawara, Takashi, 4,379,311, Cl. 360-66.000.
Nakano, Tomio; and Takemae, Yoshihiro, to Fujitsu Limited. Semiconductor dynamic memory device. 4,379,342, Cl. 365-182.000.
Nalco Chemical Company: *See*—
Yarham, Oliver L.; Sech, John M.; and Kennedy, Carl S., 4,379,072, Cl. 252-389.00R.
Narita, Kiichi; Inaba, Shinichi; Shimizu, Masakata; Okimoto, Kenichi; and Kobayashi, Isao, to Kobe Steel, Ltd. Method for estimating geographical distribution of cohesive zone in blast furnace. 4,378,994, Cl. 75-41.000.
Narita, Ryuho, to Tokyo Shibaura Denki Kabushiki Kaisha. Electronic timer. 4,379,339, Cl. 364-900.000.
Nasiri, Saeed, to National Semiconductor Corporation. Submersible pressure transducer package. 4,379,279, Cl. 338-42.000.
National Distillers & Chemical Corp.: *See*—
Zimmerman, Alfred B.; and Memering, Leroy J., 4,379,188, Cl. 428-35.000.
National Petro Chemicals Corp.: *See*—
Rekers, Louis J.; and Katzen, Stanley J., 4,379,075, Cl. 252-430.000.
National Research Development Corporation: *See*—
Light, Leon H.; and Maclellan, Gordon E., 4,378,642, Cl. 36-35.00R.
Wickramasinghe, Hemantha K., 4,378,699, Cl. 73-606.000.
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Isbell, Tim D.; and Sauer, Don R., 4,379,208, Cl. 179-1.0GS.
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Poku, Benjamin: *See—*
Gluz, Jacob; and Poku, Benjamin, 4,378,940, Cl. 273-237.000.
Polad, Michael D.; Gerlach, Leroy E.; Gabel, Edward R.; Schmidt, Robert H.; and Heiller, Glenn H., to Data Card Corporation. Embossing drive mechanism for an automatic embossing system. 4,378,733, Cl. 101-18.000.
Polikarpova, Zinaida A.: *See—*
Lytkin, Viktor P.; Menshov, Vladimir N.; Frolov, Jury S.; Polikarpova, Zinaida A.; Sobolevsky, Viktor S.; Seljutina, Maria G.; Anokhin, Vladimir N.; Barbosov, Nikolai D.; Vorontsov, Sergei P., deceased; Vorontsova, Nina F., administrator; Chistozvonov, David B., deceased; and Chistozvonova, Vera G., adminstrator, 4,379,078, Cl. 252-466.00J.
Pool, Daniel L. Masking machine. 4,379,019, Cl. 156-527.000.
PORGES Societe Anonyme: *See—*
Milhaud, Alain, 4,378,796, Cl. 128-207.150.
Porlein, Gerhard: *See—*
Fischer, Artur; and Porlein, Gerhard, 4,378,616, Cl. 24-245.00R.
Port, Hans; Schrenk, Jurgen; and Wunderwald, Peter, to Boehringer Mannheim GmbH. Thrombin inhibitor and preparation and use thereof. 4,379,142, Cl. 424-101.000.
Portoghese, Joseph: *See—*
Berke, Herbert; and Portoghese, Joseph, 4,379,309, Cl. 358-154.000.
Pouliot, Harvey N.; and Elfes, Lee E., to Vadetec Corporation. Normal friction force developing system for traction drive transmissions. 4,378,708, Cl. 74-191.000.
Powers, Dale R., to Corning Glass Works. Method and apparatus for forming an optical waveguide fiber. 4,378,985, Cl. 65-3.120.
PPG Industries, Inc.: *See—*
Chamberlin, Ronald D., 4,379,035, Cl. 204-98.000.
Gillery, F. Howard, 4,379,040, Cl. 204-192.00P.
PQ Corporation: *See—*
Sherry, Howard S.; and Hertzenberg, Elliott P., 4,379,143, Cl. 424-154.000.
Prabhu, Ashok N.; and Hang, Kenneth W., to RCA Corporation. Low value resistor inks. 4,379,195, Cl. 428-209.000.
Prengaman, Raymond D. Thread sealing and lubricating composition. 4,379,062, Cl. 252-26.000.
Presta, Claude, to Saint Gobain Vitrage. Elements for bending plates made of a material in the plastic state, use of such elements for bending and hardening plates and a device equipped with such elements. 4,378,988, Cl. 65-182.300.
Prince, Arvin W., to Harrington Manufacturing Company. Pull type automatic tobacco harvester and method of harvesting tobacco. 4,378,669, Cl. 56-27.500.
Pro-Mark Companies, The: *See—*
Baker, Donald B., 4,379,175, Cl. 426-582.000.
Prochazka, Svante: *See—*
Greskovich, Charles D.; Palm, John A.; and Prochazka, Svante, 4,379,110, Cl. 264-65.000.
Procter & Gamble Company, The: *See—*
McCoy, Stephen A.; and Bono, James L., 4,379,177, Cl. 426-656.000.
Murphy, Alan P., 4,379,080, Cl. 252-526.000.
Proctor, Paul W.; and Dow, Robert L. Electromagnetic and electrostatic insensitive blasting caps, squibs and detonators. 4,378,738, Cl. 102-202.700.
Produits Chimiques Ugine Kuhlmann: *See—*
Fouquet, Raymond, 4,379,124, Cl. 422-240.000.
Profeta, Joseph G. Bicycle carrying case. 4,378,883, Cl. 206-335.000.
Progressive Merchandising Display Limited: *See—*
Wilson, Alan A., 4,378,654, Cl. 46-115.000.
Pumo, Joseph, to Motorola, Inc. Edge defined output buffer circuit. 4,379,241, Cl. 307-481.000.
Pusche, Herbert: *See—*
Daniel, Hellmuth; Queck, Robert; Kuxdorf, Bernhard; and Pusche, Herbert, 4,379,131, Cl. 423-304.000.
Quad Environmental Technologies Corporation: *See—*
deVries, Egbert, 4,378,851, Cl. 169-45.000.
Quadro, Giuseppe: *See—*
Ferruti, Paolo; Danusso, Ferdinando; Tanzi, Maria C.; and Quadro, Giuseppe, 4,379,091, Cl. 548-472.000.
Queck, Robert: *See—*
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Quevedo, Humberto. Hair curling device. 4,378,814, Cl. 132-40.000.
Rabe, Jurgen, to INA Walzlager Schaeffler KG. Novel apparatus. 4,378,930, Cl. 249-160.000.
Rabitsch, Hermann; and Sosath, Helmut A., to Lever Brothers Company. Detergent composition with reduced soil-redeposition effect. 4,379,061, Cl. 252-174.180.
Racal-Dana Instruments Limited: *See—*
Wheatley, Mark A., 4,379,272, Cl. 332-38.000.
Radlove, Sol B., to Batterlite-Whitlock Incorporated. Dietetic cake mix. 4,379,174, Cl. 426-554.000.
Rapisarda, Anthony A.; Romeo, Joseph; and Lopez, Jose A., to Lever Brothers Company. Detergent powders of improved solubility. 4,379,069, Cl. 252-135.000.
Rapp, Heinz: *See—*
Ermer, Wolfgang; Payrhammer, Bernd; Rapp, Heinz; and Bauer, Alois, 4,378,610, Cl. 15-1.50R.
Rapp, James E., to Owens-Illinois, Inc. B_2 O_3 Diffusion processes. 4,379,006, Cl. 148-189.000.
Rasekhi, Houshang; Nelson, Alfred M.; Kula, John S., Jr.; and Sudano, John J., to Wang Laboratories, Inc. Toner applicator system for magnetography. 4,378,754, Cl. 118-658.000.
Ratanapupech, Pisant: *See—*
Berg, Lloyd; and Ratanapupech, Pisant, 4,379,028, Cl. 203-51.000.
Ratcliffe, Edward L., to Hambro International (Structures) Limited. Deflection measuring system. 4,378,693, Cl. 73-105.000.
Rauhut, Michael M.: *See—*
Mohan, Arthur G.; and Rauhut, Michael M., 4,379,320, Cl. 362-34.000.
Rausing, Anders R.; and Nilsson, E. Ingvar, to Tetra Pak Developpement SA. Method of manufacture of packing containers and packing containers manufactured in accordance with the method. 4,379,014, Cl. 156-191.000.
Raychem Corporation: *See—*
Middleman, Lee M.; and Goodrich, Roger S., 4,379,220, Cl. 219-331.000.
Raymond, James C.: *See—*
Holtey, Thomas O.; Kelly, Richard P.; Noyes, Steven S.; and Raymond, James C., 4,379,340, Cl. 364-900.000.
RCA Corporation: *See—*
Avins, Jeremiah Y.; and Phillion, Donald W., 4,379,221, Cl. 377-43.000.
Bendell, Sidney L., 4,379,310, Cl. 358-219.000.
Lehmann, William L., 4,379,271, Cl. 331-49.000.
Prabhu, Ashok N.; and Hang, Kenneth W., 4,379,195, Cl. 428-209.000.
Reagan, Bernard L., Jr.: *See—*
Hayter, Alan B.; and Reagan, Bernard L., Jr., 4,379,222, Cl. 377-81.000.
Recycled Paper Bedding, Inc.: *See—*
Whiteman, Patrick W., 4,378,756, Cl. 119-1.000.
Red Devil Inc.: *See—*
Richard, Schotter D.; and Heinis, Robert P., 4,378,782, Cl. 125-23.00T.
Red River Commodities, Inc.: *See—*
Johnson, Freeman K., 4,378,655, Cl. 47-58.000.
Reed, Judson D. Umbrella support for use in vehicles. 4,378,888, Cl. 211-63.000.
Reedy, James D.: *See—*
DiSalvo, Gail D.; and Reedy, James D., 4,379,094, Cl. 260-439.00R.
Reggio, Richard A.; D'Amelia, Ronald P.; and Friello, Dominick R., to Nabisco Brands, Inc. New gum base and chewing gum containing same. 4,379,169, Cl. 426-3.000.
Regitz, Gunter: *See—*
Hitzel, Volker; Weyer, Rudi; Geisen, Karl; and Regitz, Gunter, 4,379,153, Cl. 424-256.000.
Reichel, Artur: *See—*
Kraft, Winfried; Reichel, Artur; and Holmok, Gunter, 4,378,718, Cl. 83-592.000.
Reichert, D. Jeanie; Trottier, Carol S.; and Calhoon, Cathy Y. One piece bodice garment for mastectomy patient. 4,378,805, Cl. 128-450.000.
Reinhardt, Helmut: *See—*
Gratzfeld, Everhard; Clausen, Eva; Reinhardt, Helmut; and Schaefer, Hans, 4,378,995, Cl. 106-15.050.
Reining, Karl: *See—*
Benninger, Siegfried; Reining, Karl; and Krasel, Werner, 4,379,125, Cl. 422-274.000.
Rekers, Louis J.; and Katzen, Stanley J., to National Petro Chemicals Corp. Process for polymerizing high melt index olefins and polymerization catalysts used therefore. 4,379,075, Cl. 252-430.000.
Reliance Products Corporation: *See—*
Chrones, Anthony, 4,378,948, Cl. 292-19.000.
Renault, Claude: *See—*
Peignier, Michel; and Renault, Claude, 4,378,968, Cl. 8-142.000.
Renger, Larry H., to Mattel, Inc. Method for making flying surfaces. 4,379,010, Cl. 156-108.000.
Repa Feinstanzwerk GmbH: *See—*
Fohl, Artur, 4,378,913, Cl. 242-74.000.
Fohl, Artur, 4,378,915, Cl. 242-107.200.
Fohl, Artur, 4,378,947, Cl. 280-808.000.

Research Corporation: *See—*
Clark, Charles R., 4,379,165, Cl. 424-324.000.
Research Triangle Institute: *See—*
Pitt, Colin G.; and Schindler, Anton E., 4,379,138, Cl. 424-78.000.
RFD Inflatables Limited: *See—*
Burrough, Philip M.; and Edwards, David V., 4,378,861, Cl. 182-48.000.
Rhone-Poulenc Sante: *See—*
Aloup, Jean-Claude; Bouchaudon, Jean; Farge, Daniel; and James, Claude, 4,379,154, Cl. 424-250.000.
Rhorer, Clifford A.: *See—*
Hubbard, Larry E.; and Rhorer, Clifford A., 4,379,291, Cl. 340-682.000.
Richard, Schotter D.; and Heinis, Robert P., to Red Devil Inc. Ceramic tile cutter. 4,378,782, Cl. 125-23.00T.
Riedel-De Haen Aktiengesellschaft: *See—*
Scholz, Eugen, 4,378,972, Cl. 436-42.000.
Riel, Frank J.: *See—*
Beggs, Stanley L.; Riel, Frank J.; and Lawson, D. W. R., 4,379,191, Cl. 428-118.000.
Ritsko, Joseph E.: *See—*
Kim, Tai K.; Ritsko, Joseph E.; MacInnis, Martin B.; and Vogt, Martin C., 4,379,126, Cl. 423-54.000.
Robbins, Murray; and Sherwood, Richard C., to Bell Telephone Laboratories, Incorporated. Magnetic devices by selective reduction of oxides. 4,379,003, Cl. 148-104.000.
Robert Bosch GmbH: *See—*
Harter, Werner, 4,378,778, Cl. 123-609.000.
Haubner, Georg; Wesemeyer, Jurgen; Meier, Werner; and Schrumpf, Hans, 4,378,769, Cl. 123-416.000.
Straubel, Max; Eisele, Hermann; Zimmermann, Klaus-Dieter; and Vogel, Wilhelm, 4,378,775, Cl. 123-458.000.
Robertshaw Controls Company: *See—*
Tyler, Hugh J.; and Conway, William H., 4,379,287, Cl. 340-365.00C.
Robertson, James A., to FMC Corporation. Strengthening phosphate shale briquettes. 4,379,108, Cl. 264-56.000.
Robot-Coupe, S.A.: *See—*
Coggiola, Marcel, 4,378,730, Cl. 99-501.000.
Robud Company: *See—*
Kirkpatrick, Alan D., 4,378,737, Cl. 101-415.100.
Robusto, Paul F.: *See—*
Bleha, William P., Jr.; Wiener-Avnear, Eliezer; and Robusto, Paul F., 4,378,955, Cl. 350-334.000.
Roccaforte, Harry I., to Champion International Corporation. Carton with strap handle and blank for forming same. 4,378,905, Cl. 229-52.00B.
Roche, Michel, to Commissariat a l'Energie Atomique. Process for measuring a continuous neutron flux and measuring apparatus for carrying out this process. 4,379,118, Cl. 376-154.000.
Rockwell International Corporation: *See—*
Soclof, Sidney I., 4,379,307, Cl. 357-68.000.
Roediger, Hanns, to Techtransfer GmbH & Co. KG. Decomposition apparatus with reversible removal conveyor. 4,378,886, Cl. 209-606.000.
Rogers, Douglas K., to Diamond Shamrock Corporation. Start-up procedure for oxygen electrode. 4,379,034, Cl. 204-98.000.
Rohr Industries, Inc.: *See—*
Beggs, Stanley L.; Riel, Frank J.; and Lawson, D. W. R., 4,379,191, Cl. 428-118.000.
Rohrberg, Roderick G. Orbital cassette welding head. 4,379,215, Cl. 219-60.00A.
Romankiw, Lubomyr T.: *See—*
Melcher, Robert L.; Romankiw, Lubomyr T.; and Von Gutfeld, Robert J., 4,379,022, Cl. 156-643.000.
Romberg, Felix B. Bumper actuated gate. 4,378,657, Cl. 49-364.000.
Romeo, Joseph: *See—*
Rapisarda, Anthony A.; Romeo, Joseph; and Lopez, Jose A., 4,379,069, Cl. 252-135.000.
Rootham, Michael W.; and Forrester, James A., to Westinghouse Electric Corp. Method of encapsulating waste radioactive material. 4,379,081, Cl. 252-628.000.
Rosemount Inc.: *See—*
DeLeo, Richard V.; and Hagen, Floyd W., 4,378,696, Cl. 73-180.000.
DeLeo, Richard V.; and Hagen, Floyd W., 4,378,697, Cl. 73-182.000.
Rosen, Evan W., to Engineering & Research Associates, Inc. Blood collection bag weighing device. 4,378,854, Cl. 177-118.000.
Rosen, Melvin H., to Ciba-Geigy Corporation. 1-Benzothiepin-4-carboxamides. 4,379,162, Cl. 424-275.000.
Rosenthal, Scott B., to Trebor Industries, Inc. Optical arrangement for quantitative analysis instrument utilizing pulsed radiation emitting diodes. 4,379,233, Cl. 250-553.000.
Ruangburapa, Suwat. Nut cracking device. 4,378,731, Cl. 99-571.000.
Ruark, Bruce L.: *See—*
Stocking, George E.; and Ruark, Bruce L., 4,378,679, Cl. 62-280.000.
Rubin, Michael D., to Ford Aerospace & Communications Corporation. PSK Demodulator with automatic compensation of delay induced phase shifts. 4,379,266, Cl. 329-104.000.
Ruffing, Charles R.: *See—*
Dailey, George F.; Ruffing, Charles R.; and Simmonds, Leonard B., 4,379,243, Cl. 310-260.000.
Runkle, Charles J.: *See—*
Otstot, Roger S.; and Runkle, Charles J., 4,378,981, Cl. 55-158.000.
Runnels, Joe N.; and Fagerlund, Kenneth R., to Boeing Company, The. Combustibly inert air supply system and method. 4,378,920, Cl. 244-135.00R.
Rush, William F., to Institute of Gas Technology. Combined sonic agglomerator/cross flow filtration apparatus and process for solid particle and/or liquid droplet removal from gas streams. 4,378,976, Cl. 55-15.000.
Rutgerswerke Aktiengesellschaft: *See—*
Zander, Maximilian; Blumer, Gerd-Peter; Collin, Gerd; Glaser, Herbert; and Marrett, Rolf, 4,379,133, Cl. 423-445.000.
Ryba, Olen: *See—*
Petranek, Jaroslav; Ryba, Olen; Semler, Miloslav; and Panoch, Miroslav, 4,379,041, Cl. 204-415.000.
SAB Nife AB: *See—*
Stjarne, Anders O. G., 4,378,864, Cl. 188-153.00R.
Sacht, Hans-Otto: *See—*
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Sacks, Frank: *See—*
Vincent, Richard G.; Sacks, Frank; and Steele, Robert F., 4,379,298, Cl. 343-895.000.
Saikawa, Isamu; Takano, Shuntaro; Yoshida, Chosaku; Takashima, Okuta; Momonoi, Kaishu; Kuroda, Seietsu; Komatsu, Miwako; Yasuda, Takashi; and Kodama, Yutaka, to Toyama Chemical Co., Ltd. Cephalosporins. 4,379,152, Cl. 424-246.000.
Saint Gobain Vitrage: *See—*
Presta, Claude, 4,378,988, Cl. 65-182.300.
Saito, Norio: *See—*
Torii, Sigeru; Tanaka, Hideo; Nokami, Junzo; Shiroi, Takashi; Saito, Norio; and Sasaoka, Michio, 4,379,032, Cl. 204-59.00R.
Saito, Sadayuki; Moriwaki, Hiroji; and Higuchi, Kazuya, to Kawasaki Steel Corporation. Method and equipment for dividing slabs into predetermined widths. 4,379,002, Cl. 148-9.00R.
Saito, Shin-ichi: *See—*
Fukushima, Tsutomu; Furukawa, Takeshi; Saito, Shin-ichi; Kobayashi, Takashi; and Yamada, Takeo, 4,378,993, Cl. 75-41.000.
Saito, Takao: *See—*
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Saiya, Robert F.: *See—*
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Sakai Chemical Industry Co., Ltd.: *See—*
Araki, Yasuo; Uno, Hajime; Higuchi, Shigeharu; and Matsumoto, Seiji, 4,379,183, Cl. 427-127.000.
Sakai, Kazushige: *See—*
Ito, Kiyohiko; Koizumi, Masuo; Murakami, Yasushi; Akima, Michitaka; Aono, Jinichiro; Ohba, Yasuhiro; Yamazaki, Tamotsu; Sakai, Kazushige; Hata, Shun-ichi; and Takanashi, Shigeru, 4,379,150, Cl. 424-244.000.
Sakai, Tetsushi; Kobayasi, Yoshiji; Yamamoto, Yousuke; and Yamauchi, Hironori, to Nippon Telegraph & Telephone Public Corp. Method of making semiconductor devices. 4,379,001, Cl. 148-1.500.
Sakano, Hideki, to Tokyo Shibaura Denki Kabushiki Kaisha. Audio amplifier. 4,379,209, Cl. 179-1.00A.
Salisbury, Wayne C.; and Hodson, Lee, to Ex-Cell-O Corporation. Polyurethane molding process with siloxane internal release agent. 4,379,100, Cl. 264-39.000.
Sanford, Herbert F., to Honeywell, Inc. Tape drive capstan. 4,378,899, Cl. 226-188.000.
Sanville, W. Woodward, to Servo Corporation of America. Railroad car wheel detector. 4,379,330, Cl. 364-424.000.
Sarda, Jean L. Inking device. 4,378,736, Cl. 101-365.000.
Sarrell, Ivan D., to Chattanooga Corporation. Therapeutic traction apparatus. 4,378,791, Cl. 128-71.000.
Sarstedt, Walter, to Kunststoff-Spritzgubwerk. Devices for sampling blood. 4,378,812, Cl. 128-765.000.
Sasaki, Michiaki: *See—*
Mochida, Haruo; and Sasaki, Michiaki, 4,378,815, Cl. 137-43.000.
Sasaki, Shuji; and Yamazaki, Yoji, to Lion Corporation. Method for enumeration of oral gram-negative bacteria. 4,379,135, Cl. 436-536.000.
Sasaoka, Michio: *See—*
Torii, Sigeru; Tanaka, Hideo; Nokami, Junzo; Shiroi, Takashi; Saito, Norio; and Sasaoka, Michio, 4,379,032, Cl. 204-59.00R.
Sato, Makoto; Kimura, Isami; and Yamaguchi, Azuma, to Morishita Pharmaceutical Co., Ltd. Analgesic and anti-inflammatory composition. 4,379,148, Cl. 424-232.000.
Satomi, Seigo; and Ikai, Masanosuke, to NGK Insulators, Ltd. Silencer for intake/exhaust gas duct. 4,378,859, Cl. 181-224.000.
Satzler, Ronald L., to Caterpillar Tractor Co. Wheel assembly machine and method. 4,378,834, Cl. 157-1.100.
Sauer, Don R.: *See—*
Isbell, Tim D.; and Sauer, Don R., 4,379,208, Cl. 179-1.0GS.
Sauermilch, Otto, to William Prym-Werke KG. Machine with fingerguard. 4,378,900, Cl. 227-8.000.
Saunders, Robert M.: *See—*
Wilde, Sheldon L.; McCandless, Thomas J.; and Saunders, Robert M., 4,378,893, Cl. 215-246.000.
Sawada, Daisaku; Shigematsu, Takashi; and Takeda, Yuji, to Toyota Jidosha Kogyo Kabushiki Kaisha. System for controlling ignition timing in an engine. 4,378,771, Cl. 123-425.000.
Saylor, James R.; Wiens, Lewis H.; and Blume, Orville E., to Aero Plastics of K.C., Inc. Hold down bar for hopper car hatch covers. 4,378,742, Cl. 105-377.000.

Schaar, Charles H., to Colgate-Palmolive Company. Disposable diaper. 4,378,800, Cl. 604-390.000.
Schaefer, Hans: *See—*
Gratzfeld, Everhard; Clausen, Eva; Reinhardt, Helmut; and Schaefer, Hans, 4,378,995, Cl. 106-15.050.
Schaubert, Daniel H.: *See—*
Farrar, Frederick G.; and Schaubert, Daniel H., 4,379,296, Cl. 343-700.0MS.
Schenck, Timothy T., to Du Pont de Nemours, E. I., and Company. Filled thermoplastic compositions based on mixtures of ethylene interpolymers. 4,379,190, Cl. 428-95.000.
Schering Aktiengesellschaft: *See—*
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Schering Corporation: *See—*
Neustadt, Bernard R.; and Gold, Elijah H., 4,379,166, Cl. 424-324.000.
Scherwitz, Karen; and Citti, James, to Pillsbury Company, The. Icing having a substantially temperature independent viscosity. 4,379,176, Cl. 426-613.000.
Schimmel, Morry L.: *See—*
Klein, Edward A.; and Schimmel, Morry L., 4,378,739, Cl. 102-204.000.
Schindler, Anton E.: *See—*
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Schlage Lock Company: *See—*
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Schliebener, Claus: *See—*
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Schmidt, Robert H.: *See—*
Polad, Michael D.; Gerlach, Leroy E.; Gabel, Edward R.; Schmidt, Robert H.; and Heiller, Glenn H., 4,378,733, Cl. 101-18.000.
Schneider, Clayton J., Jr., to Calspan Corporation. Munition fuse system having out-of-line safety device. 4,378,740, Cl. 102-216.000.
Schneider, Franz; Bergmann, Ewald; and Gering, Gerhard, to L. Schuler GmbH. Circuit arrangement for an adjusting drive for a press ram adjustment. 4,378,717, Cl. 83-530.000.
Schneider, Hans-Peter: *See—*
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Schnoring, Hildegard; Dahm, Manfred; and Pampus, Gottfried, to Bayer Aktiengesellschaft. Process for the production of microcapsules. 4,379,071, Cl. 252-316.000.
Schockelt, Guenter G.: *See—*
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Scholz, Donald T. String tuning and fastening arrangement. 4,378,723, Cl. 84-297.00R.
Scholz, Eugen, to Riedel-De Haen Aktiengesellschaft. Titration agent and method for using same. 4,378,972, Cl. 436-42.000.
Schouenberg, Hendrikus J. E. Injection mechanism for molding plastics. 4,378,963, Cl. 425-144.000.
Schrenk, Jurgen: *See—*
Port, Hans; Schrenk, Jurgen; and Wunderwald, Peter, 4,379,142, Cl. 424-101.000.
Schroeder, Edward M. Log splitter. 4,378,825, Cl. 144-193.00R.
Schrumpf, Hans: *See—*
Haubner, Georg; Wesemeyer, Jurgen; Meier, Werner; and Schrumpf, Hans, 4,378,769, Cl. 123-416.000.
Schuler, Heinz, to Applied Magnetics Corporation. Carriage loading arm assembly having two magnetic transducers for a double sided floppy disc. 4,379,315, Cl. 360-105.000.
Schultz, Peter C.: *See—*
Miller, Stephen B.; and Schultz, Peter C., 4,378,987, Cl. 65-3.120.
Schumacher, Wilhelm, to Fa. Christian Majer K.G., Maschinenfabrik. Apparatus for controlling a pipe-cutting device. 4,378,966, Cl. 493-22.000.
Schur, Norbert: *See—*
Kieser, Hermann; and Schur, Norbert, 4,378,637, Cl. 30-216.000.
Schwab, Bernard: *See—*
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Schwab, Helmut: *See—*
Sichling, Georg H.; Schwab, Helmut; and Schwab, Bernard, 4,379,226, Cl. 250-231.00R.
Schwab, Randall J., to Transco Northwest, Inc. Pallet elevator for a ship. 4,378,874, Cl. 198-802.000.
Schwartz, Samuel, to University of Minnesota, Regents of the. Method and apparatus for quantitatively determining the level of hemoglobin in a biological sample. 4,378,971, Cl. 436-66.000.
Schwenker, Robert O.: *See—*
Horng, Cheng T.; Konian, Richard R.; Schwenker, Robert O.; and Weider, Armin W., 4,378,630, Cl. 29-580.000.
Seach, Barry G.; Muller, Hans; and Cohen, Solomon E., to James Hardie & Coy, Pty. Limited. Pipe socket forming. 4,379,115, Cl. 264-296.000.
Sech, John M.: *See—*
Yarham, Oliver L.; Sech, John M.; and Kennedy, Carl S., 4,379,072, Cl. 252-389.00R.
Secrist, Duane R.: *See—*
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Seebacher, Gerhard: *See—*
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Seim, Howard N.: *See—*
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Seman, David C. Method of producing a brick wall facing. 4,379,187, Cl. 427-282.000.
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Senninger, Rudolf: *See—*
Hansen, Guenter; Kolbinger, Hans J.; Senninger, Rudolf; and Zeidler, Georg, 4,378,969, Cl. 8-521.000.
Servo Corporation of America: *See—*
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Shackelford, John T.; and Carpenter, Robert L., to Brunswick Corporation. Uniform drag system for spin cast reels. 4,378,914, Cl. 242-84.21A.
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Tietjen, Donald; Lamb, Sharon; Shaw, Pern; Cawthron, Duane; and Shannon, Paul D., 4,379,327, Cl. 364-200.000.
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Shaw, Malcolm A.: *See—*
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Shaw, Pern: *See—*
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Sherritt Gordon Mines Limited: *See—*
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Sherry, Howard S.; and Hertzenberg, Elliott P., to PQ Corporation. Topical liquid or ointment. 4,379,143, Cl. 424-154.000.
Sherwood, Irvin W., to Champion International Corporation. Hanging tab with single line of adhesive and hanging hole clear of adhesive. 4,378,903, Cl. 229-6.00R.
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Shibata, Takaaki; and Yamamoto, Tetsuhiro, to Doryokuro Kakunenryo Kaihatsu Jigyodan. Sealing method using heat-shrinkable film. 4,379,009, Cl. 156-86.000.
Shiflett, David C. Arrow locating device. 4,378,781, Cl. 124-24.00R.
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Shii, Kazuo; and Ohashi, Toshiyuki, to Hitachi, Ltd. Electron microscope. 4,379,231, Cl. 250-311.000.
Shilov, Vladislav A.; Smirnov, Vitaly K.; Pechersky, Viktor S.; Kugushin, Alexandr A.; Bespalov, Vladimir N.; Labetsky, Jury O.; and Melnikov, Boris M. Method for rolling H-sections in continuous mill. 4,378,687, Cl. 72-366.000.
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Shimizu, Masakata: *See—*
Narita, Kiichi; Inaba, Shinichi; Shimizu, Masakata; Okimoto, Kenichi; and Kobayashi, Isao, 4,378,994, Cl. 75-41.000.
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Shrum, Kenneth L.; and Trax, Donald L., to Sun Studs, Inc. Veneer lathe lug charger system having enhanced accuracy and rate of production. 4,378,827, Cl. 144-209.00A.
Shultz, Jay: *See—*
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SI Handling Systems, Inc.: *See—*
Brown, William L., 4,378,872, Cl. 198-570.000.
Nagahori, Katsuhiro, 4,378,741, Cl. 104-18.000.
Sichling, Georg H.; Schwab, Helmut; and Schwab, Bernard, to Siemens Corporation. Method and sensor device for measuring a physical parameter utilizing an oscillatory, light modulation element. 4,379,226, Cl. 250-231.00R.
Siegmund, Walter P., to Warner Lambert Technologies, Inc. Dynamic image enhancer for fiberscopes. 4,378,952, Cl. 350-96.250.

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Elsel, Werner, 4,379,275, Cl. 335-216.000.
Guntersdorfer, Max; Kleinschmidt, Peter; and Dietrich, Klaus, 4,379,246, Cl. 310-328.000.
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Krampe, Dietrich; Schneider, Hans-Peter; and Zander, Hans-Hermann, 4,379,325, Cl. 363-35.000.
Martin, Erwin, 4,379,212, Cl. 179-110.00A.
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Url, Karlheinz, 4,379,345, Cl. 365-205.000.
Siemens-Allis, Inc.: *See—*
Lott, Donald L.; Schockelt, Guenter G.; and Worrix, Matthew L., 4,378,751, Cl. 116-271.000.
Siemens Corporation: *See—*
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Simbirtsev, Alexei V.: *See—*
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Simmonds, Leonard B.: *See—*
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Simmons U.S.A.: *See—*
Patterson, Charles A.; and Uyeda, Tim M., 4,378,609, Cl. 5-12.00R.
Simonis, Jurgen; and Sacht, Hans-Otto, to Gebruder Welger GmbH & Co. Kommanditgesellschaft. Tying apparatus for agricultural roll balers. 4,378,732, Cl. 100-5.000.
Simpson, Edgar A., to W. R. Grace & Co. Method of preparing a monolithic structure having flow channels. 4,379,109, Cl. 264-60.000.
Sinha, Ashok K.: *See—*
Levinstein, Hyman J.; Murarka, Shyam P.; and Sinha, Ashok K., 4,378,628, Cl. 29-571.000.
Sinner, Bengt: *See—*
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Mountain, David S.; Allnutt, Anthony J.; Baker, Lionel R.; Cox, Laurence J.; Picot, Alan J.; Wardropper, Peter F.; and Webber, Julian M., 4,378,701, Cl. 73-808.000.
Sitterer, Georg: *See—*
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Slater, Glenn L.: *See—*
Fowles, Thomas A.; Slater, Glenn L.; and Winchell, David A., 4,378,891, Cl. 215-32.000.
Small, Vernon R., Jr., to Chevron Research Company. Method for reducing brake noise in oil-immersed disc brakes. 4,379,066, Cl. 252-56.00R.
Smeenge, George: *See—*
Smeenge, Paul A.; and Smeenge, George, 4,378,898, Cl. 224-328.000.
Smeenge, Paul A.; and Smeenge, George. Cargo carrier. 4,378,898, Cl. 224-328.000.
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Smith, Carl M., to Allen Industries, Inc. Forming apparatus and method. 4,379,101, Cl. 264-40.300.
Smith, Gerald L.: *See—*
Coleman, Marilyn A., 4,378,758, Cl. 119-35.000.
Smith, Harlan B., to Erickson Air Crane Co. Apparatus for controlling orientation of a suspended load. 4,378,919, Cl. 244-118.100.
Smith International, Inc.: *See—*
Chia, Weng-Kwen R.; and Forrest, Robert S., 4,378,853, Cl. 175-340.000.
Smith, Merrill M.; and Ferguson, Donald C., to American Biltrite, Inc. Method for manufacture of inlaid vinyl-flooring. 4,379,185, Cl. 427-209.000.
Smith, Russell D.; and Tressler, Richard E., to Kennecott Corporation. Method for producing chromium oxide coated refractory fibers. 4,379,111, Cl. 264-137.000.
Snamprogetti, S.p.A.: *See—*
Balducci, Agostino; Corbellini, Margherita; and Osellame, Mirko, 4,379,074, Cl. 252-429.00B.
Snowden, Maxine W. Rain hat. 4,378,606, Cl. 2-198.000.
Sobolevsky, Viktor S.: *See—*
Lytkin, Viktor P.; Menshov, Vladimir N.; Frolov, Jury S.; Polikarpova, Zinaida A.; Sobolevsky, Viktor S.; Seljutina, Maria G.; Anokhin, Vladimir N.; Barbosov, Nikolai D.; Vorontsov, Sergei P., deceased; Vorontsova, Nina F., administrator; Chistozvonov, David B., deceased; and Chistozvonova, Vera G., adminstrator, 4,379,078, Cl. 252-466.00J.
Societe Chimique des Charbonnages: *See—*
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Societe D'Applications Generales D'Elect.: *See—*
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Societe D'Assistance Technique pour Produits Nestle S.A.: *See—*
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Soclof, Sidney I., to Rockwell International Corporation. Integrated circuit chip transmission line. 4,379,307, Cl. 357-68.000.
Sogabe, Ichita: *See—*
Yamazoe, Hisamitsu; Sogabe, Ichita; Tamaki, Kazuyoshi; and Yoshida, Matsuju, 4,378,766, Cl. 123-339.000.
Sohn, Fred, to Sun Studs, Inc. Veneer lathe log charger system having enhanced accuracy and rate of production. 4,378,829, Cl. 144-357.000.
Solomon, Frank, to Diamond Shamrock Corporation. Active carbon conditioning process. 4,379,077, Cl. 252-444.000.
Sonneville, Roger P. Elastically yieldable device for fixing a rail on a support. 4,378,910, Cl. 238-349.000.
Sony Corporation: *See—*
Makino, Yoshimi; Hayakawa, Masatoshi; Aso, Koichi; Uedaira, Satoru; Ito, Shigeyasu; and Hotai, Kazuhide, 4,379,004, Cl. 148-108.000.
Yokota, Teppei; and Joichi, Yoshiro, 4,379,286, Cl. 340-347.0DD.
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Sozanskaya, Alexandra D.: *See—*
Tsvetkov, Nikolai S.; Maleev, Igor I.; Opainich, Irina E.; Lobkovskaya, Lidia A.; Bogush, Alexandr R.; Sozanskaya, Alexandra D.; Onischak, Evgeny I.; Gladyshevsky, Evgeny I.; and Opainich, Mikhail D., 4,379,184, Cl. 427-169.000.
Spanke, Edwin A.; and Francey, Melvin H., to Gulf & Western Manufacturing Company. Apparatus for feeding and orienting workpieces in a press. 4,378,688, Cl. 72-420.000.
Sparber, Richard G., to Bell Telephone Laboratories, Incorporated. Ringing detector for use by the deaf. 4,379,210, Cl. 179-84.00L.
Speechley, Ronald F.: *See—*
Kopp, Edward J.; Iwinski, Leon J.; Guzzo, Frank; Speechley, Ronald F.; and Femali, Frank, 4,378,928, Cl. 249-63.000.
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Sprecker, Mark A., to International Flavors & Fragrances Inc. Use of norbornyl ethers in augmenting or enhancing the aroma of fabric softener articles and compositions. 4,379,060, Cl. 252-8.900.
Stadler, Istvan: *See—*
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Jansen, Johann J., 4,379,048, Cl. 209-172.500.
Jongsma, Cornelis, 4,379,026, Cl. 203-31.000.
Stancato, Vincenzo. Photographic album and method of fabrication of same. 4,378,647, Cl. 40-158.00R.
Standard Oil Company (Indiana): *See—*
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Staniszewski, Tadeusz, to Sweda International, Inc. Document stacking device. 4,378,938, Cl. 271-179.000.
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Stearns, Earl J., to Flush-O-Matic Corp. Coolant filter assemblies. 4,379,052, Cl. 210-223.000.
Steele, Robert F.: *See—*
Vincent, Richard G.; Sacks, Frank; and Steele, Robert F., 4,379,298, Cl. 343-895.000.
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Stemmler, Kurt; and Metheisen, Heinrich, to Winkler + Dunnebier Maschinefabrik und Eisengiesseret GmbH & Co. KG. Method and device for applying elastic strips in sections onto a web of material used for making diapers. 4,379,016, Cl. 156-205.000.
Sterling Drug Inc.: *See—*
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Crounse, Nathan N., 4,379,089, Cl. 260-161.000.
Ehlers, Helmut H.; Eggensperger, Heinz; Bucklers, Lothar; Eigener, Ulrich; Diehl, Karl-Heinz; and Weigand, Norbert, 4,379,137, Cl. 424-78.000.
Stetter, Karl-Heinz: *See—*
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Stiebritz, Wolfram; Sitterer, Georg; and Seidel, Klaus, to Patent-Treuhand-Gesellschaft fur Elektrische Gluhlampen mbH. Diamond drawing die and setting combination. 4,378,690, Cl. 72-467.000.
Stills, Melvin L.: *See—*
Mauldin, Donald M.; and Jones, Richard E., III, 4,378,793, Cl. 128-80.00H.
Stjarne, Anders O. G., to SAB Nife AB. Railway vehicle brake block holder. 4,378,864, Cl. 188-153.00R.
Stocking, George E.; and Ruark, Bruce L., to General Electric Company. Air conditioning apparatus. 4,378,679, Cl. 62-280.000.

Stolk, Steven A.: *See—*
Daenen, Theo E. G.; Van Dijk, Gerardus A. R.; and Stolk, Steven A., 4,379,030, Cl. 204-14.00N.
Stoll, Kurt. Piston designed for use with a magnetic force pickup. 4,378,726, Cl. 92-243.000.
Stratmann, Josef; and Brinkmann, Willi, to Carl Still GmbH & Co. KG, Firma. Charging hole lock for horizontal coke ovens. 4,379,023, Cl. 202-247.000.
Straubel, Max; Eisele, Hermann; Zimmermann, Klaus-Dieter; and Vogel, Wilhelm, to Robert Bosch GmbH. Method and apparatus for fuel injection in internal combustion engines in particular diesel engines. 4,378,775, Cl. 123-458.000.
Strauts, Eric J.: *See—*
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Sudano, John J.: *See—*
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Sugie, Mamoru: *See—*
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Sugimoto, Hidehiko, to Mitsubishi Denki Kabushiki Kaisha. Power control circuit for induction motor. 4,379,258, Cl. 318-805.000.
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Sugo, Takanobu: *See—*
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Suman, George O., Jr. Method for completion of wells. 4,378,843, Cl. 166-278.000.
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Sumitomo Chemical Company, Limited: *See—*
Yoshida, Ryo; Takemoto, Ichiki; Sumida, Seizo; and Kamoshita, Katsuzo, 4,378,992, Cl. 71-120.000.
Summers, Gus E., to C. W. Zumbiel Co., The. Basket carrier. 4,378,880, Cl. 206-170.000.
Summers, Scott. Universal chain link counting apparatus and method. 4,379,223, Cl. 235-103.000.
Sun Studs, Inc.: *See—*
Itkin, David E., 4,378,830, Cl. 144-357.000.
Shrum, Kenneth L.; and Trax, Donald L., 4,378,827, Cl. 144-209.00A.
Sohn, Fred, 4,378,829, Cl. 144-357.000.
Superior Valve Corporation: *See—*
Houston, James L., 4,378,817, Cl. 137-315.000.
Susnjara, Kenneth J., to Thermwood Corporation. Apparatus for performing work functions. 4,378,959, Cl. 414-732.000.
Sutherland, James F.; Furgerson, Donald F.; and Kezunovic, Mladen, to Electric Power Research Institute, Inc. Data highway access control system. 4,379,294, Cl. 340-825.500.
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Sweed, Norman H.: *See—*
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Sweeney, William M., to Texaco Inc. Diesel fuel containing cyclohexane, and oxygenated compounds. 4,378,973, Cl. 44-56.000.
Szabo, Bela G.; and Hirschfield, Dean J. Display coin holder assemblies. 4,378,876, Cl. 206-45.340.
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Takagi, Kunihiko; and Yabushita, Yasunori, to Unitika, Ltd. Process for producing antithrombogenic vinyl acetate polymer or hydrolyzate thereof. 4,378,803, Cl. 604-280.000.
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Takei, Isao, to Nippon Kokan Kabushiki Kaisha; and Nichiei Distribution Systems, Inc. Binding device for elongated pipes. 4,378,923, Cl. 248-68.00R.
Takemae, Yoshihiro: *See—*
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Tambussi, William C., to Boeing Company, The. Fine film pressure bags forming composite structures. 4,379,013, Cl. 156-189.000.
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Texaco Inc.: *See—*
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Bell, Frank H., 4,378,674, Cl. 60-39.823.
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Thomas, John C. Alarm system for bicycles and the like. 4,379,281, Cl. 340-63.000.
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Thompson, Marion E. Bulb mounting of solar cell. 4,379,324, Cl. 362-253.000.
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Chevallier, Rene, 4,379,297, Cl. 343-882.000.
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Trebor Industries, Inc.: *See—*
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Trepl, John A., II. Wave action generator. 4,379,235, Cl. 290-53.000.
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Tsvetkov, Nikolai S.; Maleev, Igor I.; Opainich, Irina E.; Lobkovskaya, Lidia A.; Bogush, Alexandr R.; Sozanskaya, Alexandra D.; Onischak, Evgeny I.; Gladyshevsky, Evgeny I.; and Opainich, Mikhail D. Process for forming a reflecting copper coating on a face of a glass substrate. 4,379,184, Cl. 427-169.000.
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Damen, Johannes P. M.; and Berben, Theodorus J., 4,379,021, Cl. 156-616.00R.
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Weyer, Rudi: *See—*
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Wheatley, Mark A., to Racal-Dana Instruments Limited. AGC Circuit with level-compensating input. 4,379,272, Cl. 332-38.000.
Wheelabrator-Freye Inc.: *See—*
Leliaert, Raymond M.; Kanouse, Richard C.; Butler, Bill J.; and Lindner, Robert N., 4,378,662, Cl. 51-432.000.
Wheeler, Robert B.: *See—*
Patel, Dhirajlal C.; and Wheeler, Robert B., 4,378,847, Cl. 166-317.000.
Whipple Patent Management Corporation: *See—*
Perrault, Frederick; and Perrault, Raymond E., 4,379,204, Cl. 174-65.0SS.
White, Pat M.: *See—*
Ogden, James D.; and White, Pat M., 4,378,838, Cl. 166-153.000.
Whiteman, Patrick W., to Recycled Paper Bedding, Inc. Animal bedding, process and apparatus for preparing the same. 4,378,756, Cl. 119-1.000.
Whitman Medical Corporation: *See—*
Lichtenstein, Joseph, 4,378,808, Cl. 128-736.000.
Whitney, C. Raymond; and Walsh, Andrew R., to Carpenter Technology Corporation. Sulfidation resistant nickel-iron base alloy. 4,379,120, Cl. 420-448.000.
Wick, John R. Cutting tool. 4,378,636, Cl. 30-92.000.
Wickerhauser, Milan: *See—*
Williams, Craigenne A.; and Wickerhauser, Milan, 4,379,085, Cl. 260-112.00B.
Wickramasinghe, Hemantha K., to National Research Development Corporation. Scanning acoustic microscope. 4,378,699, Cl. 73-606.000.
Wiener-Avnear, Eliezer: *See—*
Bleha, William P., Jr.; Wiener-Avnear, Eliezer; and Robusto, Paul F., 4,378,955, Cl. 350-334.000.
Wiener, Dieter. Method of and means for grinding pairs of gear wheels as spiral or curved toothed bevel gear wheels. 4,378,660, Cl. 51-56.00G.
Wiens, Lewis H.: *See—*
Saylor, James R.; Wiens, Lewis H.; and Blume, Orville E., 4,378,742, Cl. 105-377.000.
Wilby, John L.: *See—*
Hockey, John A.; Shaw, Malcolm A.; Wilby, John L.; and Wilson, Allan A., 4,379,059, Cl. 252-8.800.
Wild, Norman W. Bed frame sit-up exerciser. 4,378,939, Cl. 272-93.000.
Wilde, Sheldon L.; McCandless, Thomas J.; and Saunders, Robert M., to H-C Industries, Inc. Composite closure. 4,378,893, Cl. 215-246.000.
Wilks, Joe A. Blowout preventer with mechanically operated relief valve. 4,378,849, Cl. 166-369.000.
William Prym-Werke KG: *See—*
Sauermilch, Otto, 4,378,900, Cl. 227-8.000.
Williams, Craigenne A.; and Wickerhauser, Milan, to American National Red Cross. Heat stabilization of plasma proteins. 4,379,085, Cl. 260-112.00B.
Williams, Loren V.: *See—*
Chappelle, Claude L., 4,379,043, Cl. 204-229.000.
Williams, Mark A., to Cincinnati Milacron Inc. Novel functional fluid. 4,379,063, Cl. 252-33.600.
Willis, W. Coy; and Albrecht, Leman P., to Aluminum Company of America. Tamper-evident closure. 4,378,894, Cl. 215-252.000.
Wilson, Alan A., to Progressive Merchandising Display Limited. Kit for the construction of a three dimensional figure. 4,378,654, Cl. 46-115.000.
Wilson, Alan S.: *See—*
Biggin, Ian S.; and Wilson, Alan S., 4,379,000, Cl. 106-311.000.
Wilson, Allan A.: *See—*
Hockey, John A.; Shaw, Malcolm A.; Wilby, John L.; and Wilson, Allan A., 4,379,059, Cl. 252-8.800.
Wilson, James M., to Ferro Corporation. Monolithic ceramic capacitors and improved ternary ceramic compositions for producing same. 4,379,319, Cl. 361-321.000.
Winchell, David A.: *See—*
Fowles, Thomas A.; Slater, Glenn L.; and Winchell, David A., 4,378,891, Cl. 215-32.000.
Winkler + Dunnebier Maschinefabrik und Eisengiesseret GmbH & Co. KG: *See—*
Stemmler, Kurt; and Metheisen, Heinrich, 4,379,016, Cl. 156-205.000.
Winn, Ray, to Advanced Semiconductor Products. Thin, optical membranes and methods and apparatus for making them. 4,378,953, Cl. 350-171.000.
Wirz, Arno, to Heidelberger Druckmaschinen AG. Sheet transfer cylinder for sheet-fed rotary printing machines convertible between first form and perfector printing. 4,378,734, Cl. 101-230.000.
Woinarski, Peter A., to Innovative Design Company Pty. Limited. Container-closure arrangement. 4,378,895, Cl. 220-306.000.
Wolfe, John R., Jr., to TRW Inc. Internally insulated extrusion die. 4,378,964, Cl. 425-463.000.
Wolff, Natalie A.: *See—*
Botterman, David L.; and Wolff, Natalie A., 4,378,877, Cl. 206-141.000.
Wolz, Johannes: *See—*
a'Brassard, Hans-Joachim; Kloss, Robert; Ketzler, Paul; and Wolz, Johannes, 4,378,704, Cl. 73-862.070.
Wood, Robert A. Reversible solar assisted heat pump. 4,378,908, Cl. 237-2.00B.
Woodall, Jerry M.: *See—*
Hovel, Harold J.; and Woodall, Jerry M., 4,379,005, Cl. 148-187.000.
Work, Dale E.; and Johnson, Stephen G., to GTE Products Corporation. Arc discharge device containing HG196. 4,379,252, Cl. 313-485.000.
Workman, Ernest J.: *See—*
Bush, Eric L.; and Workman, Ernest J., 4,379,186, Cl. 427-213.000.
Worringer, Thomas J.: *See—*
Allan, Kenneth N.; Worringer, Thomas J.; and Baugh, Robert T., 4,378,875, Cl. 198-815.000.
Worrix, Matthew L.: *See—*
Lott, Donald L.; Schockelt, Guenter G.; and Worrix, Matthew L., 4,378,751, Cl. 116-271.000.
Wu, Margaret M.: *See—*
Klosek, John M.; and Wu, Margaret M., 4,379,027, Cl. 203-32.000.
Wunderwald, Peter: *See—*
Port, Hans; Schrenk, Jurgen; and Wunderwald, Peter, 4,379,142, Cl. 424-101.000.
Wyner, Aaron D., to Bell Telephone Laboratories, Incorporated. Analog signal scrambling system. 4,379,205, Cl. 178-22.100.
Xerox Corporation: *See—*
Fischbeck, Kenneth H., 4,379,300, Cl. 346-1.100.
Fischbeck, Kenneth H., 4,379,301, Cl. 346-1.100.
Yabushita, Yasunori: *See—*
Takagi, Kunihiko; and Yabushita, Yasunori, 4,378,803, Cl. 604-280.000.
Yada, Yoshikuni: *See—*
Iida, Katsuyoshi; Yada, Yoshikuni; and Okazaki, Kathumi, 4,378,777, Cl. 123-571.000.
Yamada, Takahiro: *See—*
Nakagaki, Mitsuhiro; Isoo, Osamu; Matsuoka, Shinji; and Yamada, Takahiro, 4,379,303, Cl. 346-75.000.
Yamada, Takeo: *See—*
Fukushima, Tsutomu; Furukawa, Takeshi; Saito, Shin-ichi; Kobayashi, Takashi; and Yamada, Takeo, 4,378,993, Cl. 75-41.000.
Yamagishi, Hideshi: *See—*
Wakayama, Naoki; Yamagishi, Hideshi; Tomoda, Toshimasa; and Tanaka, Hiroji, 4,379,248, Cl. 313-93.000.
Yamaguchi, Azuma: *See—*
Sato, Makoto; Kimura, Isami; and Yamaguchi, Azuma, 4,379,148, Cl. 424-232.000.
Yamaguchi, Yoshiharu: *See—*
Matsuda, Yoshio; and Yamaguchi, Yoshiharu, 4,378,683, Cl. 66-193.000.
Yamamoto, Hideo; Takase, Susumu; and Thomas, R. Dale, to Canon Business Machines, Inc. Modular calculator with separable keyboard and display modules. 4,379,336, Cl. 364-708.000.
Yamamoto, Shigehiko: *See—*
Hosoki, Shigeyuki; Yamamoto, Shigehiko; Todokoro, Hideo; Kawase, Susumu; and Hirai, Yasuharu, 4,379,250, Cl. 313-336.000.
Yamamoto, Tetsuhiro: *See—*
Shibata, Takaaki; and Yamamoto, Tetsuhiro, 4,379,009, Cl. 156-86.000.
Yamamoto, Yousuke: *See—*
Sakai, Tetsushi; Kobayasi, Yoshiji; Yamamoto, Yousuke; and Yamauchi, Hironori, 4,379,001, Cl. 148-1.500.
Yamanouchi Pharmaceutical Co., Ltd.: *See—*
Hirata, Yasufumi; Yanagisawa, Isao; Tamura, Toshinari; and Takeda, Masaaki, 4,379,158, Cl. 424-273.00R.
Yamauchi, Hironori: *See—*
Sakai, Tetsushi; Kobayasi, Yoshiji; Yamamoto, Yousuke; and Yamauchi, Hironori, 4,379,001, Cl. 148-1.500.
Yamazaki, Tamotsu: *See—*
Ito, Kiyohiko; Koizumi, Masuo; Murakami, Yasushi; Akima, Michitaka; Aono, Jinichiro; Ohba, Yasuhiro; Yamazaki, Tamotsu; Sakai, Kazushige; Hata, Shun-ichi; and Takanashi, Shigeru, 4,379,150, Cl. 424-244.000.
Yamazaki, Yoji: *See—*
Sasaki, Shuji; and Yamazaki, Yoji, 4,379,135, Cl. 436-536.000.
Yamazoe, Hisamitsu; Sogabe, Ichita; Tamaki, Kazuyoshi; and Yoshida, Matsuju, to Nippondenso Co., Ltd. Closed loop idle engine speed

control with a valve operating relative to neutral position. 4,378,766, Cl. 123-339.000.
Yanagisawa, Isao: *See—*
Hirata, Yasufumi; Yanagisawa, Isao; Tamura, Toshinari; and Takeda, Masaaki, 4,379,158, Cl. 424-273.00R.
Yanase, Tomoo; and Arai, Motohiro, to Nippon Electric Co., Ltd. Method of manufacturing optical fibers. 4,378,986, Cl. 65-3.120.
Yarham, Oliver L.; Sech, John M.; and Kennedy, Carl S., to Nalco Chemical Company. Water-based rust inhibitor. 4,379,072, Cl. 252-389.00R.
Yarwood, Dennis, to Clino Foundry Supplies Limited. Method for preparing binder for refractory powders. 4,378,996, Cl. 106-38.350.
Yasuda, Takashi: *See—*
Saikawa, Isamu; Takano, Shuntaro; Yoshida, Chosaku; Takashima, Okuta; Momonoi, Kaishu; Kuroda, Seietsu; Komatsu, Miwako; Yasuda, Takashi; and Kodama, Yutaka, 4,379,152, Cl. 424-246.000.
Yeager, Howard L., to Olin Corporation. Method of measuring metallic cation and water transport numbers for cation exchange hydraulically impermeable membranes and test cell therefor. 4,379,029, Cl. 204-1.00T.
Ymazaki, Yoshio: *See—*
Ueno, Kenji; and Ymazaki, Yoshio, 4,378,753, Cl. 118-657.000.
Yokohama Kiko Co.: *See—*
Senaha, Susumu; Chiba, Tetsuya; Ohno, Akira; and Katayama, Shitomi, 4,379,199, Cl. 428-332.000.
Yokota, Teppei; and Joichi, Yoshiro, to Sony Corporation. Digital signal processing circuit. 4,379,286, Cl. 340-347.0DD.
Yokoyama, Hiroshi; Ishida, Tokuzi; Kikuchi, Kunio; and Zama, Kazuaki, to Suzuki Motor Co., Ltd.; and Mikuni Kogyo Kabushiki Kaisha. Compound carburetor. 4,379,096, Cl. 261-23.00A.
Yoneyama, Saburo: *See—*
Ishii, Shizuo; and Yoneyama, Saburo, 4,378,965, Cl. 474-161.000.
Yoshida, Chosaku: *See—*
Saikawa, Isamu; Takano, Shuntaro; Yoshida, Chosaku; Takashima, Okuta; Momonoi, Kaishu; Kuroda, Seietsu; Komatsu, Miwako; Yasuda, Takashi; and Kodama, Yutaka, 4,379,152, Cl. 424-246.000.
Yoshida, Kiyoshi: *See—*
Nakada, Akira; Okamoto, Eisaku; Sugiura, Toshio; and Yoshida, Kiyoshi, 4,378,720, Cl. 84-1.030.
Yoshida Kogyo K. K.: *See—*
Matsuda, Yoshio; and Yamaguchi, Yoshiharu, 4,378,683, Cl. 66-193.000.
Yoshida, Masaru: *See—*
Kaetsu, Isao; and Yoshida, Masaru, 4,379,038, Cl. 204-159.120.
Yoshida, Matsuju: *See—*
Yamazoe, Hisamitsu; Sogabe, Ichita; Tamaki, Kazuyoshi; and Yoshida, Matsuju, 4,378,766, Cl. 123-339.000.
Yoshida, Ryo; Takemoto, Ichiki; Sumida, Seizo; and Kamoshita, Katsuzo, to Sumitomo Chemical Company, Limited. Urea derivatives, and their production and use. 4,378,992, Cl. 71-120.000.
Yoshifuji, Junnosuke, to Nippon Cable System, Inc. Control cable. 4,378,712, Cl. 74-501.00R.
Yoshino Kogyosho Co., Ltd.: *See—*
Ota, Akiho; and Negishi, Fumio, 4,379,099, Cl. 264-25.000.
Yoshizawa, Shigeru: *See—*
Toyooka, Takashi; Sugie, Mamoru; Aoki, Hirokazu; and Yoshizawa, Shigeru, 4,379,341, Cl. 365-6.000.
Yotsuya, Minoru; Mae, Kiyoshi; Jinnouchi, Seikyu; and Ochiai, Toshio, to Mitsubishi Gas Chemical Co., Inc. Process for bleaching fibrous material by hydrogen peroxide. 4,378,967, Cl. 8-111.000.
Youmans, Grace A. Method and means of melting frozen material on terrain or water surfaces. 4,379,217, Cl. 219-121.00L.
Young, Chi C.; and DeMaria, Francesco, to American Cyanamid Company. Melt spinning process for acrylonitrile polymer fiber-three or more stretch stages. 4,379,113, Cl. 264-206.000.
Young, Ian A., to Mostek Corporation. Low power differential amplifier. 4,379,267, Cl. 330-253.000.
Young, Ian R., to Picker International Limited. Nuclear magnetic resonance systems. 4,379,262, Cl. 324-309.000.
Yudovich, Amos; and Sweed, Norman H., to Atlantic Richfield Company. Water removal from butylene oxides by liquid extraction with selected extractive solvents. 4,379,025, Cl. 203-14.000.
Zabotin, Alexandr A.: *See—*
Lileev, Valerian P.; Onikov, Eduard A.; and Zabotin, Alexandr A., 4,378,820, Cl. 139-436.000.
Zahradnik, Robert J.: *See—*
Hart, James E.; and Zahradnik, Robert J., 4,378,950, Cl. 303-36.000.
Zama, Kazuaki: *See—*
Yokoyama, Hiroshi; Ishida, Tokuzi; Kikuchi, Kunio; and Zama, Kazuaki, 4,379,096, Cl. 261-23.00A.
Zander, Hans-Hermann: *See—*
Krampe, Dietrich; Schneider, Hans-Peter; and Zander, Hans-Hermann, 4,379,325, Cl. 363-35.000.
Zander, Maximilian; Blumer, Gerd-Peter; Collin, Gerd; Glaser, Herbert; and Marrett, Rolf, to Rutgerswerke Aktiengesellschaft. Process for anisotropic carbon production. 4,379,133, Cl. 423-445.000.
Zeidler, Georg: *See—*
Hansen, Guenter; Kolbinger, Hans J.; Senninger, Rudolf; and Zeidler, Georg, 4,378,969, Cl. 8-521.000.
Zenith Radio Corporation: *See—*
Hansen, Kai, 4,379,274, Cl. 333-194.000.
Zilka, Stanley: *See—*
Shiminski, James, 4,378,828, Cl. 144-285.000.
Zimmerman, Alfred B.; and Memering, Leroy J., to National Distillers & Chemical Corp. Surface hydrolyzed olefin-vinyl ester container coatings. 4,379,188, Cl. 428-35.000.
Zimmerman, Charles J. Composition for wood treatment. 4,379,073, Cl. 252-400.00R.
Zimmermann, Klaus-Dieter: *See—*
Straubel, Max; Eisele, Hermann; Zimmermann, Klaus-Dieter; and Vogel, Wilhelm, 4,378,775, Cl. 123-458.000.
Zimmermann, Theo, to Lemmerz-Werke KGaA. Process and apparatus for the production of disc wheels made of sheet metal, particularly light sheet metal. 4,378,623, Cl. 29-159.010.
Zubryckyj, Nicolaus: *See—*
Bolton, Gerald L.; Sefton, Verner B.; and Zubryckyj, Nicolaus, 4,379,037, Cl. 204-119.000.
Zumstein, Bruno, to BBC Brown, Boveri & Company Limited. Bypass control apparatus for turbocharged internal-combustion engines. 4,378,677, Cl. 60-606.000.
Zumwalt, Gary L.: *See—*
Medlin, William L.; Mullins, Lynn D.; and Zumwalt, Gary L., 4,378,845, Cl. 166-297.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 5TH DAY OF APRIL, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Amchem Products, Inc.: *See—*
Binns, Robert E., Re. 31,198, Cl. 134-3.000.
Bendix Corporation, The: *See—*
Presley, Rex W.; and Lorraine, Jack R., Re. 31,199, Cl. 310-168.000.
Binns, Robert E., to Amchem Products, Inc. Method for cleaning aluminum at low temperatures. Re. 31,198, Cl. 134-3.000.
Cocco, Eugene R., to Western Electric Company, Inc. Telephone cord having braided outer jacket. Re. 31,197, Cl. 339-103.00M.
Lorraine, Jack R.: *See—*
Presley, Rex W.; and Lorraine, Jack R., Re. 31,199, Cl. 310-168.000.
Presley, Rex W.; and Lorraine, Jack R., to Bendix Corporation, The. Magnetic speed sensor. Re. 31,199, Cl. 310-168.000.
Sowell, William E., to Van Dyken, Andrew. Throttle control device for motorcycles and the like. Re. 31,196, Cl. 74-488.000.
Sukonick, Josef S.; and Tilden, Greg J., to Xtrak Corporation. Raster scan display apparatus for dynamically viewing image elements stored in a random access memory array. Re. 31,200, Cl. 340-724.000.
Thurner, Heinz. Method and a device for ascertaining the degree of compaction of a bed of material with a vibratory compacting device. Re. 31,195, Cl. 73-573.000.
Tilden, Greg J.: *See—*
Sukonick, Josef S.; and Tilden, Greg J., Re. 31,200, Cl 340-724.000.
Van Dyken, Andrew: *See—*
Sowell, William E., Re. 31,196, Cl. 74-488.000.
Western Electric Company, Inc.: *See—*
Cocco, Eugene R., Re. 31,197, Cl. 339-103.00M.
Xtrak Corporation: *See—*
Sukonick, Josef S.; and Tilden, Greg J., Re 31,200, Cl. 340-724.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Oliver, James Peter; and Hickin, George Keller, to Freeport Minerals Company. Apparatus and process for determining particle size by X-ray absorption analysis. B1 3,621,243, Cl.378—51.

Freeport Minerals Company: *See—*
Oliver, James Peter, and Hickin, George D. Keller. B1 3,621,243, Cl. 378—51.

Linder, Seymour M.; and Calentine, John W., to Alcolac Inc. Air-curing Copolymer latices. B1 4,144,212, Cl. 524—818.

Alcolac Inc.: *See—*
Linder, Seymour M.; and Calentine, John W. B1 4,144,212, Cl. 524—818.

Laliberte, Albert J., and DeAngelis, Armand, to Omnitech Inc. Method of coating articles. B1 3,956,540, Cl. 427—164.

Omnitech Inc.: *See—*
Laliberte, Albert J., and DeAngelis, Armand. B1 3,956,540, Cl. 427—164.

LIST OF DESIGN PATENTEES

Adair, Ronald C. Plow assembly. 268,497, 4-5-83, Cl. D15-11.000.
Alwell, Anne T.; Fogarty, A. Edward; Fogarty, Bonnie R.; Pagani, David A.; and Pook, Peter D., to Leisure Dynamics, Inc. Game apparatus. 268,507, 4-5-83, Cl. D21-168.000.
Amco Corporation: *See—*
Olson, Ralph B., 268,463, Cl. D6-188.000.
Ament, Duane S., to Miracle Recreation Equipment Company. Lighting fixture. 268,530, 4-5-83, Cl. D26-94.000.
Andersen, Harold W.; Harrison, Charles H.; and Worth, Melvin H., Jr., to University Testing Service Inc. Suction drainage device for surgical purposes. 268,525, 4-5-83, Cl. D24-56.000.
Arends, Harm J.; Mirtain, Henri J.; and Zinnen, Norbert, to Uniroyal Englebert Reifen GmbH. Tire. 268,489, 4-5-83, Cl. D12-143.000.
Arnott, John; and Campbell, Mark I., to John Arnott & Associates Limited. Bicycle storage rack. 268,488, 4-5-83, Cl. D12-115.000.
Arp, Robert A.: *See—*
Scanlan, Dennis R., Jr.; and Arp, Robert A., 268,523, Cl. D24-27.000.
Bachman, Alan B. Flashlight. 268,527, 4-5-83, Cl. D26-46.000.
Bagby Engineering Co.: *See—*
Bagby, Wilbur W., 268,498, Cl. D15-123.000.
Bagby, Wilbur W., to Bagby Engineering Co. Rotor element component for a coal crusher. 268,498, 4-5-83, Cl. D15-123.000.
Bedard, Gerald R.: *See—*
Oleniak, Donald: and Bedard, Gerald R., 268,456, Cl. D3-10.000.
Bellini, Mario, to Ing. C. Olivetti & C. S.p.A. Case for a portable typewriter. 268,457, 4-5-83, Cl. D3-72.000.
Bergguist, Gregory D.; and Jones, John A., to Simmons Universal Corporation. Sofa frame. 268,465, 4-5-83, Cl. D6-191.000.
Best Toys Co. Ltd., The: *See—*
Tung, Wai-Kuen, 268,506, Cl. D21-161.000.
Boeckers, Roger W.: *See—*
Lien, Douglas E., 268,512, Cl. D23-19.000.
Breaux, Larry W. Portable, figure-reducing roller exerciser. 268,509, 4-5-83, Cl. D21-198.000.
Bridgestone Tire Company Limited: *See—*
Kojima, Hiroshi; Nishio, Hideaki; and Yashima, Toshihiko, 268,491, Cl. D12-147.000.
Campbell, Mark I.: *See—*
Arnott, John; and Campbell, Mark I., 268,488, Cl. D12-115.000.
Caravan Camper Manufacturing Co.: *See—*
Domes, David C., 268,478, Cl. D8-341.000.
Charlson, Thomas M. Horseshoe. 268,534, 4-5-83, Cl. D30-35.000.
Charlson, Thomas M. Horseshoe. 268,535, 4-5-83, Cl. D30-35.000.
Claude, Georges. Wrist watch. 268,485, 4-5-83, Cl. D10-38.000.
Clemente, Roger. Electric fan for engine cooling. 268,521, 4-5-83, Cl. D23-158.000.
Coca-Cola Company, The: *See—*
LeCaire Jr., Robert A., 268,520, Cl. D23-150.000.

Compagnie Generale des Etablissements Michelin: *See—*
Grenie, Philippe, 268,492, Cl. D12-147.000.
Cox, John A., to Mobay Chemical Corporation. Plastic container for liquids. 268,480, 4-5-83, Cl. D9-378.000.
Craig, Joe D.; Grez, Joan; Rensi, Edward H.; and Salsbury, Richard R., to McDonald's Corporation. Mobile salad bar. 268,537, 4-5-83, Cl. D34-14.000.
Cyrell, Alexander. Speaker mounting bracket. 268,494, 4-5-83, Cl. D14-37.000.
D'Addio, Janie: *See—*
D'Addio, Salvatore R.; and D'Addio, Janie, 268,524, Cl. D24-41.000.
D'Addio, Salvatore R.; and D'Addio, Janie. Acupressure instrument for applying rolling pressure to the human body. 268,524, 4-5-83, Cl. D24-41.000.
Daenen, Robert H. C. M., to Dart Industries Inc. Picture frame or the like. 268,467, 4-5-83, Cl. D6-235.000.
Dart Industries Inc.: *See—*
Daenen, Robert H. C. M., 268,467, Cl. D6-235.000.
Gremonprez, Dan E., 268,471, Cl. D7-355.000.
Kato, Masao, 268,470, Cl. D7-79.000.
Davis, Edward M. Branding iron. 268,536, 4-5-83, Cl. D30-43.000.
Day, Charles E., deceased: *See—*
Wess, Kenneth F.; and Day, Charles E., deceased, 268,461, Cl. D6-114.000.
Day, Frances B.: *See—*
Wess, Kenneth F.; and Day, Charles E., deceased, 268,461, Cl. D6-114.000.
Day, Frances B., executrix: *See—*
Wess, Kenneth F.; and Day, Charles E., deceased, 268,461, Cl. D6-114.000.
Diversified Products Corporation: *See—*
Silberman, Ira J.; Hill, William J.; and Kelley, Robert C., 268,508, Cl. D21-195.000.
Domes, David C., to Caravan Camper Manufacturing Co. Multiple access slide-lock. 268,478, 4-5-83, Cl. D8-341.000.
Douglas, James T. Plant holder. 268,462, 4-5-83, Cl. D6-137.000.
Dunlop Tire and Rubber Corporation: *See—*
Mills, Anthony M.; and Egan, Daniel C., 268,490, Cl. D12-146.000.
Egan, Daniel C.: *See—*
Mills, Anthony M.; and Egan, Daniel C., 268,490, Cl. D12-146.000.
Emerson Electric Co.: *See—*
Mitchell, Richard L.; and Heron, Thomas A., 268,493, Cl. D13-37.000.
Entex Industries, Inc.: *See—*
Hanzawa, Tsuneo, 268,496, Cl. D14-100.000.
Etablissements Huret et Ses Fils: *See—*
Huret, Roger, 268,486, Cl. D10-70.000.
F. M. Howell & Company: *See—*
Van Inwagen, Edwin A., 268,481, Cl. D9-433.000.
Faber, Robert V.; and Sylwester, Ronald D. Railing baluster. 268,526, 4-5-83, Cl. D25-77.000.
Famolare, Inc.: *See—*
Famolare, Joseph P., Jr., 268,455, Cl. D2-293.000.
Famolare, Joseph P., Jr., to Famolare, Inc. Sandal. 268,455, 4-5-83, Cl. D2-293.000.
Firepower, Inc.: *See—*
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Nakamura, Kazuharu. Oil-fired space heater. 268,519, 4-5-83, Cl. D23-123.000.
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LIST OF DEFENSIVE PUBLICATIONS

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Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

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Halfon, Marc; and Scharpf, William G. Process to 3-phenoxybenzyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate. T102,907, 4-5-83, Cl. 560-124.000.

Halpern, Joseph; and Adams, Phillip. Catalyzed transesterification synthesis. T102,908, 4-5-83, Cl. 560-124.000.

Khasawneh, Fayez E. Granular urea - urea phosphate fertilizer. T102,902, 4-5-83, Cl. 71-29.000.

Kibbel, William H., Jr. Control of sulfides in aqueous systems. T102,905, 4-5-83, Cl. 210-759.000.

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Offenbacher, Larry A. Method of fabricating a bearing. T102,901, 4-5-83, Cl. 29-149.50R.

Orr, Robert S. Pinned-on planetary ring gear assembly and salvage method. T102,903, 4-5-83, Cl. 74-801.000.

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CLASSIFICATION OF PATENTS

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73 PP	4,378,762
196 R	4,378,763
307	4,378,764
321	4,378,765
339	4,378,766
	4,378,767
	4,378,768
416	4,378,769
424	4,378,770
425	4,378,771
438	4,378,772
440	4,378,773
446	4,378,774
458	4,378,775
571	4,378,776
	4,378,777
609	4,378,778
644	4,378,779
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	4,378,781
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23 T	4,378,782
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25 B	4,378,783
418	4,378,784
421	4,378,785
429	4,378,786
430	4,378,787
445	4,378,788
450	4,378,789
451	4,378,790
CLASS 128	
71	4,378,791
79	4,378,792
80 H	4,378,793
132 D	4,378,794
202.27	4,378,795
207.15	4,378,796
303.14	4,378,801
346	4,378,802
355	4,378,804
450	4,378,805
504	4,378,806
677	4,378,807
736	4,378,808
748	4,378,809
754	4,378,810
757	4,378,811
765	4,378,812
774	4,378,813
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139	4,378,823
CLASS 141	
206	4,378,824
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193 R	4,378,825
209 A	4,378,827
285	4,378,828
357	4,378,829
	4,378,830
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39	4,378,831
52 G	4,378,832
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226	4,378,833
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69	4,379,008
86	4,379,009
108	4,379,010
140	4,379,011
157	4,379,012
189	4,379,013
191	4,379,014
205	4,379,015
	4,379,016
238	4,379,017
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527	4,379,019
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643	4,379,022
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166	4,378,837
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153	4,378,838
217	4,378,839
233	4,378,840
261	4,378,841
278	4,378,842
	4,378,843
297	4,378,844
	4,378,845
303	4,378,846
317	4,378,847
362	4,378,848
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45	4,378,851
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65 SS	4,379,204
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340	4,378,853
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118	4,378,854
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22.13	4,379,206
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1 GJ	4,379,207
1 GS	4,379,208
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110 A	4,379,211
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115.5 R	4,379,213
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65 R	4,378,855
89.14	4,378,856
227	4,378,857
259	4,378,858
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224	4,378,859
CLASS 182	
38	4,378,860
48	4,378,861
106	4,378,862
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153 R	4,378,864
379	4,378,865
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52	4,378,866
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2 R	4,378,871
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796	4,378,873
802	4,378,874
815	4,378,875
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335	4,378,883
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252 4,378,894

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553 4,379,233
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203 4,379,344
205 4,379,345
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94 4,379,347

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154 4,379,118
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462 4,378,962

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177 4,379,145
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	140	268,500
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	41	268,504
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	150	268,520
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DEFENSIVE PUBLICATIONS APPLICATIONS
[Notice of Dec. 16, 1969, 869 O.G. 6877]

01 :	T102,902
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17 :	T102,903
34 :	T102,905
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39 :	T102,901

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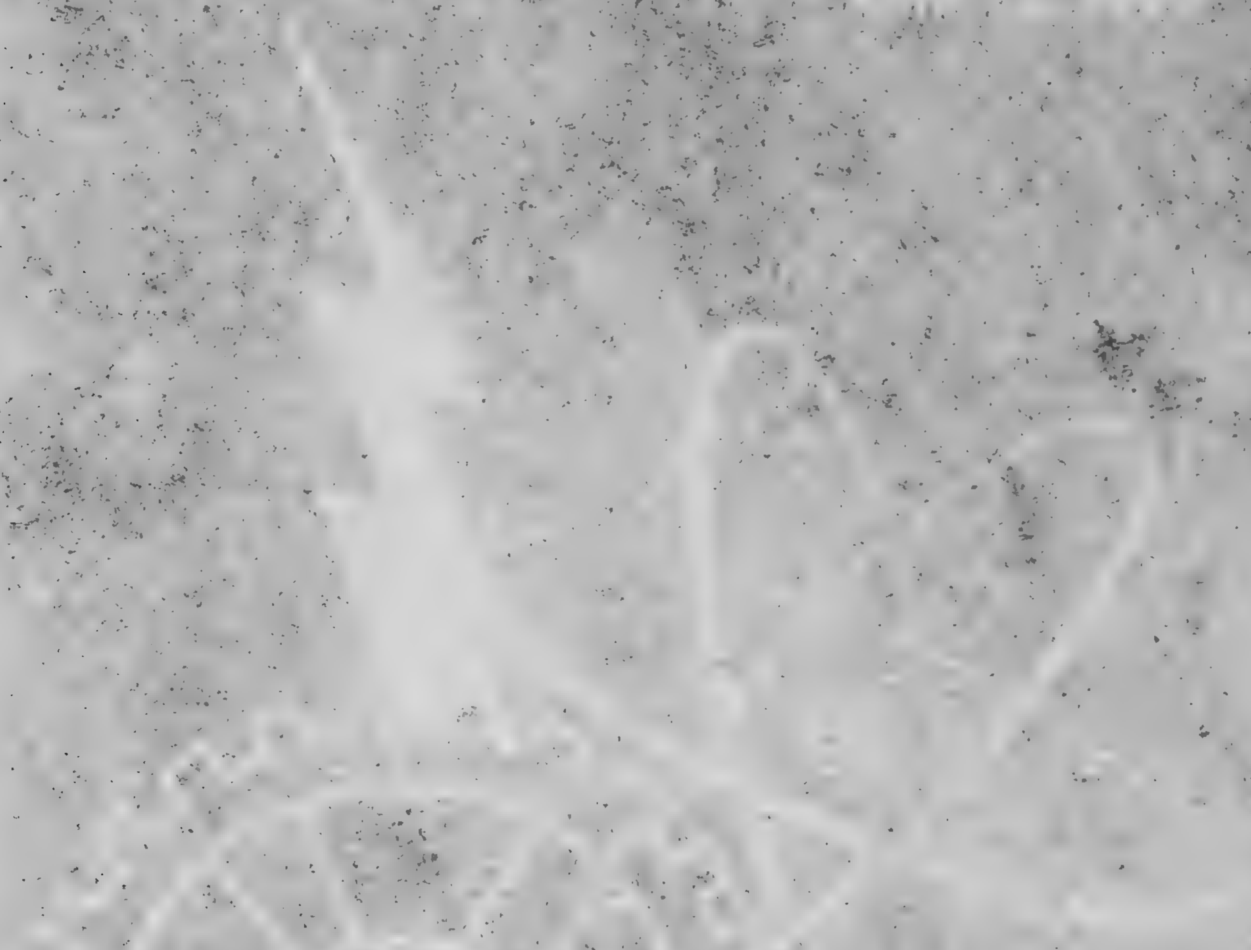

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OFFICIAL GAZETTE of the UNITED STATES PATENT AND TRADEMARK OFFICE

April 12, 1983 Volume 1029 Number 2

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The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries see the notice appearing in the Official Gazette at 1017 O.G. 10 on Apr. 13, 1982. For use of the European Patent Office as a Searching Authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the domestic PCT fees have been increased as of Oct. 1, 1982 by a rule change to 37 CFR 1.445 that was published at 1021 O.G. 11 on Aug. 10, 1982. Also note that the international PCT fees have changed as of Jan. 1, 1983 and the Search Fee for the European Patent Office as Searching Authority changed as of Jan. 22, 1983. The notice regarding the change in international fees and the Search Fee for the European Patent Office appeared at 1025 O.G. 27, on 28 Dec. 1982. The current schedule of fees is as follows:

Transmittal fee	$ 125.00
Search fee	
U.S. Patent and Trademark Office as Searching Authority	
• No corresponding prior U.S. national application filed	500.00
• Corresponding prior U.S. national application filed	250.00
European Patent Office as Searching Authority	
• All cases	670.00
International Fees	
Basic Fees (first 30 pages)	265.00
Basic Supplemental Fee (for each page over 30)	5.00
Designation fee (for each national or regional office)	65.00

GERALD J. MOSSINGHOFF,
Dec. 3, 1982. *Commissioner of Patents and Trademarks.*

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,297,422, Re. S.N. 378,157, Filed Mar. 14, 1982, Cl. 65/38, METHOD OF MAKING MOLDS FOR MULTI-FOCAL OPTHALMIC LENSES, Stanley S. Emerson, et al., Owner of Record: *Camelot Industries, Burlington, Me.,* Attorney or Agent: Leo R. Reynolds, et al., Ex. Gp.: 173

3,667,170, Re. S.N. 378,462, Filed May 14, 1982, Cl. 51/389, FINISHING ARTICLE AND SUPPORT MEMBER THEREFOR, Joseph H. MacKay, Owner of Record: *Standard Abrasives, Inc., Northridge, Calif.,* Attorney or Agent: B. G. Nilsson, Ex. Gp.: 323

3,720,351, Re. S.N. 408,142, Filed Aug. 16, 1982, Cl. 222/1, PULVERIZED FUEL DELIVERY SYSTEM FOR A BLAST FURNACE, Earl E. Coulter, et al., Owner of Record: *Babcock & Wilcox Co., New York, N.Y.,* Attorney or Agent: R. C. Mai, Ex. Gp.: 311

3,877,244, Re. S.N. 472,225, Filed Dec. 15, 1982, Cl. 62/314, MODULAR DRY-AIR EVAPORATIVE COOLER, Leonard J. Di Peri, Owner of Record: *Inventor,* Attorney or Agent: David J. Breezner, Ex. Gp.: 344

3,980,339, Re. S.N. 398,381, Filed July 14, 1982, Cl. 299/2, PROCESS FOR RECOVERY OF CARBONACEOUS MATERIALS FROM SUBTERRANEAN DEPOSITS, David D. Heald, et al., Owner of Record: *Geokinetics, Inc., Concord, Calif.,* Attorney or Agent: Freling E. Baker, Ex. Gp.: 356

4,007,851, Re. S.N. 461,170, Filed Jan. 26, 1983, Cl. 215/307, ANTI-MISSILING BOTTLE CLOSURE, Rocco D. Walker, Owner of Record: *Zapata Industries, Inc., Frackville, Pa.,* Attorney or Agent: Stanton T. Lawrence, Jr., et al., Ex. Gp.: 241

4,028,912, Re. S.N. 300,902, Filed Sept. 10, 1982, Cl. 66/149R, FABRIC TAKE-UP MECHANISM, Richard Schneck, Owner of Record: *Sulzer Morat GmbH, Bonlanden, Germany,* Attorney or Agent: Jack F. Kramer, Ex. Gp.: 353

4,030,895, Re. S.N. 396,261, Filed July 8, 1982, Cl. 48/111, APPARATUS FOR PRODUCING COMBUSTIBLE GASES FROM CARBONACEOUS MATERIALS, Robert A. Caughey, Owner of Record: *First National Bank of Peterborough, Peterborough, N.H.,* Attorney or Agent: Robert T. Gammons, Ex. Gp.: 173

4,085,187, Re. S.N. 461,169, Filed Jan. 26, 1983, Cl. 264/280, PROCESS FOR COMPRESSION ROLLING OF POLYMERIC FILMS, Richard H. Jenks, et al., Owner of Record: *Revere Copper and Brass, Inc., New York, N.Y.,* Attorney or Agent: Willis H. Taylor, Jr., et al., Ex. Gp.: 147

4,105,937, Re. S.N. 428,772, Filed Sept. 30, 1982, Cl. 318/568, TEACH-IN METHOD AND APPARATUS FOR USE IN AN INDUSTRIAL ROBOT, Goro Tuda, et al., Owner of Record: *Kobe Steel Ltd., Kobe, Japan,* Attorney or Agent: Stanley P. Fisher, Ex. Gp.: 217

4,150,749, Re. S.N. 445,281, Filed Nov. 29, 1982, Cl. 209/437, ORE CONCENTRATOR TABLE SUPPORT, Walter W. Stevens, Owner of Record: *Inventor,* Attorney or Agent: Max E. Shirk, Ex. Gp.: 177

4,241,949, Re. S.N. 451,881, Filed Dec. 21, 1982, Cl. 297/003, ROCKABLE FURNITURE, Michael S. Parker, Owner of Record: *Inventor,* Attorney or Agent: Daniel H. Kane, Jr., Ex. Gp.: 355

4,245,461, Re. S.N. 459,185, Filed Jan. 19, 1983, Cl. 59/82, NON-EXPANSIBLE LINKAGE BRACKLET AND METHOD OF MANUFACTURE THEREOF, Stephen F. Bert, Owner of Record: *Textron, Inc., Providence, R.I.,* Attorney or Agent: Maurice E. Gauthier, et al., Ex. Gp.: 321

4,248,392, Re. S.N. 464,333, Filed Feb. 7, 1983, Cl. 242/96, APPARATUS FOR APPLICATION OF (PLASTICS STRETCH) SHEET-LIKE MATERIALS AND FILMS, John C. Parry, Owner of Record: *Inventor,* Attorney or Agent: Walter G. Finch, Ex. Gp.: 245

4,249,329, Re. S.N. 465,069, Filed Sept. 28, 1979, Cl. 40/361, APPARATUS FOR VIEWING AND SORTING PHOTOGRAPHIC SLIDE TRANSPARENCIES, Owen L. Lamb, Owner of Record: *Inventor,* Attorney or Agent: None, Ex. Gp.: 333

4,249,426, Re. S.N. 465,453, Filed Feb. 10, 1983, Cl. 74/441, ANTI-BACKLASH NUT HAVING LONGITUDINAL FLEXURAL MEMBERS WITH RAMPS THEREON AND MEANS TO APPLY AN AXIAL PRE-LOAD FORCE TO SAID RAMPS, Kenneth W. Erikson, et al., Owner of Record: *Kerk Motion Products, Inc., Nashua, N.H.,* Attorney or Agent: Richard A. Wise, et al., Ex. Gp.: 352

4,309,655, Re. S.N. 405,859, Filed Aug. 6, 1982, Cl. 324/117R, MEASURING TRANSFORMER, Heinz Lienhard, et al., Owner of Record: *LGZ Landis and GYR Zug AG, Zug, Switzerland,* Attorney or Agent: George Finnegan, Ex. Gp.: 252

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,935,105, Reexam. No. 90/000,340, Requested: Mar. 4, 1983, Cl. 210/138, TUBULAR FILTER IN SETTLER, Stephen N. McEwen, Owner of Record: *Henry Manufacturing Co., Inc., Bowling Green, Ohio,* Attorney or Agent: Hugh Adam Kirk, Ex. Gp.: 176, Requester: Filtra-Systems, Inc., Bloomfield Hills, Mich.

3,976,622, Reexam. No. 90/000,334, Requested: Mar. 1, 1983, Cl. 525/60, PROCESS FOR THE PRODUCTION OF POLYISOCYANATES WITH A BIURET STRUCTURE, Kuno Wagner, et al., Owner of Record: *Bayer Aktiengesellschaft, Leverkusen, Germany,* Attorney or Agent: Joseph C. Gil, Ex. Gp.: 142, Requester: Asahi Kasei Kogyo Kabushiki Kaisha, Washington, D.C.

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DOUGLAS J. CAMPION,
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U.S. DEPARTMENT OF AGRICULTURE

SN 6-171,625 (4,373,853). LOG HANDLING MACHINE.

U.S. DEPARTMENT OF THE AIR FORCE

SN 6-270,050 (4,373,255). METHOD OF MAKING OXIDE PASSIVATED MESA EPITAXIAL DIODES WITH INTEGRAL PLATED HEAT SINK.

U.S. DEPARTMENT OF THE ARMY

SN 6-111,738 (4,373,553). BROAD BAND FLUERIC AMPLIFIER.

SN 6-225,596 (4,373,688). CANARD DRIVE MECHANISM LATCH FOR GUIDED PROJECTILE.

SN 6-198,322 (4,373,808). LASER DOPPLER ATTITUDE MEASUREMENT.

SN 6-277,365 (4,373,977). METHOD OF MAKING A COMPOSITE WIRE.

SN 6-293,415 (4,374,091). GAS GENERATORS HAVING CONTROLLED OPERATIONAL ATTITUDES.

SN 6-219,056 (4,374,112). STABLE NF_4+ SALT OF HIGH FLUORINE CONTENT.

SN 5-471,792 (4,374,201). PROCESS FOR COATING A DRY VARIOLA VIRUS.

U.S. DEPARTMENT OF COMMERCE

SN 6-313,045 (4,374,171). SMOLDER AND FLAME RESISTANT INSULATION MATERIALS, COMPOSITION AND METHOD.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

SN 6-294,203 (4,372,888). NONDENATURING ZWITTERIONIC DETERGENTS.

SN 6-459,251. ADAPTABLE BLOOD PRESSURE CUFF FOR HUMANS AND ANIMALS.

SN 6-458,312. MEDICATION COMPLIANCE MONITORING DEVICE.

SN 6-410,968. ANALGESIC AND ANTITUSSIVE NORMORPHINAN-6-ONES.

Errata

The following registration numbers were inadvertently canceled in the "Trademarks Registrations Canceled, Section 8" section of the Official Gazettes listed below:

965,550	TM144	Feb. 12, 1980
992,970	TM453	Feb. 24, 1981
996,127	TM571	Mar. 31, 1981
996,317	TM572	Mar. 31, 1981
1,030,329	TM450	June 15, 1982
1,028,255	TM294	July 13, 1982
1,049,458	TM149	Mar. 1, 1983

Consequently, the above-identified registrations are still active.

MARK M. NEWMAN,
Mar. 15, 1983. *Director Trademark Examining Operation.*

PATENT NOTICES

Certificates of Correction for the Week of Apr. 12, 1983

D. 267,653
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	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 571-2122
Delaware	Newark: University of Delaware	(302) 738-2238
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New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
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PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF February 19, 1983

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-16-81
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	11-20-81
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	7-14-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	1-20-82
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	11-12-81
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	4-7-81
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	3-12-81
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-24-80
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	1-07-81
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	8-25-80
DESIGN, GROUP 290—KENNETH L. CAGE, Director Industrial Arts; Household, Personal and Fine Arts.	1-13-81
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	5-18-81
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	5-18-81
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	2-13-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	11-17-80
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	9-12-80

Expiration of patents: The patents within the range of numbers indicated below expire during February 1983, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents .... Numbers 3,231,896 to 3,237,200, inclusive

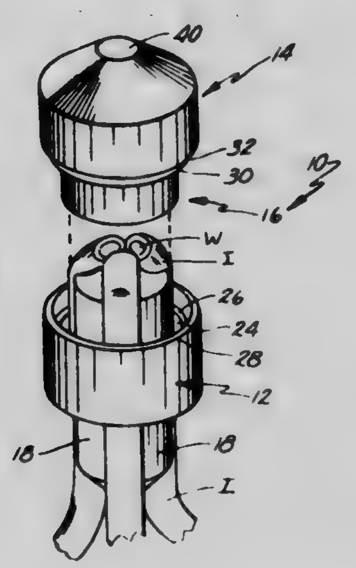
Plant Patents .... Numbers 2,591 to 2,605 inclusive

REEXAMINATIONS

APRIL 12, 1983

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination

B1 4,295,004 (71st)
WIRE CONNECTOR
William C. Dauser Jr., Trustee North Muskegon, Mich., assignor to Lloyd A. Heneveld, Grand Rapids, Mich.
Reexamination Request No. 90/000,133, Dec. 28, 1981.
Reexamination Certificate for Patent No. 4,295,004, issued Oct. 13, 1981, Ser. No. 99,624, Dec. 3, 1979.
U.S. Cl. 174/87 Int. Cl.^{3} H01R 11/00.



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **6–17** is confirmed.

Claims **1, 4** and **5** are determined to be patentable as amended.

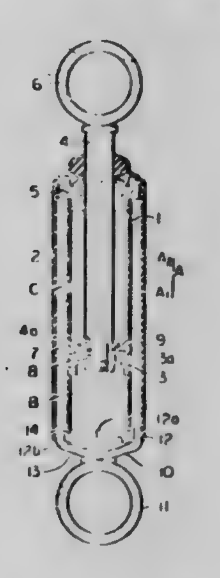
Claims 2 and 3, dependent on amended claims, are determined to be patentable.

1. A self-stripping solderless electrical connector comprising:

an elongated body of insulating material *having a surface extending along an axis of said body and* having wire *conductor* receiving channels formed along at least a portion of [its] *the* length *of said surface, extending in the same general direction of said axis, and located at spaced intervals around said axis;*

a cap member *of insulating material* having a conductive member fixed thereto, said cap member and said conductive member being adapted for positioning over and *snugly interfitting with said elongated body upon being linearly* movable *in a linear direction* along *said axis and along* a portion of said elongated body and said channels; said conductive member [adapted] *having a cutting edge; said channels being tapered inwardly toward said axis whereby by means of the snug interfit of said conductive member with said body, upon said movement of said cap member and conductive member in said linear direction along said portion of said elongated body said cutting edge is guided along the channels* to engage a plurality of insulated wire conductors positioned in said channels, cut through the insulation thereof *in a direction lengthwise of said conductors,* and [engage] *make electrical contact with the wires of said* wire conductors to provide an electrical connection *between said wires* [therebetween upon movement of said cap member and conductive member along said elongated body].

B1 4,189,034 (72nd)
HYDRAULIC DAMPER
Tetuo Kato, Yokohama, Japan, assignor to Tokico Ltd., Kawasaki, Japan
Reexamination Request No. 90/000,189, Apr. 13, 1982.
Reexamination Certificate for Patent No. 4,189,034, issued Feb. 19, 1980, Ser. No. 922,163, Jul. 5, 1978.
U.S. Cl. 188/318 Int. Cl.^{3} F16F 9/06.



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim **1** is determined to be patentable as amended.

Claim **2**, dependent on an amended claim, is determined to be patentable.

1. In a hydraulic damper having a cylinder having an actuating chamber therein for containing hydraulic oil, a piston slidable in the actuating chamber and partitioning said actuating chamber into upper and lower portions, a piston rod having one end thereof being secured to the piston and the other end thereof projecting through the upper end of the cylinder to the outside, a resisting force generating means mounted on the piston for controlling oil flow across the piston for generating resisting force against the movement of the piston in both directions in the cylinder, a volume compensating chamber disposed around the actuating chamber and having hydraulic oil and gas therein for compensating for the change in volume of hydraulic oil in the actuating chamber caused by ingress or exit of the piston rod into or out of the actuating chamber, and unvalved passage means for the hydraulic oil permanently connecting only the lower end of said volume compensating chamber with the lower portion of said actuating chamber, the improvement wherein said passage means has a hydraulic oil passage there through with a cross-sectional size for generating a pressure in the lower portion of said actuating chamber which increases with an increase in the flow rate there-

through and which is substantially higher than that of the volume compensating chamber and than that of the upper portion of the actuating chamber when the piston moves at the maximum speed in the contraction stroke of the damper, whereby the pressure of the gas in said volume compensating chamber necessary for causing opening of said resisting force generating means can be substantially reduced *to atmospheric pressure.*

B1 3,344,023 (73rd)

TREATMENT OF HYPERTENSION WITH L-ALPHA-METHYL-3,4-DIHYDROXYPHENYLALANINE

Donald F. Reinhold and Meyer Sletzinger, North Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Reexamination Request No. 90/000,127, Dec. 21, 1981.
Reexamination Certificate for Patent No. 3,344,023, issued Sep. 26, 1967, Ser. No. 255,641, Feb. 1, 1963.
U.S. Cl. 424/319 Int. Cl.[3] **A61K 31/195.**

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claim **1** is confirmed.

1. A method of treating hypertension which comprises the oral administration to a hypertensive patient of 0.1 to 5.0 g. of L-α-methyl-3,4-dihydroxyphenylalanine substantially free of its D form.

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

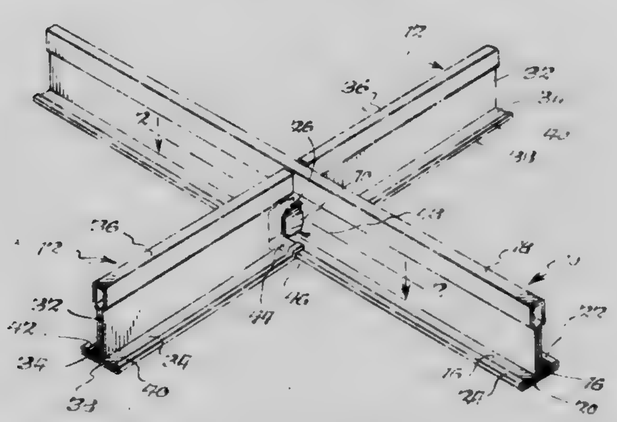
Re. 31,201
LOCKING CONNECTION FOR SUPPORTING GRID SYSTEMS

Gale E. Sauer, Williamsville, N.Y., assignor to Donn Products Incorporated, Westlake, Ohio

Original No. 3,922,829, dated Dec. 2, 1975, Ser. No. 397,432, Sep. 14, 1973. Application for reissue Aug. 27, 1979, Ser. No. 69,774

Int. Cl.^{3} E04C *2/42*

U.S. Cl. 52—667 **7 Claims**



1. A locking connection for supporting grid systems and the like comprising a first support member having a flange and a web upstanding therefrom; said web being provided with a slot; a second support member having a flange and web upstanding therefrom; said second member web being provided with a locking connector extending axially therefrom and insertable through said slot; said locking connector having a first portion engaging one side of said first support member web and a resiliently yieldable second portion having a terminal edge inclined at an angle relative to the plane of said first support member web in the fully assembled relation therewith; said terminal edge having at least a portion thereof engaging against the side of said first support member web opposite said first locking connector portion whereby said first portion and said edge portion simultaneously engage the opposite sides of said first support member web in the fully assembled relation therewith.

Re. 31,202
POULTRY BEAK REMOVER

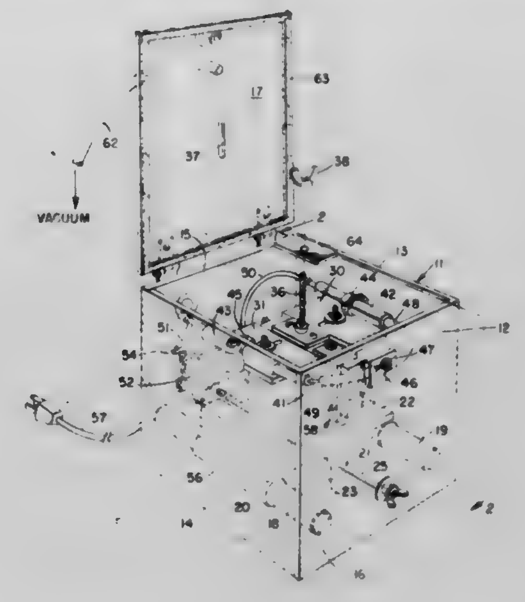
John S. Goodling; Gayner R. McDaniel, both of Auburn, Ala., and Richard A. Steadham, Texas City, Tex., assignors to Auburn Research Foundation, Auburn, Ala.

Original No. 4,040,425, dated Jun. 9, 1977, Ser. No. 646,924, Jan. 6, 1976. Application for reissue Aug. 2, 1979, Ser. No. 63,355

Int. Cl.^{3} A61B *17/36*

U.S. Cl. 128—303.14 **15 Claims**

1. A poultry beak remover for debeaking fowl, comprising: a housing having a beak receiving aperture therein of a size to receive the beak of a fowl, for insertion of the beak of a fowl into the housing; a pair of spaced apart electrodes supported in the housing in substantial alignment with the aperture and spaced therefrom a distance such that when the beak is inserted through the aperture, a portion thereof extends between the electrodes; and electrical circuit means connected with the electrodes for discharging a spark across the electrodes to burn the beak of the fowl received therebetween and thus effect removal of a desired portion of the beak.



Re. 31,203
APPARATUS FOR CLEANING INSIDE AND OUTSIDE SURFACES OF CONTAINERS

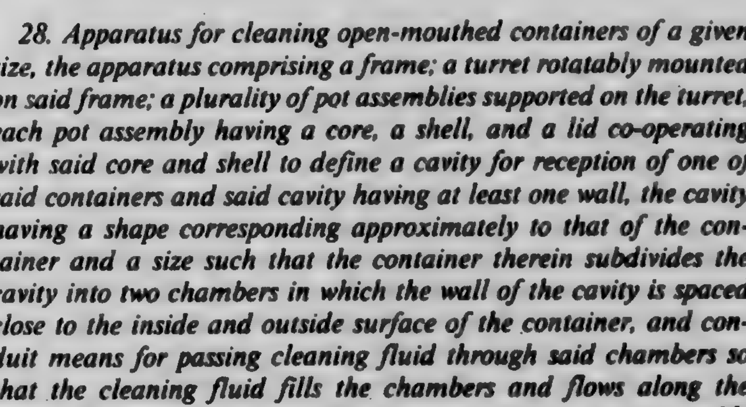
John M. Jackson, Potters Bar, England, assignor to Cleamax Limited, Hertfordshire, England

Original No. 4,026,311, dated May 31, 1977, Ser. No. 560,143, Mar. 20, 1975. Application for reissue Aug. 2, 1978, Ser. No. 930,658

Claims priority, application United Kingdom, Mar. 21, 1974, 12651/74

Int. Cl.^{3} B08B *3/00;* **B67C** *1/00*

U.S. Cl. 134—48 **28 Claims**



28. Apparatus for cleaning open-mouthed containers of a given size, the apparatus comprising a frame; a turret rotatably mounted on said frame; a plurality of pot assemblies supported on the turret, each pot assembly having a core, a shell, and a lid co-operating with said core and shell to define a cavity for reception of one of said containers and said cavity having at least one wall, the cavity having a shape corresponding approximately to that of the container and a size such that the container therein subdivides the cavity into two chambers in which the wall of the cavity is spaced close to the inside and outside surface of the container, and conduit means for passing cleaning fluid through said chambers so that the cleaning fluid fills the chambers and flows along the inside and outside surfaces of the container, drive means operable to rotate the turret so that each pot assembly passes in succession past a container unloading station and a container loading station, lid control means operable to move the lid of each pot assembly

into an open position immediately prior to passage of the pot assembly past said unloading station to permit ejection of a cleaned container at said unloading station and introduction of a container to be cleaned into the cavity of the pot assembly at said loading station, said lid control means also being operable to move the lid of each pot assembly into a closed position immediately after passage of the pot assembly past said loading station, and valve means for regulating flow of fluid through said conduit means and chambers only during passage of each pot assembly between said loading station and said unloading station.

Re. 31,204
SPRINKLER FLOW CONTROL SYSTEMS
George E. Sanner, Cypress Hill, Sparks, Md. 21204
Original No. 4,014,359, dated Mar. 29, 1977, Ser. No. 625,350, Oct. 23, 1975. Continuation-in-part of Ser. No. 466,693, May 3, 1974, which is a continuation-in-part of Ser. No. 272,793, Jun. 18, 1972, Pat. No. 3,848,616, which is a continuation-in-part of Ser. No. 18,829, Feb. 12, 1970, abandoned, which is a division of Ser. No. 456,787, May 18, 1965, Pat. No. 3,500,844. Application for reissue Mar. 28, 1979, Ser. No. 24,685
Int. Cl.[3] **A01G** *25/16*
U.S. Cl. 137—78.3 **49 Claims**

54. A flow control for a fluid flow system having a fluid conduit with a flow control valve therein, said flow control valve having an electrically operated valve actuator means and said flow control comprising: a first circuit means for connecting a source of operating voltage to said valve actuator means; a first switching means comprising timing means for automatically completing said first circuit means to energize said valve actuator means and thereby open said valve and allow flow of fluid through said conduit for a predetermined period of time, and upon completion of said time period, for interrupting said first circuit means, causing said valve actuator means to be de-energized and said valve to close, thereby terminating flow through said conduit; a second switching means which, when energized, interrupts the continuity of said first circuit means, thereby overriding said first switching means and de-energizing said valve actuator means, thus causing said valve to open and terminate fluid flow through said conduit and which, upon de-energization of said switch actuator means, restores control of said first switching means over said valve actuator means, completing continuity of said first circuit means and energizing said valve actuator means, causing said valve to open and said fluid to flow therethrough, said second switching means comprising a switching means with an electrically operated actuator means; a third circuit means comprising, in series, said switch actuator means, third circuit conductor means, said source of operating voltage, and moisture sensitive switching means which, when closed, completes continuity of said third circuit means and which, when open, interrupts continuity of said third circuit means; said moisture sensitive switching means are adapted to be electrically connected by the presence of rain on said moisture sensitive switch, thereby completing the continuity of said third circuit means, energizing said switch actuator means, overriding said first switching means, interrupting said first circuit means, de-energizing said valve actuator means, closing said valve, and terminating fluid flow therethrough; said means which are adapted to be electrically connected by the presence of rain on said moisture sensitive switching means being further adapted, concomitantly with the subsequent absence of rain thereon, to interrupt said third circuit means, thereby de-energizing said switch actuator means and restoring control of said valve actuator means to said first switching means; and when said second switching means is energized, said source of operating voltage energizes a second circuit means providing said source of operating voltage for ancillary control when said moisture switch is activated and said first circuit means is interrupted.

97. A flow control for a fluid flow system, comprising: a casing having a cylindrical main casing member, a bottom cover fitted and fixed to said casing member at one end thereof, a panel affixed to and closing said main casing member at the opposite end thereof, said panel having a peripheral flange in contiguous abutment with the main casing member, and a top cover which is telescoped over said peripheral panel flange to form a closure between said top cover and the exterior of said panel, said bottom cover having a portion spanning said main casing member and a peripheral flange abutting the interior of said main casing member; a continuous annular gasket inserted contiguously between the peripheral extremities of said panel flange and said main casing member, the peripheral extremity of said panel flange being sandwiched circumferentially into one annular face of said annular gasket, and the opposite annular face thereof being telescoped over said peripheral extremity of said main casing member, thereby providing a seal between said top cover and said main casing member; a fluid flow valve disposed in said casing, said valve having an inlet and an outlet and an electrically operated actuator; conductor means extending from the interior to the exterior of said casing for electrically connecting said actuator to an external electrical power source; manually manipulatable connection means externally of said casing to which fluid supply and delivery means can be coupled; and means providing fluid communication from said connection means to the inlet and outlet of said fluid flow valve.

Re. 31,205
AERIAL SLED
Domina C. Jalbert, 425 Wavecrest Ct., Boca Raton, Fla. 33432
Original No. 3,972,495, dated Aug. 3, 1976, Ser. No. 383,629, Jul. 30, 1973. Division of Ser. No. 41,022, May 27, 1970, Pat. No. 3,749,337, which is a continuation-in-part of Ser. No. 867,116, Sep. 30, 1969, abandoned. Application for reissue Aug. 1, 1978, Ser. No. 930,000
Int. Cl.[3] **B64D** *17/02*
U.S. Cl. 244—145 **16 Claims**

8. An aerial device comprising a flexible wing having upper and lower flexible walls, each wall having a forward edge and a rearward edge, said rearward edges of said upper and lower flexible walls forming a wing trailing edge, said forward edges of said upper and lower walls being spaced apart to form first opening means at the forward edges, flexible side walls defining a hollow space with said flexible upper and lower walls, said first opening means providing for a flow of air into said wing for pressurizing said wing, shroud means connected to said lower flexible wall, a second opening means located in said lower flexible wall, and flexible valve means in said second opening means whereby said

second opening means and said valve means may provide for a flow of air into said wing from the bottom thereof for pressurizing said wing.

Re. 31,206

METHOD OF LOWERING AND RAISING LOADS BY MEANS OF A JACK ASSEMBLY AND LIFTING ELEMENT

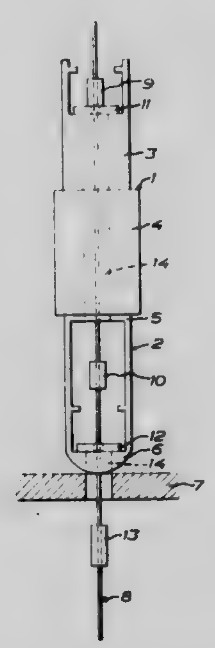
Nils H. Ahlgren, 22 Skyttevägen, S-133 00 Saltsjöbaden, Sweden

Original No. 3,895,778, dated Jul. 22, 1975, Ser. No. 321,154, Jan. 5, 1973. Application for reissue Jul. 15, 1977, Ser. No. 815,989

Claims priority, application Sweden, Jan. 12, 1972, 295/72

Int. Cl.³ B66F *1/00*

U.S. Cl. 254—1 **11 Claims**



1. A method of lowering and raising a load by means of a jack assembly and lifting element, which comprises transferring the load from the lifting element by supporting means moveable along said lifting element and alternately carrying the supporting means by one-and-then the other of two carrying means having holes accommodating the passage of the lifting element, with said carrying means being mounted on [relatively moveable] parts of the jack assembly *which are moveable relative to each other*, and said lifting element being joined in series with other lengths of lifting element by connectors of a size incapable of passing through the holes of the carrying means *and of a length substantially less than that of any one length of lifting element*, and alternately dismounting the [carrier] *carrying* means to permit free passage of the connectors *upwards and downwards* and thus *to permit free passage of* the joined lengths of the lifting element.

Re. 31,207

LEAK CURRENT SUPPRESSING PRINTED CIRCUIT BOARD

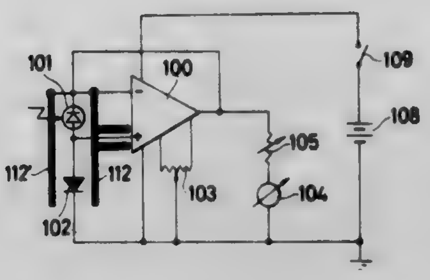
Tokuichi Tsunekawa, Yokohama, and Tetsuya Taguchi, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Japan

Original No. 4,114,036, dated Sep. 12, 1978, Ser. No. 703,962, Jul. 9, 1976. Application for reissue Jul. 17, 1979, Ser. No. 58,198

Claims priority, application Japan, Jul. 24, 1975, 50-90533

Int. Cl.³ H01J *40/14*

U.S. Cl. 250—214 R **23 Claims**



6. A device for preventing leakage current in a light responsive circuit of a camera comprising:

(a) a photoelectric element in the light responsive circuit for receiving light from an object; and

(b) a guard line surrounding at least a part of said light responsive circuit, said guard line having applied thereto a potential equal to the potential of the light responsive circuit for preventing leakage current in a light responsive circuit.

Re. 31,208

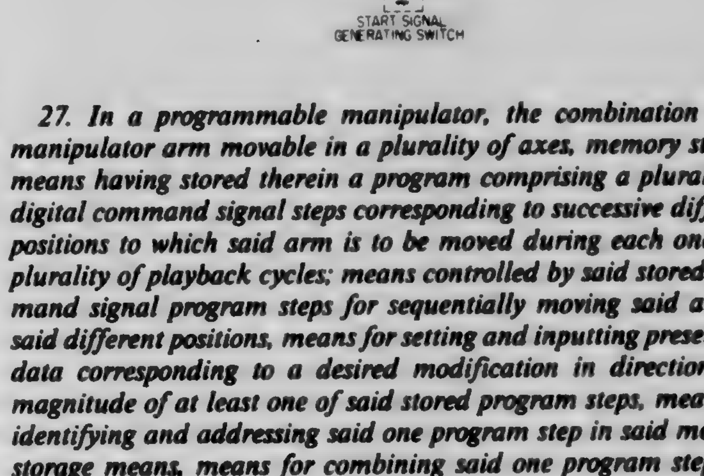
SIGNAL MODIFICATION DEVICE FOR MEMORY CONTROLLED MANIPULATOR APPARATUS

Takehiko Watanabe, Akashi, Japan, assignor to Unimation, Inc., Danbury, Conn.

Original No. 4,025,838, dated May 24, 1977, Ser. No. 536,542, Dec. 26, 1974. Application for reissue Apr. 26, 1979, Ser. No. 33,482

Int. Cl.³ G05B *19/00*

U.S. Cl. 318—568 **27 Claims**



27. In a programmable manipulator, the combination of, a manipulator arm movable in a plurality of axes, memory storage means having stored therein a program comprising a plurality of digital command signal steps corresponding to successive different positions to which said arm is to be moved during each one of a plurality of playback cycles; means controlled by said stored command signal program steps for sequentially moving said arm to said different positions, means for setting and inputting preselected data corresponding to a desired modification in direction and magnitude of at least one of said stored program steps, means for identifying and addressing said one program step in said memory storage means, means for combining said one program step and said desired positional modification data to produce a modified program step, and means for writing said modified program step into said memory storage means.

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PLANT PATENTS

GRANTED APRIL 12, 1983

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

5,030
CARNATION NAMED STACHERRY
Maurits C. van Staaveren, 30 Hornweg, at 1432 GM, Aalsmeer, Netherlands, assignor to B. V. Handelskwekerij and M. C. van Staaveren, both of Aalsmeer, Netherlands
Filed Jan. 15, 1981, Ser. No. 225,333
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—71 **1 Claim**

1. A new and distinct variety of carnation plant, substantially as herein shown and described, characterized by its continuous and profuse production of medium sized flowers of a deep pink color carried on long, strong and erect stems.

5,031
ROSE PLANT
F. Harmon Saville, Rowley, Mass., assignor to Nor'East Miniature Roses, Inc., Rowley, Mass.
Filed Oct. 1, 1981, Ser. No. 307,379
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—7 **1 Claim**

1. A new and distinct variety of rose plant of the miniature class, substantially as shown and described, characterized by flowers of orange red and yellow coloring darkening before fading and borne singly as well as in large sprays.

5,032
ROSE PLANT
Ralph S. Moore, 2519 E. Noble Ave., Visalia, Calif. 93277
Filed Oct. 5, 1981, Ser. No. 308,488
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—9 **1 Claim**

1. A new and distinct variety of miniature rose plant of hardy; dwarf, bushy, rounded, much branched habit, substantially as illustrated and described, characterized by buds and flowers that are essentially pink in color, the outer petals being generally of a lighter pink than the inner petals giving the freshly open flower a blended or two color effect; the general habit of growth as well as flower form and color being similar to June Time (miniature—U.S. Plant Pat. No. 2,563), and further characterized by a plant of compact well rounded shape; vigorous; the said plant being easy to propagate from cuttings, with an abundance of small matte foliage and an abundance of flowers borne singly or several to the stem in loose clusters.

5,033
ROSE PLANT
Ralph S. Moore, 2519 E. Noble Ave., Visalia, Calif. 93277
Filed Oct. 5, 1981, Ser. No. 308,799
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—9 **1 Claim**

1. A new and distinct variety of miniature rose plant of hardy, dwarf, bushy, rounded, much branched habit, substantially as illustrated and described, characterized by buds and flowers of exhibition form, essentially pink to rose pink in color and resembling Mary Marshall (miniature—U.S. Plant Pat. No. 3,346) in bud and flower form but being somewhat larger in size; and further characterized by a plant of compact well rounded shape with above average vigor, the said plant being easy to propagate from cuttings or by budding, with an abundance of small semi-glossy to matte foliage and an abundance of flowers borne singly or several to the stem in loose clusters.

5,034
HIBISCUS PLANT
Roberta J. Ludick, 13095 NE. 2nd Ave., North Miami, Fla. 33161
Filed Dec. 21, 1981, Ser. No. 310,070
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—54 **1 Claim**

1. A new and distinct variety of hibiscus plant, of *Rosa-sinensis* species, substantially as herein described and illustrated, and characterized particularly as to novelty by its vigorous, upright habit of growth, its crisp green foliage, and its brilliant, long-lasting flowers.

5,035
HYBRID MINIATURE ROSE PLANT CV. ARORASP
Jack E. Christensen, Ontario, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif.
Filed Oct. 23, 1981, Ser. No. 314,239
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—8 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid miniature class, substantially as herein shown and described, and being especially characterized by its deep yellow buds and blooms of unique wavy form, by its tall, vigorous, upright, bushy habit that produces, on long stems suitable for cutting, flowers of heavy substance and good color retention.

5,036
HYBRID SHRUB ROSE CV. MACMIGMOU
Samuel McGredy, IV, Auckland, New Zealand, assignor to Armstrong Nurseries, Inc., Ontario, Calif.
Filed Oct. 23, 1981, Ser. No. 314,243
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—2 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid shrub class, substantially as herein shown and described, and being especially characterized by its orange and white blooms with a distinct near white "eye" coloration in the center of each flower; the abundance of its "eyed" flowers borne on pyramidal clusters; a vigorous easily grown shrub with excellent disease resistance; and its total dropping of faded petalage.

5,037
ROSE PLANT—71-4992
William A. Warriner, Tustin, Calif., assignor to Jackson & Perkins Company, Medford, Oreg.
Filed Nov. 6, 1981, Ser. No. 318,998
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—20 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its vigorous, upright plant, ability to open blooms well in all weather, quilled petals, red color lighter than that of American Pride, deltoid shaped petals and little fragrance.

5,038
MINIATURE ROSE PLANT — MEIDDANEGO VARIETY
Marie L. Meilland, Antibes, France, assignor to The Conard-Pyle Company, West Grove, Pa.
Filed Nov. 6, 1981, Ser. No. 319,105
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—10 **1 Claim**

1. A new and distinct variety of Rose plant of the Miniature Class, which is a sport of the Meirov variety, substantially as illustrated and described, characterized by the fact that:

from the physical standpoint the plant has medium green adult wood and a bushy growth habit, and forms double flowers which are blood red in color wherein the petals are yellowish at the base and possess a great degree of substance; and

from the biological standpoint the plant has vigorous vegetation, is well adapted to hot culture, is resistant to disease, and has the ability to hold its flowers for a long period of time.

5,039
ROSE PLANT 78-5111—PETTICOAT
William A. Warriner, Tustin, Calif., assignor to Jackson & Perkins Company, Medford, Oreg.
Filed Nov. 6, 1981, Ser. No. 319,106
Int. Cl.³ A01H *5/00*

U.S. Cl. Plt.—7 **1 Claim**

1. A new and distinct variety of rose plant of the miniature class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its compact plant, mildew resistant foliage, pink edged white, very double flowers.

PATENTS

GRANTED APR. 12, 1983

ERRATA

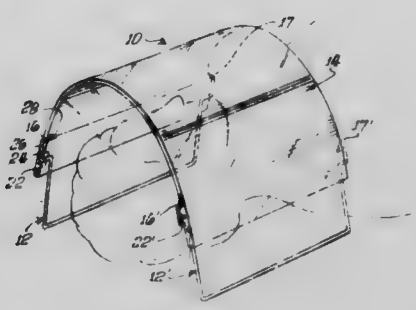
For CLASS	See PATENT
604–006	4,379,4
604–145	4,379,4
604–897	4,379,4
604–320	4,379,4
604–264	4,379,4
428–042	4,379,5
436–082	4,379,7
419–060	4,379,7
436–545	4,379,77
436–543	4,379,78
378–136	4,379,97

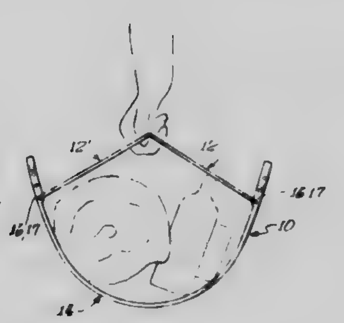
PATENTS

GRANTED APRIL 12, 1983

GENERAL AND MECHANICAL

4,379,349
SUN-OUT FACE SHIELD
Betty D. Larson, 3915 Lupe, Chino, Calif. 91710
Filed Nov. 28, 1980, Ser. No. 211,081
Int. Cl.³ A42B *1/18;* **A45C** *3/00*
U.S. Cl. 2—9 **7 Claims**

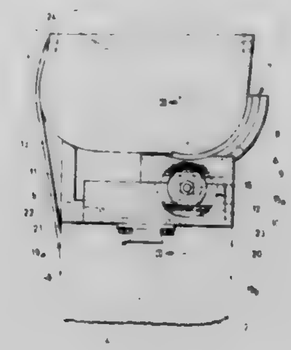




1. A face shield to cover a sunbather's head and face comprising a sheet member of transparent, ultraviolet blocking material formed into a cylindrical or hyperbolic arch resting upon a pair of generally "U"-shaped leg members which are respectively rotatably attached to each one of the lower end regions of said arched sheet member, said leg members, when used to support said arched sheet member, being blocked by contact with said arched sheet member from rotations respectively outward from the concave region beneath said arched sheet member, and said leg members, when equally rotated toward the plane bisecting the concave region in a direction parallel to the axis of revolution of the arched sheet member, come into close proximity with each other to serve as carrying handles for the face shield when inverted to form a tote.

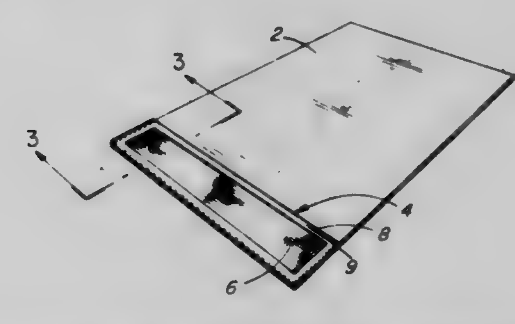
4,379,350
PROSTHETIC JOINT FOR KNEE AND ABOVE-KNEE AMPUTEES
Günter Munny, Wipperfürther Str. 49, 5064 Odenthal-Eikamp, Fed. Rep. of Germany
Filed Jun. 1, 1981, Ser. No. 268,719
Claims priority, application European Pat. Off., Feb. 11, 1981, 81100947.1
Int. Cl.³ A61F *1/04, 1/08*
U.S. Cl. 3—22 **8 Claims**

1. Prosthetic joint for knee and above-knee amputees, comprising a hollow shank (**1**), open at the top for receiving the femoral stump and, articulatedly joined to this shank, an attachment member (**3**) for fitting of a below-knee prosthesis (**2**), wherein the articulated joint comprises a guide member (**5, 105**), connected rigidly to the attachment member (**3**) and having rectilinear guide grooves (**17***a*,**17***b*;**117***a*, **117***b*), a slide member (**6**,**106**) guided slidably in said guide member, a support (**7, 107**) guided shiftably in said slide member by means of arcuate guide bars (**18***a*,**18***b*;**118***a*,**118***b*), which support is connected rigidly to the shank (**1**), and a gearing located between the arcuate support (**7, 107**), on the one hand, and the guide member (**5**,**105**) on the other hand, the gearing consisting of an arcuate rack (**8**,**108**) on the support (**7, 107**), a rectilinear rack (**10**;**110***a*,**110***b*) on the guide member (**5, 105**) and a pinion (**9, 109**) rotatably mounted in the slide member (**6, 106**) and engaging the two racks (**8**,**108**;**10**,**110***a*,**110***b*), the gearing effecting a



forward displacement of the slide member (**6, 106**) and, thereby, of the shank (**1**) upon a pivotal movement of the shank (**1**) relative to the attachment member (**3**).

4,379,351
DEBRIS TRAP FOR POOL COVER
Cornelius A. Hinsperger, 28 Columbus Crescent, Guelph, Ontario, Canada
Filed Mar. 30, 1981, Ser. No. 249,233
Claims priority, application Canada, Mar. 24, 1981, 373575
Int. Cl.³ E04H *3/19*
U.S. Cl. 4—498 **16 Claims**

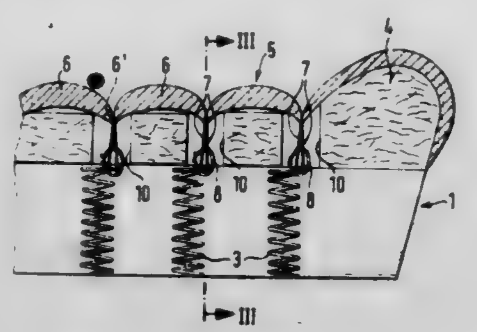


1. A flexible cover for a swimming pool comprising a sheet of flexible material of a size to cover the pool and an upper layer of flexible material overlying a part of the area of said sheet with said upper layer being peripherally secured to said sheet and having a free inner edge, said upper layer and said sheet constituting a pair of cooperating pocket-defining members providing therebetween a pocket having a pocket opening spaced inwardly from an edge of said cover, at least a portion of the material of at least one of said pocket-defining members being perforate permitting passage of water therethrough while retaining in said pocket accumulated debris during removal of the cover from the pool.

4,379,352
MOTOR VEHICLE SEAT AND PROCESS RELATING THERETO
Siegfried Häuslein; Hans Steinberger; Willibald Heigl, all of Munich; Georg Scheichl, Unterschleissheim, and Erwin Kauderer, Munich, all of Fed. Rep. of Germany, assignors to Bayerische Motoren Werke A.G., Munich, Fed. Rep. of Germany
Filed Mar. 31, 1980, Ser. No. 135,527
Claims priority, application Fed. Rep. of Germany, Mar. 29, 1979, 2912461
Int. Cl.³ A47C *7/02*
U.S. Cl. 5—471 **6 Claims**

1. A seat comprising a seat component and a back compo-

nent, at least one of the seat component and back component including a spring core, a cushion layer, and a ribbed upholstery cover provided with a plurality of spaced parallel ribs defined by spaced parallel rib seams, a plurality of individual securing tabs being provided at respective portions along the

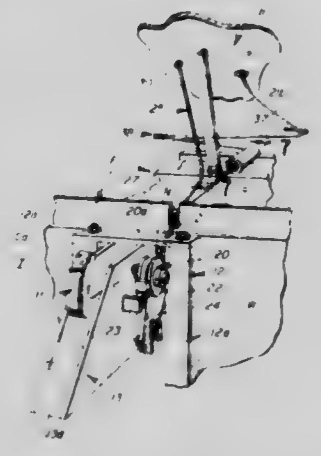


rib seams on a side of the upholstery cover which faces the cushion layer for connecting the upholstery cover to the spring core in an essentially point type fastening arrangement, each securing tab including a first end portion attached to a seam of the ribs and a free end portion which is secured directly to a coil of the spring core by a fastener.

4,379,353
CONTINUOUS METHOD FOR BLEACHING WITH PEROXIDE
Horst Holderer, Krefeld, and Johannes Kutz, Tonisvorst, both of Fed. Rep. of Germany, assignors to Eduard Kusters, Krefeld, Fed. Rep. of Germany
Filed Nov. 25, 1980, Ser. No. 210,301
Claims priority, application Fed. Rep. of Germany, Mar. 15, 1980, 3010139
Int. Cl.³ D06L *3/16*
U.S. Cl. 8—149.1 **6 Claims**

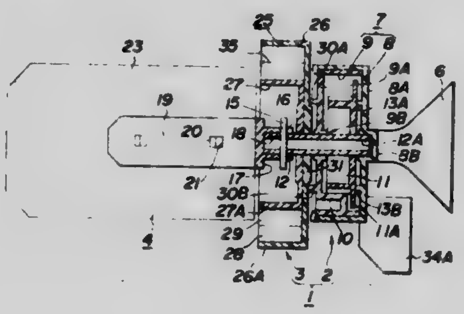
1. In a continuous method for bleaching goods containing cotton with peroxide, wherein a web of material is left standing in a bleaching bath and is subsequently steamed, the improvement comprising carrying out the step of leaving the material standing by means of a retention in folded condition at a temperature of 60±10° C., and carrying out the steaming, with the material under tension, at a temperature in the vicinity of 100° C.

4,379,354
RELEASABLE LOCKING DEVICE
Norbert Hahn, Cudahy, and Steven J. Hipp, Milwaukee, both of Wis., assignors to Rite-Hite Corporation, Milwaukee, Wis.
Filed Aug. 5, 1981, Ser. No. 290,348
Int. Cl.³ E01D *1/00*
U.S. Cl. 14—71.3 **11 Claims**



1. A releasable locking device for use in securing a parked vehicle to an adjacent structure, said device comprising a carriage mountable on the structure for limited relative movement in a substantially vertical plane and being biased to assume a predetermined elevated rest position; a rotary first means carried on said carriage and movable therewith in said substantially vertical plane, said first means being rotatable between an operative mode and an inoperative mode, when in said operative mode, said first means having a section thereof projecting outwardly from said carriage and being adapted to interlockingly engage the parked vehicle, and when in an inoperative mode, having said section in a depending vehicle-release position and substantially enclosed within said carriage; second means operatively connected to said first means to effect movement of the latter from said inoperative mode to said operative mode, said second means including a rotary first member carried on said carriage adjacent to said first means, said first means and said first member rotating as a unit about a common axis, a flexible second member having one end portion thereof connected to the periphery of said first member and a second end portion thereof remote from said first member for imparting a manual pull thereto to effect a predetermined tangential force in one direction on said first member and movement of said first means from said inoperative mode to said operative mode, and a unit connected to and intermediate the end portions of said flexible second member to effect the application of said predetermined tangential force on said first member from a manual pull force of substantially less magnitude applied to the second end portion of said flexible second member; and third means mounted on said carriage for releasably retaining said first means in said operative mode.

4,379,355
WASHING MACHINE FOR HOLLOWWARES
Kiyoshi Kobayashi, Noda, and Shuji Suga, Fujishiro, both of Japan, assignors to Hukuba Kogyo Kabushiki Kaisha, Chiba, Japan
Filed Jun. 5, 1981, Ser. No. 270,831
Claims priority, application Japan, Feb. 6, 1981, 56-15480[U]; Feb. 16, 1981, 56-20470[U]
Int. Cl.³ A47L *15/00*
U.S. Cl. 15—101 **9 Claims**



1. A washing machine for washing hollowwares comprising:
casing means having secured to the interior thereof stationary teeth means;
rotary gear means meshing with said stationary teeth means and rotatably mounted in the interior of said casing means;
a rotating shaft projected outwardly from said casing means and connected to said rotary gear means;
a washing implement mounted on a projected end of said rotating shaft, said washing implement adapted to be covered with a hollowware to be washed; and
said rotary gear means being movable along said stationary teeth means by means of a hollowware held by an operator's hand, thereby rotating said rotary gear means, said rotating shaft and said washing implement about the axis of said rotating shaft.

4,379,356

METHOD AND APPARATUS FOR PRODUCING SKINLESS SAUSAGES

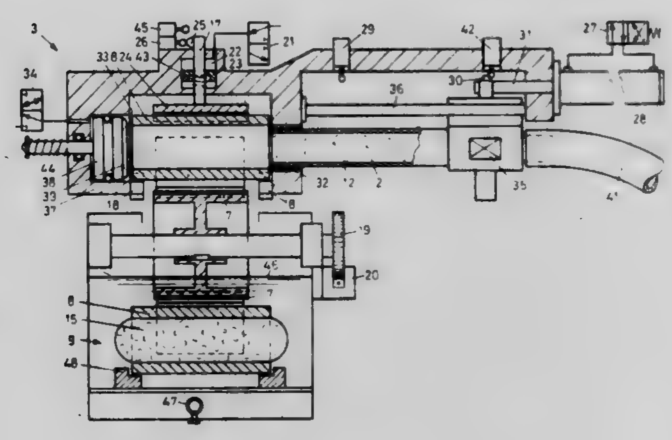
Hans Geissbühler, Zuzwil, Switzerland, assignor to C. Hoegger & Cie, A.G., Gossau, Switzerland

Filed Nov. 13, 1980, Ser. No. 206,360

Claims priority, application Switzerland, Nov. 21, 1979, 10391/79

Int. Cl.[3] A22C *11/00*

U.S. Cl. 17—45 6 Claims



1. Apparatus for producing skinless sausages, comprising:

a. a plurality of individual molds;

b. conveying means to convey said molds sequentially along a predetermined path;

c. filling means to introduce sausage meat into said molds;

d. heating means to coagulate the surface of said sausage meat in the molds; and

e. means to extract the surface-coagulated sausages from said molds; wherein the improvement comprises:

f. said molds comprise hollow tubes open at least at one end, and are loosely supported on the conveying means;

g. means at a filling station along said path for releasably gripping a mold to hold it against movement relative to said conveying means;

h. said filling means including:

1. a filling tube insertable into a gripped mold through an open end thereof;
2. means for reciprocating the filling tube into and out of said gripped mold; and
3. means for supplying ground sausage meat under pressure to said filling tube during reciprocation thereof; and

i. means effective after movement of the filling tube out of the gripped mold to release said gripping means;

j. said heating means being effective to expand the meat through the open ends of the molds and to coagulate the surfaces of the meat at the open ends of the molds.

4. A method of producing skinless sausages, comprising:

a. introducing sausage meat into a plurality of individual molds;

b. heating the molds until the surface of the sausage meat is coagulated; and

c. extracting the surface-coagulated sausages from the molds;

wherein the improvement comprises:

d. said molds are hollow tubes having at least one end open during said heating, so that the sausage meat is free to expand at said open ends and coagulates at its expanded end surfaces.

4,379,357

METHOD AND APPARATUS FOR SEPARATING WASTE FROM A FIBER-AND-WASTE MIXTURE

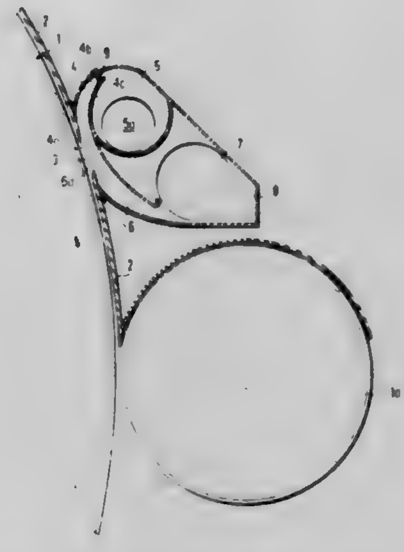
Wolfgang Beneke, and Walter Jager, both of Monchen-Gladbach, Fed. Rep. of Germany, assignors to Trutzschlar GmbH & Co. KG, Monchen-Gladbach, Fed. Rep. of Germany

Filed Jul. 31, 1980, Ser. No. 174,103

Claims priority, application Fed. Rep. of Germany, Aug. 4, 1979, 2931699

Int. Cl.[3] D01G *15/80*

U.S. Cl. 19—105 9 Claims



5. In an apparatus for separating fibers from a fiber-and-waste mixture in a textile machine having a rotary roll entraining said mixture; including means for effecting a detachment of the mixture from said roll in a first zone for causing a travel of the mixture tangentially to the roll under the effect of the centrifugal force thereof; the improvement comprising

(a) means defining a braking channel having an inlet positioned to receive the mixture traveling from said roll;

(b) air pressure means including a pressurized air channel for directing pressurized air to said inlet of said braking channel for impinging on the mixture in a second zone downstream of said first zone as viewed in the direction of travel of the mixture for decelerating particles of said mixture passing into said braking channel through said inlet, whereby fibers of the mixture are returned to the roll and waste particles of the mixture are allowed to continue their travel in said braking channel;

(c) means defining a waste collecting chamber communicating with an outlet of said braking channel; and

(d) suction means communicating with said waste collecting chamber for removing particles therefrom.

4,379,358

CORD ADJUSTERS

Güter Wibrow, Norderstedt, Fed. Rep. of Germany, assignor to ITW-ATECO GmbH, Norderstedt, Fed. Rep. of Germany

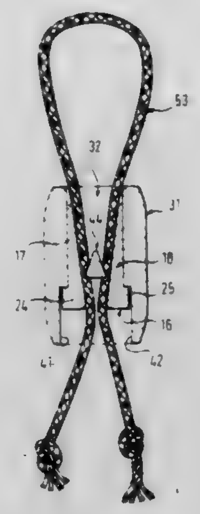
Filed Jul. 30, 1981, Ser. No. 288,701

Int. Cl.[3] F16G *11/00*

U.S. Cl. 24—136 R 10 Claims

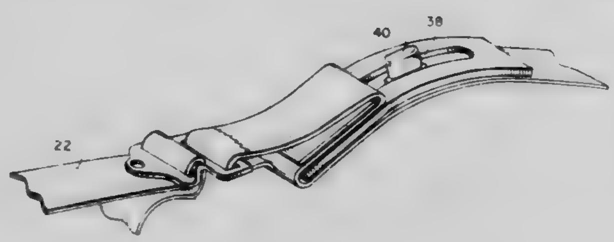
1. A cord adjuster comprising a body having a through passage which is divided longitudinally for the accommodation of cord sections capable of being passed therethrough in side-by-side spaced arrangement and an arresting member supported on the body for displacement between two end positions, said arresting member being provided with clamping areas disposed in the through passage and cooperating with respective associated clamping areas of the body in order to clamp the cord sections between them in tight clamping engagement in one end position of the arresting member, characterised in that the passage is at least in part an open-topped channel, a stationary clamping projection is arranged on the bottom of the channel, and the arresting member is a lid member slidingly displaceable on the upper surface of the body and

closing the channel, said lid member being provided on the underside thereof with at least one guiding projection for locating and slidingly guiding said projection engaging beneath a corresponding guiding portion of the body, and the clamping area being formed integrally with the lid member and



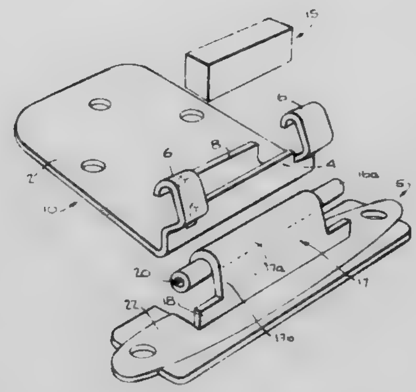
extending on both sides of the clamping projection while being spaced therefrom, said lid and said body having opposed finger engaging sections thereon for engagement by a thumb and one other finger to effect relative sliding movement of said body and said lid between clamping and non-clamping positions.

4,379,359
POSITIVE LOCK HOSE CLAMP
Donald L. Young, 2805 Hill Valley Dr., Escondido, Calif. 92025
Filed Feb. 2, 1981, Ser. No. 230,454
Int. Cl.³ B65D *63/10*
U.S. Cl. 24—273 **3 Claims**



1. A hose clamping strap for clamping a flexible hose to a cylindrical air supply conduit, comprising:
an elongated flexible woven fabric strap having a first end and a second end,
a friction buckle secured to said first end of said strap and adapted to receive said second end for establishing a loop of a selective size,
a toggle lever having a fixed end fixed to said strap at spaced points along said strap adjacent said first end, and a curved free end normally extending along said strap in a direction toward and substantially to said buckle and pivotal to extend in a second direction for removing slack from said strap and clamping said strap against a flexible hose, and
fastening means comprising a slot in the free end of said toggle lever, and a releasable twist fastener secured to said strap for extending through said slot and rotating to a securing position for releasably securing said free end of said toggle lever to said strap in a position extending in said second direction opposite said first direction.

4,379,360
METHOD OF MAKING A HINGE WITH AN INTEGRAL PINTLE
John Papsdorf, Lake Orion, Mich., assignor to Liberty Hardware Manufacturing Corp., Long Island City, N.Y.
Filed Jul. 7, 1980, Ser. No. 166,536
Int. Cl.³ E05D *11/10*
U.S. Cl. 29—11 **4 Claims**



1. A method of forming a male hinge member having a mounting base, substantially cylindrical pin means remote from said base, and neck means intermediate said base and said pin means, the end of said neck means most remote from said base being curled and forming a partial sleeve around said pin means, said method including the steps of:
(a) forming a flat sheet metal blank having a first portion adapted to be formed into said mounting base, a second portion remote from said first portion and adapted to be formed into said pin means, said second portion comprising an outer longitudinal edge and two inner longitudinal edges, said inner edges and the associated portions of said outer edge defining two projecting ends of said second portion, said outer edge having a surface lying in a plane perpendicular to the plane of said blank, and a third portion, intermediate and narrower than said first and second portions, connected to said second portion and adapted to be formed into said neck means;
(b) bending the outermost portion of said second portion so that the plane in which the surface of said outer longitudinal edge lies is rotated substantially 45° in a given direction of rotation with regard to the plane of the remainder of said second portion;
(c) bending the end of said third portion remote from said base substantially 90° in said given direction of rotation, thereby turning said second portion in its entirety approximately 90° further in said direction;
(d) curling said second portion with respect to itself so that said outer edge plane is rotated an additional angle of approximately 225° in said given direction of rotation, whereby said outer edge plane is brought into proximity to the region of the third portion at which the latter is connected to the second portion and said outer edge plane is substantially perpendicular to the plane of said third portion and whereby said second portion is formed into semi-cylindrical shape;
(e) shearing the upper inner longitudinal edge portions, of said semi-cylindrically-shaped second portion, from said third portion in the region of the respective boundaries of said upper inner edges and said third portion;
(f) swaging the inner longitudinal edge portions of said semi-cylindrically-shaped second portion so as to curl said inner longitudinal edge portions in such a direction as to form said projecting ends into substantially cylindrical shapes, thereby to form a longitudinally-extending pin having two substantially cylindrical end portions;
(g) curling said second and third portions, as a unit, further in said given direction of rotation approximately 45°, so as to form the end of said third portion most remote from said base into a sleeve extending partially about said pin;

(h) curling said sleeve and pin portions, as a unit, further in said given direction of rotation, an additional approximately 45° so that said sleeve portion extends approximately 180° around the periphery of said pin portion; and

(i) rolling said sleeve and pin portions, as a unit, in said given direction of rotation approximately an additional 90°, such that said outer edge plane has been rotated through an angle of approximately 540° from its starting position with respect to the plane of the uncurled end of said third portion and said sleeve portion extends around about three-quarters of the periphery of said pin portion;

wherein step (d) comprises placing said outer edge in and along one longitudinal edge of a die groove having a substantially semi-circular cross-section and forcing said outer edge of said second portion further into said groove whereby said outer edge is forced to slide circumferentially around the inner surface of said groove so as to be curled into a substantially semi-cylindrical shape and wherein the longitudinal length of said groove is substantially greater than the longitudinal length of said outer edge and the outer edges of successive metal blanks are positioned along different longitudinal regions of said groove for said curling step, comprising the step of moving successive blanks to be formed to different longitudinal regions of said groove.

4,379,361

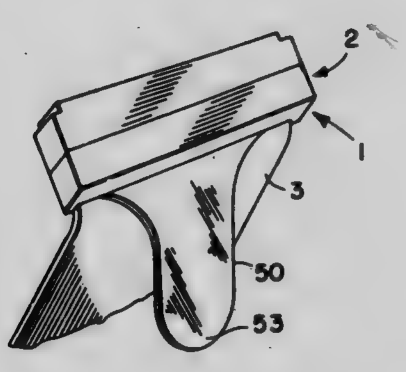
METHOD FOR MAKING MOLDED ELECTRICAL CONNECTOR

John L. Webster, Painesville, and John T. Venaleck, Mentor, both of Ohio, assignors to Chabin Corporation, Santa Clara, Calif.

Division of Ser. No. 74,978, Sep. 13, 1979. This application May 7, 1981, Ser. No. 261,587

Int. Cl.³ H01R *43/00*

U.S. Cl. 29—857 **21 Claims**



1. A method of making a cable termination assembly for a cable having at least one conductor and insulation covering at least a major extent thereof, comprising: sliding along a first length of insulation for ultimate removal from an end of the cable to expose a portion of the conductor, sliding a second length of insulation at least partly over the exposed conductor end leaving an intermediate portion of the conductor exposed between the second length of insulation and the major extent of the cable insulation, electrically connecting an electrically conductive member to the intermediate portion of the conductor to form a junction thereof, and enclosing the junction and the intermediate portion in a connector body while leaving a part of the electrically conductive member exposed for electrically connecting the conductor with an external device.

4,379,362

MOTION CONVERSION MECHANISM

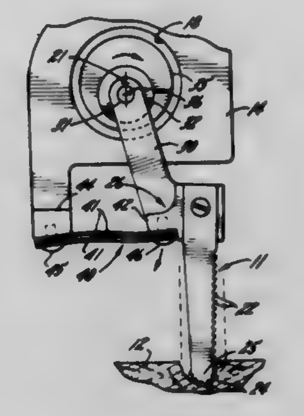
Sidney A. Getts, 1923 N. Church St., Rockford, Ill. 61103

Continuation-in-part of Ser. No. 49,427, Jun. 18, 1979, Pat. No. 4,255,858. This application Feb. 5, 1981, Ser. No. 231,744

The portion of the term of this patent subsequent to Mar. 17, 1998, has been disclaimed.

Int. Cl.³ B27B *19/09*

U.S. Cl. 30—393 **10 Claims**



1. Mechanism for converting rotary motion to back and forth motion, said mechanism comprising a support, a power driven shaft mounted on said support to rotate about a predetermined axis, a driven member operably connected to said shaft, and means for causing said driven member to move back and forth in response to rotation of said shaft in one direction, said means comprising a resiliently yieldable strap connected between said support and said driven member and positioned to flex resiliently in the general direction of said back and forth motion thereby to dampen vibration of said driven member, said resiliently yieldable strap comprising a stack of leaf springs disposed in face-to-face relation, each of said springs having one end cantilevered on said support and having an opposite end connected to said driven member.

4,379,363

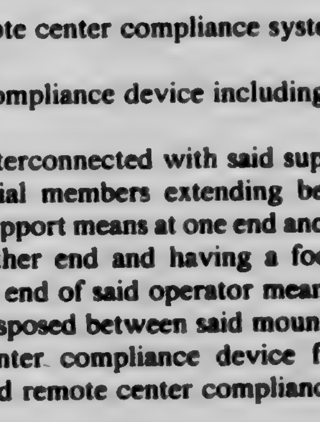
DAMPED REMOTE CENTER COMPLIANCE DEVICE

Daniel E. Whitney, Arlington, Mass., assignor to The Charles Stark Draper Laboratory, Inc., Cambridge, Mass.

Filed Apr. 24, 1981, Ser. No. 257,220

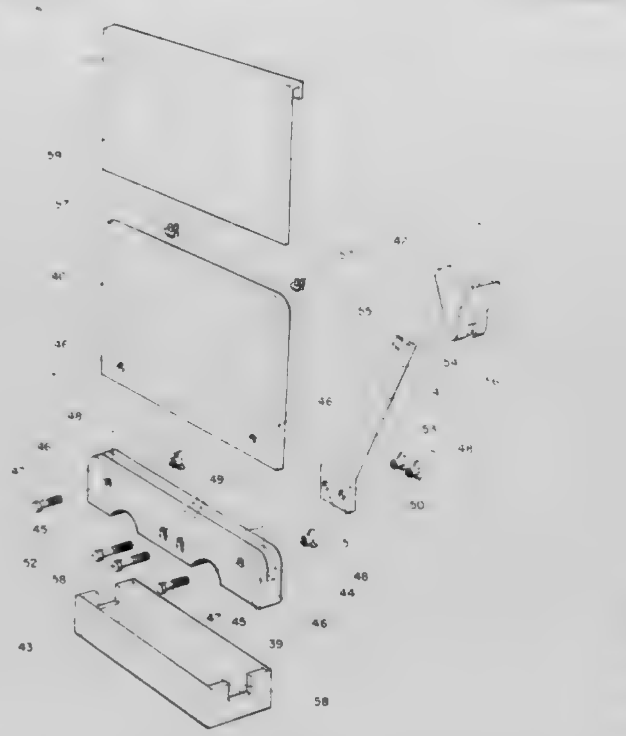
Int. Cl.³ G01B *5/25*

U.S. Cl. 33—169 C **15 Claims**



1. A damped remote center compliance system comprising:
mounting means;
a remote center compliance device including:
support means;
operator means interconnected with said support means;
a plurality of radial members extending between and attached to said support means at one end and said mounting means at the other end and having a focus at, near or beyond the free end of said operator means; and
damping means disposed between said mounting means and said remote center compliance device for suppressing vibrations in said remote center compliance device.

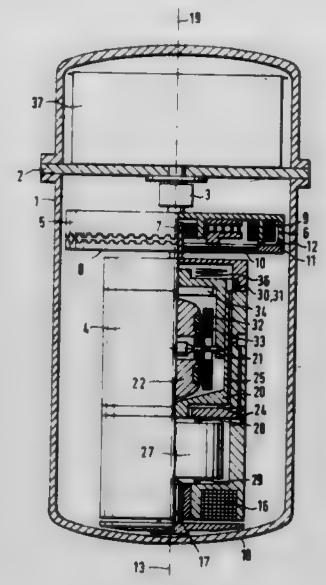
4,379,364
ARTIST'S FREEHAND SKETCHING DEVICE
Ivan L. Fish, 2804 Carolina NE., Albuquerque, N. Mex. 87110
Continuation-in-part of Ser. No. 173,288, Jul. 29, 1980, abandoned. This application Oct. 26, 1981, Ser. No. 315,164
Int. Cl.³ B43L *13/16*
U.S. Cl. 33—277 **5 Claims**



3. A device for use by artists and others to aid in free hand sketching comprising;
- a baseboard being generally flat and rectangular having two arcuate notches along its bottom edge, and a groove along its top edge sized to accept a vertical member, and;
- the vertical member, being transparent, and generally flat, and the vertical member being inserted into the groove, and the vertical member being secured to the baseboard by bolts and nuts, said bolts passing through matching bolt holes in the baseboard and the vertical member, and;
- the baseboard having a plurality of vertical slots in its center, and;
- a chin rest post having a foot region, a stem region and a slotted end wherein the foot region has a plurality of bolt holes matching the vertical slots in the baseboard so that the chin rest post may be adjustably affixed to the baseboard, and wherein the foot region is angled with respect to the stem region so that the stem region slopes upward and away from the vertical member, and wherein the slotted end has two slots which do not intersect each other but which angle toward each other forming generally a V without the vertex, and;
- a removeable chin rest which slideably mates with the slotted end.

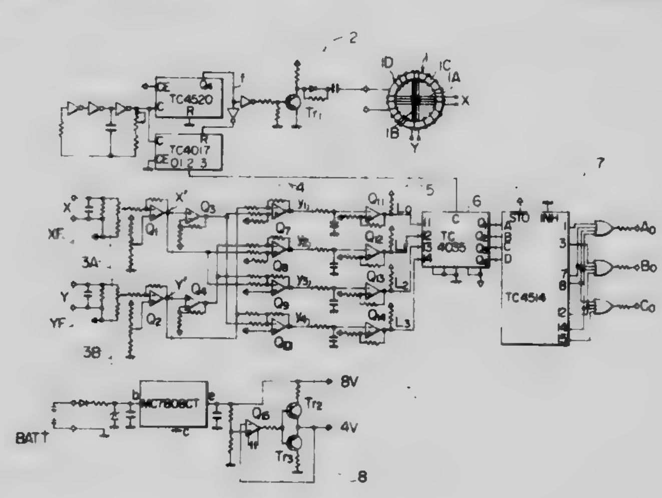
4,379,365
GYROCOMPASS
Heinz Riethmüller, Sandhausen; Rainer Sindlinger, Hirschberg, and Peter Schultz, Dielheim b. Heidelberg, all of Fed. Rep. of Germany, assignors to TELDIX GmbH, Heidelberg, Fed. Rep. of Germany
Filed Dec. 1, 1980, Ser. No. 211,788
Claims priority, application Fed. Rep. of Germany, Nov. 29, 1979, 2948051
Int. Cl.³ G01C *19/38*
U.S. Cl. 33—316 **32 Claims**

1. In a gyrocompass including a first gimbal, a gyro motor mounted in the first gimbal and including a gyro rotor mounted to rotate about a horizontally alignable spin axis, a body in which the first gimbal is mounted to be rotatable about a vertically alignable axis of rotation, a housing in which the body is rotatably suspended, a verticality device associated with the body for allowing the body to assume an orientation in the housing in which the axis of rotation is vertical, and a follow-up device including a pickup mounted for sensing the angular position, about the axis of rotation, of the gimbal relative to the body and a drive connected for rotating the body relative to the housing about the axis of rotation in dependence



on the position sensed by the pickup, the improvement wherein said drive comprises a stepping motor constructed to rotate in highly uniform steps and simultaneously serving to provide an indication of the angular position of said body relative to said housing about said axis of rotation.

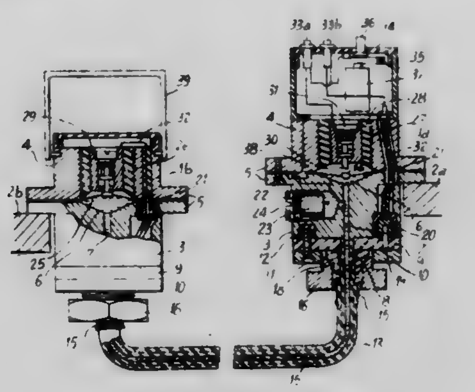
4,379,366
DIRECTION FINDING SYSTEM
Akira Kuno, Oobu; Muneaki Matsumoto, Okazaki, and Koji Numata, Toyokawa, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan
Filed Apr. 24, 1981, Ser. No. 257,137
Claims priority, application Japan, Apr. 25, 1980, 55-55863
Int. Cl.³ G01C *17/30*
U.S. Cl. 33—361 **9 Claims**



1. A direction finding system comprising:
- a terrestrial magnetism sensor for detecting two perpendicular components of the direction of the earth's magnetic field and generating two electric signals corresponding to the detected components; and
- electronic means for generating a direction signal specifying one of 4N, where N is a positive integer, directions in accordance with the two electric signals from said terrestrial magnetism sensor, said electronic means producing 2N radialized boundaries representing signal components from said two electric signals to define 4N radialized regions, said electronic means including means for discriminating the signal components to discriminate to which region of said radialized regions said direction of the earth's magnetic field corresponds, and said electronic

means including means for generating binary signals to specify the corresponding one region in dependence upon the discrimination of levels of said signal components.

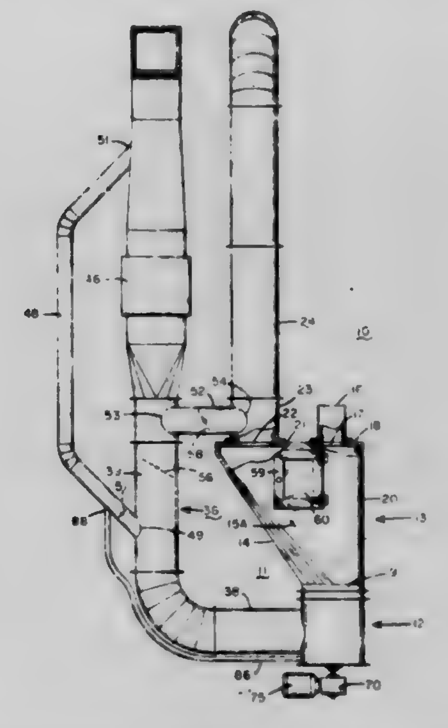
4,379,367
ELECTRICALLY CONTROLLED LEVEL
Marcel Legris, Place de la Parette, Air Bel Bt 48, 13011 Marseille, France
Filed Dec. 31, 1980, Ser. No. 221,637
Int. Cl.³ G01C *5/04, 9/22*
U.S. Cl. 33—367 **2 Claims**



1. Apparatus for comparing the level of two spaced points, comprising a pair of vertically movable chambers, flexible conduit means of reduced section interconnecting the two chambers, reference means on each chamber adapted to come into contact with a said point whose level is to be compared, thereby to predetermine the position of said chamber relative to said point, said chambers and conduit containing mercury which is free to flow from chamber to chamber through said conduit, a flexible elastic diaphragm fixed about its periphery to the walls of each chamber, said diaphragm enclosing the mercury in the part of said chamber in which opens the flexible conduit along a substantially horizontal section of said chamber, said flexible elastic diaphragms flexing under the difference in the hydrostatic pressures resulting from the difference in the levels of the chambers relative to each other, electric means responsive to the direction of flexing of said diaphragms to determine which of said points with which said chambers are in contact by said reference means is at the higher level, and means permitting variation of the volume enclosed by said flexible diaphragms, said chambers and said flexible conduit means.

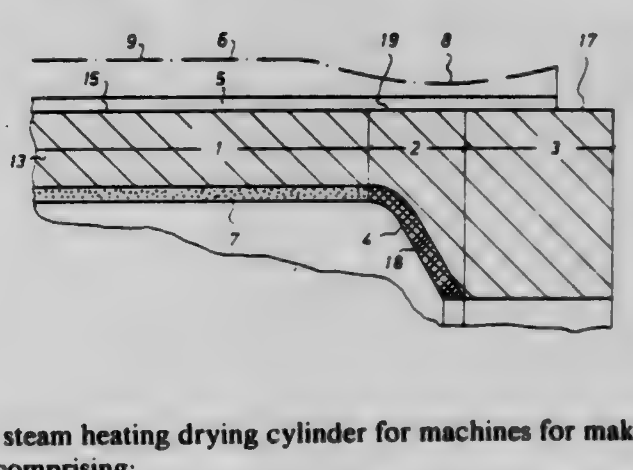
4,379,368
HOT AIR DRIER
A. Kent Keller, Mantorville, Minn., assignor to Whey Systems, Inc., Mantorville, Minn.
Filed Apr. 23, 1981, Ser. No. 256,848
Int. Cl.³ F26B *17/10*
U.S. Cl. 34—57 R **20 Claims**

1. A hot air drier for particles and aggregates of moist solids utilizing the upward movement of heated air at a volume rate sufficient to lift partially dried solids of desired particle size through a upwardly expanding cross section chamber and yet insufficient to lift particles of all moisture contents and sizes through the expanding cross section chamber and thereby dropping oversized and undesirably moist aggregates back down through such chamber for further disintegration and drying, said drier comprising a body portion having a bottom air inlet opening, a top wall spaced above the bottom air inlet opening, a moist solids inlet opening directly above the air inlet opening, and body side wall portions extending upwardly from the edges of the bottom opening to the top wall and including at least one sloping side wall portion extending upwardly and outwardly from the bottom opening to an area of the top wall spaced laterally outwardly from the solids inlet opening, thereby defining a drying chamber of upwardly expanding cross section from the air inlet opening to the top wall, said chamber having an upper portion with a solids outlet opening at a location laterally outwardly-spaced, from the moist solids inlet opening and the air inlet opening, a pneumatic conveying conduit extending from the solids outlet opening for conveying selected solids from the upper portion of the drying chamber, when they have reached the desired dryness and particle size, blower means for maintaining a primary flow of heated drying air upwardly through the bottom air inlet, drying chamber, and solids outlet opening and through the conveying conduit at a volume rate providing lateral lifting of at least partially



dried and separated solids upwardly through the chamber and outwardly through the solids outlet opening and dropping of undesirably moist and unseparated solids down through the chamber toward the air inlet opening for further drying and particle separation by the heated air entering that opening, said drier also having a rake member movable across said air inlet opening within the chamber for engaging and breaking up dropped solids into particles suitable for air lifting to the solids outlet, and means for moving the rake member across the said air inlet opening while the drier is operating.

4,379,369
DRYING CYLINDER FOR MACHINES FOR MAKING PAPER AND A METHOD FOR MAKING THE DRYING CYLINDER
Christian Schiel, Heidenheim, Fed. Rep. of Germany, assignor to J. M. Voith GmbH, Heidenheim, Fed. Rep. of Germany
Filed Jun. 18, 1981, Ser. No. 274,715
Int. Cl.³ F26B *13/18*
U.S. Cl. 34—110 **6 Claims**



1. A steam heating drying cylinder for machines for making paper comprising:

a cylindrical shell having inner surfaces thereon, said cylindrical shell comprising a center region of substantially uniform thickness having inner surfaces thereon, end flanges extending radially inwardly of said center region

and having inner surfaces thereon, and transition regions being disposed between said center region and said end flanges, said transition regions having inner surfaces that taper radially outwardly from said end flanges toward said center region, and

an insulation layer being disposed on said inner surfaces of said transition regions for providing substantially uniform drying along the width of the paper being made.

4,379,370

DEVICE FOR ADJUSTING THE INCLINATION OF THE CUFF OR ANKLE COVERING PORTION OF A FOOTWEAR ARTICLE, IN PARTICULAR A SKI BOOT

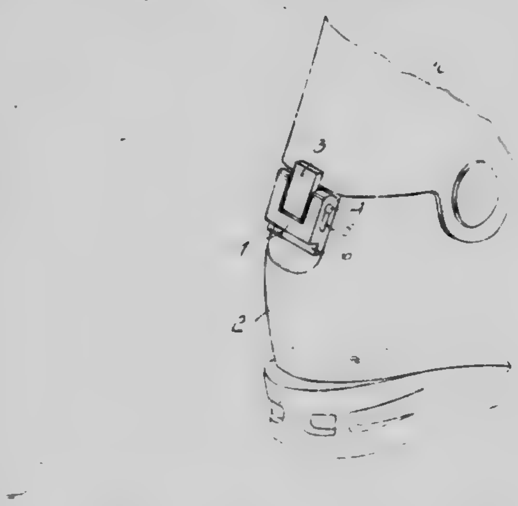
Renzo Balbinot, Vittorio Veneto, Italy, assignor to Nordica S.p.A., Montebelluna, Italy

Filed May 4, 1981, Ser. No. 260,154

Claims priority, application Italy, May 23, 1980, 21894/80[U]

Int. Cl.³ A43B *5/04*

U.S. Cl. 36—121 **3 Claims**



1. A device for adjusting inclination of a cuff, particularly on a ski boot, comprising an abutment block for engagement with a shell of the boot, said abutment block having an abutment surface for said cuff such as to determine the inclination between said cuff and said shell in a rest position of said cuff, and further comprising a serrated protrusion on said shell, a serration on said abutment block for cooperation with said serrated protrusion, a longitudinal throughgoing slot in said abutment block, a pin projecting outwardly from said shell at the region of said serrated protrusion and extending through said longitudinal slot, a threaded region on said pin, and a tightening ring nut for cooperation with said threaded region for tightening said abutment block against said shell at selected different height levels.

4,379,371

TRACK SKELETONIZER

Allan D. Jenkins, Maple Plain; John T. Appelen, Mound, and Nils Lind, Minnetonka, all of Minn., assignors to Railway Track-Work Company, Excelsior, Minn.

Filed May 23, 1980, Ser. No. 245,348

Int. Cl.³ E02F *5/22*

U.S. Cl. 37—104 **42 Claims**

1. Apparatus for performing work on a railway roadbed comprising:

a mobile support framework;

a front truck and a rear truck, each of said trucks rotatably supporting wheels for riding on rails of a railway track;

means for connecting each truck to said framework;

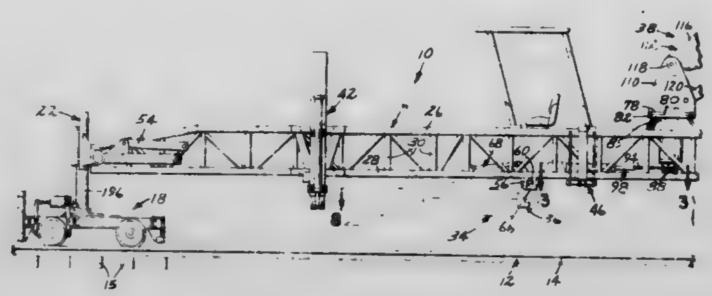
rail hook means carried by said framework for selectively connecting said framework with the rails upon which said wheels are riding;

means carried by said framework for raising said framework and a section of rail connected to said framework by said rail hook means with respect to the ground;

a roadbed working tool;

suspension means carried by said framework for selectively suspending said tool from said framework;

motor means for moving said suspension means between a tool supporting position wherein said tool is suspended from said framework and a release position wherein said tool is free to drop from said framework;



powered handling boom means supported by said framework for moving said tool with respect to said framework after said tool has been released from said framework by said suspension means; and

adjusting means for moving each of said trucks laterally with respect to the lengthwise dimension of said framework.

4,379,372

PLANT TAG

Lee J. Alexander, Plano; Harold E. Vanberg, and Clyde E. King, both of Dallas, all of Tex., assignors to Horticultural Printers/Carscallen Nursery Label Company, Dallas, Tex.

Filed Dec. 8, 1981, Ser. No. 328,510

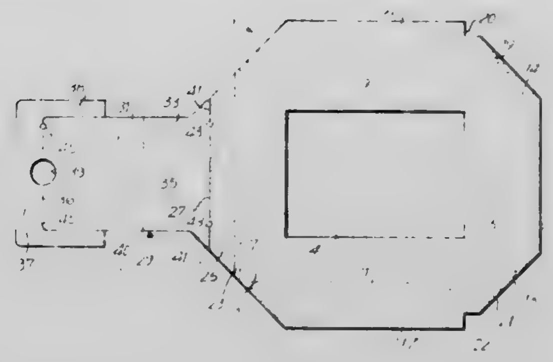
Int. Cl.³ G09F *3/18, 3/08*

U.S. Cl. 40—10 C **15 Claims**

1. A plant tag for use on a plant comprising:

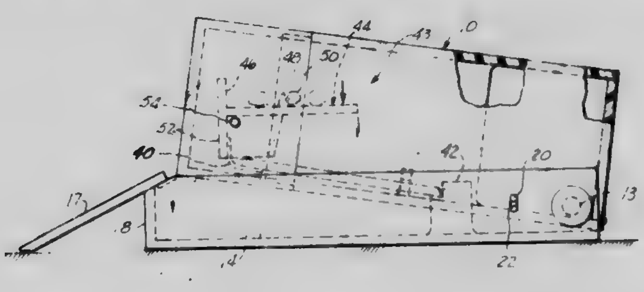
a resilient portion having first and second nonoverlapping holes formed therethrough with nonlinear cuts extending from the edge of each of the holes, the resilient portion being foldable along a predetermined line between the first and second holes to align the holes, the cuts extending from each of the holes to an edge of the resilient portion, the resilient portion permitting placement of the tag on the plant by separating the edges of the cuts for passage of the plant into the first and second holes, the resilient portion resiliently unfolding after placement on the plant until the portion of the edge of each of said first and second holes adjacent to the predetermined line contacts one side of the plant and the portion of the edge of each of said first and second holes distal the predetermined line contacts the opposite side of the plant to lock the tag on the plant and maintaining the tag in a fixed position on the plant for facilitating observation, the cuts being nonaligned to lock the tag on the plant.

4,379,373
DISPLAY DEVICE HAVING A COLLAPSIBLE EASEL
Felix Transport, 98 Riverside Dr., New York, N.Y. 10024
Filed May 19, 1981, Ser. No. 265,106
Int. Cl.³ G09F *1/12*
U.S. Cl. 40—152.1 **9 Claims**



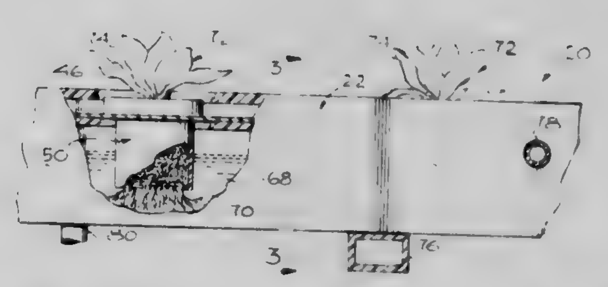
1. A display device supportable at a predetermined angle to a horizontal surface having a collapsible easel comprising:
a guide panel slidably engaging said display device;
a support panel having first and second edges, said first edge hinged to said guide panel; and
a stay panel having first and second edges, the first edge of said stay panel hinged to said second edge of said support panel and said second edge of said stay panel hinged to said display device.

4,379,374
RODENT TRAP
Donald C. Lindley, Irvine, Calif., assignor to Contectrol Incorporated, Costa Mesa, Calif.
Filed Aug. 11, 1980, Ser. No. 176,768
Int. Cl.³ A01M *23/18*
U.S. Cl. 43—61 **8 Claims**



1. A rodent trap comprising:
a base;
an enclosure including a top, a bottom, and a peripheral side wall that forms an end face with a doorway through it, hingedly mounted to said base for angularly tilting movement relative thereto, said enclosure being angularly movable between a ready position tilted relative to said base with the doorway open and a closed position closer to said base with the doorway closed, said hinged mounting being disposed adjacent to the end of said enclosure farthest removed from said end face;
closure means adapted at least partially to occlude said doorway when the enclosure is in said closed position;
latch means interposed between said enclosure and said base, adapted to hold said enclosure in said ready position, said latch means comprising a post rising from said base through the bottom of said enclosure to form a stop, a latch arm extending along the bottom of said enclosure movable to a first position on and a second position off of said stop to support said enclosure in said ready position and to allow it to lower to the said closed position, respectively, and bias means biasing said latch arm toward said first position; and
trigger means inside said enclosure adapted to receive a bait, said trigger means being linked to said latch arm to move said latch arm from its first to its second said position whereby to permit the enclosure to tilt downwardly to said closed position as a consequence of its weight plus the weight of the rodent, whereupon said closure means at least partially occludes said doorway, trapping the rodent and suffocating it, said trigger means comprising a shelf pivotally supported in said enclosure, and means connecting said trigger means to said latch arm.

4,379,375
HYDROPONIC GROWING SYSTEM AND METHOD
Steven K. Eisenberg, Simi, and Mark W. Hancock, Los Angeles, both of Calif., assignors to Whittaker Corporation, Los Angeles, Calif.
Filed Mar. 19, 1981, Ser. No. 245,557
Int. Cl.³ A01G *31/02*
U.S. Cl. 47—65 **17 Claims**



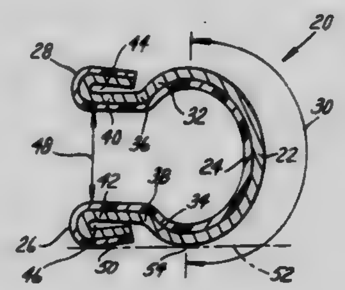
1. An improved hydroponic growing system, said system comprising, in combination:
a. an elongated hollow trough having substantially closed sidewalls and bottom and an open top defining a central space, said trough defining a pair of spaced horizontal tracks extending into said space along the length thereof;
b. an elongated flexible strip horizontally slideably disposed in said tracks and defining spaced apertures extending vertically therethrough along the length thereof;
c. a plurality of plant growing cups, each said cup comprising a hollow body having a central space, an open top, a porous bottom and substantially closed sidewalls, said sidewalls bearing peripherally outwardly extending support means, each of said cups being disposed in a different one of said apertures with said body extending downwardly into said trough space below said strip and with said cup support means releasably securing said cup to said strip.

4,379,376
UNIVERSAL EDGE GUARD
Robert Adell, Novi, Mich., assignor to U.S. Product Development Company, Novi, Mich.
Filed Nov. 23, 1981, Ser. No. 323,512
Int. Cl.³ B60J *5/00*
U.S. Cl. 49—462 **15 Claims**

1. In an edge guard of the type comprising a metal strip formed into a generally U-shaped cross section having inner and outer legs and beads at the distal ends of the legs via which

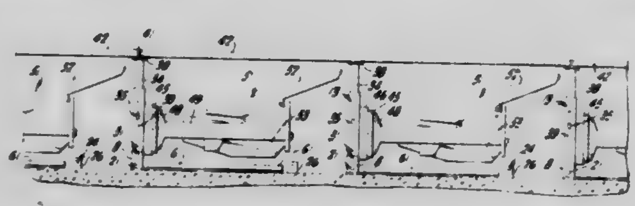
the edge guard is self-retained on the edge of an object when installed thereon, the improvement wherein the U-shaped cross section has a generally semi-circularly contoured base and includes inward offsets joining the ends of the base with each bead so that the beads are disposed in inwardly off-set relation to the diametrically opposite ends of the generally semi-circularly contoured base and including a pattern of notches spaced at intervals along the length of the inner leg, said notches extending from the distal end of the inner leg, along the inner leg, and into the generally semi-circular base.

4,379,377
EDGE GUARD
Robert Adell, Sunnyvale, Tex., assignor to U.S. Product Development Company, Novi, Mich.
Filed Nov. 23, 1981, Ser. No. 323,513
Int. Cl.³ B60J *5/00*
U.S. Cl. 49—462 **12 Claims**



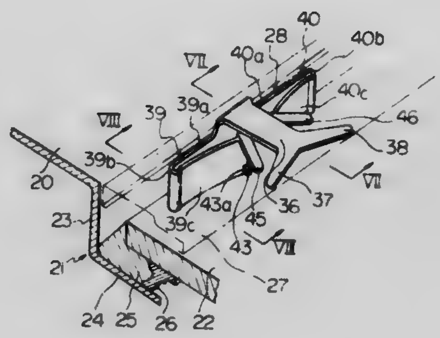
1. In an edge guard of the type comprising a metal strip formed into a generally U-shaped cross section having inner and outer legs and beads at the distal ends of the legs via which the edge guard is self-retained on the edge of an object when installed thereon, the improvement wherein the U-shaped cross section has a generally semi-circularly contoured base and includes inward offsets joining the ends of the base with each bead so that the beads are disposed in inwardly offset relation to the diametrically opposite ends of the generally semi-circularly contoured base.

4,379,378
AUDITORIUM CONVERTIBLE FLOOR
Norman C. McMahan, 3976 Black Oak Dr., Shingle Springs, Calif. 95682
Filed Apr. 6, 1981, Ser. No. 251,639
Int. Cl.³ E04N *3/12*
U.S. Cl. 52—9 **9 Claims**



1. An auditorium convertible floor comprising a sub-structure, a base on said sub-structure, a column, means for pivoting said column on said base to move relative to said base between a horizontal position and a vertical position, means for holding said column in said vertical position, a theatre chair having a frame movable between a horizontal position and a vertical position, means for securing said frame and said column together with said column extending above said theatre chair when said column is in said vertical position and said chair is in said horizontal position, a floor support, means for interconnecting said floor support and said column, and a floor section adapted to interengage said floor support.

4,379,379
DEVICE FOR FIXING A WINDOW MOLDING ONTO A WINDOWPANE
Ikuo Sengoku, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan
Filed Apr. 3, 1981, Ser. No. 250,679
Claims priority, application Japan, Nov. 5, 1980, 55-154570
Int. Cl.³ E04F *19/02*
U.S. Cl. 52—208 **18 Claims**



1. A windowpane assembly of a vehicle, which has a window molding and a windowpane arranged in an L-shaped cross-sectional fillister of a vehicle body, said fillister extending along an outer periphery of the windowpane and comprising a riser portion which extends inwardly from the vehicle body, and a bottom portion which extends substantially parallel to the vehicle body from an inner end of said riser portion, the windowpane being stuck onto the bottom portion by means of an adhesive material, a gap formed between the riser portion and the outer periphery of the windowpane being covered by the window molding which has a substantially C-shaped cross-section, said device having a molding clip inserted into the gap for fixing the window molding onto the windowpane, said molding clip comprising:

a holding portion engageable with the C-shaped cross-section of said window molding;

a central base portion connected to said holding portion and extending substantially perpendicular to said holding portion towards the bottom portion of said fillister;

a pair of V-shaped elastic wings intended to resiliently abut against the outer periphery of said windowpane within said gap and extending outwardly from said central base portion in opposite directions, each of said elastic wings comprising a first wing portion which extends outwardly from said central base portion along the riser portion of said fillister and has an outermost end, and a second wing portion which extends inwardly from said outermost end;

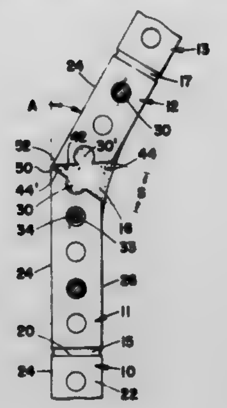
latch means arranged on said second wing portions and being engageable with said central base portion for maintaining said elastic wings in a compressed state to accumulate the elastic force of said elastic wings, and;

disengaging means for disengaging said latch means from said central base portion and causing said elastic wings to resiliently abut against the outer periphery of said windowpane.

4,379,380
METHOD OF CONSTRUCTING ANGLED BRICK PANELS
William H. Vetovitz, 8174 Strongsville Blvd., Strongsville, Ohio 44136
Filed Feb. 2, 1981, Ser. No. 230,318
Int. Cl.³ E04B *1/54*
U.S. Cl. 52—259 **12 Claims**

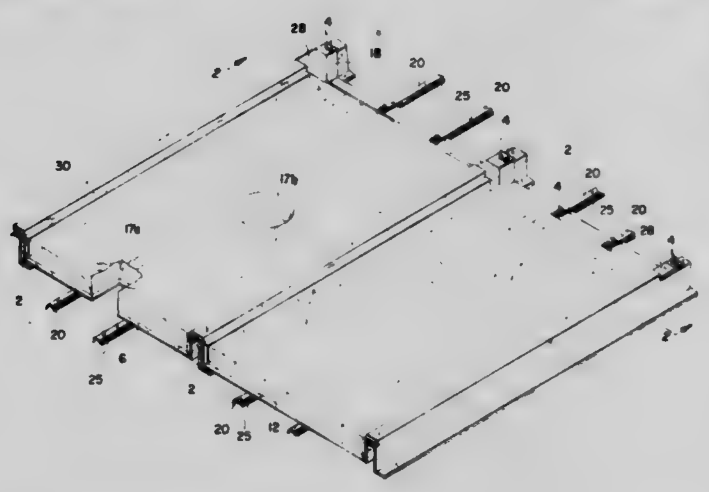
1. A method of joining a pair of bricks so as to have outer surfaces disposed at a predetermined surface angle to each other comprising the steps of: beveling the end of at least one of the bricks at an angle such that when said bricks are positioned relative to each other at the predetermined angle with the outer corners in contact, the inner corners will be spaced a

distance of approximately 1½ to 2½ inches with the maximum bevel angle on any one brick not exceeding about 55°; positioning said bricks with their outer surfaces disposed at said prede-



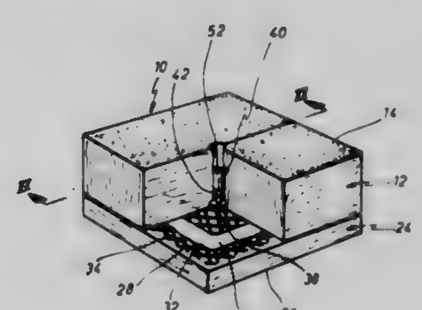
termined angle facing downwardly with their outer corners in abutting engagement to define an upwardly facing V-shaped notch; filling said V-shaped notch with a cement; and allowing said cement to harden.

4,379,381
ROOF INSULATION SYSTEM
J. L. Holcombe, Dallas, Tex., assignor to Emerson H. Mizell, Atlanta, Ga.
Filed Jun. 5, 1980, Ser. No. 156,606
Int. Cl.^{3} E04B *2/28, 2/60;* **E04F** *21/00*
U.S. Cl. 52—404 **7 Claims**



1. An insulation system comprising:
(a) spaced roof joists having length and side and top surfaces;
(b) support structures located between and supported by said roof joists;
(c) a semi-rigid insulation blanket overlying said support structures and said roof joists;
(d) said semi-rigid insulation blanket having front, back and side surfaces and length and width;
(e) said semi-rigid insulation blanket having a vapor barrier on said back surface and between said support structure and said insulation blanket;
(f) said semi-rigid insulation blanket having a series of predetermined recesses cut into said front surface;
(g) said predetermined recesses providing hinges for laying said insulating blanket over said support structure and roof joists;
(h) approximately U-shaped trough areas formed by said insulation blanket between some of said predetermined recesses;
(i) a series of said blankets in side-by-side relationship with the widths of said blankets running approximately parallel to the lengths of said roof joists;
(j) insulation material contained within and generally filling said trough areas;
(k) said support structure including main support brackets and longitudinal support brackets;
(l) said main support brackets being generally U-shaped and having base, side and flange portions;
(m) said base of said support bracket being positioned between and transverse to said roof purlins;
(n) said side portions extending vertically upward from said base of said support bracket;
(o) said flange portions being attached to the upper end of said sides and being connected to said roof purlins;
(p) said base of said main support bracket having length, two sides and a downwardly projecting stacking flange on both sides and running the length of said base;
(q) said longitudinal support brackets being of one continuous piece and having length, two sides and two edges;
(r) said two ends of said longitudinal support bracket having connecting means;
(s) said longitudinal support brackets having downwardly projecting stacking flanges on both sides and running almost the length of said longitudinal support bracket; and,
(t) said longitudinal support brackets being connected to said base of said main support brackets and being generally parallel to the length of said roof joists.

4,379,382
METHOD AND APPARATUS FOR INSULATING A FURNACE HAVING A CORROSIVE ATMOSPHERE
Robert A. Sauder, Emporia, Kans., assignor to Sauder Industries, Inc., Emporia, Kans.
Filed Jun. 2, 1980, Ser. No. 155,173
Int. Cl.^{3} F27D *1/00;* **C04B** *43/02;* **B23P** *21/00;* **E04B** *1/80*
U.S. Cl. 52—506 **19 Claims**



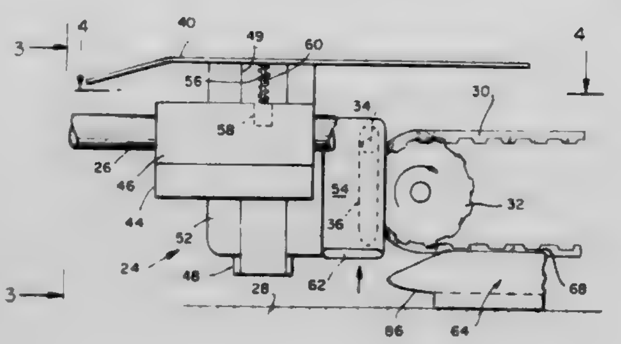
1. A high temperature insulation module for use in a chamber containing a corrosive atmosphere, comprising:
a first ceramic fiber mat, the first mat having a hot face adapted for exposure to the interior of a high temperature chamber, the first mat having a thickness, the first mat having a rear face generally opposite from the hot face;
a support member, the support member being disposed against the rear face of the first mat, the support member being displaced from the hot face of the first mat by at least the thickness of the first mat to protect the support member from excessive heat;
a second ceramic fiber mat, the second mat having a front face disposed against the support member, the second mat having a thickness, the second mat having a cold face generally opposite from the front face, the second mat being adapted to maintain the support member in a region displaced from the cold face by at least the thickness of the second mat; and,
the first mat, the support member and the second mat forming a module, the support member being positioned between the first mat and the second mat and being displaced from the cold face in a zone of the module where the temperature at the zone during operation of the chamber will generally be too high for corrosive gases and water vapor to condense.

4,379,383

INSERTER WITH IMPROVED RAM MECHANISM

William Adamoski, Stamford, and Alan B. Hotchkiss, Westport, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Sep. 11, 1980, Ser. No. 185,856
Int. Cl.³ B65B 5/04, 35/20
U.S. Cl. 53—266 A 2 Claims



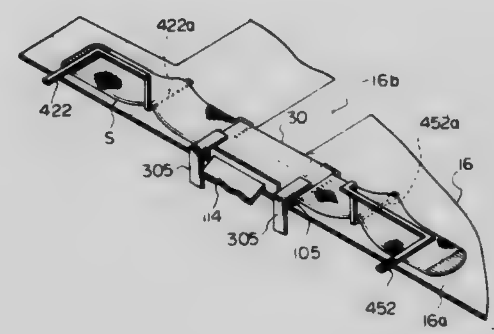
1. In an envelope inserter having an enclosure pick-up station, means for delivering enclosures to the pick-up station, an envelope station, means for delivering envelopes to the envelope station, ram means including a ram blade and a ram block, means for moving the ram means from a home station in front of the pick-up station to the envelope station on a forward stroke and back to the home station on a return stroke, the moving means including guide means and drive means, the improvement comprising: means for returning said ram means in a path which extends in a plane other than the plane of the forward stroke and other than that of the pick-up station, said returning means including means interconnecting the ram block and guide means, the interconnecting means including a carriage, said returning means including means securing the ram block to the carriage for vertical movement relative to the carriage, the means securing the ram block to the carriage for vertical movement including means forming a sliding dovetail engagement between the ram block and the carriage and including a spring for urging the ram blade to an uppermost elevation relative to the carriage, the guide means extending between the home station and the envelope station at a fixed elevation, said ram block having a portion thereof extending towards the drive means, said portion having a slot formed therein, said drive means including a pin extending into said slot and engaging said portion for forward and return movement of the ram means, said pin limiting vertical movement of the ram block, said portion having follower means extending therefrom, camming means mounted along the path of said ram means for engagement by the follower means, the camming means including a first camming surface, the follower means engaging the first camming surface on the forward stroke, the camming means including a second camming surface, the second camming surface being at an elevation below that of the first camming surface, the follower means engaging the second camming surface during the return stroke, means guiding the follower means between the first and second camming surfaces, the follower guiding means comprising a latch hinged to the camming means and extending forwardly thereof, the follower means engaging the upper surface of the latch on the forward stroke, the follower means being disengaged from the latch when the ram means is at the envelope station, the latch varying its position in response to disengagement of the follower means, and the follower means engaging the undersurface of the latch and being cammed thereby into engagement with the second camming surface on the return stroke, whereby a successive enclosure may be loaded into the pick-up station prior to the completion of the return stroke.

4,379,384

METHOD AND APPARATUS FOR AUTOMATICALLY PACKAGING STOCKINGS

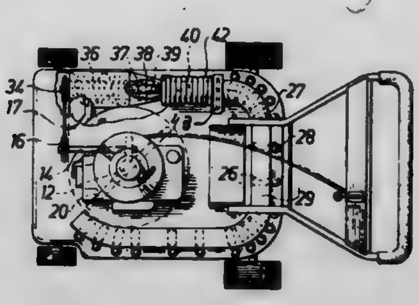
Masao Nishikawa, Nara, Japan, assignor to Takatori Machinery Works Ltd., Japan

Filed Sep. 10, 1980, Ser. No. 185,630
Claims priority, application Japan, Sep. 12, 1979, 54-117585; Oct. 11, 1979, 54-132213; Jun. 7, 1980, 55-76937
Int. Cl.³ B65B 9/08, 63/04
U.S. Cl. 53—415 12 Claims



1. A method for automatically packaging stockings using an apparatus having a setting station arranged adjacent one side of an operation table and an enclosing station arranged on said operation table at a position downstream to and substantially coplanar with said setting station, said method comprising the steps of receiving at said setting station a pair of stockings on a horizontal transfer plate of a transfer assembly arranged on said operation table and provided with a transfer gripping plate; delivering an insert from a supply thereof using an insert feeding assembly arranged on said operation table facing said setting station and feeding same onto said stockings at a position overlying said transfer plate; provisionally fixing at said setting station the position of said stockings and insert relative to said transfer plate using an insert gripping plate of an insert gripping assembly arranged adjacent to said transfer assembly; concurrently folding waist and toe end sections of said stockings around said insert being gripped by said insert gripping plate using a stockings folding assembly arranged on said operation table facing said setting station; feeding an envelope to said enclosing station using an envelope feeding assembly arranged on said operation table; transferring said stocking with said insert to a conveyor assembly by horizontally reciprocating said transfer assembly between said setting station and the upstream terminal of said conveyor assembly; conveying said stockings folded around said insert towards said enclosing station using said conveyor assembly arranged on said operation table and provided with a conveyor gripping plate; enclosing said stockings with said insert in said envelope using a stockings enclosing assembly arranged on said operation table facing said enclosing station and provided with an encloser for gripping said stockings folded around said insert; said step of transferring said stockings with said insert to said conveyor assembly is accomplished by said transfer gripping plate taking over the gripping of said stockings and insert from said insert gripping plate and said conveyor gripping plate taking over the gripping of said stockings and insert from said transfer gripping plate; and conveying said stockings and said insert to said stocking enclosing assembly by said encloser taking over the gripping of said stockings and insert from said conveyor gripping plate so that said stockings and insert are continuously gripped while being transferred from said setting station to said enclosing station.

4,379,385
COMPACTION APPARATUS FOR USE WITH LAWN GROOMING EQUIPMENT
Ulf Reinhall, 834 171st Pl., NE., Bellevue, Wash. 98008
Filed May 20, 1981, Ser. No. 265,645
Claims priority, application Sweden, Oct. 6, 1980, 8006979
Int. Cl.³ A01D *35/22*
U.S. Cl. 56—16.6 **12 Claims**



1. In lawn grooming equipment in which lawn grooming means are mounted within a main body adapted to be moved over the surface to be groomed, which grooming means are driven to generate a flow of refuse material picked up from the lawn into a compacting device connected to said main body, said compacting device comprising a conveyor which rotates within a housing to convey the refuse material from a material inlet end to a material outlet end therein, the improvement comprising:

(a) a conveyor housing surrounding a solid type compacting screw conveyor rotating therein to convey the refuse material while compressing it progressively therein as it is advanced through said housing from said material inlet to said material outlet end;

(b) perforations in the wall of said conveyor housing for evacuating accompanying air and moisture from the refuse material during the compression step; and

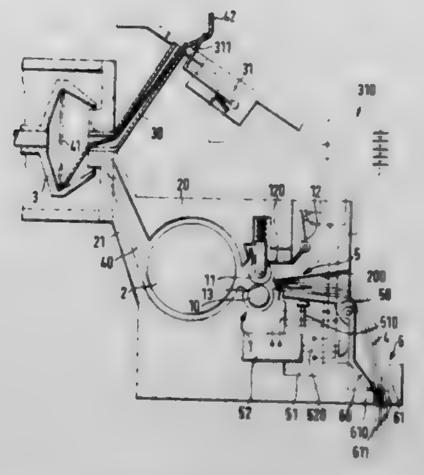
(c) a tubular casing extensibly connected to the outlet opening of said conveyor housing for receiving the initially compacted refuse material and allowing it to expand against the tubular wall thereof to plug one end thereof and thus cause the casing and the enclosed compacted refuse material to advance like a sausage from said outlet end under the force of the continuous advancement of refuse material from said conveyor housing.

4,379,386
APPARATUS FOR INTERRUPTING THE SLIVER SUPPLY IN OPEN-END SPINNING APPARATUS
Georg Goldammer, Gaimersheim, and Ludwig Schmitt, Manching, both of Fed. Rep. of Germany, assignors to Schubert & Salzer, Ingolstadt, Fed. Rep. of Germany
Filed Mar. 11, 1981, Ser. No. 242,645
Claims priority, application Fed. Rep. of Germany, Mar. 18, 1980, 3010303
Int. Cl.³ D01H *13/18, 7/882*
U.S. Cl. 57—405 **8 Claims**

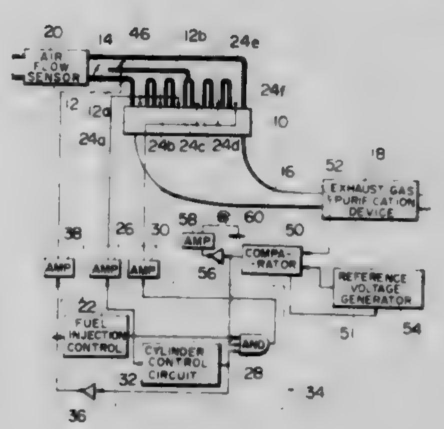
1. Apparatus for interrupting the sliver supply in an open-end spinning machine which includes an opening device, a sliver delivery device, a first sliver clamp associated with said sliver delivery device, means including a yarn monitor or a lap monitor when a supply roller continues to run for actuating said sliver clamp, comprising:

a second sliver clamp means actuatable simultaneously with said first sliver clamp for clamping said sliver;

said second sliver clamp means being arranged before said sliver delivery device in the transport direction at a distance which is at least as large as the average fiber staple length.



4,379,387
CYLINDER CONTROL SYSTEM FOR MULTICYLINDER COMBUSTION ENGINE
Haruhiko Iizuka, and Fukashi Sugasawa, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan
Filed Nov. 21, 1979, Ser. No. 96,460
Claims priority, application Japan, Dec. 6, 1978, 53-151444
Int. Cl.³ F01N *3/20;* **F02D** *17/00*
U.S. Cl. 60—277 **6 Claims**



1. A cylinder control system for a multicylinder internal combustion engine with an exhaust gas purification device for purifying the exhaust from the cylinders, the cylinders forming at least a first and a second group of cylinders, each of the groups having at least one fuel injection valve controlled independently of the fuel injection valves for other groups, the air supply to the first group being controlled by a first throttle valve, the air supply to the second group being controlled by the first and second throttle valves, the cylinder control system comprising:

(a) air flow sensor means for measuring the air flow through the first throttle valve and generating an air flow signal indicative thereof;

(b) Fuel injection control circuit means responsive to said air flow signal to generate a fuel injection signal indicative of a quantity of fuel to be injected;

(c) cylinder control circuit means responsive to said fuel injection signal to generate a control signal when said fuel injection signal falls below a predetermined value, said second throttle responding to said control signal to interrupt the supply of air to the second group;

(d) detector means for sensing the temperature of the exhaust purification device and generating a first signal indicative thereof;

(e) comparator means for comparing said first signal to a first

reference value representative of a predetermined temperature value above which the purification device may be damaged by heat and for generating a second signal when said first signal exceeds said first reference value; and

(f) gate means responsive to said control signal and the absence of said second signal for gating said fuel injection signal to said at least one fuel injection valve of said second cylinder group.

4,379,388

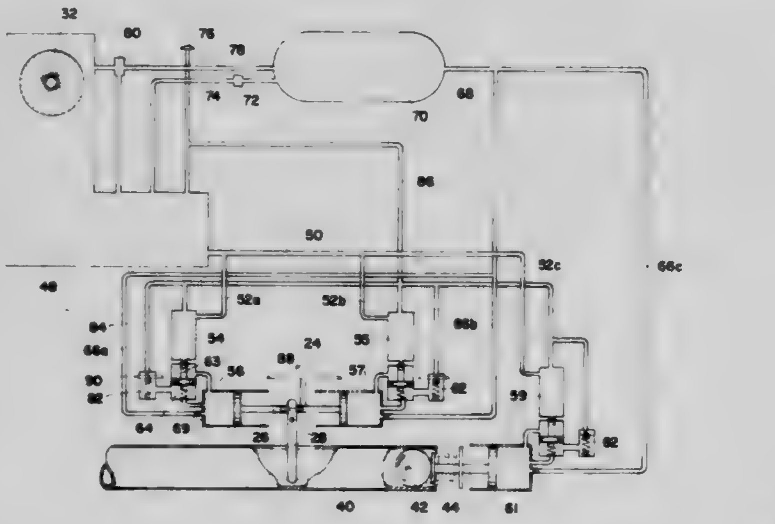
OCEAN RAFT ENERGY GENERATOR

Byrl L. Williamson, and Betty Williamson, both of c/o Good Sam Club P.O. Box 404, Agoura, Calif. 91301

Filed Mar. 27, 1981, Ser. No. 248,514

Int. Cl.³ F16D *31/02*

U.S. Cl. 60—398 **6 Claims**



1. A system for generating energy comprising:

a hollow flotation raft;

at least one raceway of arcuate cross-section in said raft;

a heavy metal ball in each said raceway to roll therealong in either direction in response to movement of said raft on the sea;

a hydraulic system; and

a prime mover driven by pressurized liquid in said hydraulic system;

said hydraulic system comprising:

at least one pair of aligned cylinders along each raceway disposed with their heads at opposite ends;

a pair of pistons slidable in said cylinder;

a push rod interconnecting said pistons;

a pivoted lever connected to said push rod and extending into the path of travel with a ball on said raceway so that engagement of said lever by said ball rolling in opposite directions will reciprocate said interconnected pistons;

a pressure tank;

supply conduits connected between the closed ends of said cylinders and said pressure tanks;

a delivery conduit opening from said pressure tank for delivery of pressurized fluid to said prime mover;

a reservoir for hydraulic fluid positioned above said cylinders;

an accumulator chamber connected between said reservoir and each of said cylinders to ensure a ready supply of fluid thereto; and

a float-operated, one-way check valve below said chamber and above said cylinder to open for flow to said cylinder in the event of any fluid insufficiency therein;

a vent line connecting the head of each said cylinder to atmosphere;

a valve member normally closing off said vent line; and

means on said push rod for opening said valve member at the end of a pressure stroke of each piston.

4,379,389

HORSEPOWER CONSUMPTION CONTROL FOR VARIABLE DISPLACEMENT PUMPS

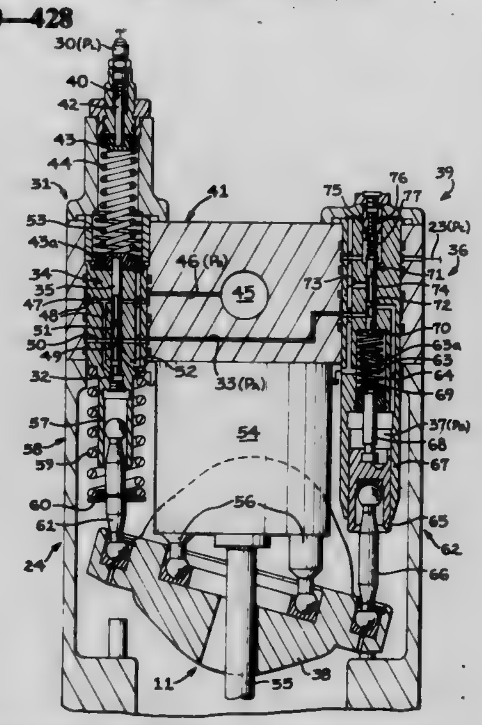
Kenneth P. Liesener, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/01194, § 371 Date Sep. 12, 1980, § 102(e) Date Sep. 12, 1980, PCT Pub. No. WO82/01046, PCT Pub Date Apr. 1, 1982

This PCT application filed Sep. 12, 1980, Ser. No. 261,098

Int. Cl.³ F16D *31/02*

U.S. Cl. 60—428 **6 Claims**



6. A fluid circuit (10) having a plurality of fluid motors (13), a variable displacement pump (11) having a discharge pressure (P_D), connected to each of said motors (13) and including a control member (38) movable between first and second displacement positions, first biasing means (58) for urging said control member (38) towards its first displacement position, second biasing means (62) for urging said control member (38) towards its second displacement position in response to an actuator pressure signal (P_A) communicated thereto from said pump (11), and means (34) for modulating said actuator pressure signal (P_A) in response to variations in a load pressure signal (P_L) communicated thereto from a respective one of said fluid motors (13) during a predetermined range of horsepower consumption of said pump (11), horsepower limiting means (39) for blocking communication of said actuator pressure signal (P_A) with said second biasing means (62) and for venting said actuator pressure signal (P_A) from said second biasing means (62) in response to a pressure control signal (P_C) which is responsive to said pump discharge pressure (P_D) indicating that said pump (11) has exceeded said predetermined range of horsepower consumption and summing means (22) for modulating said pressure control signal (P_C) in response to the average fluid discharge pressures (P_D) of said pumps (11).

4,379,390

ICE-MAKING EVAPORATOR

Edward W. Bottum, 9357 Spencer Rd., Brighton, Mich. 48116

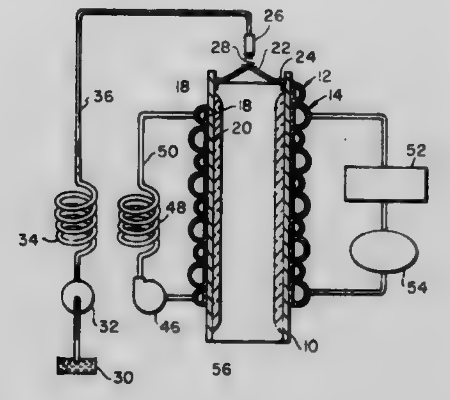
Filed Feb. 28, 1977, Ser. No. 772,539

Int. Cl.³ F25C *5/08*

U.S. Cl. 62—354 **2 Claims**

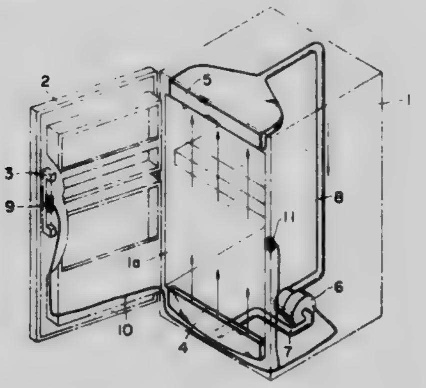
1. An ice-making evaporator comprising an elongated hollow tubular member having an outer surface and inner surface and having a bottom end and a top end wherein the bottom end is adapted to be installed lower than the top end, said bottom end of the tubular member being completely open, a baffle covering part of the top end of the hollow tubular member for directing water passed into the top end of the tubular member toward the sides thereof and permitting free flow of water through the baffle to the sides of the tubular member from the top end thereof toward the bottom end thereof on the inner surface thereof, a relatively soft metallic helical tubular coil for

the member, said coil having flattened surface portions of substantial area fluid-pressure expanded in pressure contact with the outer surface of the tubular member, one end of the coil being a fluid inlet and the other end of the coil being a fluid outlet, whereby water sprayed onto the baffle at the upper end of the hollow tubular member may be frozen as it progresses from the top end of the tubular member toward the bottom end of the tubular member for subsequent removal from the bottom end of the tubular member as ice, the coil having a plurality of convolutions in spaced apart relation axially of the hollow



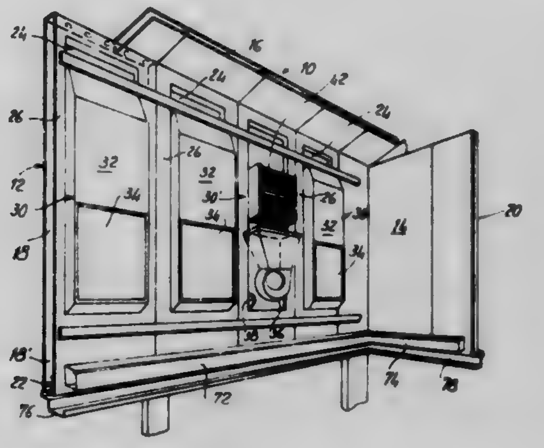
tubular member, and further including a second helical tubular coil having convolutions alternating with that of the first tubular coil, which second coil also has flattened surface portions of substantially fluid pressure expanded in pressure contact with the tubular member with one end portion of the second coil also being a fluid inlet and the other end of the second coil being a fluid outlet whereby ice formed on the inner surface of the hollow tubular member may be released therefrom for subsequent removal from the bottom end of the tubular member by gravity on passing of a heated substance through said second coil.

4,379,391
REFRIGERATOR
Jae W. Rhee, 369-7 Sukyo-Dong, Mapo-ku, Seoul, Rep. of Korea
Filed Jun. 4, 1981, Ser. No. 270,353
Claims priority, application Rep. of Korea, Jun. 5, 1980, 3614/80
Int. Cl.³ F25D *17/04*
U.S. Cl. 62—408 **4 Claims**



1. A refrigerator comprising a refrigerator body, a door fitted to said refrigerator body so as to be able to be opened and closed, at least one set of an air jetting port and air sucking port provided opposed to each other in the opening of the refrigerator body to form an air curtain in said opening when said door is opened, a blower arranged within said body and connected on the blowing side to said air jetting port and on the second side to said air sucking port, a normally open first switch means fitted to the handle of said door and closed to start said blower when said handle is gripped by a hand to open said door, and a second switch means fitted to said body and connected in parallel with said first switch and closed to drive said blower when said door is opened.

4,379,392
APPARATUS FOR STEAMING PRINTED FABRICS
Sergio Centis, Gerenzano, Italy, assignor to Arioli & C.S.r.l., Gerenzano, Italy
Filed Sep. 24, 1980, Ser. No. 190,213
Claims priority, application Italy, Oct. 1, 1979, 26160 A/79
Int. Cl.³ D06B *3/30*
U.S. Cl. 68—5 C **11 Claims**



1. In an apparatus for treating printed fabrics in which air is circulated and at least a portion of the circulating air circulates between intermediate levels with respect to the height of the treating chamber, the improvement which comprises a double wall static structure, constituting the treating environment, said structure defining in the interior thereof a chamber opened at the bottom, having a saddle roof (10), double vertical side walls (12) and double vertical front wall (14), gaps formed by said double walls (16, 18, 20), perforated ducts (22) for emitting steam into a water pool at the base of said gaps in the vertical side walls and vertical front walls to the top of said chamber under said saddle roof, ports (28) in said saddle roof for introducing said steam from the top to the bottom into said treating environment, at least one operating assembly located in at least a portion of the side walls of the static structure, means for introducing air at the base of said operating assembly, said operating assembly including mechanical means effective to cause the air to circulate through a circuit looped through said operating assembly, said assembly including radiator means (42) for applying thermal energy to the air circulating through said circuit, and a supply system adapted to supply selectively liquid and/or gaseous substances and power means effective to supply said radiator means with thermal energy, said supply system being effective to be put in an operative or inoperative position to selectively set said apparatus to operate, by saturated steam or superheated steam, or by hot air.

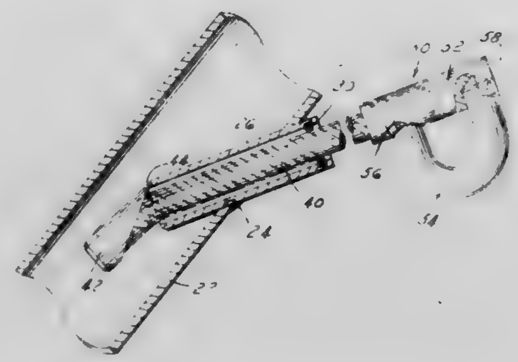
4,379,393
LOCK FOR OPEN FRAME VEHICLES
Roger A. Schott, Redford, and Lawrence A. Schott, Detroit, both of Mich., assignors to Freedom Industries, Inc., Redford, Mich.
Filed Mar. 16, 1981, Ser. No. 243,997
Int. Cl.³ B62H *5/00;* **E05B** *71/00, 73/00;* **F16G** *11/00*
U.S. Cl. 70—234 **1 Claim**

1. In a cable lock system for tubular frame vehicles such as bicycles and motorcycles and for other tubular frame devices wherein a lock cable is stored in a hollow frame tube and capable of being withdrawn to lock the vehicle to a post or similar stationary member, that improvement which comprises:

(a) an entrance tube passing through and affixed to a wall of a hollow frame member and extending partway into said member, and

(b) a cable of relatively stiff resilient material dimensioned to

pass through said entrance tube and having an entrance end permanently bent at an angle relative to the general lineal line of said cable, a stop tube on the bent portion of the entrance end of said cable also dimensioned to pass through said entrance tube having a projecting portion extending away from the entrance end of said cable to project beyond the normal radial dimension of said cable,



said cable being flexible enough to permit straightening for inserting said stop tube and said cable through said entrance tube, whereby when through said tube said cable end will assume the bent position and thrust said projecting portion of said stop tube outwardly to block reverse motion of said entrance end of said cable out of said entrance tube.

4,379,394
KEY HOLDER

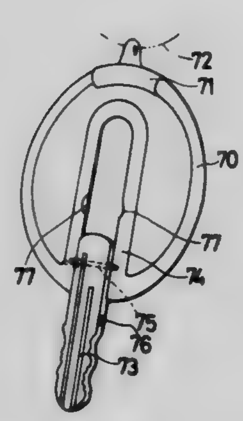
Minoru Toyoda, Nagoya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Division of Ser. No. 68,568, Sep. 8, 1979. This application Dec. 5, 1980, Ser. No. 213,565

Claims priority, application Japan, Sep. 8, 1978, 53-110845; Feb. 6, 1979, 54-13025; Feb. 6, 1979, 54-13026; Feb. 6, 1979, 54-13027; Feb. 6, 1979, 54-13028; Feb. 6, 1979, 54-13029

Int. Cl.³ A47G *29/10*

U.S. Cl. 70—456 R **7 Claims**



1. A pendant type key holder comprising:

a body having supported lugs including concave portions, said body and supporting lugs extending in a single plane;

a key having opposite side portions and being pivotably mounted on said body and rotatable out of said plane between an operating position in which the key is disposed in said plane and outside said body and a non-operating position in which the key is in said plane and is housed within said lugs of said body;

said key further comprises stopper means attached to at least one of said opposite side portions and adapted to pressure engage with said concave portions to thereby maintain the key at the non-operating position thereof;

whereby the key can freely rotate except when said concave portions engage said stopper means in the non-operating position.

4,379,395
INTERSTAND TENSION CONTROL SYSTEM AND METHOD FOR TANDEM ROLLING MILL

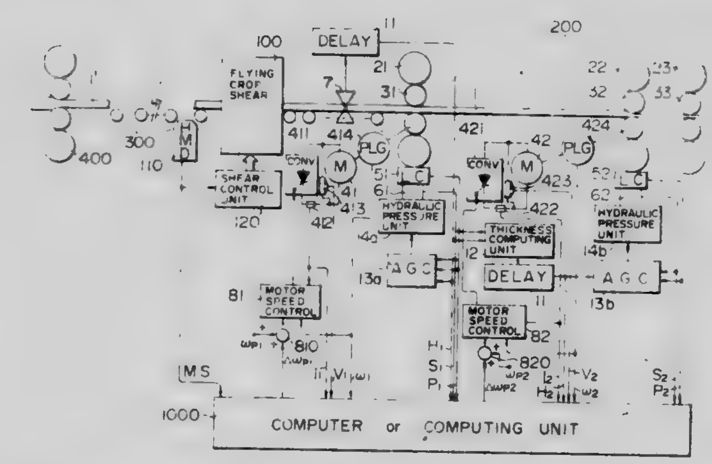
Seizi Konishi; Kazuyuki Tashiro, both of Kitakyushu; Yoshihiro Kamigane, Hitachi; Takakazu Sakurai, Mito; Shinya Tanifuji, and Yasuo Morooka, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 13, 1981, Ser. No. 234,405

Claims priority, application Japan, Feb. 20, 1980, 55-19091

Int. Cl.³ B21B *37/06*

U.S. Cl. 72—8 **14 Claims**



1. An interstand tension control system for a tandem rolling mill including a plurality of rolling stands and a shear means disposed upstream of the tandem rolling mill, for cutting the leading and trailing ends of a workpiece, said system comprising means for detecting process data required for a computation of interstand tension imparted to a workpiece being rolled by the tandem rolling mill, computing means for computing the interstand tension on the basis of the outputs from said process data detecting means thereby generating an interstand tension control signal for cancelling a deviation of the computed interstand tension from a desired value, interstand tension regulating means for regulating the interstand tension at the desired value on the basis of the interstand tension control signal generated from said computing means, means for producing a hold timing signal covering the operating period of said shear means by estimating or directly detecting an operating period of said shear, and means for inhibiting the interstand tension control on the basis of said detected process data during the operating period of said shear.

4,379,396
OPERATION OF A MULTI-STAND HOT ROLLING MILL

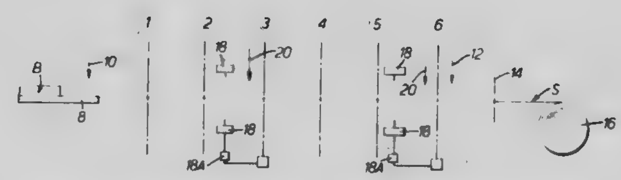
Thomas Hope, Doncaster, and Ewan C. Hewitt, Sheffield, both of England, assignors to Davy-Loewy Limited, Sheffield, England

Filed Aug. 14, 1980, Ser. No. 178,003

Claims priority, application United Kingdom, Aug. 14, 1979, 7928222

Int. Cl.³ B21B *37/08, 37/10, 45/02*

U.S. Cl. 72—13 **9 Claims**



1. A method of operating a multi-stand hot rolling mill for rolling metal strip, comprising the steps of:

rotating the rolls of the stands of said rolling mill at a rela-

tively slow rate of speed so as to thread the head end of a hot metal workpiece through said rolling mill stands;

determining and adjusting the rolling load at each of said stands during said threading operation so as to obtain the required desired output gauge of said strip and the required desired shape of said strip at the last stand, and to predetermine the rolling temperature at said last stand;

rotating said rolls of said stands of said rolling mill at a speed faster than that of said threading speed for rolling said workpiece through said mill;

providing coolant means for said workpiece at one or more interstand locations for cooling said workpiece during said rolling operation;

determining the rolling load at each of the next stands downstream from said one or more interstand coolant application locations during said higher-speed rolling operation and comparing said high-speed rolling operation load values with said low-speed threading operation load values; and

controlling the quantity of coolant applied to said workpiece at each of said coolant interstand locations as a function of, and in response to, the differential between said high-speed and low-speed load values such that said rolling load at each of said downstream stands during said rolling operation remains substantially the same as said rolling load at each of said stands as determined during said threading operation, and the rolling temperature at said last stand remains substantially at said predetermined temperature level.

4,379,397

APPARATUS HAVING SHAPING JAWS FOR MANUFACTURING BODIES OF SPINDLE-TYPE SHAPES

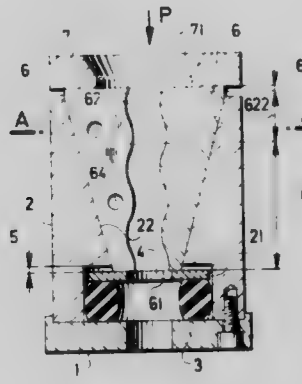
Oldrich Langr, Olomouc, Czechoslovakia, assignor to Sigma concern, Olomouc, Czechoslovakia

Continuation-in-part of Ser. No. 72,469, Sep. 4, 1979, abandoned. This application Sep. 4, 1981, Ser. No. 299,586

Claims priority, application Czechoslovakia, Sep. 1, 1978, 5661-78; Sep. 4, 1978, 5714-78

Int. Cl.³ B21K *1/12*

U.S. Cl. 72—95 **2 Claims**



1. Apparatus for manufacturing spindle-type bodies of circular cross-section from a tubular semi-product, said apparatus comprising at least three shaping jaws which are periodically pressed together and apart in the direction transverse to the longitudinal axis of the manufactured body, said shaping jaws forming a continuous passage having an inlet part, a shaping part and a calibrating part, the shaping part being formed as a cavity of circular cross-section the center of which lies at the inlet of the shaping part and coincides with the axis of the inlet part, the center, which trails the calibrating part, lying on a spiral the lead of which corresponds to the lead of the manufactured body, the eccentricity of the spiral increasing along the whole length of the shaping part continuously from zero to the value corresponding to the eccentricity of the spindle of the manufactured body.

4,379,398

PULL-BACK TYPE INDIRECT EXTRUSION PRESS

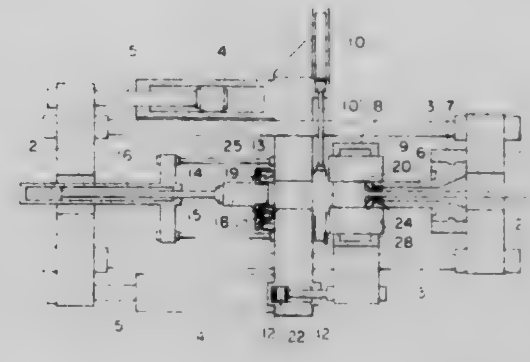
Akira Asari, Osaka; Tatsuhiko Noyori, Kobe, and Tetsuro Takehata, Osaka, all of Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed Jun. 9, 1981, Ser. No. 272,019

Claims priority, application Japan, Jun. 12, 1980, 55-80779; Jun. 12, 1980, 55-83608[U]

Int. Cl.³ B21C *29/00, 33/00, 35/04, 23/21*

U.S. Cl. 72—273.5 **3 Claims**



1. A pull-back type indirect extrusion press comprising:

a fixed platen;

a plurality of tie rods;

a first and second movable platen opposed to each other on opposite sides of said fixed platen connected together by said plurality of tie rods;

a main cylinder device provided on said fixed platen for driving said first and second movable platens, wherein a space defined between said first movable platen and said fixed platen serves as a billet zone, while a space defined between the second movable platen and said fixed platen serves as an extrusion zone having a container therein;

a scalping member disposed in said billet zone wherein a scalped-billet standby space formed in said billet zone and extends into the fixed platen; and

a movable closure member diposed in said extrusion zone and between said fixed platen and said container.

4,379,399

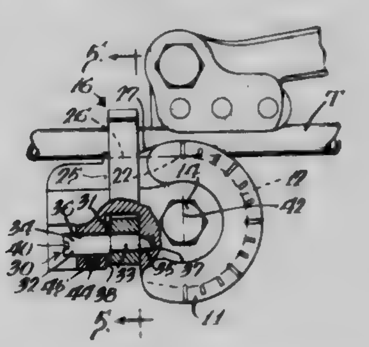
TUBE BENDER CONSTRUCTION

Leonard J. Kowal, Prospect Heights, Ill., assignor to Imperial Clevite Inc., Rolling Meadows, Ill.

Filed Jan. 30, 1981, Ser. No. 229,863

Int. Cl.³ B21D *9/05*

U.S. Cl. 72—388 **15 Claims**



1. In a manually operable tube bender having a mandrel defining a tube-receiving bending groove extending arcuately about a bend axis, and a forming member mounted to said mandrel to swing about said bend axis for urging a tube to be bent into said bending groove, improved means for holding the tube against longitudinal and rotational displacement in said bending groove during a tube bending operation, said tube holding means comprising:

means for supporting a portion of the tube in a clamping space adjacent the mandrel;

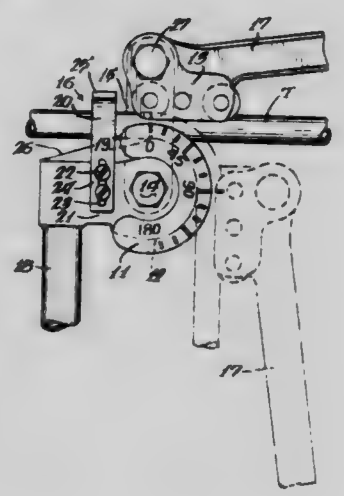
a clamp member;

means for mounting the clamp member for pivotal move-

ment into and from engagement with a tube supported by said supporting means in said clamping space to clamp the tube to the supporting means; and

adjustable means for providing a selective infinite adjustment of the pivotal mounting means to adjust the disposition of the clamp member in the tube engagement disposition between maximum and minimum disposition wherein the clamp member is in engagement with the tube for adjusting the clamping force applied by said clamp member to the tube.

4,379,400
TUBE BENDER CONSTRUCTION
Albert J. Schwarz, Lincolnwood, Ill., assignor to Imperial Clevite Inc., Rolling Meadows, Ill.
Filed Jan. 30, 1981, Ser. No. 229,864
Int. Cl.³ B21D *9/05*
U.S. Cl. 72—388 **9 Claims**



1. In a tube bender having a mandrel defining a bending groove extending arcuately in a first direction from a bend start point, a tube retaining space adjacent said bend start point in a second direction opposite said first direction, and forming means swingable about the mandrel for urging a tube to be bent progressively into the bending groove, improved means for holding the tube against longitudinal displacement during a bending operation comprising:

a tube holding member having a tube engaging portion and a mounting portion; and

slidable lockable means for mounting the tube holding member in association with the mandrel with the tube engaging portion being position in a selected one of a plurality of infinitely different fixed positions transversely to a tangent to said bending groove at said bend start point extending through said tube retaining space for urging a tube portion, engaged by the tube holding member and extending from said bend start point to said tube retaining space, infinitely adjustably pivotally about the mandrel at said bend start point to an angular disposition accurately tangential to the bending groove at said bend start point.

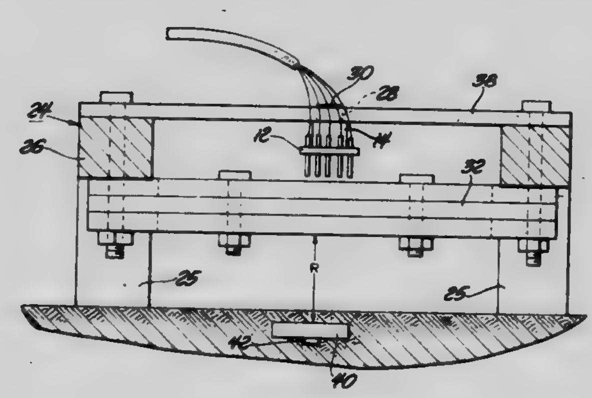
4,379,401
SYSTEM FOR MEASURING PLATE DEFORMATION PRODUCED BY EXPLOSIVE SHOCK WAVES, AND MOTION-SENSING ACCELEROMETER TRANSDUCER USED THEREIN
Anthony San Miguel, Leucadia, Calif., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Aug. 28, 1981, Ser. No. 297,294
Int. Cl.³ G01N *33/20, 33/22, 3/30*
U.S. Cl. 73—12 **17 Claims**

1. A system embodying novel, motion-sensing accelerometer transducer means for measuring exceptionally high force levels in the domain of from about 1,000,000 to 10,000,000 Gs and also for facilitating measuring structural deformation and average velocity of such deformation of normally high strength structural panel means having planar surfaces, such as steel armor plate and the like as used on military tanks and other armored vehicles which are subject to close-by detonation of high energy explosive charges, such as land mines and the like, said system comprising in combination:

a. selectively closeable and openable, principal electrical circuit means for measuring and obtaining evaluating data for computing desired measurements, said principal circuit means including wire conductor cable means with means for selectively connecting said cable means with a source of d.c. electrical current;

b. said circuit means also including conductor cable terminal means adaptable to be connected to said structural means as a negative ground portion of said circuit;

c. novel, motion-sensing accelerometer transducer means having body means, a plurality of metallic pin-like contact probes supported by said body means, said probes having respective first ends projecting freely from said body means so that said free ends are closely adjacent but at relatively slightly different distances from said planar surface of a structure whose deformation is to be sensed and measured, said first-end-spacings from said surface being such as to have at least two of said probe ends potentially contactable by the deforming surface;



d. means for supporting said transducer means in a position closely adjacent the structural planar surface to be subjected to deformation;

e. said principal electrical circuit means further including a plurality of electrical probe conductor wires each connected at one end respectively with a separate portion of said respective probes which separate portion is remote from said first free ends thereof, said probe conductor wires forming plural in-parallel subcircuits for each probe and respectively connected in said principal circuit means to be potentially activated by said electrical power source and plate-to-pin contact closure of the subcircuit;

f. each of said in-parallel subcircuits including a resistance capacitor and fast-response electrical data measuring and recording means connected in series between said probe and said principal circuit conductor cable ahead of said means for selectively connecting it with the power source;

g. whereby at least two of said in-parallel subcircuits are adapted to be closed when a said deformable structural surface is blast force deformed so as to make at least brief said electrical plate-to-pin contact with said corresponding at least two probes, and whereby the respective resistance capacitor is discharged to thereby instantaneously generate signal data for reading by display on said data measuring and recording means.

4,379,402

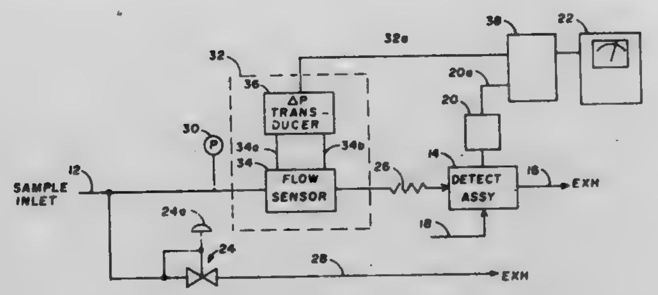
GAS ANALYSIS INSTRUMENT HAVING FLOW RATE COMPENSATION

John N. Harman, III, Placentia, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Jan. 22, 1981, Ser. No. 227,332

Int. Cl.³ G01N *31/00*

U.S. Cl. 73—23 **16 Claims**



1. In a gas analyzer having a detector assembly for receiving a sample gas stream and for producing an output signal that varies in accordance with the mass rate of flow of a component of the sample gas stream, a flow restricting element for limiting the rate at which the sample gas stream is admitted into the detector assembly, and an output indicator for displaying the concentration of said component, the improvement comprising:

(a) correction signal generating means for generating a correction signal that varies in accordance with the mass rate of flow of the sample gas stream, and

(b) correcting means for applying to said output indicator a corrected output signal that varies in accordance with the output signal of said detector assembly and said correction signal.

4,379,403

KNOCK DETECTING APPARATUS FOR INTERNAL COMBUSTION ENGINES

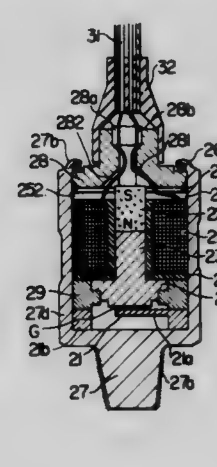
Tadashi Hattori, Okazaki; Hiroaki Yamaguchi, Anjo, and Yoshinori Ootsuka, Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

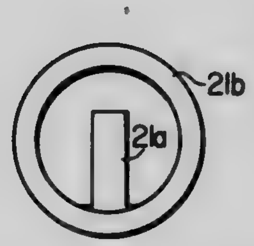
Filed Sep. 9, 1980, Ser. No. 185,445

Claims priority, application Japan, Oct. 18, 1979, 54-134817; Oct. 25, 1979, 54-138133

Int. Cl.³ G01L *23/22*

U.S. Cl. 73—35 **9 Claims**





2. A knock detecting apparatus for internal combustion engines, comprising:

vibrator means including at least one reed member and a ring-shaped support member, said reed member being projected from an inner wall of said ring-shaped support member toward the center thereof, both of said reed member and said support member being made as a unitary body of a magnetic material, said reed member having a resonance characteristic corresponding to a knocking frequency of an engine;

a bar-shaped magnetic core having one end being located adjacent to but spaced from said reed member to form an air gap therebetween;

a cup-shaped housing of a magnetic material for accommodating said vibrator means and said bar-shaped magnetic core so that said support member of said vibrator means is fixed to an inside surface of said cup-shaped housing;

magnetic flux generating means for generating magnetic flux through a magnetic path formed by said bar-shaped magnetic core, said air gap, said reed member, said support member and a side wall of said cup-shaped housing, said magnetic flux generating means including an excitation coil for generating controllable magnetic flux; and

magnetic flux sensing means disposed adjacent to and coupled with said magnetic path to sense changes in the magnetic reluctance of said magnetic path caused by changes in the width of said gap due to vibrations of said reed member.

4,379,404

PIEZOELECTRIC ENGINE-KNOCK SENSOR

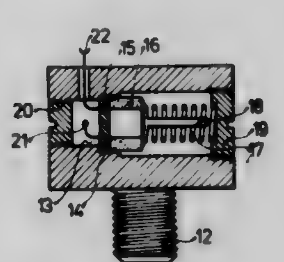
Hans J. Hamisch; Manfred Boruschweitz, and Theodor Gast, all of Berlin, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 23, 1981, Ser. No. 236,907

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1980, 3006655; Mar. 7, 1980, 3008780

Int. Cl.³ G01L *23/22*

U.S. Cl. 73—35 **8 Claims**



1. A sensor for detecting oscillations in an internal combustion engine resulting from engine knocks, comprising:

a tubular body (16) of piezoelectric material having a pair of electrodes (23,24) on diammetrically opposite longitudinal patches of a first cylindrical surface of said tubular body and a counter-electrode on a second cylindrical surface of said tubular body;

a casing having an internal cylindrical opening for receiving said piezoelectric body, said casing having an internal stop portion (13,14) for holding said tubular body against axial movement;

means (15) for insulatingly and supportingly spacing said tubular body from said stop portion (13,14) of said casing;

a flexure vibration member (18) having a free end extending from a base portion, said base portion having oppositely directed lateral extensions for dynamically connecting vibratory motion of said free end differentially as pressure variations to two diametrically opposite portions of the end of said tubular body (16) opposite from the end thereof supported by said spacing means (15);

a compression spring (17) for pressing said lateral extensions of said vibration member (18) against said end portions of said tubular body (16), and

means (19) held on said casing (25) for compressing said

spring (17) against said lateral extensions of said vibration member.

4,379,405

FORCE TRANSDUCER, PARTICULARLY FOR BALLISTIC PRESSURE MEASURING

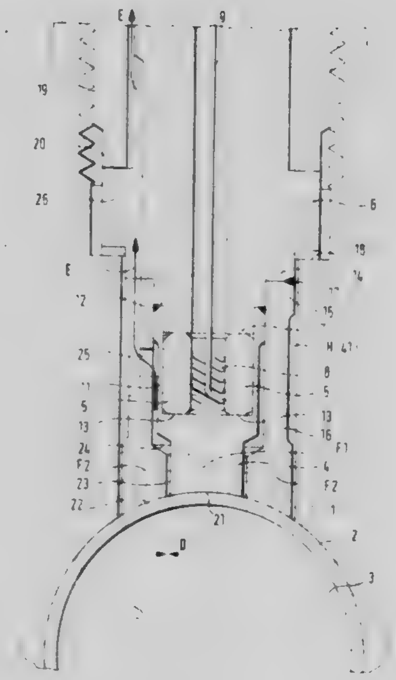
Paul Engeler, Frauenfeld; Hans C. Sonderegger, Neftenbach, and Peter Wolfer, Andelfingen, all of Switzerland, assignors to Kistler Instrumente AG, Winterthur, Switzerland

Filed Jun. 5, 1981, Ser. No. 270,842

Claims priority, application Fed. Rep. of Germany, Jun. 10, 1980, 3021778

Int. Cl.³ G01L *5/14*

U.S. Cl. 73—167 **11 Claims**



1. A force transducer for use in ballistic pressure measurement, which comprises:

a force transmission element including a first surface exposed to a pressure to be measured;

sensor element means for producing an electrical signal representing said pressure to be measured, said elements being held under pretension between a second surface of said force transmission element and a basic receiver component; and

an outer sleeve surrounding the exterior of said force transmission element, said outer sleeve being coupled to said basic receiver component, said outer sleeve including a front surface exposed to said pressure to be measured;

wherein the spring rigidity of said outer sleeve is coordinated with the spring rigidity of said force transmission element such that said outer sleeve yields to approximately the same extent as said force transmission element to the effective force of said pressure to be measured in an axial direction of said transducer.

4,379,406

RELATIVE HUMIDITY DETECTOR SYSTEMS AND METHOD OF INCREASING THE CALIBRATION PERIOD OF RELATIVE HUMIDITY DETECTOR SYSTEMS

Paul F. Bennewitz, 8310 Cutler Ave., Albuquerque, N. Mex. 87110, and Matt C. Bennewitz, 905 Nakomis Ct., NE., Albuquerque, N. Mex. 87112

Filed Sep. 25, 1980, Ser. No. 190,734

Int. Cl.³ G01N *25/56*

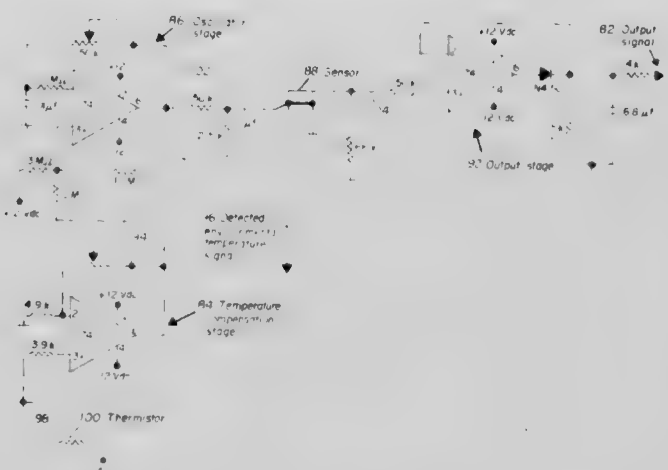
U.S. Cl. 73—336.5 **11 Claims**

1. A relative humidity detector system for generating an output signal which varies linearly with relative humidity, essentially independent of changes in surrounding environmental temperature, comprising:

means for detecting surrounding environmental temperature;

means for producing a temperature compensation signal which varies proportionally with detected environmental temperature;

oscillator means for producing a d.c. voltage signal which is periodically discharged at a frequency (f_l) equal to a free running discharge frequency (f_o) of said oscillator means plus a compensation frequency (f_c) induced in said oscillator means by said temperature compensation signal;



relative humidity sensor means for producing a detected relative humidity signal, said relative humidity sensor means connected to said oscillator means such that said relative humidity sensor means functions as a frequency to voltage converter to adjust said detected relative humidity signal for changes in surrounding environmental temperature proportionally with said frequency (f_l);

means for producing said output signal which varies linearly with relative humidity in response to the adjusted relative humidity signal.

4,379,407

SYSTEM FOR CONDUCTING RESONANCE MEASUREMENTS OF ROCK MATERIALS UNDER CONFINING PRESSURE

Lucien Masse; William L. Medlin, both of Dallas, and James H. Sexton, Duncanville, all of Tex., assignors to Mobil Oil Corporation, New York, N.Y.

Filed May 1, 1981, Ser. No. 259,775

Int. Cl.³ G01N *29/00*

U.S. Cl. 73—579 **2 Claims**

1. In a system for measuring resonance characteristics of rock material under an oscillatory driving force, the improvement comprising:

(a) means for enclosing said rock material under confining pressure,

(b) means for adjusting the confining pressure without introducing significant viscous damping in the oscillations, and

(c) means for controlling pore pressure within said rock material independently of said confining pressure.

4,379,408

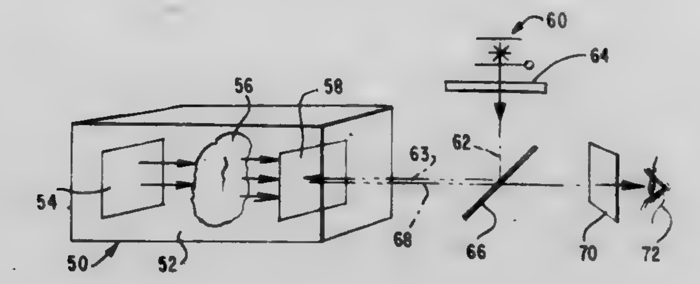
LIQUID CRYSTAL TECHNIQUE FOR EXAMINING INTERNAL STRUCTURES

Jaswinder S. Sandhu, Chicago, Ill., assignor to Raj Technology Partnership, Chicago, Ill.

Continuation-in-part of Ser. No. 224,173, Jan. 12, 1981. This application Feb. 6, 1981, Ser. No. 232,247

Int. Cl.[3] G01N *29/00;* G02F *1/11*

U.S. Cl. 73—603 23 Claims



1. A liquid-crystal acousto-optical detector cell for ultrasonic energy detection and image display said cell having a pair of substantially rigid covers, a liquid crystal material positioned between said covers, and a peripheral spacer and sealing member surrounding said liquid crystal material and sealingly engaging said covers, wherein the improvement comprises said cell exhibiting a good quality image, high sonic transmission and low angular dependence, and wherein

(a) each of said covers is substantially acoustically transparent;

(b) at least one of said covers is optically transparent and said optically transparent cover is a laminate having at least three layers, with each of said layers of said laminate having a thickness much much less than ¼ of the wave length of the ultrasonic energy propagating through said layer; and

(c) with the other cover having at least one layer and the thickness of that layer being much much less than ¼ of the wave length of the ultrasonic energy propagating therethrough.

4,379,409

APPARATUS FOR PRODUCING ULTRASONIC WAVES IN A WORKPIECE

Erik Primbsch, Ahrensburg, and Wolf Bickel, Bergisch Gladbach, both of Fed. Rep. of Germany, assignors to Krautkramer-Branson, Inc., Stratford, Conn.

Filed Sep. 3, 1981, Ser. No. 299,049

Claims priority, application Fed. Rep. of Germany, Nov. 6, 1980, 3041875

Int. Cl.[3] G01N *9/24, 29/00;* G02B *5/14*

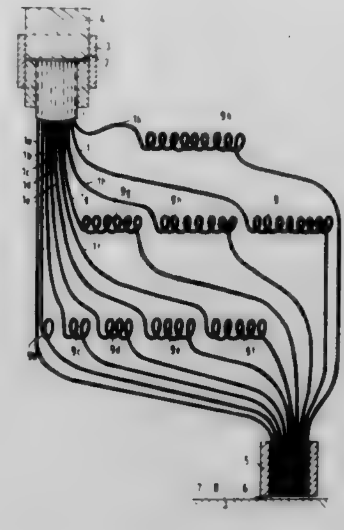
U.S. Cl. 73—643 4 Claims

1. An apparatus for producing in a light absorbing workpiece ultrasonic waves having predetermined direction of propagation and wave-form, the ultrasonic waves being induced in the workpiece by subjecting spaced surface zones having predetermined geometric shapes to laser pulse illumination in predetermined time sequence comprising:

an optical fiber cable comprising a plurality of fiber bundles, each bundle having a plurality of fibers, said bundles having respective light input ends disposed at a common input surface for being coupled to a laser for receiving light energy from such laser at said input surface, and having respective light output ends disposed at a common output surface of a probe head for causing said surface zones to be illuminated with said light energy when said output surface is disposed opposite said surface zones;

the output end of each of said bundles disposed in said probe head ~~having~~ its fibers fanned out at said output surface in accordance with the predetermined geometric shape of a respective zone which said bundle is to illuminate, and said respective output ends of said bundles being spaced from one another along said output surface commensurate with the spacing of said zones, and

means causing said fiber bundles to have different optical



path lengths to provide predetermined time delays for the laser light exiting from said respective fiber bundles at said output surface when said bundles are energized simultaneously at said input surface.

4,379,410

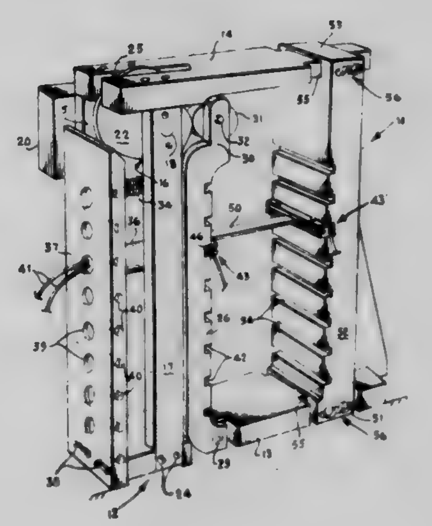
BATTERY ELECTRODE FATIGUE SIMULATOR

David H. Fritts, Dayton, and John F. Leonard, Xenia, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jan. 22, 1981, Ser. No. 227,565

Int. Cl.[3] G01N *3/32, 3/08*

U.S. Cl. 73—809 6 Claims



1. A battery electrode fatigue simulator comprising:

a frame;

a first support beam pivotally mounted at one end thereof to said frame and having a cam follower mounted at the other end thereof, said first support beam further having a plurality of notches situated therein, said notches being longitudinally displaced from each other with respect to the pivoting end of said first support beam, and means located in at least one of said notches for fixedly securing therein one end of an element which is to undergo fatigue simulation;

a second support beam adjustably secured at both ends thereof to said frame juxtaposed said first support beam,

said second support beam having a plurality of notches therein oppositely disposed from said notches in said first support beam, and means located in at least one of said notches in said second support beam for fixedly securing the other end of said element therein;

a cam of preselected configuration rotatably mounted within said frame adjacent said cam follower, means operably connected to said cam for rotating said cam at a predetermined rate of speed, and means interconnected between said frame and said first support beam for constantly biasing said cam follower against said cam whereby rotational movement of said cam causes pivotal movement of said first support beam to take place in order to apply a predetermined cyclic stress to said element;

means secured to said frame juxtaposed said first support beam for determining the displacement of said first support beam at a plurality of locations along said first support beam, said locations being coincidental with said plurality of notches located in said first support beam in order to provide displacement information about said element during application of said cyclic stress; and

means operably connected between said element securing means in said first support beam and said element securing means in said second support beam for determining resistance in said element during the application of said cyclic stress;

whereby a relationship established between said displacement and said resistance is representative of battery electrode fatigue undergone during actual battery operation.

4,379,411

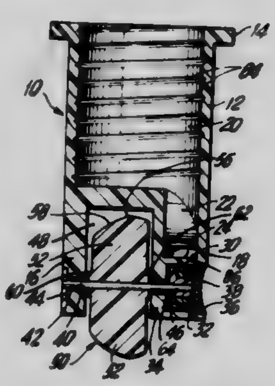
FLOW TRANSDUCER

Edmund G. Laviano, Patchogue, and Gerald S. Lefebvre, Holtsville, both of N.Y., assignors to Interactive Design Inc., Lake Ronkonkoma, N.Y.

Filed Feb. 13, 1981, Ser. No. 234,304

Int. Cl.³ G01F *1/075*

U.S. Cl. 73—861.78 **13 Claims**



1. A flow transducer for measuring the flow of a fluid, said transducer comprising:

a housing having two spaced apart depending legs;

a shaft rotatably mounted between said legs;

a rotor secured on said shaft for rotation therewith, and being freely rotatable between said legs by means of the flow of fluid thereacross;

a chamber provided in one of said legs with a portion of said shaft passing into said chamber;

trigger means secured on said shaft portion for rotation therewith, and being retained in said chamber for producing a change in a measurable characteristic as a function of the rotation of said rotor;

sensor means contained in said housing adjacent to said trigger means, and producing an electrical output responsive to said change in the measurable characteristic;

said rotor including a paddle wheel having a plurality of thin blades radially extending from a central hub; and

a distal end of each blade being angularly shaped curving toward one side edge of said blade.

4,379,412

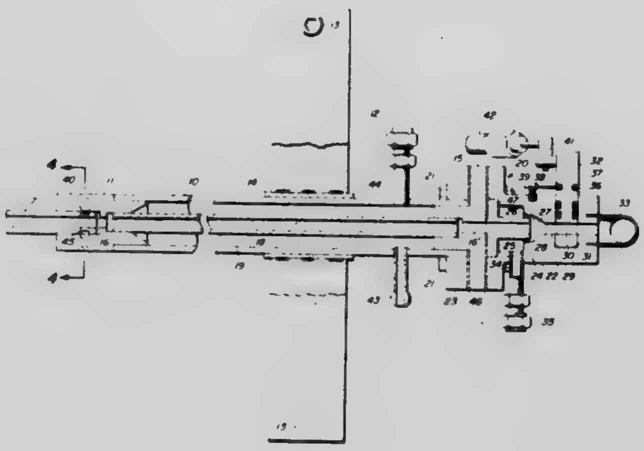
SAMPLING PROBE FOR STACK GAS MONITORING SYSTEM

Richard D. Wood, Lewisburg, W. Va., assignor to The Bendix Corporation, Southfield, Mich.

Filed Dec. 21, 1981, Ser. No. 332,705

Int. Cl.³ G01N *1/24*

U.S. Cl. 73—863.24 **3 Claims**



1. A probe for the extraction of gas samples from a high temperature, particulate laden gas stream, comprising,

an elongated tube;

a pair of plugs having axial bores therein, said plugs being fitted in opposite ends of said tube with said bores in alignment;

a hollow, porous walled cylinder supported by said plugs concentrically within said tube, said cylinder and said tube being dimensioned to provide a clearance space between the outer wall of said cylinder and the inner wall of said tube, said cylinder forming a conduit interconnecting said plug bores;

means for admitting particle laden gas to be sampled to said bore of one of said plugs;

means for withdrawing gas samples from said clearance space surrounding said porous cylinder;

a combination ejector-blowback valve secured to the other of said plugs externally of said tube, said ejector-blowback valve including,

a body, said body having therein

a cylindrical chamber, a convergent walled cavity adjacent to and communicating with said chamber and an exit bore,

said body being secured to said other plug with said chamber, said cavity and said exit bore coaxially aligned with said axial bore of said other plug,

a hollow cylindrical insert supported in said body chamber coaxially with and forming an extension of said axial bore of said other plug, said insert extending the length of said chamber and into said cavity, said insert being dimensioned to provide a clearance space between the outer wall of said insert and the wall of said cavity;

a transverse bore in said body intersecting said exit bore;

a valve stem rotatably mounted in said transverse bore, said valve stem having a transverse aperture therein which is aligned with said exit bore in one rotational position of said stem, said exit bore being closed by said stem in a second rotational position of said stem; and

means for admitting fluid under pressure to said body chamber; said tube, said plugs, said porous cylinder, said body, said insert and said valve stem each being formed of temperature 40 and corrosion resistant material.

4,379,413

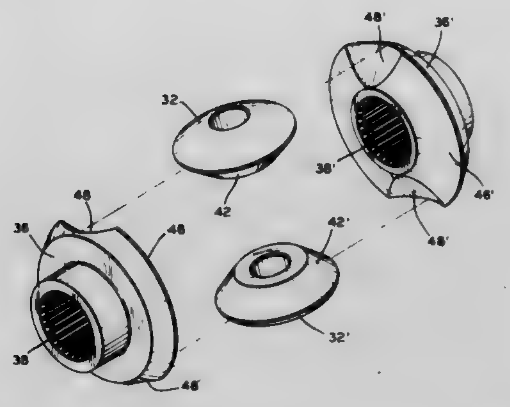
ANGLE DRIVE UNIT

Michael A. Brammer, Columbia City, and Donald P. Bowers, Fort Wayne, both of Ind., assignors to Dana Corporation, Toledo, Ohio

Filed Oct. 24, 1980, Ser. No. 200,182

Int. Cl.³ F16H *1/44*

U.S. Cl. 74—710.5 **9 Claims**



1. In a drive unit adapted to drivingly connect angularly disposed rotatable drive and driven shafts, said drive unit comprising:
  a housing drivingly connected to said drive shaft,
  drive means in said housing for transmitting rotation from said housing to said driven shaft,
  the improvement wherein said drive means comprises
  an input member drivingly connected to said housing,
  an output member drivingly connected to said driven shaft,
  said input and output members are unfinished gear blanks having opposed annular beveled outer surfaces,
  locking means integral with at least one of said input and output members engaging to directly connect said housing and driven shaft,
  said beveled surface on one of said gear blanks has a recess for mating with said beveled surface of said other gear blank and constituting said locking means.

4,379,414

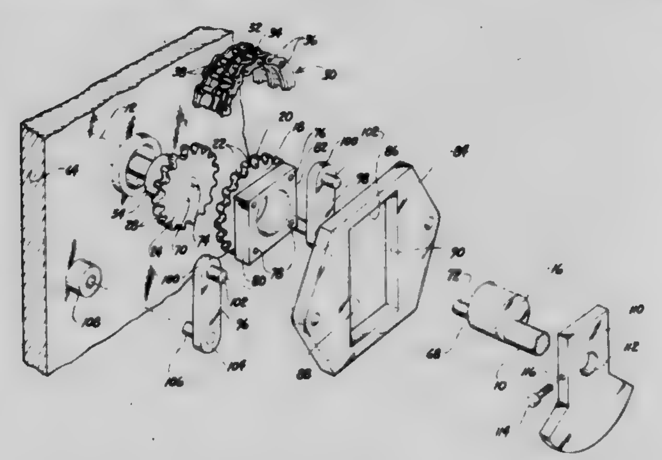
HIGH RATIO SPEED REDUCER

Hugh St. L. Dannatt, Bethel, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Dec. 8, 1980, Ser. No. 214,051

Int. Cl.³ F16H *1/28*

U.S. Cl. 74—805 **8 Claims**



1. A high ratio speed reducer comprising: rotatable input and output shafts having a common axis, said input shaft having an eccentric portion;
  an output sprocket mounted on said output shaft for rotation therewith, said output sprocket having a circumferential perimeter including a number of teeth;
  a drive sprocket having a circumferential perimeter including a number of teeth differing by at least one tooth from the number of output sprocket teeth, said drive sprocket being rotatably mounted with respect to said eccentric portion of said input shaft and orbiting with respect to said common axis as said input shaft is rotated, a segment of said drive sprocket perimeter being located outside said output sprocket perimeter as said drive sprocket orbits;
  an endless double chain engaging both sprockets, said chain having a driving length portion engaging said drive sprocket teeth on said segment while being disengaged from said teeth of said output sprocket, said chain having a driven length portion diametrically opposite said driving length portion engaging said output sprocket teeth and being disengaged from said drive sprocket teeth; and
  means for preventing turning of said drive sprocket as it orbits, including (i) a slide body attached to one side of said drive sprocket for movement therewith, said body including two parallel slide surfaces extending in parallel relation to said common axis of said input and output shafts; (ii) a housing including an elongate slot receiving said slide body, said elongate slot having two parallel slip surfaces engaging said slide surfaces of said slide body to permit reciprocal movement of said slide body in said slot in a first direction transverse to said common axis; and (iii) means permitting reciprocal movement of said housing in a second direction transverse to both said first direction and said common axis.

4,379,415

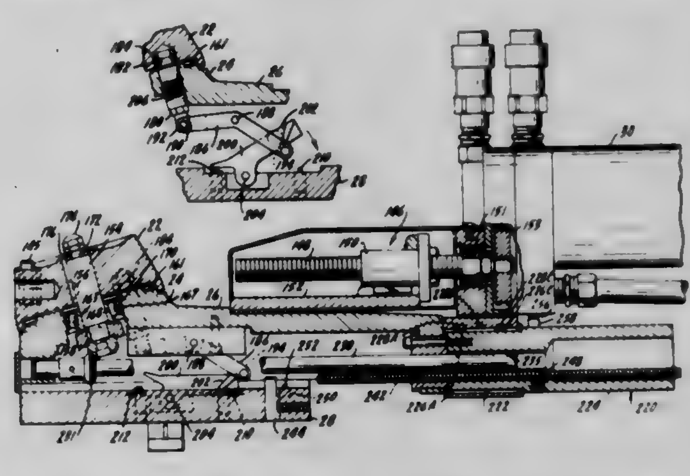
AUTOMATIC TURRET LATHE

Adolph V. Klancnik, Glenview, and Kenneth A. Klancnik, Palatine, both of Ill., assignors to Universal Automatic Corporation, Des Plaines, Ill.

Division of Ser. No. 60,790, Jul. 25, 1979, Pat. No. 4,324,161. This application Jan. 19, 1981, Ser. No. 226,428

Int. Cl.³ B23B *29/32*

U.S. Cl. 82—36 A **4 Claims**



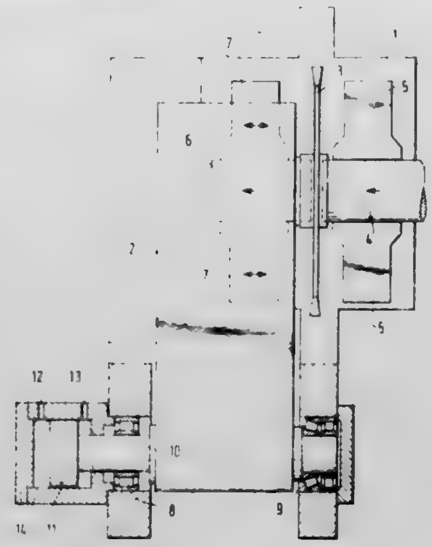
1. In a turret lathe where a turret is rotatably supported for indexing movement to one of several tool positions on the head of a turret slide having both tool advance and tool return motion, and wherein the turret is carried by a rotatable turret index shaft supported by a bearing inside said head on an axis tilted from the vertical:
  an indexing ratchet fixed to one end of said shaft to turn the shaft when the ratchet is actuated;
  said bearing comprising a pair of tapered bearing races respectively on said head and said shaft and capturing therebetween a set of tapered roller bearings;
  one of said tapered bearing races having an end engaged with said ratchet;
  screw means at the other end of said index shaft for adjusting said shaft axially to cause said ratchet to engage said one of the bearing races with more or less force to apply a selected pre-load to said bearing;
  and a thrust bearing interposed between the opposing surfaces of the turret and head.

4,379,416
FOOD-SLICING MACHINE AND METHOD
Fritz Kuchler, Klagenfurt, Austria, assignor to Brain Dust Patents Establishment, Vaduz, Liechtenstein
Continuation-in-part of Ser. No. 911,289, May 31, 1978, Pat. No. 4,217,650, and a continuation-in-part of Ser. No. 911,290, May 31, 1979, abandoned, and a continuation-in-part of Ser. No. 74,775, Sep. 12, 1979, abandoned. This application Apr. 24, 1980, Ser. No. 143,929
Claims priority, application Austria, Jun. 1, 1977, 3858/77; Jun. 1, 1977, 3859/77; Sep. 13, 1978, 6603/78
Int. Cl.³ B26D *7/32, 7/30*
U.S. Cl. 83—23 **6 Claims**

3. A method of preparing slices of an elongated foodstuff of generally uniform cross section, said method comprising the steps of:
supporting said foodstuff on a table adjacent a blade;
relatively displacing said table and said blade in a predetermined slice direction perpendicular to the longitudinal direction of said foodstuff into a succession of slices each having a respective width measured parallel to said slice direction;
depositing said succession of slices on a support in a plurality of rows with the slices in each row offset from one another by a predetermined first distance and the rows being relatively offset by a predetermined second distance;
generating an output signal when said blade engages into and cuts said foodstuff;
continuously monitoring the relative positions of said table and said blade in said slice direction;
signaling the monitored relative positions of said table and said blade on generation of said output to measure the widths of said slices; and
automatically varying at least one of said distances in dependence on the measured width.

4,379,417
METHOD OF CUTTING A WORKPIECE
Paul Pieper, and Walter Cordier, both of Menden, Fed. Rep. of Germany, assignors to Rolf Peddinghaus, Ennepetal, Fed. Rep. of Germany
Division of Ser. No. 71,282, Aug. 30, 1979, Pat. No. 4,289,054. This application May 4, 1981, Ser. No. 260,069
Claims priority, application Fed. Rep. of Germany, Sep. 5, 1978, 2838656
Int. Cl.³ B23D *45/04*
U.S. Cl. 83—27 **8 Claims**

1. An improved method of cutting a workpiece comprising the following steps:
(a) positioning a workpiece for cutting such that a saw, including drive means, supported by an arm is movable with the arm transversely of the workpiece,
(b) cutting the workpiece into two portions by moving the saw relatively transversely thereof,
(c) effecting movement of one of the portions away from the other portion,
(d) displacing the arm laterally of said relative transverse movement to move said saw away from the other portion of the workpiece, and



(e) retracting said saw relative to the workpiece by moving said arm.

4,379,418
SAFETY BOOT FOR PUNCH OR THE LIKE
Robert P. Martin, Jr., c/o Martin Sheet Metal, Inc., 7108 Madison Ave., Cleveland, Ohio 44102
Filed Feb. 3, 1981, Ser. No. 231,253
Int. Cl.³ B26F *1/02;* **B26D** *7/22*
U.S. Cl. 83—544 **9 Claims**

1. In combination, a press brake having a bed and a ram movable vertically in a stroke cycle towards and away from the ram, a C-frame assembly removably secured to the bed of the press brake, said C-frame having a pair of generally horizontal jaws vertically spaced from one another, the free ends of the jaws being adapted to support a pair of tool elements in working alignment, operator means on an upper one of said jaws and disposed in the path of said ram, said operator means being forcibly displaced by said ram to cause said tool elements to cooperate in working a workpiece disposed between said jaws, said operator means being constructed and arranged to be contacted by the ram through a final portion of its forward stroke such that a gap exists between the ram and operator means during the initial part of the forward stroke of the ram, and safety shield means extending between said ram and said operator means, said safety shield means being capable of excluding inadvertent positioning of an operator's limb in said gap, said safety shield means including fittings at its upper and lower ends, an upper end fitting including means to laterally stabilize the sleeve by engaging said ram, a lower end fitting including means to engage the upper jaw of said C-frame, both of said engaging means allowing said sleeve to be laterally stabilized by both said ram and said C-frame, said safety shield means, including said lower end fitting, being constructed and arranged to leave the space between said jaws unobstructed through the full stroke cycle of the ram.

4,379,419

PANEL GROOVING APPARATUS

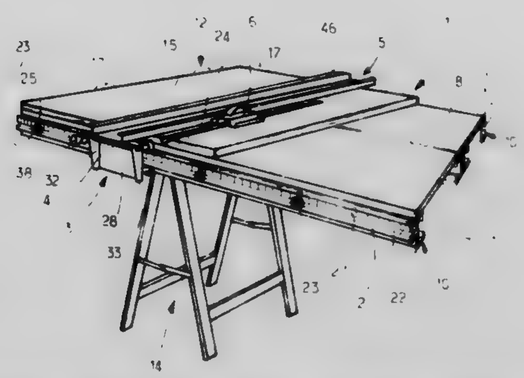
Jean P. Woock, 5, Rue d'Aquitaine, Reichstett, 67460 - Souffelweyersheim, and Christian Baerst, 8, Rue de la Liberte, 67380 - Lingolsheim, both of France

Filed Jul. 2, 1980, Ser. No. 165,459

Claims priority, application France, Jul. 6, 1979, 79 18306

Int. Cl.³ B26D *3/06*

U.S. Cl. 83—875 **10 Claims**



1. In panel grooving apparatus, the improvement comprising in combination:
- a table for supporting a panel at a working level;
- a rail along a side of the table;
- a working assembly mobile on said rail;
- means for selectively immobilizing said working assembly in various grooving positions, including stops movable and selectively arrestable along said rail and engageable by part of said working assembly; and
- movable peripheral elements on said table for releasably retaining said panel;
- said working assembly including a carriage movable in said rail, and a rectilinear tool guide having an arm articulated on said carriage;
- said carriage having a base and a plurality of axles supported by, and extending perpendicularly to said base, and pulleys rotatably mounted on said axles for rollingly engaging said rail;
- said base having two lateral flanges for pivotally mounting said arm, and an upper flange for supporting said arm;
- said base carrying a locking device for engaging said stops; and
- said locking device including a lever pivoted on said base and having a cut-out for engaging said stops for immobilizing the carriage, and a handle at a free end of said lever.

4,379,420

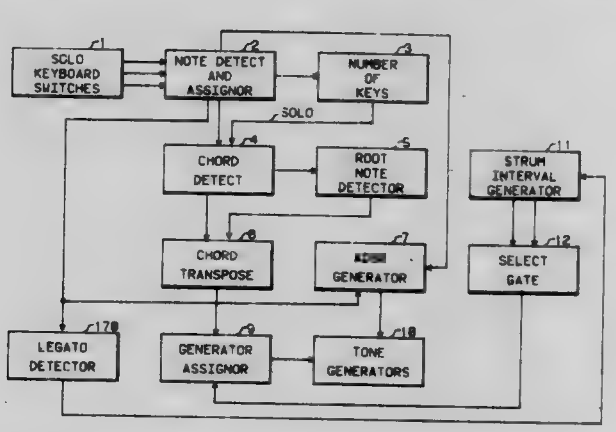
ADAPTIVE STRUM KEYING FOR A KEYBOARD ELECTRONIC MUSICAL INSTRUMENT

Ralph Deutsch, Sherman Oaks, Calif., assignor to Kawai Musical Instrument Mfg. Co., Ltd., Hamamatsu, Japan

Filed Oct. 19, 1981, Ser. No. 313,026

Int. Cl.³ G10H *1/38, 1/40, 7/00*

U.S. Cl. 84—1.03 **15 Claims**



1. In combination with a keyboard operated electronic musical instrument having keying means comprising an array of keyswitches operable between actuated and released states and having a number of tone generators assigned to actuated keyswitches, apparatus for imitating a strummed stringed musical instrument comprising;
- a detection means responsive to operable states of said array of keyswitches wherein a switch data value is generated corresponding to each keyswitch operated in an actuated state,
- a status memory for storing said switch data values,
- a chord detect means, responsive to the switch data values stored in said status memory, comprising a matched filter processor wherein a musical chord type is selected from a preselected set of musical chord types irrespectively of whether or not said stored switch data values correspond to a musical chord type,
- a root note detect means, responsive to the switch data values stored in said status memory, for selecting a chord root note corresponding to said selected musical chord type,
- an interval measuring means responsive to the switch data values generated by said detection means, whereby a time interval number is generated corresponding to the elapsed time between successive actuated state of the keyswitches in said array of keyswitches,
- an interval detection means responsive to said time interval number wherein a plurality of control signals are generated,
- a strum generation means, responsive to said pluarlity of control signals, wherein a sequence of strum keying signals is generated,
- a note data generator means responsive to said selected chord type and said selected chord root note wherein input note data is generated,
- a plurality of tone generators operable at frequencies responsive to said input note data,
- a strum keying means, responsive to said strum keying signals, for selectively providing said input note data to said plurality of tone generators thereby imitating said strummed stringed musical instrument.

4,379,421

ELECTRICAL PICKUPS

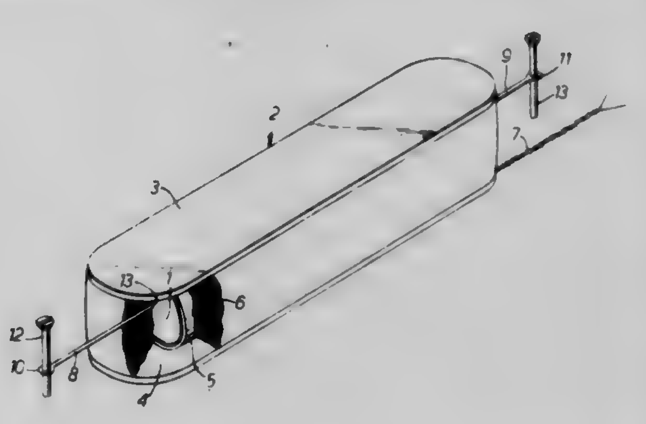
Kevin N. G. Nunan, Lake Cottage, Stoke Rd., Biships Cleeve, Cheltenham, Gloucestershire GL52 4RP, England

Filed Oct. 16, 1981, Ser. No. 312,124

Claims priority, application United Kingdom, Oct. 22, 1980, 8033999

Int. Cl.³ G10H *3/18*

U.S. Cl. 84—1.15 **9 Claims**



1. An electrical pickup assembly for a stringed musical instrument, comprising an elongate permanent magnet which is magnetized so that the magnetic poles thereof are respectively positioned at opposite side edges of the magnet, and a coil surrounding and wound lengthwise around the magnet, the magnet and coil being relatively rotatable about a longitudinal axis of the magnet and the assembly having mounting means so

that it can be fixed to an instrument without impeding said relative rotation of the magnet and coil through at least an angle of 180° at the limits of which angle a magnetic axis of the magnet is substantially aligned with the winding axis of the coil.

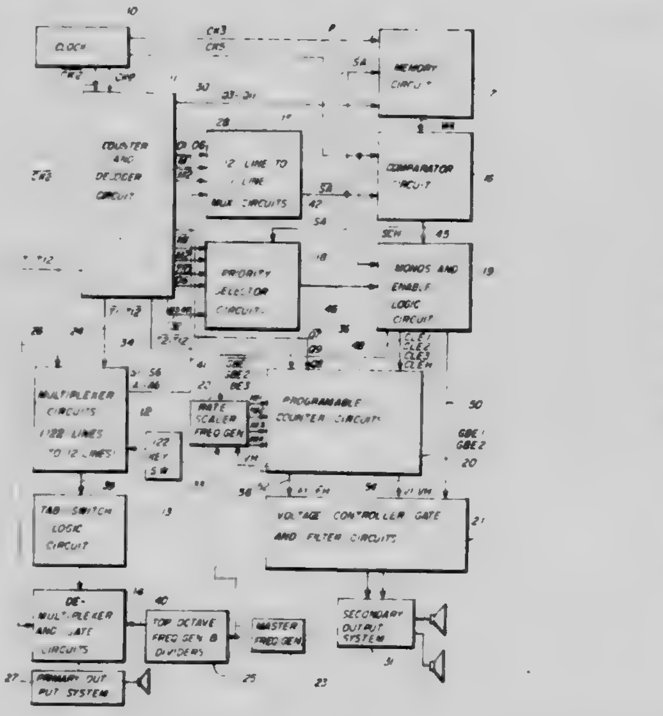
4,379,422
POLYPHONIC ELECTRONIC MUSIC SYSTEM

Walter Munch, Fort Thomas, Ky., and Dale M. Uetrecht, Colerain Township, Hamilton County, Ohio, assignors to Baldwin Piano & Organ Company, Cincinnati, Ohio

Continuation of Ser. No. 824,656, Aug. 15, 1977. This application Apr. 27, 1982, Ser. No. 372,137

Int. Cl.³ G10H *1/02*

U.S. Cl. 84—1.19 **16 Claims**



1. A polyphonic electronic music system for an electronic musical instrument having at least one manual of keys corresponding to the notes of the musical scale comprising:
   means for producing tone signals of frequencies corresponding to the notes of keys contemporaneously played on the manual of keys; and
   means for gating and filtering the tone signals to produce a different pattern of voices to be assigned to played notes depending upon the number and sequence of keys played at any given time.

4. A polyphonic electronic music system for an electronic musical instrument comprising:
   a clock means for providing a plurality of clock outputs;
   counter and decoder means for generating from the clock outputs a first set of time division logic signals representative of twelve notes of an octave, a second set of time division logic signals representative of two or more octaves, and a third set of time division logic signals representative of at least two manuals of keys of the electronic musical instrument;
   means for transmitting representative ones of the first set of time division logic signals to corresponding ones of the key switches of the at least two manuals;
   multiplexer means for receiving the logic signals corresponding to actuated key switches, the second set of logic signals, and the third set of logic signals and providing a serial train of time division multiplex signal identifying the actuated key switches;
   memory means for storing the serial train of logic signals representative of the then actuated key switches during the next cycle of the counter and decoder means and providing a hold signal when the stored serial train does not correspond to the next serial train;
   priority selector means for providing time division logic signals representative of the three lowest notes and the highest note of the actuated key switches;
   monostable and enable logic means for receiving the hold signal from the memory means, and the logic signals from the priority selector means and providing in response thereto output logic signals representative of the number of actuated keys and logic signals representative of the lowest three notes and the highest note of the actuated keys;
   programmable counter means for receiving the logic signals from the monostable and enable logic means representative of the actuated keys, the first set of logic signals representative of the twelve notes of an octave, and logic signals representative of the two or more octaves and in response thereto, and producing output tone signals corresponding to the notes of the actuated key switches and voltages representative of the notes of the actuated key switches;
   voltage controlled gate and filter means for wave shaping the output tone signals from the programmable counter means to produce desired voicing characteristics;
   an output system for converting the wave shaped tone signals into audible sound.

7. In an electronic organ including key switches operable by keys on a keyboard corresponding to the notes of the musical scale, tone generators for producing tone signals corresponding to the notes of the key switches, means for applying the tone signals of actuated key switches to a primary audio output system; an improved accompaniment system comprising;
   a secondary audio output system;
   means for simultaneously producing a plurality of secondary tone signals corresponding to certain preselected simultaneously actuated ones of said key switches;
   means for wave shaping said secondary tone signals so that individual ones of said secondary tone signals are wave shaped to have individual distinct voices, said wave shaped tone signals being applied to said secondary audio output system to provide an orchestral accompaniment for tone signals sounded by the primary audio output system.

4,379,423
HYDRAULIC AMPLIFIER

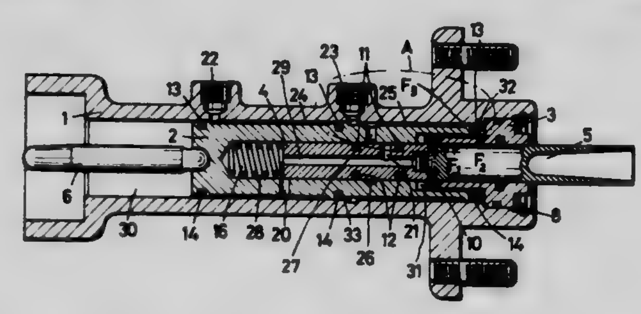
Günther Leineweber, Gifhorn, and Rolf Warnecke, Winkel, both of Fed. Rep. of Germany, assignors to Volkswagenwerk AG, Wolfsburg, Fed. Rep. of Germany

Filed Jan. 19, 1977, Ser. No. 760,657

Claims priority, application Fed. Rep. of Germany, Jan. 21, 1976, 2602050

Int. Cl.³ F15B *9/10*

U.S. Cl. 91—373 **5 Claims**



1. A hydraulic amplifier comprising:
(a) a housing having an axial bore as well as a pressure conduit and a return conduit;
(b) an amplifier piston arranged axially slidably in said bore, said piston having a piston face and a blind axial bore;
(c) a control slide axially slidably arranged in said blind bore of said piston;
(d) said piston and slide together constituting a unit being provided with passages for placing said piston face in communication with said pressure and return conduits, respectively, said passages including first and second

passage means for selectively controlling the communication between said piston face and said pressure and return conduits, respectively, i.e. the flow of hydraulic fluid through said pressure and return conduits, respectively, depending on the axial position of said slide in said bore of said piston;

(e) said unit being free of pressure equalization by arranging each of said first and second passage means asymmetrically with respect to the peripheral surface of said slide;

(f) each of said first and second passage means being arranged such that whichever passage means is, at any given time, closed, it is automatically tightly sealed as a result of radial displacement of said slide towards such closed passage means, said radial displacement being actuated by a radial force resulting from the difference between the lower pressure prevailing in the immediate region of said closed passage means and the higher pressure acting on the peripheral surface of said slide upstream of said immediate region.

4,379,424
DEVICES FOR LIMITING THE STROKE OF A HYDRAULIC RAM USED IN MINING APPARATUS

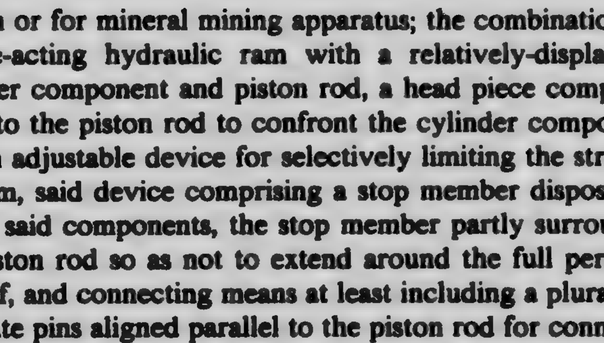
Harry Rosenberg, Lüdinghausen; Karl-Heinz Plester, Lunen; Friedrich Eggenstein, Bergkamen-Oberaden, and Günter Terhorst, Dülmen, all of Fed. Rep. of Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Lunen, Fed. Rep. of Germany

Filed Jun. 11, 1980, Ser. No. 158,628

Claims priority, application Fed. Rep. of Germany, Jun. 16, 1979, 2924380

Int. Cl.[3] **F15B** *15/24*

U.S. Cl. 92—13.41 **13 Claims**



1. In or for mineral mining apparatus; the combination of a double-acting hydraulic ram with a relatively-displaceable cylinder component and piston rod, a head piece component fitted to the piston rod to confront the cylinder components, and an adjustable device for selectively limiting the stroke of the ram, said device comprising a stop member disposed between said components, the stop member partly surrounding the piston rod so as not to extend around the full periphery thereof, and connecting means at least including a plurality of elongate pins aligned parallel to the piston rod for connecting the stop member to one of said components so as to abut with the other of said components thereby to limit the stroke of the ram, wherein the pins are located in some of a group of reception apertures in the said one component, said apertures being spaced around a common pitch circle with its centre on the axis of the piston rod, the total number of apertures exceeding the number of pins to permit the stop member to be angularly oriented around the piston rod into a variety of dispositions.

4,379,425
DOUBLE-ACTING PISTON FOR SWASH-PLATE TYPE COMPRESSORS

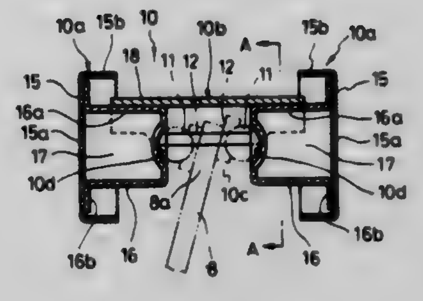
Yutaka Ishizuka, Konan, Japan, assignor to Diesel Kiki Co., Ltd., Saitama, Japan

Filed Nov. 20, 1980, Ser. No. 208,540

Claims priority, application Japan, Nov. 30, 1979, 54-165681[U]; May 24, 1980, 55-71388[U]

Int. Cl.[3] **F01B** *3/02;* **F04B** *1/16;* **B23P** *15/10*

U.S. Cl. 92—71 **14 Claims**



1. A double-acting piston for use in a swash-plate type compressor of the type including a frame having at least one cylinder bore formed therein, a drive shaft axially extending through said frame, a swash plate secured on said drive shaft, and shoes arranged in sliding contact with said swash plate at opposite side surfaces thereof; said double-acting piston comprising:

a pair of piston heads provided at opposite ends of said piston, said piston heads each having a first part which includes a first hollow cylindrical member extending axially inwardly of said piston and a second part which includes a second hollow cylindrical member extending radially outwardly from said first part, said piston heads each having a peripheral lateral surface adapted for sliding contact with an inner peripheral surface of said cylinder bore, said piston heads each being formed of at least one piece and said first and second hollow cylindrical members being formed of respective separate pieces;

an intermediate coupling member interposed between said piston heads to couple same to each other, said intermediate coupling member comprising a piece separate from said at least one piece forming each of said piston heads;

means joining said piston heads and said intermediate coupling member to each other;

said first parts of said piston heads each having opposed inner ends thereof spaced from each other and cooperating with said intermediate coupling member to define therebetween a central recess opening radially inwardly of said compressor, said first hollow cylindrical member forming said first part of each of said piston heads having an inner end face formed with a ball pocket in the form of a ball-receiving recess; and

a pair of generally ball-shaped members respectively engaged in said ball-receiving recesses of said first hollow cylindrical members, said generally ball-shaped members being spaced from each other in the axial direction of said piston, said space between said generally ball-shaped members being in said central recess opening defined between said inner ends of said first parts;

said swash plate having a peripheral fringe portion thereof engaged in said space between said generally ball-shaped members via said shoes which respectively engage between one of said generally ball-shaped members and said swash plate.

4,379,426

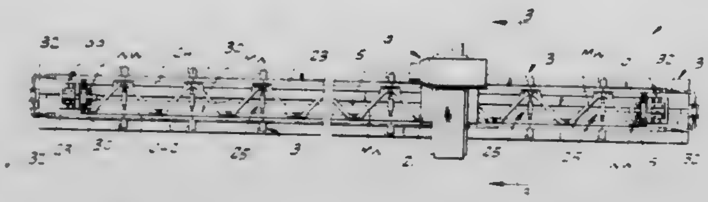
TRUSS-FABRICATING MACHINE

James L. Thompson, Ballwin, and Owen T. Hornkohl, Webster Groves, both of Mo., assignors to Moehlenpah Industries, Inc., St. Louis, Mo.

Filed Sep. 18, 1981, Ser. No. 303,398

Int. Cl.³ B30B *15/00*

U.S. Cl. 100—100 **47 Claims**



1. A machine for fabricating trusses of the type comprising a pair of generally parallel wood chord members having opposing inside faces spaced apart a fixed predetermined distance, and outside faces, a series of web members spanning the wood chord members, and connector means having teeth adapted to be pressed into the wood chord members for rigidly interconnecting the web and chord members, said machine comprising:

a table having an elongate top for supporting said pair of chord members, said web members and said connector means in a position in which the web members are generally horizontal, in which the teeth of said connector means are generally vertical, and in which the wood chord members extend longitudinally of the table;

means on the top of the table for clamping the chord members in fixed position with respect to the table comprising outside jaw means engageable with the outside faces of the chord members of said pair of chord members, said outside jaw means comprising expansible tube means extending longitudinally of the table for effecting clamping action of the outside jaw means on said chord members to clamp them in fixed position with respect to the table, said tube means having inlet means for entry of a pressurized fluid into the tube means thereby to expand the tube means in cross section, said tube means during such expansion being adapted to effect said clamping action; and

a press movable longitudinally with respect to the table top for pressing the teeth of said connector means into the chord members when the chord members are clamped in fixed position with respect to the table.

4,379,427

APPARATUS FOR APPLYING MARKS TO A PRODUCT E.G. A COIL OF ROLLED STEEL

Jan Middel, Barsingerhorn, and Cornelis A. Gorter, Velsen-Noord, both of Netherlands, assignors to Estel Hoogovens B.V., Ijmuiden, Netherlands

Filed Aug. 10, 1981, Ser. No. 291,336

Claims priority, application Netherlands, Sep. 3, 1980, 8004984

Int. Cl.³ B41F *17/20, 17/06*

U.S. Cl. 101—35 **5 Claims**

1. Apparatus for applying marks to the surface of a product, comprising

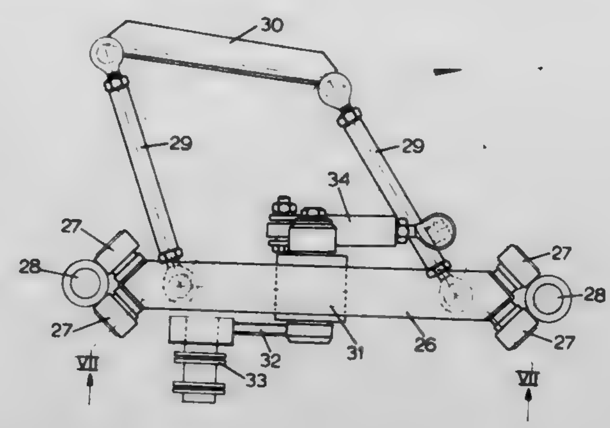
(a) a base,

(b) means for moving said base reciprocatingly along a path which path is adjacent the surface of the product to be marked,

(c) a marking carriage,

(d) marking means mounted on said marking carriage for applying marking material to the surface to be marked,

(e) at least two swivellable support arms movably mounting said marking carriage on the base, the arms having first and second ends and being pivotally secured to the base at their first ends and pivotally secured to the marking carriage at their second ends at spaced apart points, thereby forming an articulated quadrilateral which is so aligned that the arms are swivellable transversely with respect to said path between two limit positions thereby carrying the marking carriage transversely with respect to said path so



that said marking means can apply marks at at least two locations on said surface which are mutually laterally spaced with respect to said path.

4,379,428

HAMMER LOCATING AND OPERATIONAL MEANS

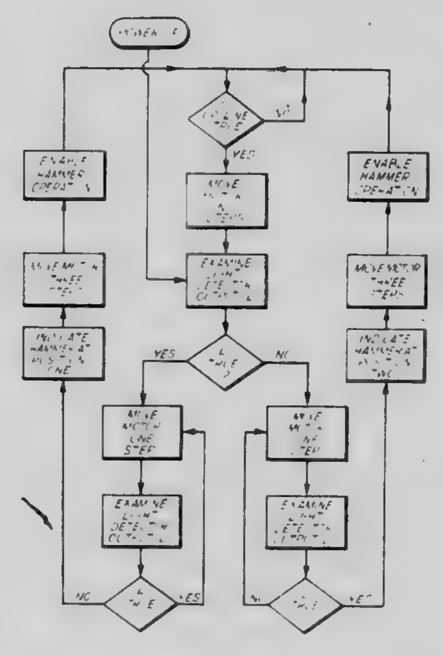
David E. Schmulian, Woodland Hills, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Jul. 11, 1980, Ser. No. 168,945

Claims priority, application United Kingdom, Jul. 24, 1979, 7925811

Int. Cl.³ B41J *9/12*

U.S. Cl. 101—93.09 **11 Claims**



1. A chain impact printer comprising:

an array of hammers, each hammer being positionable at a plurality of hammer operating positions along a line of printing, said array of hammers being movable;

a stepping motor operable to position said array of hammers along said line of printing, said stepping motor having a plurality of step positions between each adjacent pairs of hammer operating positions along said line of printing;

a position transducer cooperating with said stepping motor to indicate when said array is a first predetermined number of steps away from one of said plurality of operating positions; and,

a controller executing a movement sequence to move said array from a first operating position to the next adjacent operating position, said movement sequence including commanding said stepping motor to perform said first predetermined number of steps, said controller receiving the output of said position transducer at the end of said first predetermined number of steps to indicate a first state if said hammer array is in the correct stepping position to

subsequently arrive correctly at the next operating position, and a second state if the hammer array is not in its correct stepping position to arrive correctly at the next operating position, said controller responding to said position transducer output being a first state by commanding said stepping motor to move a second predetermined number of steps to bring said array to said next adjacent operating position, and responding to said second state to command said motor to perform a position correction sequence by commanding said stepping motor to perform individual steps and monitoring said output of said transducer for each of said individual steps until a step is found at which said transducer provides a first state indication that said hammer array is in the correct stepping position.

4,379,429

HEIGHT AND INCLINATION ADJUSTABLE SUPPORT SHELF

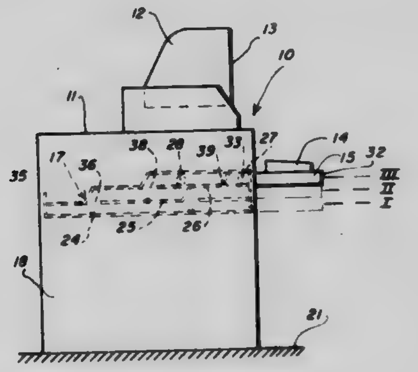
Bernd Gubbe, Nuremberg; Klaus-Dieter Krause, Oberasbach; Rudolf Neidhardt, Nuremberg, and Otto Schonemann, Furth, all of Fed. Rep. of Germany, assignors to Triumph-Adler A.G., Nuremberg, Fed. Rep. of Germany

Filed Feb. 4, 1981, Ser. No. 231,459

Claims priority, application Fed. Rep. of Germany, Apr. 15, 1980, 3014276

Int. Cl.³ A47B *21/02, 21/03*

U.S. Cl. 108—5 **2 Claims**



1. A work station comprising a platform and spaced legs supporting said platform,
   multitrack roller guide means mounted on said legs below said platform, and
   a shelf having a first pair of rollers and a second pair of rollers spaced forwardly of said first pair of rollers for cooperation with said roller guide means to guide movement of said shelf to selected pulled out heights and inclinations,
   said roller guide means having lower guide tracks and vertically spaced upper guide tracks for guiding said pairs of rollers during forward movement of said shelf to selected pulled out positions and rearward movement to a pushed in storage position,
   said lower guide tracks defining said pushed in shelf storage position whereat said shelf is spaced below said platform by a distance sufficient to accommodate the height of a machine supported on said shelf,
   said upper guide tracks each having a first pair of openings and a second pair of openings spaced forwardly of said first pair of openings to allow said first and second pairs of rollers to be moved into said upper guide tracks,
   said first and second pairs of rollers being spaced from one another a distance less than the distance between said first and second pairs of openings whereby only one pair of rollers at a time can be switched from said lower to said upper guide tracks upon manipulation of said pulled out shelf about the other pair of rollers, thereby to establish a selected height and inclination thereof relative to said platform, and
   inclines terminating said upper guide tracks,
   said inclines extending upwardly and forwardly from the rear edges of said pairs of openings to automatically direct pairs of rollers in said upper guide tracks to said lower guide tracks when said shelf is moved rearwardly toward said pushed in storage position.

4,379,430

CLAMP-BOLT SHELVING

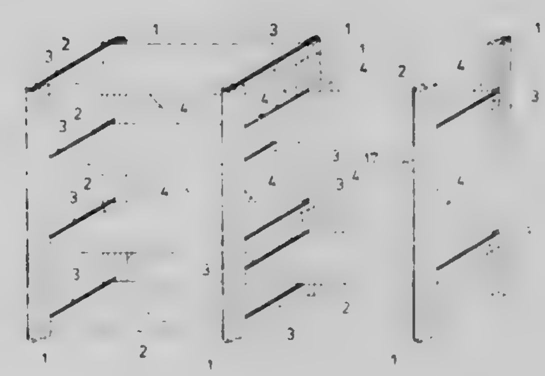
Friedrich Ruschitzka, Im Bruhl (ohne Nummer), 6921 Zuzenhausen, Fed. Rep. of Germany

Filed May 27, 1980, Ser. No. 153,327

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1979, 7916400[U]; Apr. 26, 1980, 3016218

Int. Cl.³ A47B *9/00*

U.S. Cl. 108—107 **15 Claims**



1. Erectable shelving comprising shelving posts, crosspieces, shelving bases, and clamp bolts, wherein said shelving posts each have channel-section-shaped legs and bores are drilled in the legs of the channel-section-shaped shelving posts, between the legs of at least two shelving posts there is placed a crosspiece, said crosspiece being of channel-section-shaped cross-section and having obliquely downwardly and outwardly extending slotted crosspiece holes lying opposite the bores in said legs, a clamp bolt being placed in the bores and in the slotted cross-piece holes, said bores and said slotted crosspiece holes lying opposite one another, and each of the channel-section-shaped shelving posts has at the outer ends of its legs a tubular section provided on the outside with bores and on the inside with slotted holes extending parallel to the flange in the legs.

4,379,431

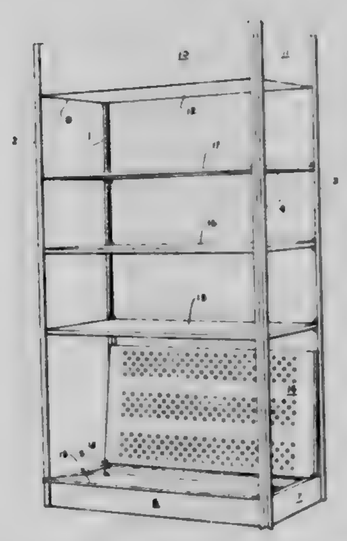
SHELVING ASSEMBLY

Joseph J. Clement, Bradenton, Fla., assignor to The Mead Corporation, Dayton, Ohio

Filed Aug. 24, 1977, Ser. No. 827,227

Int. Cl.³ A47B *57/06*

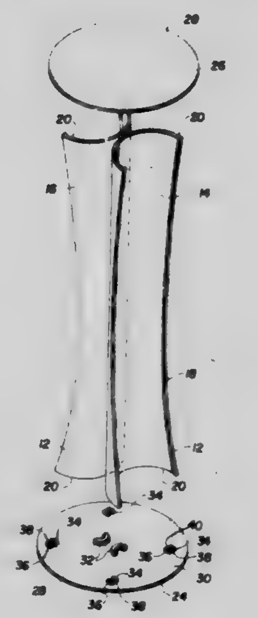
U.S. Cl. 108—111 **2 Claims**



1. In combination, a plurality of support posts, a plurality of shelves disposed one above the other and supported by said

support posts, support structure connected with said support posts for supporting a tiltable shelf disposed below said plurality of shelves and having front, back and side edges, said support structure comprising a front base panel having a horizontal support surface arranged to engage and support the front portion of the shelf, a pair of side base panels spaced apart sufficiently to receive the shelf therebetween and with the side edges of the shelf in close juxtaposition thereto, an elongated horizontally disposed primary shelf support ledge disposed at substantially the same level as said support surface of said front base panel and arranged to engage the rear edge of the shelf so as to support the shelf in a substantially horizontal attitude, and an elongated horizontally disposed tilting ledge disposed at a level substantially below said primary shelf support ledge and forwardly thereof and arranged to engage the rear edge of the shelf so as to support the shelf in a rearwardly tilted attitude, the lowermost one of said plurality of shelves being disjointedly mounted on said support posts and being movable to a tilted position at the rear of said tiltable shelf to form a tilted back support therefor.

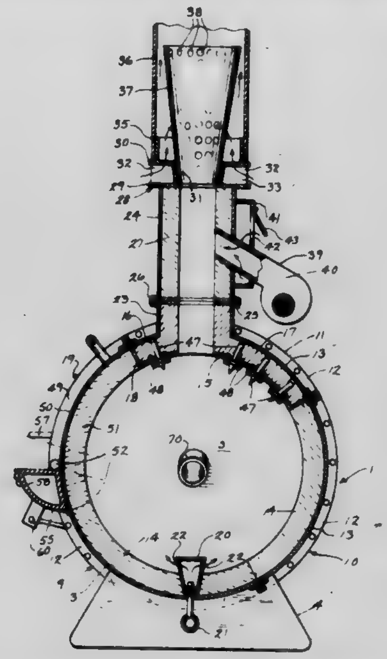
4,379,432
ARTICLE DISPLAY STAND
Robert D. Grossman, 22 Rivo Alto Dr., Miami Beach, Fla. 33139
Filed Aug. 6, 1980, Ser. No. 175,783
Int. Cl.³ A47B *3/06*
U.S. Cl. 108—153 **8 Claims**



1. An article display stand including a pair of substantially identical vertical support members and a pair of substantially identical horizontal support members, each of said horizontal support members including retaining means on one side thereof to hold said vertical support members in position between said horizontal support members, each of said vertical support members is an integral molded element having a pair of longitudinal side edges, and said retaining means comprises four separate elements adapted to hold a portion of said side edges and each of said retaining means elements comprises a pair of leg members connected by a bight portion and said portion of said side edges is frictionally held between said leg members.

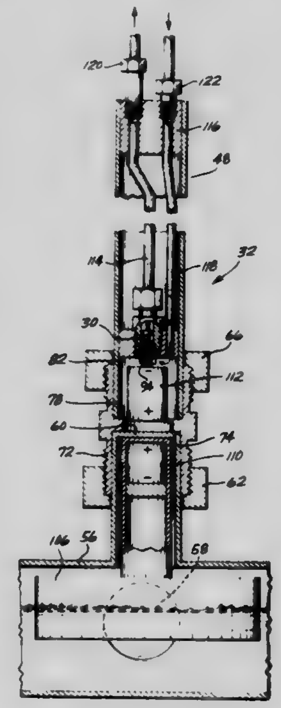
4,379,433
INCINERATOR
Gordon H. Hoskinson, 186 Mayfair Rd., Floral Park, N.Y. 11001
Division of Ser. No. 81,686, Oct. 4, 1979, Pat. No. 4,291,633. This application Sep. 15, 1981, Ser. No. 302,404
Int. Cl.³ F23B *5/00*
U.S. Cl. 110—214 **5 Claims**

1. As incinerator, comprising a housing defining a combustion chamber, a stack connected to the combustion chamber for discharging waste gases of combustion, said stack including a lower stack section and an upper stack section spaced above the lower section, a ring structure disposed between the lower end of the upper stack section and the upper end of the lower stack section and having a central opening, said ring structure including a tapered flange bordering said central opening, said flange diverging in an upward direction, an upwardly diverging sleeve freely supported on the ring structure and disposed concentrically of said tapered flange, said sleeve having a plurality of perforations, and air inlet means associated with



said ring structure for providing communication between the atmosphere and the upper stack section, waste gases of combustion passing upwardly from said lower stack section through said sleeve causing an aspirating effect to draw air from the atmosphere through said air inlet means and into said upper stack section and into said perforations to effect a final combustion zone for the waste gases of combustion, expansion of said sleeve due to heating causing the sleeve to move upwardly relative to said flange.

4,379,434
LIQUID LEVEL SENSOR AND ALARM SYSTEM
Petur Thordarson, 13700–42nd Pl. N.E., Seattle, Wash. 98125
Filed Jun. 10, 1980, Ser. No. 158,288
Int. Cl.³ G01F *23/08*
U.S. Cl. 116—228 **23 Claims**



1. Apparatus for determining a liquid level condition of a liquid within a holding tank, comprising:

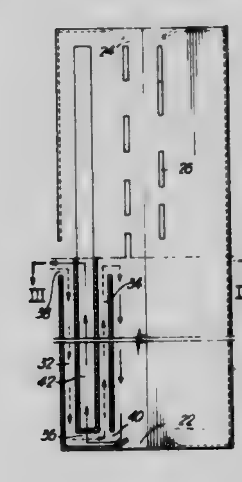
a float adapted to be positioned on a body of liquid within a liquid holding tank, including a first permanent magnet;
means defining a chamber partitioned in a fluid tight manner from the body of liquid;
a second permanent magnet located within said chamber in line with said first permanent magnet;
means forming a gas inlet port for said chamber and means forming a gas outlet port for said chamber; and
signal means comprising a normally closed valve positioned within one of said ports, said valve including a normally extended valve stem which is in line with said second permanent magnet and is depressible to operate the signal means and which projects into said chamber and when depressed opens said valve;
wherein the float and the two magnets are so positioned that as the liquid level in the liquid holding tank moves towards said chamber the first permanent magnet is moved by the float towards the second permanent magnet, and wherein the two permanent magnets have like poles facing towards each other, so that when the first permanent magnet is moved a predetermined amount towards the second permanent magnet, the two magnets will tend to repel each other and in response the second magnet will be urged into contact with the valve stem, moving such valve stem into a signal operating position.

4,379,435

DRYING OVEN FOR INDEFINITE LENGTH MATERIAL

Jong-Hein Walling, Beaconsfield; Gerald R. Arbuthnot, Chateauguay, and Michel Gervais, Verdun, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Oct. 19, 1981, Ser. No. 312,652
Int. Cl.³ B05C *3/172, 11/00*
U.S. Cl. 118—643 **4 Claims**



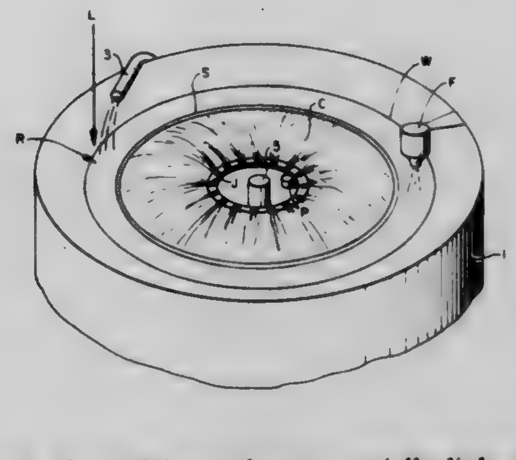
1. A drying oven for an indefinite length of material comprising a structure defining a drying chamber having an inlet and an outlet for the indefinite length passing through the oven, heating means within the chamber to directly dry the material, the chamber surrounded by an annular heat exchanger comprising a plurality of heat exchange members which between them define and separate flow passages extending axially of the chamber and around the chamber, at least a first of the passages being a flow passage for incoming gas, having an inlet for said gas and having an outlet leading into the chamber at a first location, and a second of the passages being a flow passage for outgoing gas from the chamber, having a gas inlet leading from the chamber at a second location spaced from the first location to cause gas flow through said chamber to pass across said heating means, said second passage also having a gas outlet to effect flow of gas heated in the chamber outwardly from said chamber, the heat exchange members provided to cause heat transfer from outgoing gas in said second passage to incoming gas in the first passage.

4,379,436

WATER-TURBULENCE LIGHT-SHIELDING METHOD AND APPARATUS FOR CONFINED-VOLUME FISH GROWTH AND THE LIKE

Albert H. Knowles, Concord, N.H., assignor to Robert H. Rines and Carol M. Rines, both of Concord, N.H., part interest to each

Filed Aug. 20, 1981, Ser. No. 294,474
Int. Cl.³ A01K *61/00*
U.S. Cl. 119—3 **9 Claims**



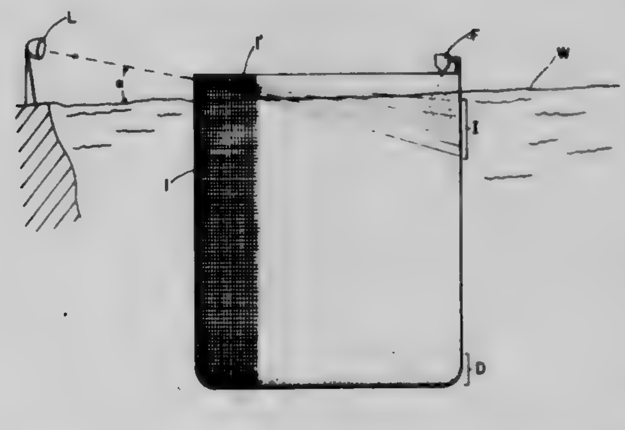
1. A method of providing at least a partially light-shielded surface area in a confined fish-holding water-circulating volume, that comprises, producing turbulence over a selected area of predetermined defined shape occupying a substantial portion of said surface that reduces the amount of light entering the volume under said selected area and thereby provides a uniform light-subdued region thereunder, by agitating the surface of said volume over said selected area; illuminating relatively calm regions external to said selected area; and applying feed to said calm regions while continuing agitation over said selected area.

4,379,437

PROCESS AND SYSTEM FOR ACCELERATED GROWTH OF SALMONIDS AND THE LIKE IN DEEP-WATER CAGES AND SIMILAR WATER VOLUMES

Albert H. Knowles, Concord, N.H., assignor to Robert H. Rines and Carol M. Rines, both of Concord, N.H., part interest to each

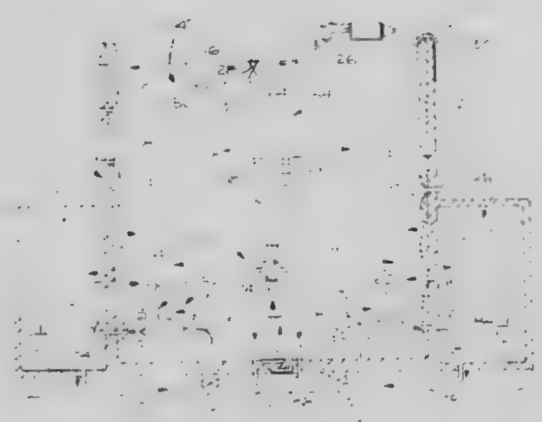
Filed Aug. 20, 1981, Ser. No. 294,769
Int. Cl.³ A01K *61/00*
U.S. Cl. 119—3 **10 Claims**



8. A system for accelerated fish growth having, in combination with a fish-holding volume through which water circulates and into which feed is applied at one or more predetermined locations, means for bounding the bottom strata of said volume at a water depth at which daylight from above the said volume is attenuated to the degree that said bottom strata are substantially dark; means for producing and directing artificial illumination after daylight hours, and if desired during overcast daylight conditions as well, across upper surface transverse strata of said volume including said predetermined feed

application locations to provide a defined diffuse laterally illuminated near-surface feed area as viewed upwardly from said dark bottom strata, and without introducing artificial light into the dark bottom strata; and means for producing feed application at said predetermined locations beyond daylight hours and during the artificial illumination.

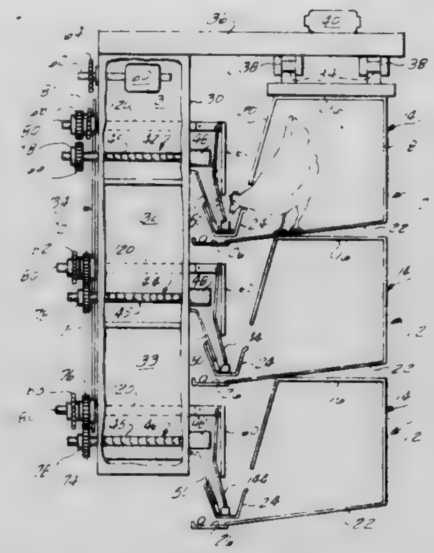
4,379,438
HORSE SPA
Richard Peardon, 22100 Burbank Blvd. F-152, Woodland Hills, Calif. 91367
Filed Oct. 20, 1980, Ser. No. 199,030
Int. Cl.^{3} A61D *11/00;* A01K *29/00*
U.S. Cl. 119—29 **13 Claims**



11. An improved portable horse spa, said spa comprising, in combination:
(a) a hollow housing adapted to be placed on the ground and defining:
i. a horse therapy compartment having a closed bottom, closed sides and closed ends, at least one of said ends having an openable door, said therapy compartment and door being watertight,
ii. a plurality of integral storage chambers adjacent to said therapy compartment bearing water for said therapy compartment and stabilizing said housing against tilting; and
iii. at least one of said chambers holding hot water and another of said chambers holding cold water therein;
(b) water temperature regulating means in said housing;
(c) water circulation means in said housing connected to said therapy compartment, temperature regulating means and said water chambers for movement of water therebetween;
(d) remote control means disposed on the outside of said housing and connected to said circulations means and said temperature regulating means for control thereof; and
(e) water purification means in said housing connected to said water circulation means and/or said therapy compartment, wherein said therapy compartment includes ports and wherein said spa includes moveable high intensity lamps which can beam selected radiation into said therapy compartment through said ports.

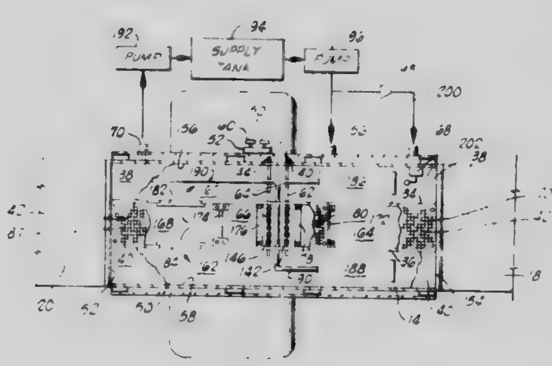
4,379,439
ANIMAL FEEDER
Robert P. Baur, 8425 Filion Rd., Pigeon, Mich. 48755
Filed Sep. 14, 1981, Ser. No. 302,253
Int. Cl.^{3} A01K *5/02*
U.S. Cl. 119—52 B **7 Claims**

1. An aminal feeder for an animal cage assembly formed of a plurality of animal cages arranged side-by-side in a horizontal alignment, with a feed trough extending along the front of the animal cages, the animal feeder comprising:
carriage means movably disposed for horizontal movement along the front of the cage assembly, the carriage means including a hopper for storing feed;
feed means carried by the carriage means for dispensing feed from the hopper into the feed trough;
first drive means for activating the feed means, the first drive means including an electric motor and means driven by the electric motor and operatively coupled to the feed means for activating the feed means;
control means, carried by the carriage means, for deactivating the feed means when predetermined levels of feed are detected in the feed trough; and
detector means for detecting the level of feed remaining in



the feed trough as the carriage means traverses along the cage assembly, the detector means being carried by and causing pivotal movement of the control means when a predetermined level of feed is detected in the feed trough;
the control means decoupling the feed activating means from the feed means to stop dispensing of feed when the predetermined level of feed trough is detected.

4,379,440
LIVESTOCK SPRAY APPARATUS
Dale E. Thedford, Enid, and Gil C. Wilson, Kremlin, both of Okla., assignors to AG Industries International, Ltd., Enid, Okla.
Filed May 22, 1981, Ser. No. 266,162
Int. Cl.^{3} A01K *13/00, 29/00*
U.S. Cl. 119—159 **13 Claims**



1. Apparatus for livestock spraying which functions with a source of spray solution, comprising:
chute housing means having opposite sides and roof portions and defining a longitudinal chute way from a livestock entry end to a livestock exit end;
chassis frame means affixed to and supporting opposite sides of said chute housing means;
solution spray means disposed longitudinally centrally within said chute housing means and directed across said chute way;
plural sector filter tank means having a perforate grating thereover and being formed as first sector means disposed at the livestock entry end for entrapment of solid waste, a second sector means disposed generally longitudinally centrally in baffled communication with said first sector means for primary collection of recycled solution, and third sector means disposed adjacent the livestock exit end

in screen filter communication with said second sector means;

at least one holding tank formed as a fluid-tight longitudinal receptacle integral with said chassis frame means and disposed laterally adjacent to said filter tank means in screen filter communication with said third sector means;

means conducting solution from said at least one holding tank to said source; and

means conducting solution from said source to said solution spray means.

4,379,441

SYSTEM FOR CONTROLLING THE AIR-FUEL RATIO IN A COMBUSTION ENGINE

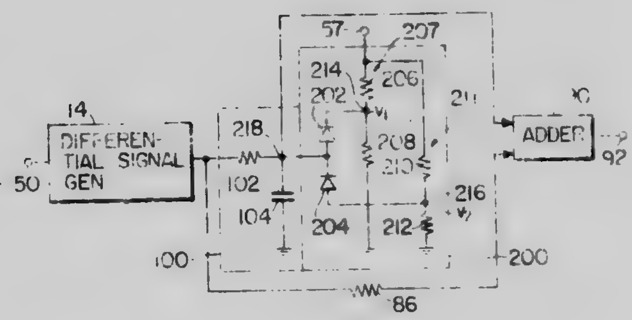
Makoto Anzai, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Division of Ser. No. 625,666, Oct. 24, 1975, abandoned. This application Dec. 21, 1976, Ser. No. 752,961

Claims priority, application Japan, Oct. 25, 1974, 49-123110; May 13, 1975, 50-55500

Int. Cl.^{3} F02B *75/10*

U.S. Cl. 123—440 **2 Claims**



1. In a closed loop mixture control system for an internal combustion engine including exhaust means, means for generating a first signal representative of the deviation of the air-fuel ratio within said exhaust means from a desired air fuel ratio, an integration circuit for providing integration of said first signal and mixture supplying means responsive to the output of said integration circuit to supply air and fuel in a variable ratio to said engine, wherein said integration circuit comprises:

an RC circuit, including a capacitor, for generating a second signal representative of the nonlinear integration of said first signal;

reference setting means for setting a predetermined voltage level, said predetermined voltage level being determined such that the nonlinear integration of said first signal by means of said RC circuit equals to the linear integration of said first signal by means of a linear integrator; and

polarity sensitive means including clamping means for passing signals of a given polarity applied thereto when said predetermined voltage level is reached, the voltage developed across said capacitor of said RC circuit being clamped at said predetermined voltage level.

4,379,442

ELECTROMAGNETICALLY CONTROLLED FUEL INJECTION PUMP

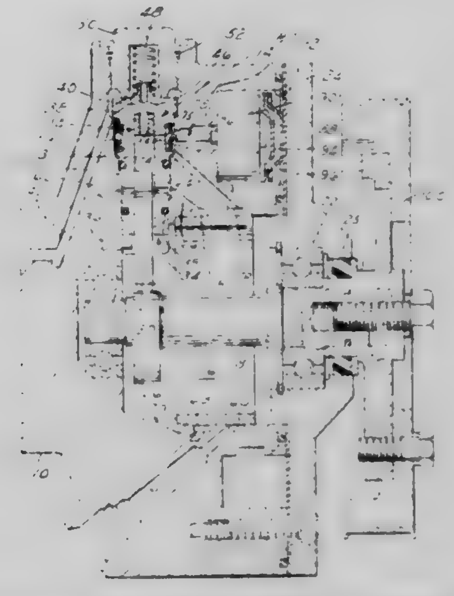
Aladar O. Simko, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Division of Ser. No. 193,985, Oct. 6, 1980, abandoned. This application Sep. 3, 1981, Ser. No. 299,253

Int. Cl.^{3} F02M *59/00*

U.S. Cl. 123—458 **5 Claims**

1. A fuel injection pump of the spill port type having a housing having a central cavity therein receiving a rotatable engine driven camshaft, a stationary pump plunger barrel projecting radially from the camshaft through the housing and having a bore containing a plunger movable therein, cam means on the camshaft engageable with the plunger to move the plunger axially along its bore through a fuel pumping stroke, the barrel bore being of uniform diameter and forming at one end a housing for a spring closed fuel pressure opened fuel delivery valve contained therein and blocking the one end thereof connected to a fuel injection line, the plunger and delivery valve being axially spaced along the barrel bore to define a fuel chamber therebetween, the barrel having a fuel inlet-spill port opening through the wall of the barrel into the fuel chamber and constituting a valve seat, a source of supply fuel under a low pressure connected to the inlet-spill port, an



electromagnetically controlled spill port control valve movably mounted with respect to the spill port valve seat and selectively operable to control the buildup and duration of pressure in the fuel chamber to a level effecting opening of the delivery valve and injection of fuel into the injection line upon movement of the plunger through its pumping stroke, the spill port valve including a ball universally seatable on the valve seat to be self-aligning with respect to the valve seat, a solenoid engageable with the spill port valve, and spring means biasing the ball to an unseated position.

4,379,443

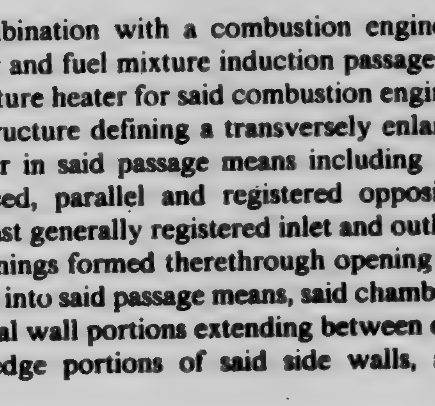
INTAKE MANIFOLD MOUNTED AIR AND FUEL MIXTURE HEATER

Charles C. Granger, 1203 Chestnut St., Henderson, N.C. 27536

Filed Sep. 2, 1980, Ser. No. 183,039

Int. Cl.^{3} F02M *31/00*

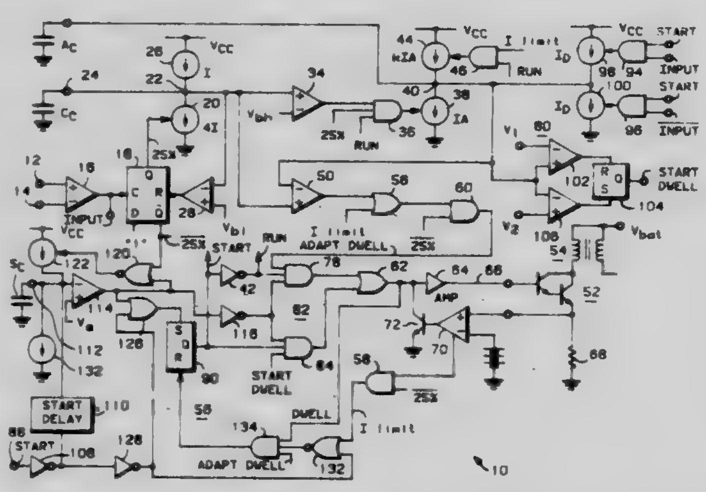
U.S. Cl. 123—549 **11 Claims**



1. In combination with a combustion engine of the type including air and fuel mixture induction passage means, an air and fuel mixture heater for said combustion engine, said heater including structure defining a transversely enlarged thin hollow chamber in said passage means including a first pair of closely spaced, parallel and registered opposite side walls having at least generally registered inlet and outlet air and fuel mixture openings formed therethrough opening upstream and downstream into said passage means, said chamber also including peripheral wall portions extending between corresponding peripheral edge portions of said side walls, a baffle plate

mounted in said chamber spaced intermediate and generally paralleling said side walls and registered with and extending outwardly beyond all marginal portions of said openings, said baffle plate including at least one pair of opposite marginal portions thereof spaced inwardly of the opposing peripheral wall portions of said chamber each marginal portion defining with the opposing peripheral wall a passage therebetween, said baffle plate further including a plurality of additional openings formed. Therethrough spaced inwardly from said marginal portions, and a generally flat heating coil assembly disposed in said chamber between one side of said baffle plate and the opposing side wall of said chamber in registry with the opening in said opposing housing side wall, said heating coil assembly including a main coil portion consisting of a plurality of continuous spiral convolutions, said main coil portion being of a plan area at least substantially equal to the cross sectional areas of the opening with which said main coil portion is registered.

4,379,444
START-TO-RUN CIRCUIT FOR AN ELECTRONIC IGNITION SYSTEM
Howard Weber, Scottsdale, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Apr. 13, 1981, Ser. No. 253,423
Int. Cl.³ F02P *9/00*
U.S. Cl. 123—609 **7 Claims**



1. A start-to-run circuit suitable to be utilized in an adaptive dwell ignition system for an engine having an adative dwell capacitor which provides a dwell control signal that varies the excess dwell time in response to variations in engine rpm, an amplifier which is rendered conductive in response to the dwell control signal during each firing cycle period to provide dwell current to charge an ignition coil and a feedback circuit for limiting the dwell current to a predetermined magnitude prior to discharge of the coil, comprising:

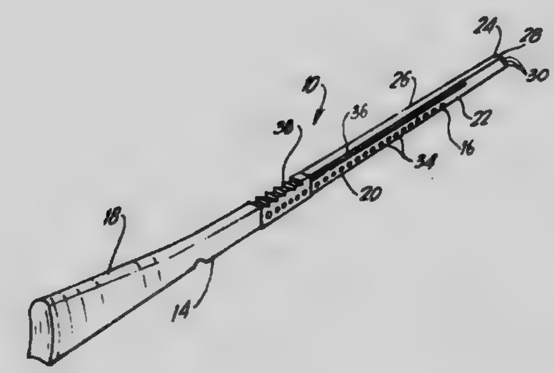
start dwell circuit means coupled with the adaptive dwell capacitor which is responsive to the ignition system being in a start mode of operation for charging and discharging the adaptive dwell capacitor for producing a first logic signal at an output thereof during a predetermined interval of each firing cycle period;

logic gate means coupled with both the ignition system and said output of said start dwell circuit means which is responsive to said first logic signal for providing first and second output signals, said first output signal rendering the amplifier conductive and said second output signal being produced while the dwell current is not being limited by the feedback circuit; and

logic circuit means coupled with the ignition system, said start dwell circuit means and said logic gate means which is responsive to a start command signal supplied thereto at an input for causing said ignition system to be in a start mode of operation, said logic circuit means being responsive to the termination of said start command signal in combination with receiving said second output signal from said logic gate means for inhibiting said start dwell circuit means and causing the ignition system to transition to a run mode of operation only during a predetermined period of the firing cycle period wherein said logic gate means is enabled by the ignition system.

7. In an adaptive dwell ignition system including an adaptive dwell capacitor which sets the excess dwell time in a firing cycle of the ignition system, a start-to-run transitioning circuit wherein the improvement comprises the start-to-run transitioning circuit being coupled to the adaptive dwell capacitor which is responsive to the system being in a start mode only for causing the charge and discharge of the adaptive dwell capacitor to provide start retard, the start-to-run transitioning circuit being responsive to the termination of the start mode for providing transitioning of the ignition system to a run mode only during a predetermined portion of the firing cycle.

4,379,445
RUBBER BAND RIFLE
Vincent LoBiondo, 8873 19th Ave., Brooklyn, N.Y. 11214
Filed Mar. 19, 1981, Ser. No. 245,425
Int. Cl.³ F41B *7/00*
U.S. Cl. 124—19 **3 Claims**



1. A rubber band rifle for shooting one or a plurality of rubber band members comprising a body having a forward barrel portion and a rear shoulder portion, a forward end wall of said barrel portion having a plurality of horizontal grooves disposed therein, one end of each of said rubber band members being disposed in one of said horizontal grooves in said forward end wall, a slide mechanism movably disposed on said forward barrel portion, said slide mechanism comprising a top and a pair of downwardly extending walls, an upper surface of said top of the slide mechanism having a plurality of notches disposed therein, each said rubber band members being stretched rearwardly from said forward extending wall of said barrel portion, wherein the other ends of said rubber band members being disposed in one of said notches, said forward barrel portion having a pair of sidewalls, each said sidewall having a longitudinally aligned groove therein and a boss disposed on the interior surface of each downwardly extending wall of said slide mechanism, each said boss being disposed in one of said longitudinally aligned grooves in said sidewalls of said barrel portion, means for locking said slide mechanism in a fixed position on said forward barrel portion, said locking mechanism comprises said barrel portion having a plurality of transverse holes therethrough, said holes being aligned in a longitudinal aligned row along said barrel portion, a plurality of openings through each downwardly extending wall of said slide mechanism, each set of said openings being aligned in a longitudinal row along each said downwardly extending wall of said slide mechanism, one of said holes being alignable with said openings, and a pin member, said pin member being insertable into said hole being aligned with said openings.

4,379,446

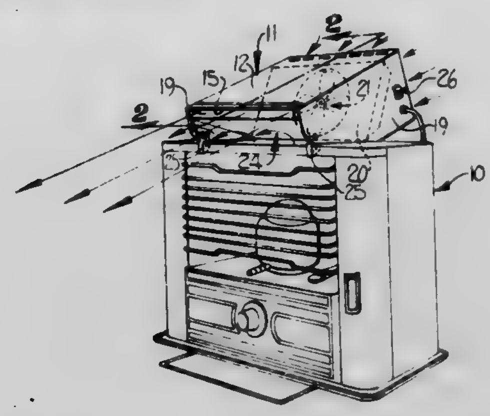
FAN ACCESSORY FOR HEATER

Donald G. Porter, 8620 Wilkinson Blvd., Charlotte, N.C. 28208

Continuation-in-part of Ser. No. 365,594, Apr. 5, 1982. This application Jul. 21, 1982, Ser. No. 400,398

Int. Cl.[3] F24H *3/02*

U.S. Cl. 126—110 B **8 Claims**



3. A fan accessory for recovering heated air generated by a heater and comprising:

housing means for directing air flow and having an upper wall, a rear wall defining an ambient air inlet, a lower wall defining a heated air inlet, and a front portion defining an air outlet for ambient air and heated air,

divider wall means extending within said housing means and cooperating therewith so as to define juxtaposed ambient and heated air passageways isolated from each other for separate flow of heated air and ambient air through said housing means and out of said air outlet,

fan means cooperating with said ambient air passageway for inducing ambient air to enter said ambient air inlet and flow through said ambient air passageway and out of said air outlet,

said divider wall means being so arranged relative to said housing means that the flow of ambient air out of the ambient air passageway causes an aspirating effect on the flow of heated air out of said air outlet by inducing the heated air to more rapidly move through said heated air passageway and to project further away from said housing means to thereby permit blending of the ambient and heated air to take place over a greater distance from said housing means and to provide a more efficient operation of a heater, and

heater engaging means on said housing means for positioning said housing means to receive through said heated air inlet, heated air generated by a heater.

4,379,447

HEAT SAVER FOR HOUSEHOLD HEATERS

Lawrence A. Schott, 15940 Warwick Rd., Detroit, Mich. 48223, and Roger A. Schott, 15060 Seminole, Redford, Mich. 48239

Filed Feb. 27, 1981, Ser. No. 239,063

Int. Cl.[3] F24H *3/12;* **F24B** *7/00*

U.S. Cl. 126—117 **2 Claims**

1. A heat saving system for recovering heat from a furnace chimney flue pipe which comprises:

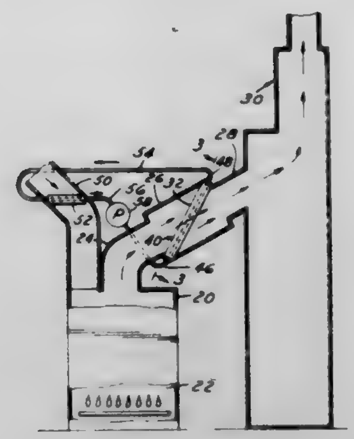
(a) a chamber in said flue pipe through which the flue gases pass,

(b) a first heat exchange coil in said chamber interposed in the path of flue gas,

(c) a cold fluid inlet leading to said furnace,

(d) a fluid in said coil, and

(e) means to connect said coil to said cold fluid inlet to transfer heat from said chimney flue pipe to the inlet fluid to be heated in said furnace, said chamber comprising a rectangular box of fireproof material having an opening at opposite ends to connect to a chimney flue pipe, and said coil being mounted in a rectangular frame extending diagonally from one corner of said box to a diagonally opposite corner in a plane angled to the path between said openings.



4,379,448

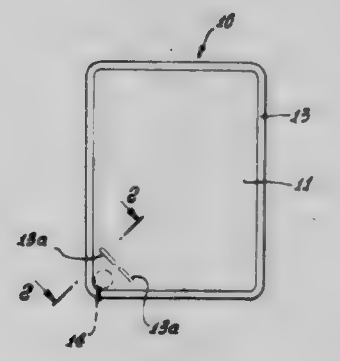
TRIGGER TO INITIATE CRYSTALLIZATION

Imants P. Kapralis, 3020 S. Punta Del Este Dr., Hacienda Heights, Calif. 91745, and Harry Krukle, 7023 Bevis Ave., Van Nuys, Calif. 91405

Continuation of Ser. No. 113,356, Jan. 18, 1980, abandoned. This application Feb. 22, 1982, Ser. No. 350,564

Int. Cl.[3] F24J *1/00*

U.S. Cl. 126—263 **3 Claims**



1. For use in initiating crystallization of a supercooled salt solution, the combination that includes a flexible container containing said solution, and a trigger located in the container in contact with the solution, said trigger comprising

(a) a thin strip having a perimeter,

(b) said strip having a multiplicity of generally parallel slits formed therein, each slit characterized as having opposed elongated edges which face one another in near touching relation,

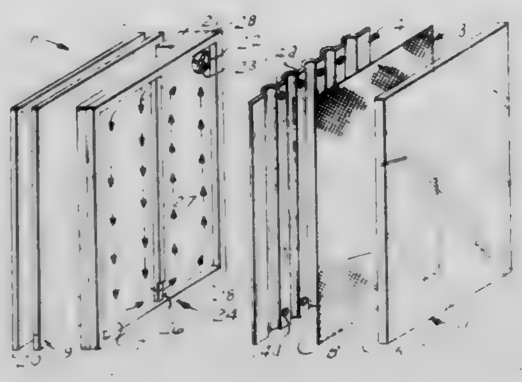
(c) the strip further characterized as having two configurations between which it is bendable with snap-displacement causing the slit edges to initiate progressive exothermic crystallization of said salt in the solution,

(d) the strip being in the general form of a dished disc having a central portion and an outer portion surrounding said central portion, the outer portion having a curved periphery,

(e) said slits confined to said outer portion and said central portion being free of said slits, said slits everywhere spaced inwardly from the disc periphery and located in an annular zone extending about said central portion, the slits defining a sector shaped portion of the annular zone located at a side of said central portion, whereby said periphery is free of slit edges which could otherwise penetrate the container, the container consisting of plastic material,

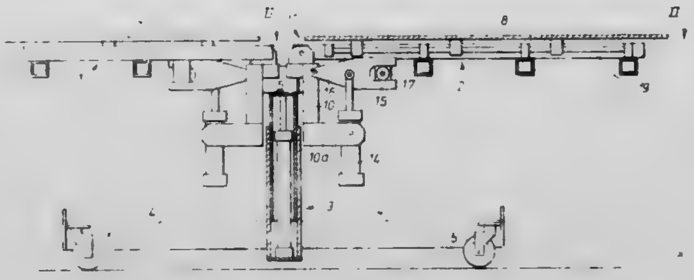
(f) the strip consisting of metal and having molecular structure which is impact oriented.

4,379,449
SOLAR HOT AIR SYSTEM
John W. Wiggins, and Damon E. Moore, both of P.O. Box 138, Dundee, Mich. 48131
Filed Sep. 12, 1980, Ser. No. 186,572
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—449 1 Claim



1. A solar hot air heating system adapted to be installed in an opening within a building disposed between the interior and the exterior of the building comprising:
a perimetric frame secured in said opening and having upper and lower sides;
a light transparent plate secured in said frame and having first and second sides, the first outer side facing the exterior and the second inner side facing the interior;
a single light absorptive corrugated metal sheet plate secured within said frame with the corrugations thereof vertically oriented, said plate having first and second sides, the first side facing the second side of the light transparent plate and being displaced from the first side of the light absorptive plate, the opening of the building, the second side of the optically transparent plate and the first side of the light absorptive plate defining a first air flow passage containing a volume of air which is heated by light energy passing through the transparent plate and absorbed by the light absorptive plate;
a light absorptive mesh secured to the second side of the transparent plate, the metal mesh functioning as a light absorptive means for part of the light energy passing through the optically transparent plate, as a means for preventing reflection of light energy back through the optically transparent plate and as a means for insulating the optically transparent plate from the volume of air to lessen heat flow from the first volume of air out through the transparent member;
a light reflective plate secured within said frame having first and second sides, the first side of the light reflective plate being displaced from and facing the second side of the light absorptive plate, the opening of the building, the second side of the light absorptive plate and the first side of the light reflective plate forming a second air flow passage containing a volume of air;
an insulating plate secured to the second side of the light reflective plate;
said light reflective plate having an upper inlet opening and an upper separate outlet opening, and said corrugated plate having air circulating apertures at both its upper and lower marginal edges, said apertures being intermediate the plate corrugations and affording communication between said first and second air flow passages; and blower means for circulating air through said first and second air passages, cool air entering said inlet opening, flowing downwardly through said second passage through the lower apertures in said corrugated plate, then upwardly through said first passage and through the upper apertures of said corrugated plate to exit through the outlet opening of said light reflective plate, the air being heated by the single corrugated plate during its flow in opposite directions through the first and second passages.

4,379,450
TRACTION BENCHES
Per-Olof Sjölinder, Tanneforsgatan 3, S-582 24 Linköping, Sweden
Filed Dec. 17, 1980, Ser. No. 217,499
Int. Cl.³ A61F *5/00*
U.S. Cl. 128—74 5 Claims

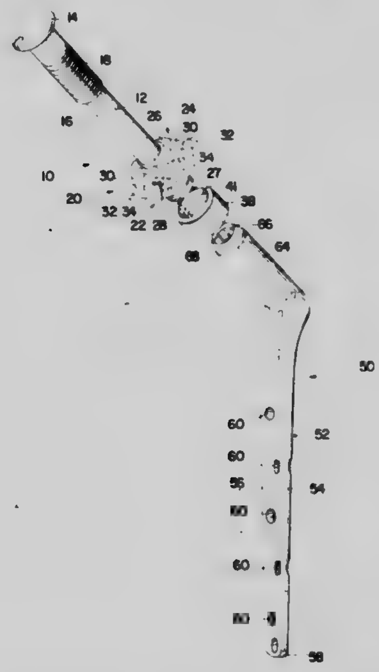


1. A traction bench for the treatment of the vertebral column and extremities of a human body comprising a table on which a patient to be treated may lie, said table comprising a pair of elongated separate table sections disposed in spaced longitudinally aligned relation to one another, support means attached to at least one of said table sections for mounting said one table section in a manner permitting said one table section to be displaced relative to the other of said table sections in any selected one or more of four different movements, said support means including first means supporting said one table section for translational movement longitudinally relative to said other table section along a first translational axis parallel to the longitudinal axis of said elongated one table section, second means supporting said one table section for translational movement transversely relative to said other table section along a second translational axis that is oriented at right angles to said first translational axis, third means supporting said one table section for tilting movement in a first angular direction relative to said other table section to tilt the plane of said one table section relative to the plane of said other table sections about a first pivotal axis which extends transversely to the direction of elongation of said one table section, and fourth means supporting said one table section for further tilting movement in a second angular direction transverse to said first angular direction to tilt the plane of said one table section transversely relative to the plane of said other table section about a second pivotal axis which extends parallel to the direction of elongation of said one table section, and fixation means on each of said table sections for fixedly securing one portion of the patient's body to one of said table sections and for fixedly securing another portion of the patient's body to the other of said table sections, said fixation means comprising a mounting structure which is adapted to be selectively moved to any one of a plurality of positions on the surface of its associated table section, means for securely attaching said mounting structure to the surface of said table section at the selected position on said surface, and a harness attached to said mounting structure for engagement with a portion of the patient's body adjacent said selected position on the surface of said table section, said mounting structure comprising a circular disc having an elongated bar extending across the diameter thereof, said disc being adapted to be attached to the selected position on the surface of said table section with said bar oriented in any selected one of a plurality of possible directions relative to the side edges of said table section, said harness being attached to said bar.

4,379,451
INTRAMEDULLARY HIP PIN AND CORTICAL PLATE
Philip E. Getscher, 4230 Burnham Suite 140, Las Vegas, Nev. 89109
Filed Nov. 4, 1980, Ser. No. 204,063
Int. Cl.³ A61F *5/04*
U.S. Cl. 128—92 CA 2 Claims
1. An intramedullary pin, comprising:
an elongate shaft having a longitudinally extending groove

and a threaded portion formed intermediate its ends, the shaft having an enlarged, flattened end;

an expansible cage adapted to be secured to the shaft, the cage including a first section in the form of a ring encircling the shaft, the ring including a boss extending into the groove, the first section being a generally concave or conical basket including a pair of fingers having reversely bent end portions as well as a pair of legs having openings formed near their ends, the fingers and legs alternating circumferentially of the ring and being spaced 90 degrees from each other, the cage also including a second section, the second section having a generally concave or conical basket the generally concave or conical baskets of the first and second sections having their concave sides facing one another, wherein the fingers extend through openings in the legs to form an interlocking cage;



the bosses of the first and second sections being axially aligned for engagement with the longitudinal groove in the shaft;

a nut engagable with the threads on the shaft and with one of the sections such that, upon tightening the nut, the sections are clamped between the nut and the enlarged end and are compressed axially, thereby expanding the fingers radially outwardly of the shaft;

an elongate section securable to the lateral cortex of the shaft of a femur; and

a tubular portion positioned at an obtuse angle with respect to the longitudinal axis of the elongate section, the tubular portion adapted to receive the shaft in sliding, non-rotating relationship.

4,379,452

PREPACKAGED, SELF-CONTAINED FLUID CIRCUIT MODULE

James H. DeVries, McHenry, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Continuation of Ser. No. 843,223, Oct. 18, 1977, abandoned. This application Dec. 6, 1979, Ser. No. 100,975

Int. Cl.^{3} A61M *5/00*

U.S. Cl. 604—6 **32 Claims**

1. A prepackaged, self-contained fluid circuit module selectively movable by an operator into and out of operative association with a pump rotor, said module comprising

flexible first conduit means and flexible first auxiliary conduit means each defining a fluid pathway adapted for communication with a source of fluid, and

housing means having sidewalls peripherally defining a hollow interior and including means on said sidewalls for supporting a portion of each of said conduit means within the confines of said hollow interior and for supporting another portion of each of said conduit means, when said module is out of operative association with the pump rotor, in a predetermined arcuate configuration outwardly bowed from one of said sidewalls and resiliently biased toward an upright freestanding position generally perpendicular to said one sidewall with said outwardly bowed

portion of one of said conduit means concentrically positioned closely adjacent to said outwardly bowed portion of the other of said conduit means to accommodate simultaneous operative contact with the pump rotor when said module is moved into operative association therewith.

4,379,453

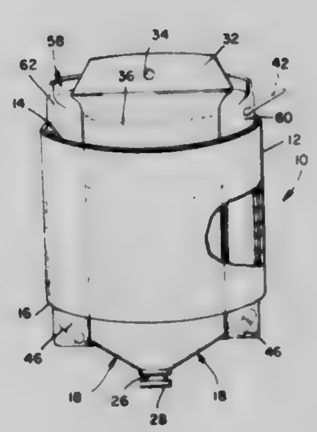
INFUSION SYSTEM WITH SELF-GENERATING PRESSURE ASSEMBLY

Howard C. Baron, 935 Park Ave., New York, N.Y. 10021

Continuation-in-part of Ser. No. 543, Dec. 28, 1978, abandoned. This application Sep. 15, 1980, Ser. No. 186,955

Int. Cl.^{3} A61M *5/00*

U.S. Cl. 604—145 **19 Claims**



1. For use with a flexible-walled infusion bag storing a supply of fluid to be fed intravenously and having an outlet, an infusion system for dispensing fluid under pressure from said infusion bag comprising:

an outer container having a substantially inextensible wall portion defining an interior cavity sized for removably receiving said infusion bag therein;

an expandable envelope disposed within said cavity adjacent said infusion bag, said expandible envelope being completely sealed and having a normal collapsed condition in which it occupies a minor portion of said cavity; and

manually operable inflation means within said expandible envelope including at least two separate frangible capsules, each of said capsules being independently ruptur-

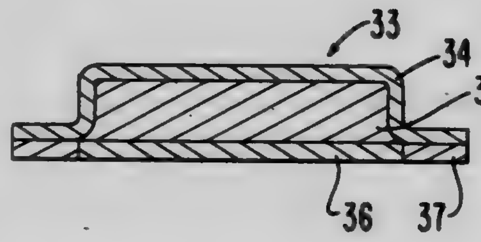
able only by manipulation through the wall of said expandible envelope to generate separate supplies of gas within said expandible envelope, when ruptured, to expand said envelope and squeeze said infusion bag against said inextensible wall portion, thereby dispensing said fluid from said infusion bag through said outlet.

4,379,454

DOSAGE FOR COADMINISTERING DRUG AND PERCUTANEOUS ABSORPTION ENHANCER

Patricia S. Campbell, and Santosh K. Chandrasekaran, both of Palo Alto, Calif., assignors to ALZA Corporation, Palo Alto, Calif.

Filed Feb. 17, 1981, Ser. No. 235,068
Int. Cl.^{3} A61M *7/00*
U.S. Cl. 604—897 **16 Claims**



1. A unit dosage form for coadministering a drug and a percutaneous absorption enhancer to a predetermined area of unbroken skin of a patient for a predetermined time period, the dosage form comprising a body

(a) having a basal surface
  (i) of area at least about equal to the area of skin,
  (ii) that is adapted to contact the area of skin over the time period, and
  (iii) via which the drug and enhancer are presented to the area of skin for absorption thereby;
(b) containing a supply of the drug that communicates with the basal surface to provide drug at the basal surface over the time period such that over a substantial portion of the time period the amount of drug provided is in excess of that which the area of skin is able to absorb;
(c) containing a supply of the percutaneous absorption enhancer that communicates with the basal surface over said time period; and
(d) including means for maintaining the rate at which the enhancer is provided at the basal surface substantially constant over a substantial portion of the time period, the rate being
  (i) below the maximum rate the area of skin is able to absorb, and
  (ii) sufficient to increase the permeability of the area of skin to the drug such that the drug is absorbed thereby at a rate that provides a therapeutically effective level of the drug in the bloodstream of the patient.

4,379,455

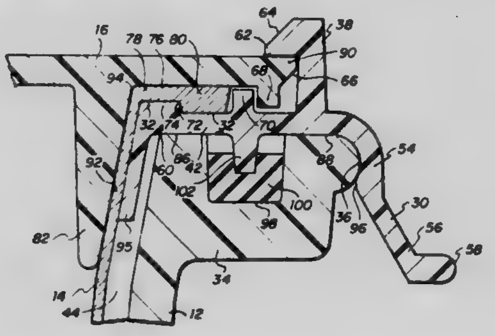
MEDICAL RECEPTACLE WITH DISPOSABLE LINER ASSEMBLY

David W. Deaton, 922 Ruswood Cir., Abilene, Tex. 79601

Division of Ser. No. 113,620, Jan. 21, 1980, Pat. No. 4,321,922. This application Sep. 14, 1981, Ser. No. 301,527
Int. Cl.^{3} A61F *5/44*
U.S. Cl. 604—320 **11 Claims**

1. Apparatus for receiving fluids from the body of a patient comprising:

a rigid outer canister means having an open mouth defined by sidewalls and a rim extending laterally from a canister sidewall, said rim having a recess formed therein, a gasket disposed within said recess;
a disposable container means for being removably inserted within said canister means, said container means having an open mouth defined by a lip extending laterally from a container sidewall;
a peripheral sealing support lid means removably attachable to said canister means and supporting said container means from said canister rim;
a removable cover means coacting with said sealing support lid means for being retained over said mouth of said canister means;
said cover means sealingly pinching said container lip between said cover means and said lid means;
said cover means having a patient port for receiving fluid from the body of a patient;
said cover means having a vacuum port for effecting a vacuum within said container means for drawing fluid through said patient port for collection in said container means;
said canister rim extending laterally below and outwardly beyond said container lip;



said lid means having a lateral sealing portion between said container lip and said canister rim, said sealing portion having a downwardly extending annular lug engaging said gasket disposed in said rim;
said lid means having a securement portion engaging said cover for securing said cover in sealing engagement with said container lip therebelow;
said lid means having a portion releasably abutting said canister rim;
said cover means extending laterally beyond said container lip;
said securement portion of said lid engaging the outer edge of said cover means;
said canister rim extending laterally beyond said outer edge of said cover means; and
said container lip and said sealing portion of said lid means being annularly interfitted in detented registry with the combined vertical thickness thereof substantially constant;
said container means, lid means and cover means forming a single, separable unit from said canister means.

4,379,456

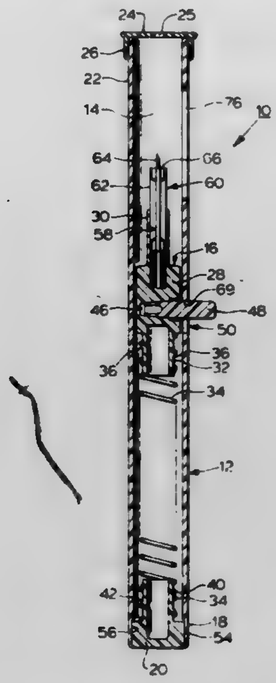
LANCET INJECTOR

William D. Cornell, Ballwin, and Carnot Evans, St. Louis, both of Mo., assignors to Sherwood Medical Company, St. Louis, Mo.

Filed Jun. 29, 1981, Ser. No. 278,024
Int. Cl.^{3} A61B *17/32*
U.S. Cl. 128—314 **17 Claims**

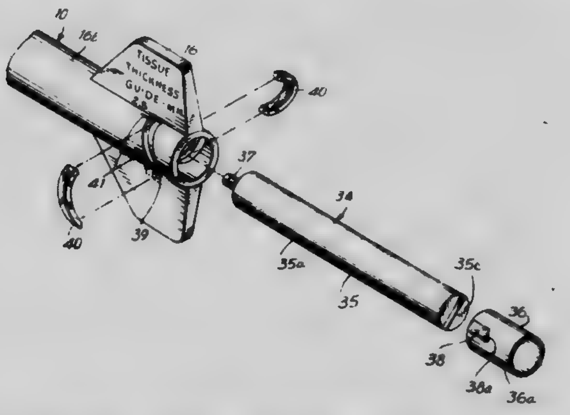
1. A lancet injector comprising an elongate housing, a lancet holder slidable in said elongate housing and adapted to have a lancet releasably connected thereto for piercing the skin, spring means in said housing having one end connected to said holder and the other end engaging a proximal end portion of said housing, control means connected to said holder for moving said holder, said control means being movable to move said holder linearly against the force of said spring means to a releasable retracted position thereby compressing said spring means, said control means being movable to release said holder from said retracted position so that the force of said spring means and the inertia of said holder during movement thereof

moves said holder linearly toward a distal end portion of said housing to a lancet piercing position in which said spring



means is tensioned to move said holder proximally from said piercing position.

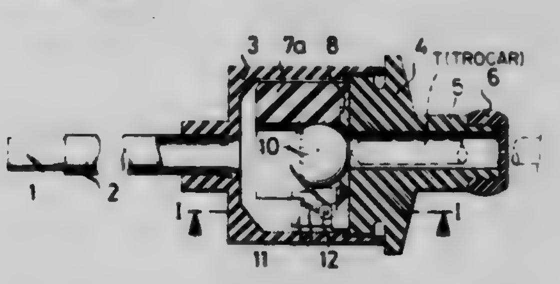
4,379,457
INDICATOR FOR SURGICAL STAPLER
Roy D. Gravener, Bethany; Alfred F. De Carlo, Stamford, and Douglas G. Noiles, New Canaan, all of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.
Filed Feb. 17, 1981, Ser. No. 234,720
Int. Cl.³ A61B *17/04, 17/08*
U.S. Cl. 128—334 R **13 Claims**



1. In a surgical stapler, provided with:
(a) an anvil;
(b) a staple carrying assembly, located proximally of the anvil; the staple carrying assembly being adapted to be activated, so that its staples are urged distally against the anvil to staple tissue between the anvil and the staple carrying assembly;
(c) a threaded rod, adapted to move axially and connected to the anvil or to the staple carrying assembly;
(d) rotatable moving means, located proximally of the staple carrying assembly and threadedly engaged with the threaded rod, for moving the threaded rod axially upon rotation of the moving means; the moving means being rotatably connected to the anvil, if the threaded rod is connected to the staple carrying assembly, or to the staple carrying assembly, if the threaded rod is connected to the anvil; and the portions of the threaded rod, threadedly engaged with the moving means, being located within the moving means; and
(e) means, connected to the threaded rod and the moving means, for indicating that the axial position of the threaded rod relative to the moving means is such that the spacing between the anvil and the staple carrying assembly is within a range of spacings that is generally suitable for stapling tissue between the anvil and the staple carrying assembly;

the improved indicating means (e) which comprises:
an indicator marking which is connected to the threaded rod and is adapted to move axially within the moving means between the threaded rod and the moving means; and
a helical surface in the lateral surface of the moving means which faces proximally and which substantially parallels the helical path of the indicator marking, relative to the moving means, when the moving means is rotated and the indicator marking is located axially of the helical surface;
the indicator marking not being laterally covered by the moving means and being continuously visible proximally of, and adjacent to, the helical surface as the moving means is rotated when and only when the spacing between the anvil and the staple carrying assembly is within the range of generally suitable spacings.

4,379,458
TROCAR SLEEVES HAVING A BALL VALVE
Siegfried Bauer, Heidelsheim, and Manfred Boebel, Oetisheim, both of Fed. Rep. of Germany, assignors to Richard Wolf GmbH, Knittlingen, Fed. Rep. of Germany
Division of Ser. No. 959,561, Nov. 13, 1978, Pat. No. 4,233,982. This application Jul. 14, 1980, Ser. No. 168,070
Int. Cl.³ A61B *17/34;* **A61M** *5/00*
U.S. Cl. 604—264 **1 Claim**



1. A hollow surgical trocar sleeve instrument adapted to be inserted into the abdomen to enable another surgical instrument to be passed therethrough into the abdomen of the patient, and comprising an outer cylindrical metal sleeve and an inner concentric insulating plastic sleeve joined to one another in concentric relation, the tip of the inner insulating plastic sleeve extending considerably beyond the tip of the outer metal sleeve so that there is a sleeve portion of insulating plastic material in front of the tip of the metal sleeve without there being metal at the distal tip of the trocar instrument, a one-piece plastic housing joined to the rear of the outer metal sleeve, said housing supporting at the proximal end a seal cap of resilient material having a central aperture therethrough aligned to the bore of the inner plastic sleeve for capturing the other instrument by a seal fit when passed therethrough.

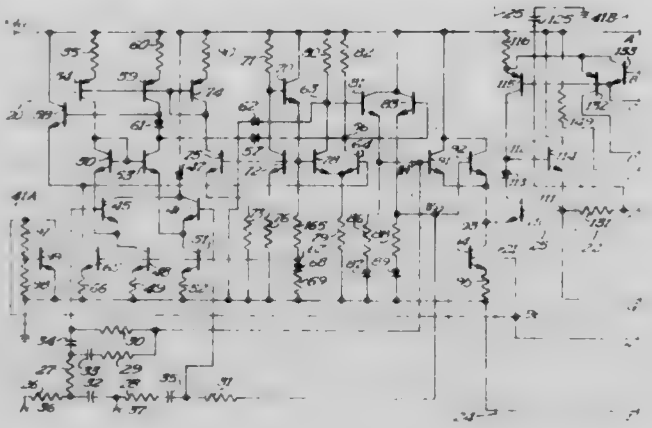
4,379,459
CARDIAC PACEMAKER SENSE AMPLIFIER
Marc T. Stein, Tempe, Ariz., assignor to Medtronic, Inc., Minneapolis, Minn.
Filed Apr. 9, 1981, Ser. No. 252,537
Int. Cl.³ A61N *1/36*
U.S. Cl. 128—419 PG **3 Claims**

1. A cardiac signal amplifier of the type having terminal means for receiving input signals, output means for providing an output signal upon detection of natural heart signal and blanking signal receiving means for blanking the signal amplifier for a predetermined blanking time interval, comprising:
reference level integrating circuit means for establishing a reference level signal representative of sensed extraneous repetitive noise input signals received from said terminal means;
instantaneous level integrating circuit means for establishing

an instantaneous level signal representative of non-recurring signals received from said terminal means;

means responsive to said reference level and instantaneous level signals for providing said output signal when said instantaneous level signal exceeds said reference level signal by a predetermined signal level;

current supply means for establishing a predetermined minimum signal level on said reference level and instantaneous level integrating circuits in the absence of any signal inputs on said terminal means and for establishing said reference and instantaneous signal levels on said integrating circuits in the presence of noise and heart signals; and



comparator means having a first input coupled to said reference level integrating circuit means and a second input coupled to said instantaneous level integrating circuit means and an output coupled to said current supply means and operative during blanking of said signal amplifier for maintaining said instantaneous signal level nearly equal to said reference signal level during blanking of said sense amplifier.

4,379,460

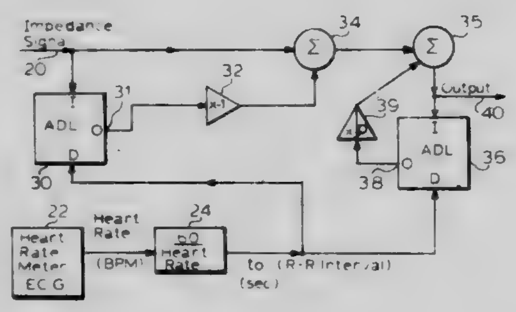
METHOD AND APPARATUS FOR REMOVING CARDIAC ARTIFACT IN IMPEDANCE PLETHYSMOGRAPHIC RESPIRATION MONITORING

Neil H. K. Judell, 509A Lafayette Rd., North Kingston, R.I. 02852

Filed Sep. 18, 1980, Ser. No. 188,392

Int. Cl.[3] A61B *5/08*

U.S. Cl. 128—671 4 Claims



1. In an impedance plethysmographic apparatus of the type for monitoring respiration of a patient including means for measuring an impedance signal generated by changes occurring in the patient's chest, wherein the improvement comprises:

means for removing artifact from the impedance signal caused by cardiac activity in the chest including;

filter means which produces an output signal dependant only upon respiration activity in the patient's chest by removing any signals from said output signal caused by cardiac activity which is substantially periodic in character, said filter means receives as input an impedance signal which is a function of both cardiac and respiration activity, said filter means adapted to filter said input impedance signal so that said output signal is a function of only respiration activity,

a first rate means for providing a heart rate signal to said filter means,

said filter means including;

a first analog filter means for receiving said impedance signal as input, and

a second analog filter means for providing said output signal, said second analog filter means arranged in a cascaded, time-delay arrangement with said first filter means,

said output signal being a summation of outputs of said first filter means and said second analog filter means as a function of respiration activity with respect to time.

4,379,461

THERMOGRAPHIC APPARATUS

Erling S. Nilsson, Vitmaravägen 77, Upplands Väsby, and Staffan G. Zetterquist, Vesslevägen 4, Täby, both of Sweden

PCT No. PCT/SE80/00014, § 371 Date Sep. 17, 1980, § 102(e) Date Sep. 8, 1980, PCT Pub. No. WO80/01514, PCT Pub. Date Jul. 24, 1980

PCT Filed Jan. 17, 1980, Ser. No. 204,366

Claims priority, application Sweden, Jan. 17, 1979, 7900434

Int. Cl.[3] A61B *5/00, 5/02*

U.S. Cl. 128—736 7 Claims

1. An apparatus for detecting circulation disturbances in the legs of a patient by measuring and recording the skin surface temperature along the legs of the patient, comprising:

at least one temperature sensor manually movable over the skin surface along the legs of a patient resting with his legs in a substantially horizontal position and capable of sensing the skin surface temperature of the momentarily adjacent portion of the patient's leg and generating an electric signal corresponding thereto;

a movable apparatus frame structure adapted to be located at the feet of a patient under examination;

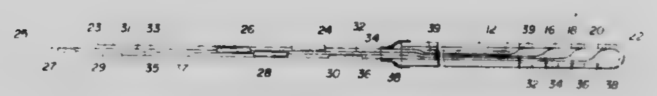
means mechanically connecting said temperature sensor to said apparatus frame, and including signal generating means responsive to the movement of said temperature sensor relative to said apparatus frame and for generating an electric signal representing the position of the temperature sensor along its path of movement;

signal recording means mounted in said apparatus frame for receiving said temperature signal and said position signal and capable of recording the temperature being sensed as a function of the position of the temperature sensor; and

digital signal processing means mounted in said apparatus frame for receiving said temperature and position signals and including data storing means for storing associated values of said temperature and position signals from at least two, different, measured temperature-position-relations and calculating means for comparing the temperature values as a function of the position for said two temperature-position-relations stored in said storing means and for producing signals representing the temperature difference as a function of the position for said two temperature-position relations, said recording means being

capable of receiving said last mentioned signals for recording said temperature difference as a function of the position.

4,379,462
MULTI-ELECTRODE CATHETER ASSEMBLY FOR SPINAL CORD STIMULATION
William N. Borkan, North Miami; Frank M. Savino, Fort Lauderdale, both of Fla., and Joseph M. Waltz, Rye, N.Y., assignors to Neuromed, Inc., Fort Lauderdale, Fla.
Filed Oct. 29, 1980, Ser. No. 201,783
Int. Cl.^{3} A61N *1/04*
U.S. Cl. 128—786 **16 Claims**



1. A catheter electrode assembly for insertion through a needle to lie along and stimulate the spinal cord comprising:

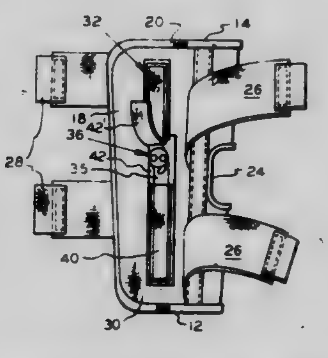
a sheath having a distal and a proximal end and an outer diameter of less than approximately 0.05 inches;

at least three in-line electrodes equally spaced along the exterior of said distal end of said sheath to lie in-line along a spinal cord;

at least three in-line terminals at the proximal end of said sheath; and

at least three sets of individually insulated stranded stainless steel wires interconnecting an electrode and a respective terminal, the insulation of said sets of wires hermetically seals said sets of wires independent of said sheath without reducing the flexibility of said sets of wires.

4,379,463
MULTICENTRIC KNEE CAGE
Robert H. Meier, and Evelyn Farr, both of Jackson, Mich., assignors to Camp International, Inc., Jackson, Mich.
Filed Apr. 13, 1981, Ser. No. 253,047
Int. Cl.^{3} A61F *5/00*
U.S. Cl. 128—80 C **13 Claims**



1. A knee cage for supporting the knee comprising, in combination, a flexible cover having upper, lower and lateral edges and inner and outer surfaces, said cover including lateral portions, cover securing means mounted upon said cover adapted to secure said cover about the wearer's knee, hinge means defined upon said cover lateral portions, said hinge means each including first and second elongated elements interconnected by a floating pivot, and hinge mounting means releasably mounting said hinge means elements upon said cover outer surface at said lateral portions to permit selective positioning of said hinge means upon the associated cover lateral portion.

4,379,464
COOKED FLAVORS FOR SMOKING PRODUCTS
D. Louise Wu, and James W. Swain, both of Richmond, Va., assignors to Philip Morris Incorporated, New York, N.Y.
Filed Feb. 18, 1981, Ser. No. 235,456
Int. Cl.^{3} A24B *15/30*
U.S. Cl. 131—275 **12 Claims**

1. A process for preparing a reaction flavor product which comprises the following steps:

(a) preparing a mixture of a reducing sugar and ammonium hydroxide wherein the weight ratio of reducing sugar to ammonium hydroxide is in the range of 5–15:1;

(b) adding a trace amount of a compound selected from the group consisting of an amino acid and a monoamide thereof to said mixture of step (a), wherein the ratio of reducing sugar to said compound is in the range of 200–300:1;

(c) heating said mixture to a temperature in the range of 90° to 105° C.; and thereafter

(d) cooling said mixture to room temperature.

4,379,465
PROCESS FOR PRODUCING A FILTERING STRUCTURE IN PARTICULAR FOR CIGARETTE FILTERS
Francois Coq, Perpignan, France, assignor to Job, anciens Ets Bardou Job & Pauilac, Perignan, France
Filed Jul. 23, 1980, Ser. No. 171,569
Claims priority, application France, Jul. 27, 1979, 79 19269
Int. Cl.^{3} A24D *3/02, 3/04, 3/06*
U.S. Cl. 131—332 **19 Claims**

1. In a process for producing a filtering structure, in particular for cigarette filters, comprising, mixing fibres of different types to form a homogeneous fibrous mass, one type of the fibres being synthetic and thermofusible at a low melting point and possessing adhesive properties in the molten state, another type of the fibres being absorbent with respect to harmful products of tobacco smoke and stable at the melting temperature of the thermofusible fibres, shaping the fibrous mass into a cylindrical rod which is not yet in a coherent state but is homogeneous and comprises fibrous networks which are closely imbricated relative to each other, the improvement comprising: employing a notable proportion of the thermofusible fibres relative to the absorbent fibres, said thermofusible fibres being elongated in form; and heating the fibrous mixture in said rod to a temperature which leaves the absorbent fibres intact but is sufficiently high for completely melting and fluidifying all the thermofusible substance which is initially present in the form of the elongated fibres to convert same into fine droplets dispersed in the network of absorbent fibres so as to create, by this conversion, on one hand, multiple connection at crossing points of the absorbent fibres which remain stable and, on the other hand, a network of pores which intercommunicate in all directions and are constituted by spaces left empty upon the complete melting of the thermofusible fibres.

4,379,466

COUNTING DEVICE FOR COIN SORTING AND COUNTING MACHINE

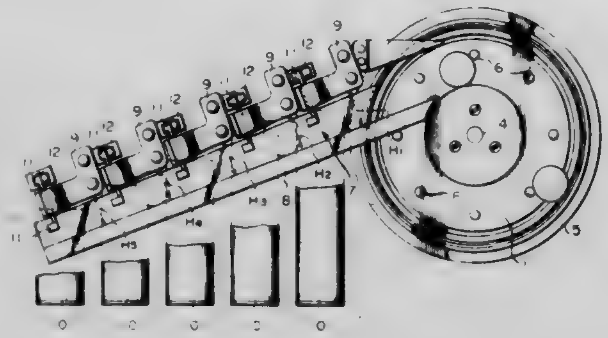
Katusuke Furuya, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

Filed Dec. 3, 1980, Ser. No. 212,539

Claims priority, application Japan, Dec. 29, 1979, 54/182586[U]

Int. Cl.³ G07D *9/04*

U.S. Cl. 133—3 C **5 Claims**



1. A coin sorting and counting apparatus which comprises a coin guiding and sorting mechanism for guiding coins to be sorted and for sorting coins by changing the guided coins' courses at predetermined positions according to the sizes of the coins, a coin feeding mechanism for feeding the coins to the coin guiding and sorting mechanism one by one, and a counting device arranged along the coin guiding and sorting mechanism including a plurality of vibrating elements for being vibrated by the coming coins when the latter come into contact with the former and arranged at the respective positions where the coins change their course, a plurality of vibration sensors connected with the vibrating elements, respectively, for converting the vibrations of said vibrating elements into electrical signals, and calculating means responsive to the electric signals for separately calculating the numbers of the coins having the different sizes.

4,379,467

WASHING UNIT FOR AN OFFSET DUPLICATING MACHINE

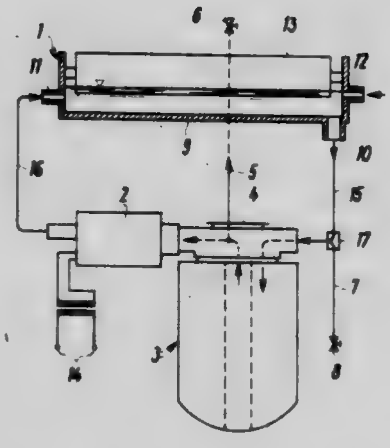
Horst Purr, Tennenbronn, Fed. Rep. of Germany, assignor to Mathias Bauerle GmbH, Georgen, Fed. Rep. of Germany

Filed Feb. 13, 1981, Ser. No. 234,431

Claims priority, application Fed. Rep. of Germany, Feb. 13, 1980, 3005236

Int. Cl.³ B08B *3/04*

U.S. Cl. 134—111 **16 Claims**



1. A washing unit for an offset duplicating machine, the washing unit comprising a washing tank means for accommodating a cleaning fluid, a washing roll means arranged in the washing tank means so as to enable a portion thereof to be dipped into the cleaning fluid accommodated in the washing tank means, and feeding means for feeding cleaning fluid to the washing tank means, characterized in that a circulatory means independent of the feeding means is connected to the washing tank means for recirculating the cleaning fluid, the circulatory means includes a pump means for pumping the cleaning fluid through the circulatory means, and filter means for filtering the cleaning fluid as the cleaning fluid is recirculated in the circulatory means.

4,379,468

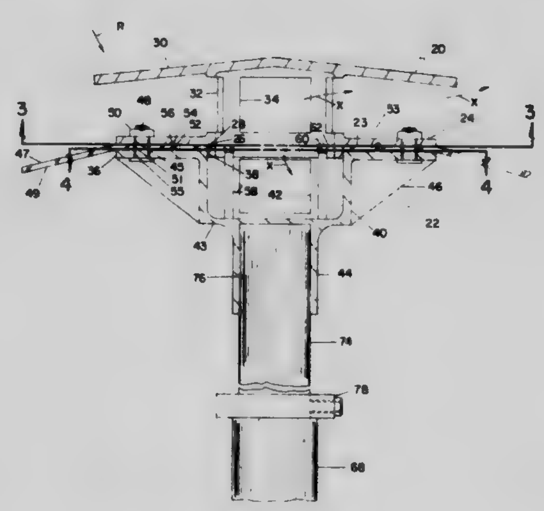
VENTILATOR APPARATUS FOR A FLEXIBLE SHEET

Steve Szukhent, Jr., Montrose, Mich., assignor to Tex-All Company, Inc., Montrose, Mich.

Filed Dec. 30, 1980, Ser. No. 221,214

Int. Cl.³ A45F *1/08*

U.S. Cl. 135—88 **10 Claims**



7. Ventilator apparatus for a flexible sheet, such as a boat covering, having a ventilation aperture through a portion of said sheet intermediate edge portions of said sheet, said covering having inner and outer sides, said apparatus comprising:

cover means for covering said ventilation aperture, said cover means having at least one passage therein for communicating ambient air to said aperture;

an inner support section on the inside of said sheet, having at least one passage therein in fluid communication with said ventilation aperture and said first mentioned passage;

means coupling said cover means and said lower section to secure said cover means and said inner section to said outer and inner side, respectively, of said sheet;

said cover means and said inner section including cooperating, sheet-pinching detent means and detent receiving means, clamped to opposite sides of said sheet, for displacing a portion of said sheet out of the plane of said sheet to inhibit lateral movement of said ventilator apparatus relative to said sheet; and

extensible and retractable support means coupled to said inner support section for supporting said ventilator apparatus at any selected one of a plurality of different levels to position the portion of said sheet adjacent said aperture at any selected one of a plurality of different levels relative to the edge portions of said sheet.

4,379,469

FIRE HYDRANT CAP WITH RECESSED VALVE

Arne J. Britz, 1775 W. 8th St., Brooklyn, N.Y. 11223

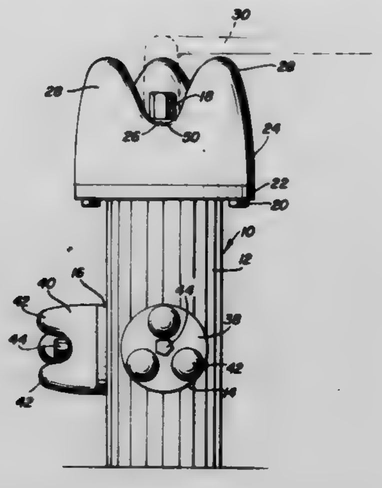
Filed Dec. 30, 1981, Ser. No. 335,767

Int. Cl.³ E03B *9/06, 9/14*

U.S. Cl. 137—296 **4 Claims**

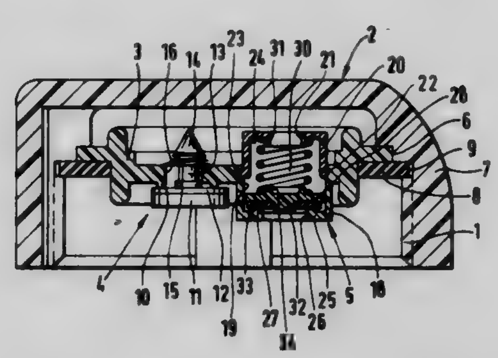
1. In combination with a valve body of the type including an upstanding tubular body and an uppr end bonnet secured over the upper end of said body, said bonnet including an upper central wall portion upwardly through which a rotatable valve actuating stem projects and is rotatably received, said bonnet including a plurality of upwardly projecting lobes spaced outwardly from and about said central portion, said stem in-

cluding an upper terminal end defining a non-circular cross section wrench engageable portion for telescopic engagement thereof with a similar non-circular cross section rotary wrench shank terminal end, said lobes projecting above said central portion to an elevation spaced a predetermined distance above the upper terminal end of said stem, the lower portions of said



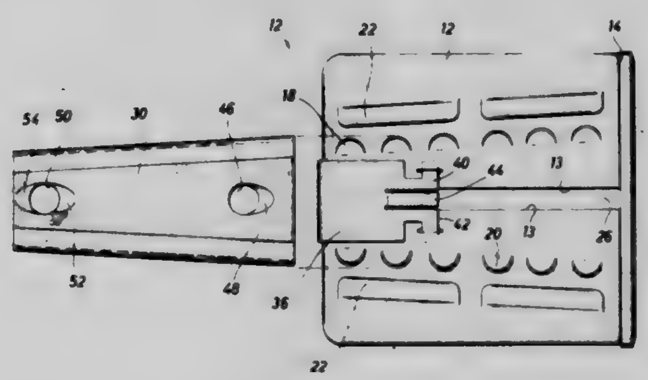
lobes being spaced apart about said central portion, said bonnet defining water drainage zones thereof extending generally radially outwardly from said central portion between adjacent lobes and disposed at a lower elevation than said central portion, said bonnet being free of obstructions overlying said shank, lobes and water drainage zones, the upper ends of said lobes being smoothly rounded.

4,379,470
CLOSING CAP, PARTICULARLY FOR A MOTOR VEHICLE RADIATOR
Heinrich Reutter, Waiblingen, Fed. Rep. of Germany, assignor to Reutter Metallwarenfabrik GmbH, Fed. Rep. of Germany
Filed Mar. 2, 1981, Ser. No. 239,552
Claims priority, application Fed. Rep. of Germany, Mar. 1, 1980, 3008002
Int. Cl.^{3} F16K *17/196*
U.S. Cl. 137—493.8 11 Claims



1. A removable motor vehicle radiator closing cap for a vehicle cooling system, comprising, a cap housing having an open end, a resilient valve seat plate extending across said housing and dividing it vertically into a closed top space and a bottom space adjacent the opened end, an excess pressure valve mounted in said plate including a cup-shaped extension portion having an excess pressure opening extending through said seat plate, an excess pressure valve seat defined around the excess pressure opening, an excess pressure valve disc engageable on said valve seat to close the excess pressure opening, a top cover member overlying said excess pressure valve disc and having a top bearing face with a top opening, an excess pressure spring biased between said disc and said bearing face and urging said valve disc toward said excess pressure valve seat, a sub-pressure valve mounted in said plate including a sub-pressure opening through said plate, a sub-pressure valve seat defined around said sub-pressure opening, a sub-pressure valve including a disc portion engageable with the sub-pressure valve seat and having a tappet portion extending through the sub-pressure opening, and a sub-pressure spring biased between said valve seat plate and said tappet urging said disc portion onto said sub-pressure valve seat.

4,379,471
THREAD PROTECTOR APPARATUS
Rainer Kuenzel, 2 Gessner Rd., Houston, Tex. 77024
Continuation-in-part of Ser. No. 957,139, Nov. 2, 1978, abandoned, which is a continuation of Ser. No. 835,750, Sep. 22, 1977, abandoned, which is a continuation of Ser. No. 667,320, Apr. 15, 1976, abandoned. This application Dec. 15, 1980, Ser. No. 216,154
Int. Cl.^{3} F16L *55/10*
U.S. Cl. 138—89 9 Claims



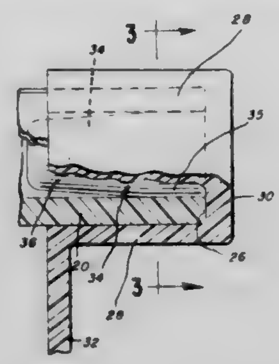
1. A thread protector apparatus adapted to be installed on the threaded end of a pipe comprising:
a flexible member having first and second ends and an elongated portion therebetween which flexible member is capable of being drawn into a tubular configuration in which said first and second ends are spaced by a first distance when said thread protector apparatus is in an unlocked state and spaced by a second distance when said thread protector apparatus is in a locked state;
a resilient material member formed concentrically with said flexible member and adapted to be contacted against threads on the end of a pipe;
first and second tab means formed on said first and second end portions of said flexible member respectively;
a locking means comprising a wedge shaped locking member for operatively contacting said first and second tab means for altering the circumference of said flexible member from a relaxed size corresponding to the unlocked state to a locking size corresponding to the locked state and wherein said tabs and said locking member are formed such that camming of said tabs by said locking member urges said resilient member against the threads of the pipe; and
detent means supported at one end to and extending from said flexible member and having an end portion positioned intermediate said tab members for bias against said locking means.

4,379,472
MAINTAINING THE DIMENSIONAL INTEGRITY OF THERMOPLASTIC TUBING ENDS FOR RECEIVING A LUER
Joel Cunningham, Del Mar, Calif., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.
Division of Ser. No. 110,261, Jan. 7, 1980, Pat. No. 4,297,316. This application Jul. 13, 1981, Ser. No. 282,908
Int. Cl.^{3} F16L *55/10*
U.S. Cl. 138—89 2 Claims

1. A heat sterilizable, sealed tubing assembly comprising
a length of thermoplastic tubing having an exterior portion with a normal exterior diameter and an interior bore with a normal interior diameter which undergoes dimensional distortion at a temperature sufficient to effect heat sterilization thereof, and

an end cap removably engageable on the end of said tubing, said end cap being made of a thermosetting material and including

exterior wall means defining an end wall operative for engagement against the tubing end to seal the interior portin of the tubing from communication with the atmosphere during heat sterilization, 'first interior wall means connected to said exterior walls means and defining an inner member which extends inwardly from said end wall into and axially along the interior bore of the



tubing and which has an outer diameter generally equal to the interior diameter of the tubing bore for supporting the interior portion of the tubing at its normal diameter during heat sterilization, and

second interior wall means connected to said exterior wall means and extending from said end wall outwardly radially spaced from said first interior wall means and having an interior diameter less than the exterior diameter of the tubing for compressing the exterior portion of the tubing radially inwardly toward said first interior wall means during heat sterilization.

4,379,473

LONGITUDINALLY DIVIDED CABLE SLEEVE OF A SHRINKABLE MATERIAL

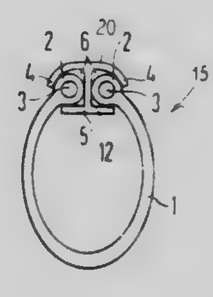
Dieter Kunze, Neuried, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Feb. 20, 1981, Ser. No. 236,526

Claims priority, application Fed. Rep. of Germany, Mar. 10, 1980, 3009078

Int. Cl.^{3} F16L *11/12, 25/00, 55/16*

U.S. Cl. 138—167 **15 Claims**



1. In a longitudinally divided cable sleeve having a strip-like sleeve member composed of a heat shrinkable material having a sealing system along its edge composed of a longitudinal extending bead on each edge and a sealing bar engaging the beads in a sealed manner, the improvements comprising each of the beads having a non-shrinkable longitudinally extending strengthening element embedded therein, and the sealing bar having a pair of side elements interconnected by a central web, said side elements projecting from the central web to form an undercut groove on each side of said web so that the sealing bar has a cross-sectional configuration of a pair of C-shaped profiles facing in opposite directions and each groove receives one bead of the sleeve member to close said cable sleeve.

4,379,474

HEDDLE FRAME ACTUATING MECHANISM LOCATED BETWEEN A DOBBY AND THE HEDDLE FRAMES OF A WEAVING MACHINE

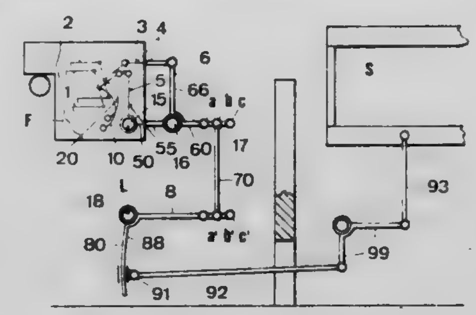
Otto Mueller, Uetikon am See, Switzerland, assignor to Staeubli Ltd., Horgen-Zuerich, Switzerland

Filed Oct. 16, 1980, Ser. No. 197,726

Claims priority, application Switzerland, Oct. 19, 1979, 9401/79

Int. Cl.^{3} D03D *39/16*

U.S. Cl. 139—21 **5 Claims**



1. A heddle frame actuating mechanism for operatively coupling a weaving machine having a movably supported heddle frame and a shed-forming machine having two lifting units, comprising a first lever supported for pivotal movement about a stationary first axis, means for drivingly coupling one of said lifting units to said first lever, a second lever supported on said first lever for pivotal movement about a second axis spaced from and substantially parallel to said first axis, means for drivingly coupling the other of said lifting units to said second lever, a third lever supported for pivotal movement about a stationary third axis spaced from and substantially parallel to said first and second axes, means for drivingly coupling said third lever to said heddle frame, a connecting member having first and second ends, the distance between said first and second ends being substantially equal to the distance between said first and third axes, means for pivotally supporting said first and second ends of said connecting member on said second lever and said third lever, respectively, at selected locations thereon so that said first and second ends of said connecting member are respectively spaced from said second and third axes and so that, when said second lever is in a predetermined position relative to said first lever, the distance between said first axis and said first end of said connecting member is substantially equal to the distance between said third axis and said second end of said connecting member.

4,379,475

WEDGING APPARATUS USEFUL FOR LOG SPLITTING

Ronald W. Nokes, 8150 LaPlace Ct., Westminster, Colo. 80030

Continuation-in-part of Ser. No. 823,490, Aug. 10, 1977, Pat. No. 4,254,808. This application Mar. 6, 1981, Ser. No. 241,075

The portion of the term of this patent subsequent to Mar. 10, 1998, has been disclaimed.

Int. Cl.^{3} B27L *7/00*

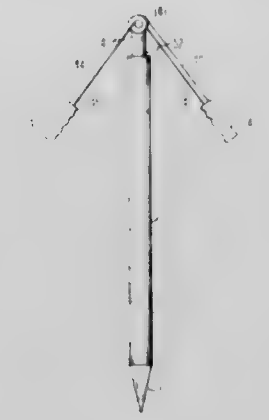
U.S. Cl. 144—193 C **12 Claims**

6. Manually operated apparatus for performing wedging type operations on a severable material as in log splitting and the like, comprising:

first and second elongated members positioned in concentric, coaxially slidable relation to each other, the first of said elongated members having a base and a tapered wedge body extending from said base to a tip and a first impact surface adapted to receive impact force components directed parallel to the longitudinal axis of said tapered wedge body, and the second of said elongated members being adapted to be driven manually by a person in coaxial, longitudinal relation to the first elongated member and having a second impact surface in axial alignment with the first impact surface on the first elongated member and adapted to impact on and to transfer forces

from the inertial momentum of said second elongated member to the said first impact surface on said first elongated member when said second elongated member is moved coaxially in relation to said first elongated member,

a pair of semi-flexible, springy handle bars, each of which is affixed to and extends radially outwardly from respectively opposite sides of said second elongated member and is adapted to effectively transmit driving force components parallel to the longitudinal axis of said tapered body exerted on the distal end thereof by a person's hand to move said second impact member on said second elongated member toward and into contact with said first impact surface on said first elongated member while also being adapted to dampen the shock created by said first and second impact surfaces striking each other and transmitted by said second elongated body member to the persons hand.



4,379,476

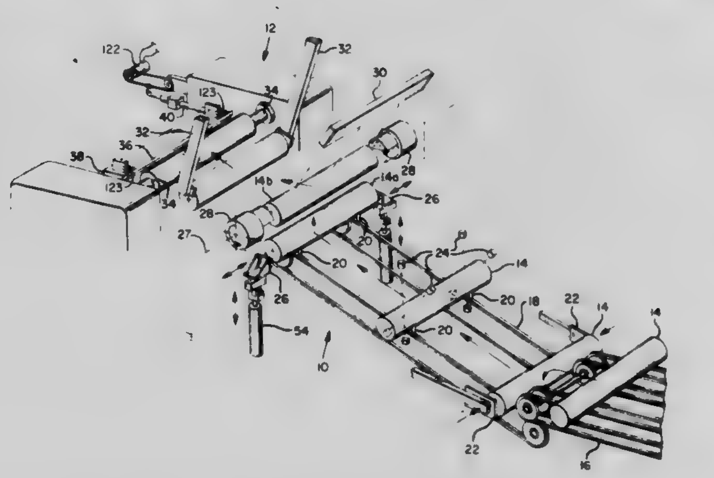
VENEER LATHE LOG CHARGER SYSTEM HAVING ENHANCED ACCURACY AND RATE OF PRODUCTION

Larry R. Berry, Roseburg, Oreg., assignor to Sun Studs, Inc., Roseburg, Oreg.

Filed May 28, 1981, Ser. No. 267,898

Int. Cl.[3] B27B ***1/00;*** **B27L** ***5/02***

U.S. Cl. 144—357 **7 Claims**



1. A charger for a veneer lathe comprising:

(a) respective log engagement means for engaging opposing ends of an elongate log by extension of said log engagement means toward said opposing ends;

(b) actuating means for causing said log engage-means to move said log;

(c) position sensing means connected to said log engagement means for sensing the distance between said log engagement means as said log engagement means extend toward said opposing ends of said log;

(d) length measuring means for measuring the length of said log prior to engagement of said log by said log engagement means; and

(e) means controlling the operation of said actuating means and connected to said position sensing means and said length measuring means respectively for comparing the length of said log as measured by said length measuring means with the distance between said log engagement means as sensed by said position sensing means and initiating operation of said actuating means in response to said length and distance respectively being substantially equal.

4,379,477

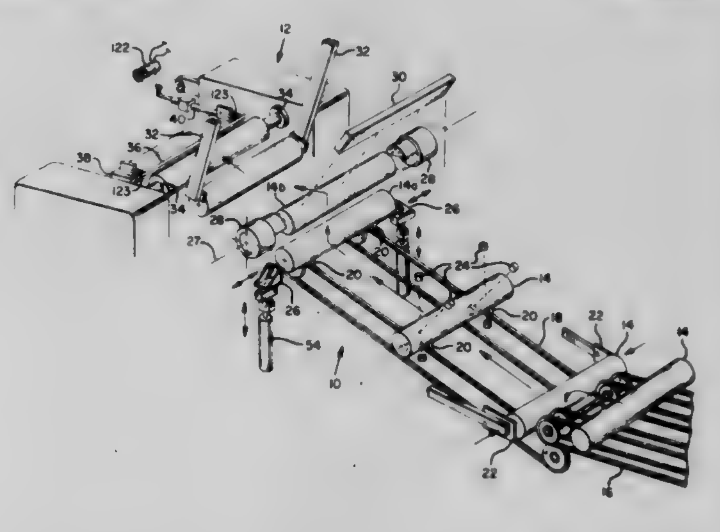
VENEER LATHE LOG CHARGER SYSTEM HAVING ENHANCED ACCURACY AND RATE OF PRODUCTION

Kenneth L. Shrum, Glide, Oreg., assignor to Sun Studs, Inc., Roseburg, Oreg.

Filed May 28, 1981, Ser. No. 268,103

Int. Cl.[3] B27L ***5/02***

U.S. Cl. 144—357 **13 Claims**



1. A charger for a veneer lathe comprising:

(a) rotary means for engaging opposing ends of an elongate log and rotating said log longitudinally about an axis of rotation, said rotary means including log engagement means for engaging each of said opposing ends of said log only within a portion of a circular area surrounding said axis of rotation so as to thereby leave a second circular area on each of said ends, concentric with and smaller than the first circular area, free of engagement by said rotary means;

(b) scanning means for sensing the shape of said log while it is rotated by said rotary means for determining the location of the longitudinal axis of the log for optimum production of veneer;

(c) means for disengaging said rotary means from said opposing ends of said log;

(d) means for transferring said log from said rotary means to a position wherein said longitudinal axis of said log is aligned with the rotational axis of said veneer lathe;

(e) rotary spindle means on said veneer lathe for engaging each of said opposing ends of said log;

(f) said second circular area being sufficiently large to enable said rotary spindle means to engage each of said ends of said log within said second circular area.

4,379,478

FOLDING OVERHEAD DOORS

Dale Lichy, 4651 Sylvan Dr., Allison Park, Pa. 15101

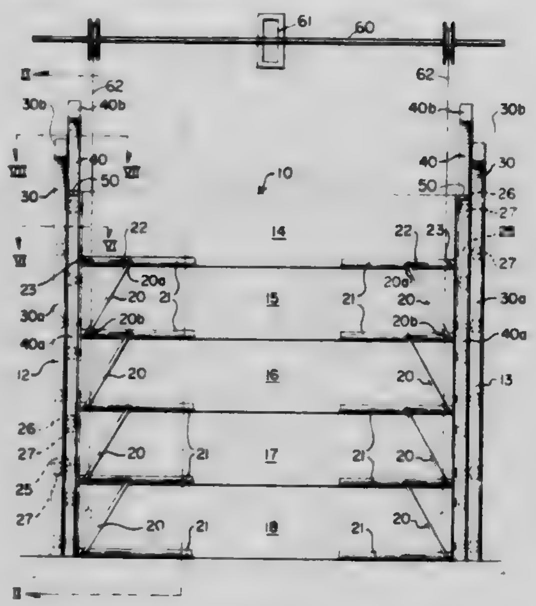
Filed Jun. 9, 1980, Ser. No. 157,951

Int. Cl.[3] E06B ***3/00***

U.S. Cl. 160—35 **8 Claims**

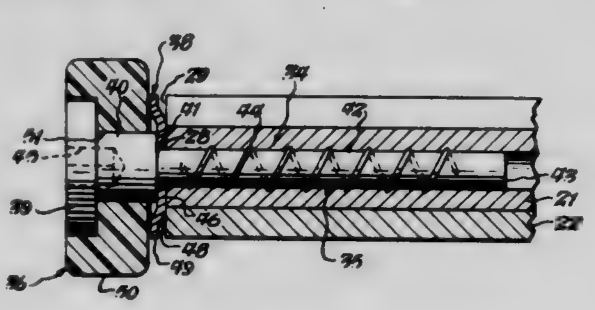
1. A folding overhead door assembly comprising opposite side support and guide means defining a door opening between them, said guide means including a pair of side-by-side channel members extending the height of the door opening on each side thereof and thereafter horizontally one spaced above the other, passage means between said two channels over their side-by-side length, a door component comprising a plurality of upstanding elongate, normally coplanar vertically stacked door

sections normally closing said opening, means pivotally attaching adjacent door sections together along successive like horizontal edges, follower means at the top and bottom of each end of each door section, one at the top engaged in said one of said pair of channels extending horizontally above the other and the other in the other of said channels, said follower means being operable to guide door sections between the normally coplanar vertical position in the side-by-side channels and an overhead side-by-side vertical position in the one above the other chan-



nel portions, each door section all the while remaining in a substantially vertical position, wherein the means pivotally attaching the door sections together is a lever arm extending from a lever arm guide fixed to the bottom of one door section to a guide fixed to the bottom of the next adjacent door section said lever arm being pivoted at its ends in the lever arm guides of two adjacent door sections for rotation between a vertical plane parallel to the plane of the door sections to a position generally parallel to the bottom edges of two adjacent sections connected thereby in the vertical side-by-side position.

4,379,479
ROLLER ASSEMBLY
Lauren C. Whiting, Clarence, N.Y., assignor to Whiting Roll-Up Door Mfg. Corp., Akron, N.Y.
Filed Jun. 1, 1982, Ser. No. 384,026
Int. Cl.³ E06B *3/38*
U.S. Cl. 160—201 **3 Claims**



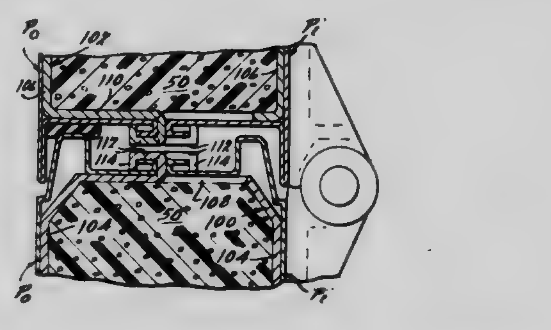
1. In an upwardly-acting door structure arranged in a body opening, said door structure including a track mounted on said body and including at least two vertically-adjacent door panels, one of said panels having its lower marginal end portion configured as an elongated hinge section, another of said panels having its upper marginal end portion configured as a cooperative elongated hinge section, said hinge sections being slidably interfitted together in such manner as to permit one panel to shift relative to the other along the axis of elongation of said hinge sections while coupling said panels together for relative pivotal movement along the path of said track, the improvement which comprises: a roller assembly for guiding movement of said panels along said track and for reducing the ease with which said panels may shift laterally relative to one another, said roller assembly including

a shaft having an exteriorly-threaded shank portion matingly received in one of said hinge sections, and having a hub portion arranged without said one hinge section, said hub portion providing a shoulder surface arranged without said one hinge section in spaced facing relation thereto;

a roller rotatably mounted on said hub and arranged in said track; and

a stop member having one portion normally sandwiched between said one hinge section and said shoulder surface, and having another portion arranged proximate said roller member in spaced relation thereto.

4,379,480
ENERGY EFFICIENT GARAGE DOOR CONSTRUCTION AND THE LIKE
John J. Kempel, and Ronald F. Otto, both of West Branch, Mich., assignors to Garland Manufacturing Company, Detroit, Mich.
Filed Jul. 14, 1980, Ser. No. 168,537
Int. Cl.³ E06B *3/12, 9/00*
U.S. Cl. 160—232 **1 Claim**



1. An energy efficient laminated building structure for a sectional-type door having a plurality of said structures, and hinges movably connecting adjacent structures and permitting rocking movement therebetween, comprising:

first and second spaced, elongated metal panel members of identical cross-sections shape, each panel member having a main surface and first and second side edges;

said first side edges of said panel members being formed to provide a recessed area and said second side edges of said panel members being formed to provide a tongue area, said tongue area being insertable in said recessed area of an adjacent structure to create a baffle effect for inhibiting the passage of air therebetween, while also providing a clearance between said tongue and recess areas sufficient to permit limited relative movement between adjacent structures;

each of said first side edges including a return bend portion adjacent said main surface, an inwardly projecting portion extending from said return bend portion and a reverse bend portion extending from said inwardly projecting portion;

each of said second side edges including an inwardly offset and inclined portion adjacent said main surface, a U-shaped portion extending from said inwardly offset and inclined portion, an inwardly projecting portion extending from said U-shaped portion and a reverse bend portion extending from said inwardly projecting portion

a unitary expanded core fabricated of a heat insulating media interiorly disposed between and adhesively bonded to said panel members the reverse bend portions on the first side edges being spaced from each other, and the reverse bend portions on the second side edges being spaced from each other and together with said expanded core the said spaced reverse bend portions acting to prevent direct contact between the first and second panel members,

a generally U-shaped end member secured to the interior edges of said panel members at each end thereof;

retainer means operatively associated with said reverse bend

portion of said first and second side edges for securing said first and second panel members together along said first and second side edges; and

reinforcement means of generally C-shaped cross-section, nestingly received and secured interiorly of said panel members along said first and second side edges, for reinforcing said panel members at said hinges

said retainer means being characterized by a plurality of alternately facing generally L-shaped deformable fingers formed in said reinforcement means for confining said reverse bend portions of said first and second side edges.

4,379,481

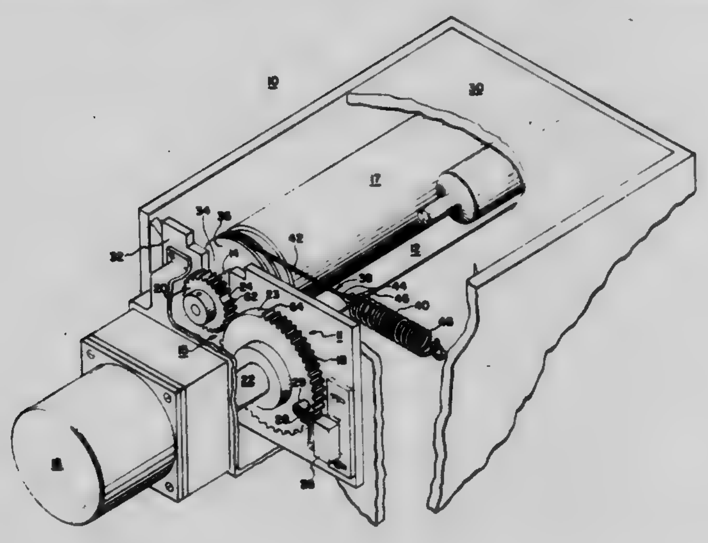
X-RAY APPARATUS AND CLOSURE MECHANISM THEREFOR

Adolph Juner, City Island; David J. Haas, Suffern, both of N.Y., and Chester D. Rudd, Westwood, N.J., assignors to North American Philips Corporation, New York, N.Y.

Continuation of Ser. No. 864,504, Dec. 27, 1977, abandoned. This application Nov. 10, 1980, Ser. No. 205,553

Int. Cl.^{3} G01N *23/00;* **G21F** *7/00;* **A47G** *5/02*

U.S. Cl. 160—310 **14 Claims**



1. An apparatus for inspecting various articles comprising

a chamber defining structure including enclosing walls and a retractable door, said structure being substantially impermeable to X-rays,

a shaft member inside said structure and provided for carrying said retractable door, said retractable door including a flexible construction windable on said shaft member, wherein winding said flexible construction onto said shaft member opens said chamber and unwinding said flexible construction from said shaft member closes said chamber,

motor means for driving said shaft member in rotation,

a gear train mechanically linking said motor means and said shaft member, said gear train including a drive gear driven by said motor means and having gear teeth only about a portion of its circumference, and a driven gear connected to said shaft member and having gear teeth only about a portion of its circumference,

said driven gear being moved independently of said drive gear upon closing said chamber, and said drive gear engaging said driven gear upon opening said chamber, and

switch means actuated by said drive gear for controlling said motor means.

4,379,482

PREVENTION OF CRACKING OF CONTINUOUSLY CAST STEEL SLABS CONTAINING BORON

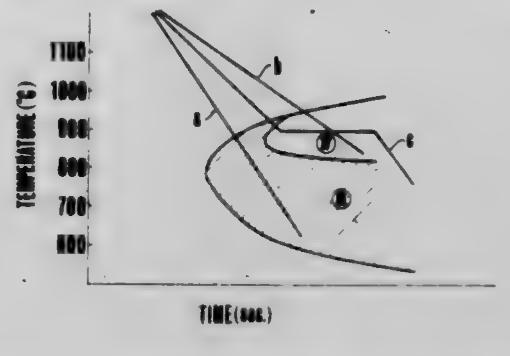
Hiroo Suzuki, Yokohama; Koichi Yamamoto, Kawasaki; Yasuhide Ohno, and Kou Miyamura, both of Kitakyushu, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Dec. 2, 1980, Ser. No. 212,335

Claims priority, application Japan, Dec. 6, 1979, 54-157457

Int. Cl.^{3} B22D *11/16*

U.S. Cl. 164—485 **5 Claims**



1. A method for preventing crackings of boron-containing steel slabs in continuous casting of molten steels containing nitrogen and boron in amounts falling within Zone II defined in FIG. 2, which comprises cooling the steels through a range of from the melting point to 900° C. with an average cooling rate ranging from 0.01° to 1° C./sec. to prevent precipitation of boron-containing compounds along austenite grain boundaries thereby promoting precipitation of the boron-containing compounds in the austenite grains.

4,379,483

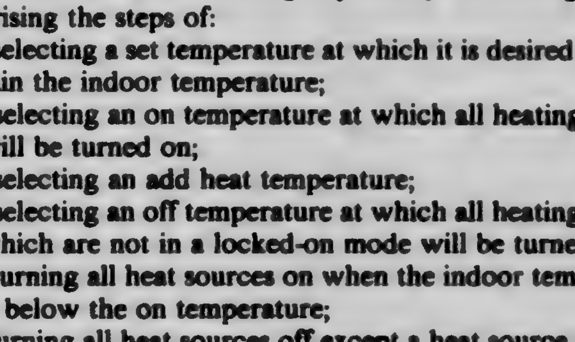
METHOD OF CONTROLLING HEATING AND COOLING SOURCES

Scott R. Farley, Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans.

Filed Aug. 17, 1981, Ser. No. 293,185

Int. Cl.^{3} F25B *29/00, 7/00*

U.S. Cl. 165—2 **7 Claims**



1. A method of controlling a plurality of heating sources comprising the steps of:

(a) selecting a set temperature at which it is desired to maintain the indoor temperature;

(b) selecting an on temperature at which all heating sources will be turned on;

(c) selecting an add heat temperature;

(d) selecting an off temperature at which all heating sources which are not in a locked-on mode will be turned off;

(e) turning all heat sources on when the indoor temperature is below the on temperature;

(f) turning all heat sources off except a heat source which is in a proporational control mode and any heat source which is in a locked-on mode as the indoor temperature rises past the off temperature;

(g) transferring one of the heat sources from an off mode to a proportional control mode if the indoor temperature falls past the add heat temperature;

(h) proportionally controlling the heat source which is in the proportional control mode in order to try to maintain the indoor temperature adjacent the set temperature; and

(i) transferring the heat source which is in the proportional control mode to a locked-on mode in which the heat source is turned on and transferring another heat source from an off mode to the proportional control mode each time the indoor temperature falls past the add heat temperature until all heat sources are on the locked-on mode.

4,379,484

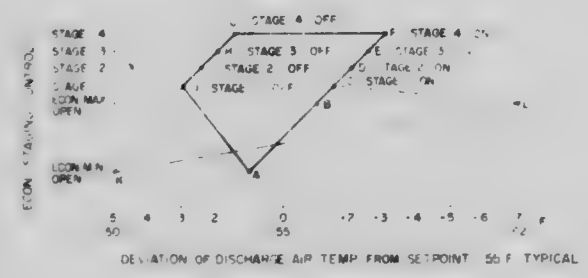
CONTROL FOR A VARIABLE AIR VOLUME TEMPERATURE CONDITIONING SYSTEM-OUTDOOR AIR ECONOMIZER

Duane L. Lom, and John F. Klouda, both of La Crosse, Wis., assignors to The Trane Company, La Crosse, Wis.

Filed Jan. 12, 1981, Ser. No. 224,709

Int. Cl.^{3} F25B *29/00;* **F24F** *7/00*

U.S. Cl. 165—16 **10 Claims**



1. A control for a temperature conditioning system which includes an outdoor air economizer comprising

a. an outdoor ambient air temperature sensor;

b. a discharge air temperature sensor; and

c. means for selectively modulating the economizer in one of two modes, the first mode being in response to temperature conditioning demand and the second mode being in response to the discharge air temperature, said one mode being selected as a function of the temperature conditioning demand and the outdoor ambient temperature, wherein the temperature conditioning demand is determined by the deviation of the discharge air temperature from a setpoint.

4,379,485

WET/DRY STEAM CONDENSER

Warren H. Fisher, Jr., Parsippany, and Barry M. Barnet, Morris Plains, both of N.J., assignors to Foster Wheeler Energy Corporation, Livingston, N.J.

Filed Apr. 9, 1981, Ser. No. 252,546

Int. Cl.^{3} F28B *1/02, 1/06*

U.S. Cl. 165—110 **16 Claims**

1. A wet/dry steam condensing apparatus comprising:

a steam receiving plenum adapted to receive steam from a steam source;

a plurality of substantially vertically aligned, heat pipes, each of said heat pipes having an evaporator section extending in said plenum and adapted to receive heat energy from said steam, and a condensing section extending out of said plenum, each of said pipes containing a quantity of a heat transfer fluid adapted to transfer said heat energy from its evaporator section to its condensing section through a vapor/condensation cycle;

a separation baffle mounted on the condensing section of said heat pipes and dividing each section into two portions;

a plurality of fins disposed on a portion of the condensing section of each of said pipes; and

cooling water application means operatively associated with the remaining portion of the condensing section of each of said pipes and adapted to selectively direct cooling water thereto.

2. A wet/dry steam condensing apparatus comprising:

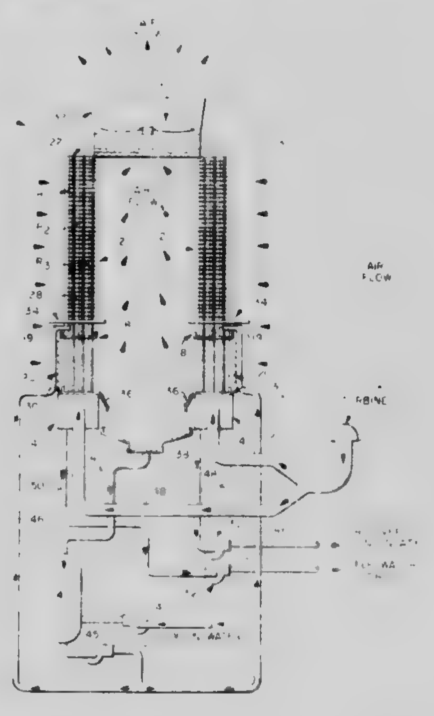
a steam receiving plenum adapted to receive steam from a steam source;

a plurality of substantially vertically aligned, heat pipes, each of said heat pipes having an evaporator section extending in said plenum and adapted to receive heat energy from said steam, and a condensing section extending out of said plenum, each of said pipes containing a quantity of a heat transfer fluid adapted to transfer said heat energy from its evaporator section to its condensing section through a vapor/condensation cycle;

a plurality of fins disposed on a portion of the condensing section of each of said heat pipes;

a plurality of spray heads adapted to direct a spray of cooling water onto the remaining heat pipe portions; and

a flood water trough located on said remaining heat pipe portions and adapted to receive cooling water and flow the water downwardly onto said remaining heat pipe portions of said heat pipes.



3. A wet/dry steam condensing apparatus comprising:

a steam receiving plenum adapted to receive steam from a steam source;

a plurality of substantially vertically aligned, heat pipes, each of said heat pipes having an evaporator section extending in said plenum and adapted to receive heat energy from said steam, and a condensing section extending out of said plenum, each of said pipes containing a quantity of a heat transfer fluid adapted to transfer fluid adapted to transfer said heat energy from its evaporator section to its condensing section through a vapor/condensation cycle;

each condensing section having an upper finned portion and a lower unfinned portion; and

cooling water application means operatively associated with the lower unfinned portion of the condensing section of each of said pipes and adapted to selectively direct cooling water thereto.

4,379,486

HEAT EXCHANGER

Tetsuo Kurihara, Utsunomiya, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 28, 1980, Ser. No. 173,223

Claims priority, application Japan, Aug. 3, 1979, 54-99191

Int. Cl.^{3} F28F *3/00*

U.S. Cl. 165—153 **12 Claims**

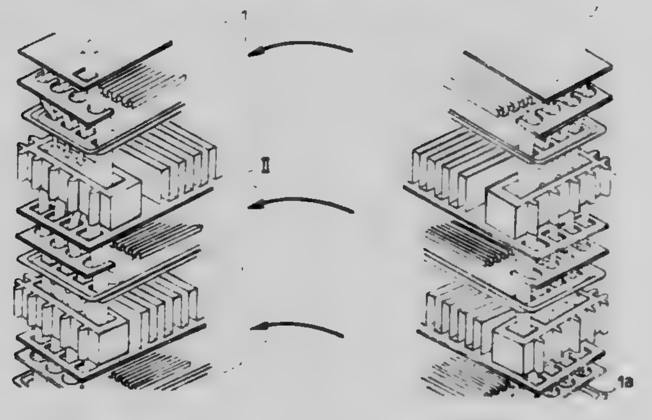
1. In a heat exchanger having a plurality of layered tube units for refrigerant in a gas phase and a liquid phase, the tube units being disposed substantially one above the other, each of the tube units comprising at least one tube made of two elongated plates and having a refrigerant inlet side and a refrigerant outlet side at opposite elongated ends, and spacer blocks dis-

posed between said tubes of said tube units forming air passages between said tubes of said tube units, said air passages having an air inlet side and an air outlet side, adjacent upper and lower of the tube units being alternately arranged in relation to respective said refrigerant inlet and outlet sides, said spacer blocks defining refrigerant flow passages between said tubes of each said tube units and respectively between alternately arranged respective and said refrigerant inlet and outlet sides of said adjacent upper and lower of the tube units, the improvement wherein

each of said at least one tube of a common of said tube units has said refrigerant inlet and outlet sides on common sides respectively and constitutes means for the refrigerant to flow therethrough in the same direction defining a single refrigerant tubular passage in said common tube unit,

a single refrigerant inlet opening formed in a lower most of said plates in each of said tube units at said refrigerant inlet side and adjacent said air inlet side,

at least one refrigerant outlet opening formed in an uppermost of said plates of said tube units, respectively, at the refrigerant outlet side of each said tube units,



an elongated inside fin disposed in each said tube dividing said tube cross-sectionally in width into a plurality of elongated separated channels for guiding refrigerant flow from said refrigerant inlet side to the refrigerant outlet side, and

said inside fin in the lowermost of said tubes is spaced from sad inlet opening and said refrigerant inlet side leaving a free space between said refrigerant inlet opening and said refrigerant inlet side, respectively, and said inside fin,

at least one of said spacer blocks is formed with only one of said refrigerant flow passages extending substantially from said air inlet side to said air outlet side constituting means for spreading out and mixing the refrigerant flowing upwardly therethrough and for passing downwardly flowing portions of the refrigerant at said air outlet side, such that there is a refrigerant distribution with most of the refrigerant flowing in the tubes adjacent said air inlet side, with the gas phase primarily at said air outlet side and the liquid phase primarily at said air inlet side, and said inside fins maintaining said distribution in said tubes.

4,379,487
INTERMESHING PASSAGE MANIFOLD
Kalman Krakow, 102 Radcliffe Rd., Montreal West, Quebec, Canada (H4X 1C2)
Filed Apr. 10, 1981, Ser. No. 252,930
Int. Cl.³ F28F *9/02*
U.S. Cl. 165—165 **7 Claims**

1. An intermeshing passage manifold adapted for connecting ducts each conveying different fluids to the ends of a heat exchanger core comprising;

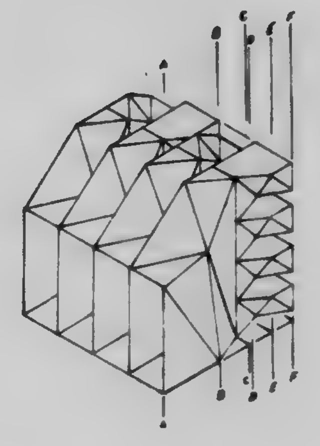
(a) one primary and an integral number of secondary manifold sections adjacent successively in an end-to-end manner

(b) each of said manifold sections comprising a plurality of passage modules adjacent in a side-by-side manner

(c) each of said passage modules including a pair of similar twisted passages enveloped by four module side partitions to maintain the shape of the cross-sections of the module similar along the length thereof

(d) said twisted passages in each of said modules being separated by a flowguide partition; each of said flowguide partitions comprising a continuous surface bound by six adjoining lines, one of each of said lines being contained within each of the four module side partitions and each of the two end planes of said module, each of said flowguide partitions serving to transform the cross-sectional configuration of said pair of twisted passages so that the orientation of said cross-sectional configuration of said twisted passages at one end of said module end planes is substantially at right angles to the orientation of said cross-sectional configuration of said twisted passages at the other of said module end planes

(e) said primary manifold section having one layer of passage modules oriented so that when said two ducts are connected to it at one end, the two passages defined by said ducts are subdivided into separate adjacent intermeshed passages at the other end



(f) each of said secondary manifold sections having a plurality of layers of passage modules adjacent in a side-by-side manner

(g) each of said secondary manifold sections contains a larger number of passage modules than the preceding manifold section such that an integral number of passage modules of each of the secondary manifold sections is aligned and congruent with each of the passage modules of the preceding manifold section

(h) said passage modules being oriented so that the passages at the end of the manifold which is opposite to that end to which the said ducts are connected are separate adjacent intermeshed passages.

4,379,488
LATCH FOR WELL TOOL
Eddie J. Hamm, Carrollton, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.
Filed Feb. 2, 1981, Ser. No. 230,879
Int. Cl.³ E21B *23/02*
U.S. Cl. 166—217 **14 Claims**

1. A device for releasably locking a well tool in a flow conductor which includes a receptacle having a locking recess therein, comprising:

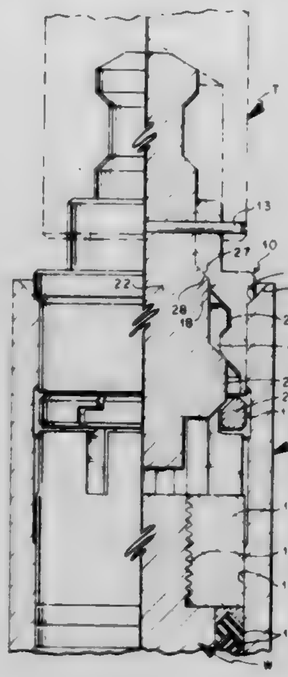
(a) body means including:

(1) an upper body member; and

(2) a lower body member having means on its lower end for attaching a well tool thereto;

(b) means on said upper and lower body members co-engageable for connecting them together preventing substantial longitudinal movement therebetween;

(c) holding means mounted in said body means maintaining co-engagement of said co-engageable means;
(d) latch means on said body means expandable into engagement with said locking recess; and
(e) expander means slidably mounted in said body means



for expanding said latch means into locking engagement with said locking recess on longitudinal movement of said expander means to a lower position, said expander means being movable to an upper position to allow said latch means to disengage said locking recess, and means on said expander means engageable by an operating tool.

4,379,489
METHOD FOR PRODUCTION OF HEAVY OIL FROM TAR SANDS
Louis D. Rollmann, Princeton, N.J., assignor to Mobil Oil Corporation, New York, N.Y.
Filed Nov. 24, 1980, Ser. No. 209,355
Int. Cl.³ E21B *43/22, 43/24, 43/40*
U.S. Cl. 166—266 **6 Claims**

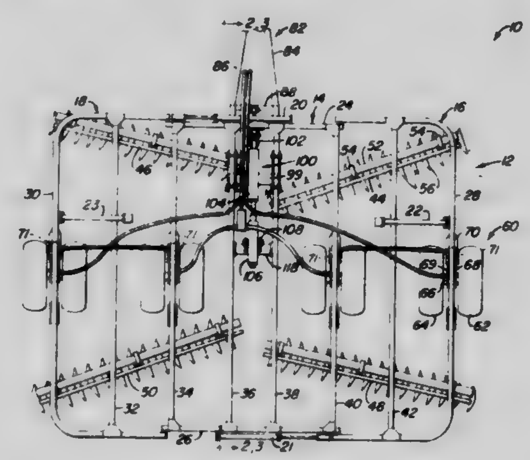
1. In the production of heavy oil from a subterranean reservoir penetrated by spaced injection and recovery systems, the method comprising:
(a) introducing into said injection system adjacent to said reservoir liquid sulfur and oxygen-containing gas, thereby obtaining a mixture of sulfur and oxygen-containing gas,
(b) igniting said mixture to produce sulfur dioxide,
(c) maintaining the pressure of said oxygen-containing gas sufficient to keep said sulfur dioxide in the liquid state, at the temperature of the reservoir.
(d) flowing liquid sulfur dioxide into said reservoir, whereby there is formed a solution of heavy oil in the reservoir in said liquid sulfur dioxide,
(e) flowing said solution toward said production system, and
(f) recovering said solution from said production system.

4,379,490
METHOD FOR REMOVAL OF ASPHALTENE DEPOSITIONS WITH AMINE-ACTIVATED DISULFIDE OIL
Shelby P. Sharp, Tulsa, Okla., assignor to Standard Oil Company (Indiana), Chicago, Ill.
Filed Apr. 22, 1981, Ser. No. 256,430
Int. Cl.³ E21B *43/25*
U.S. Cl. 166—304 **15 Claims**

1. A method for treating an asphaltene deposit comprising contacting the asphaltene deposit with an amine-activated dialkyl disulfide oil.

12. A method for treating asphaltene deposits in an oil-bearing formation comprising:
(a) injecting an amine-activated dialkyl disulfide oil into a well penetrating said formation;
(b) displacing said amine-activated dialkyl disulfide oil into said formation;
(c) shutting said well in for a time period; and
(d) returning said well to production.

4,379,491
LEVELING SYSTEM FOR A WHEELED IMPLEMENT
Paul R. Riewerts, Port Byron, Ill., and Stephen M. Hillman, Mesa, Ariz., assignors to Deere & Company, Moline, Ill.
Filed Mar. 23, 1981, Ser. No. 246,758
Int. Cl.³ A01B *59/042*
U.S. Cl. 172—328 **17 Claims**



1. A wheeled implement including a leveling system, said implement having a frame adapted to support ground-engaging tools, a hitch structure pivotally connected to said frame for movement about a transverse axis and extending forwardly to a forward end connectible to a traction vehicle, and support wheels mounted on said frame and movable between transport and working positions, said leveling system comprising:
(a) power means for raising and lowering said support wheels, said power means including at least two wheel lift cylinders connected to parallel;
(b) fore-and-aft leveling means for stabilizing said frame during transport and for maintaining said frame substantially parallel to the ground during both transport and working positions, said fore-and-aft leveling means including a first support arm pivotally attached at one end to a front portion of said frame, a second support arm securely attached to a point on said frame rearward of said first support arm, a hydraulic cylinder attached to said first support arm and being coaxially aligned with a spring assembly which is attached to said second support arm, said hydraulic cylinder being connected in parallel with said wheel lift cylinders to retain said frame substantially parallel to the ground during movement of said frame between said transport and working positions and to hold said frame stable during transport, and said spring assembly cooperating with said hydraulic cylinder to permit flexible movement of said frame while said implement traverses over uneven ground;
(c) a mechanical link connected between said first support arm and said hitch structure for angularly retaining said hitch structure relative to said front portion of said frame to accommodate a drawbar hitch which can be positioned at various heights on said traction vehicle;
(d) fluid supply means for supplying pressurized fluid to said wheel lift cylinders and to said fore-and-aft hydraulic leveling cylinder; and
(e) flow dividing means for dividing the volume of said pressurized fluid equally between said wheel lift cylinders and said fore-and-aft hydraulic leveling cylinder such that said frame can be raised and lowered with respect to the ground in a substantially horizontal fashion.

4,379,492

TORQUE CONTROL APPARATUS FOR PNEUMATIC IMPACT WRENCH

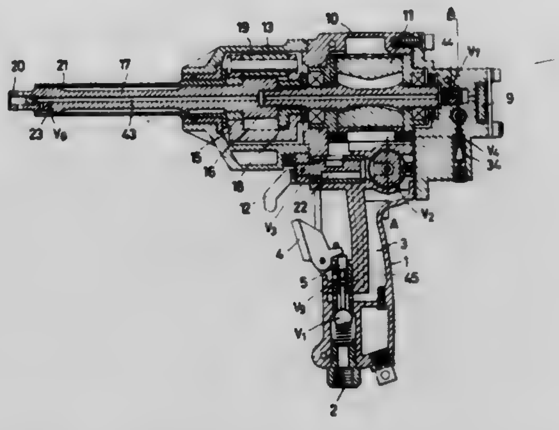
Masaaki Hiraoka, Yao, Japan, assignor to Nippon Pneumatic Manufacturing Co., Ltd., Osaka, Japan

Filed Jun. 2, 1980, Ser. No. 155,084

Claims priority, application Japan, Jun. 4, 1979, 54-71687

Int. Cl.[3] B25B *23/145*

U.S. Cl. 173—12 3 Claims



1. A pneumatic impact apparatus connected to a compressed air source, said apparatus comprising: a rotary air motor and means defining a first air passage connecting said air source and said motor;

a torsion bar having a first and a second end and connected at said first end to said motor for rotation therewith, said torsion bar having an exhaust passage directed through the side thereof at one of said first and second ends;

a spindle case having third and fourth ends surrounding said torsion bar and held at said third end to said torsion bar only at the other of said first and second ends for movement therewith, said fourth end of said spindle case being free for rotation with said other of said first and second ends of said torsion bar when a torque is applied to said first end of said torsion bar resisted by an external force at said second end, said spindle case having an exhaust passage opening to the atmosphere normally aligned with said exhaust passage of said torsion bar for allowing air to pass therethrough when said fourth end of said spindle case is rotating relative to said one of said first and second ends of said torsion bar out of alignment with said torsion bar;

a two-position main valve, located in said first air passage, for controlling the air flowing to said motor from the air source, said main valve including first and second diaphrams responsive to air pressure applied thereto, for respectively opening and closing said main valve to respectively allow and block the flow of air to said motor;

fluid control means, having a first inlet, first and second outlets and first and second control orifices, responsive to air pressure applied to said first and second control orifices for switching the flow of air entering said first inlet to said first and second outlets, respectively; said fluid control means having first and second pilot passages, said first and second outlets respectively communicating with said first and second diaphrams through said first and second pilot passages, respectively;

throttling valve means, having a second inlet, a third outlet communicating with said exhaust passage of said torsion bar, and a fourth outlet communicating with said second control orifice of said fluid control means, for controlling the flow of air from said second inlet to said exhaust passage of said torsion bar and for reducing the air pressure at said second control orifice to less than the air pressure at said second inlet;

control valve means, located in said first passage between said air source and said motor, for controlling air flow from the air source to said second inlet of said throttling means, said first inlet of said fluid control means, said first control orifice of said fluid control means and said motor, said control valve means having a third inlet in said first passage for communicating with the air source, a fifth outlet for communicating with said motor when said main valve is open, and a sixth outlet communicating with said first control orifice of said fluid control means, said control valve means being continuously moveable between first, second and third successively adjacent positions, said control valve means blocking communication between said third inlet and said fifth and sixth outlets in said first position, said fifth and sixth outlets communicating with said third inlet and with each other when said control valve means is in said second position, said third inlet communicating with said fifth outlet and said control valve means blocking communication between said fifth and sixth outlets and said third inlet, when said control valve means is in said third position said fifth outlet communicating with said second inlet of said throttling means and said first inlet of said fluid control means;

whereby when said control valve means is moved from said first to said second position, air pressure is applied through said control valve means to said first inlet and said first orifice of said fluid control means to direct air from said first inlet through said first outlet to apply pressure to said first diaphram to open said main valve so as to allow airflow to said air motor to drive said motor to apply torque to said torsion bar and said spindle case;

whereby when said control valve means is moved from said second position to said third position, air pressure to said first orifice of said fluid control means is cut off, airflow is directed through said throttling valve means to said torsion bar and through said exhaust passage, the air pressure at said second control orifice of said fluid control means being at a reduced value insufficient to switch the flow of air entering said first inlet of said fluid control means to said second outlet thereof so that air pressure on said first diaphram is maintained and said motor continues to be driven; and

whereby if rotation of said torsion bar is blocked by an external force while said control valve means is in said third position, said fourth end of said spindle case is rotated relative to said one of said first and second ends of said torsion bar, whereby said exhaust passage of said spindle case is instantaneously closed so that airflow through said third outlet of said throttling valve means is interrupted so that air pressure at said second control orifice of said fluid control means is increased to switch the flow of air entering said first inlet of said fluid control means to said second outlet thereof, so that pressure to said second diaphram is applied to close said main valve to shut off said motor; return of said torsion bar to its normal position relative to said spindle case then opening said exhaust valve resulting in said main valve again opening to allow said motor to be driven by airflow from the air source.

4,379,493

METHOD AND APPARATUS FOR PREVENTING WIRELINE KINKING IN A DIRECTIONAL DRILLING SYSTEM

Gene Thibodeaux, 7036 Linden Cir., Anchorage, Ak. 99502

Filed May 22, 1981, Ser. No. 266,387

Int. Cl.[3] E21B *7/04, 7/12, 47/024, 47/12*

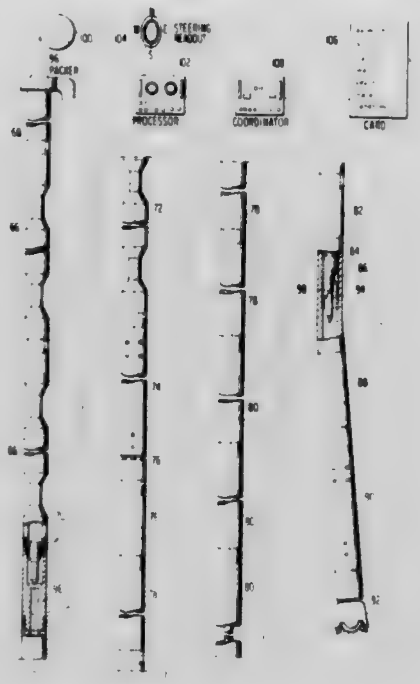
U.S. Cl. 175—61 45 Claims

1. In a wireline directional drilling system including a drill string having a bit and downhole motor for rotating the bit, a bent angle sub and a jar and a wireline directional tool mounted within the drill string adjacent the bent angle sub with a wireline extending from the directional tool upward to a surface location wherein the improvement comprises:

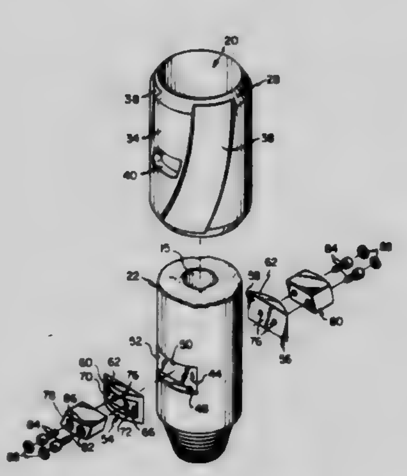
a landing sub coaxially mounted within the drill string above the jar and having at least one longitudinal passage therethrough for permitting drilling fluid to pass within the

drill string, through said landing sub and through the downhole motor and bit; and

stop means connected to the wireline for engaging said landing sub and supporting the wireline between said landing sub and the directional tool while concomitantly permitting drilling fluid to pass through said landing sub, said stop means being connected to the wireline in a position to permit a degree of slack in the wireline between the landing sub and the directional tool in excess of the maximum stroke of the jar but with sufficient tautness in the wireline between said landing sub and the directional tool to minimize coiling of the wireline adjacent the jar and reduce the tendency of the jar to kink the wireline during dynamic action thereof.



4,379,494
REPLACEABLE DRILL STABILIZER SLEEVE
Adel Sheshtawy, Norman, Okla., assignor to International Petroleum Engineering Corporation, Noble, Okla.
Filed Oct. 5, 1981, Ser. No. 308,490
Int. Cl.³ E21B *17/10;* E21C *9/00*
U.S. Cl. 175—325 **27 Claims**



1. An apparatus for stabilizing a drill string in a well bore comprising:

a drill string section for placement in the drill string and having at least one flat formed therein;

restricting means for insertion into the flat on said section to restrict movement parallel to the longitudinal axis of said section, said restricting means having a flat formed therein;

a cylindrical body having at least one well bore contact surface thereon with at least one slot formed through said body, said cylindrical body for mounting at a predetermined position on said section, the flat in said restricting means being aligned with said slot in the predetermined position;

block means for insertion through said slot and into the flat on said restricting means; and

fastening means for fastening said block means to said restricting means to secure said cylindrical body in the predetermined position.

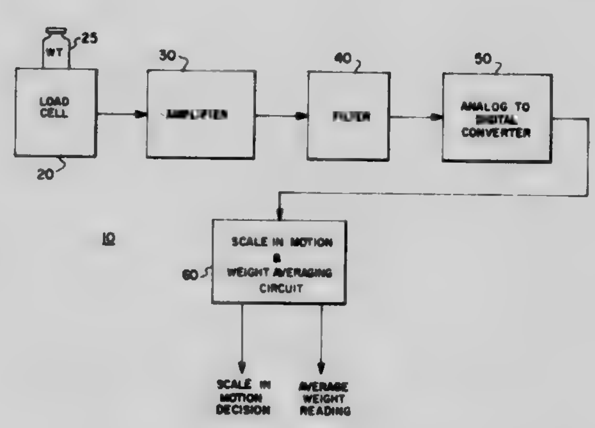
26. A method for assembling a stabilizer for a drill string in a well bore comprising the steps of:

positioning cylindrical members in flats formed on diametrically opposed sides of a section in the drill string, the cylindrical members having an outer surface with a flat formed therein, the outer surface forming a continuation of the outer surface of the drill string section when positioned;

fitting a cylindrical body over the section of the drill string, the cylindrical body having a plurality of well bore contact surfaces formed thereon and aligning slots formed therethrough with the flats in said cylindrical members in the drill string section to place the cylindrical body in a predetermined position, the cylindrical body preventing removal of the cylindrical members from the drill string section when in the predetermined position;

inserting locking blocks into each of the slots and into the aligned flats and securing the locking blocks to the cylinder members to secure the cylindrical body in the predetermined position.

4,379,495
WEIGHING SCALE WITH LOW SUSCEPTIBILITY TO VIBRATION
Michael H. Cocks, and Gary A. Evans, both of Dayton, Ohio, assignors to Hobart Corporation, Troy, Ohio
Filed Apr. 27, 1981, Ser. No. 258,212
Int. Cl.³ G01G *23/10*
U.S. Cl. 177—1 **8 Claims**



1. A method for determining a representative average weight reading based on a series of weight readings from a scale subject to vibrations comprising the steps of

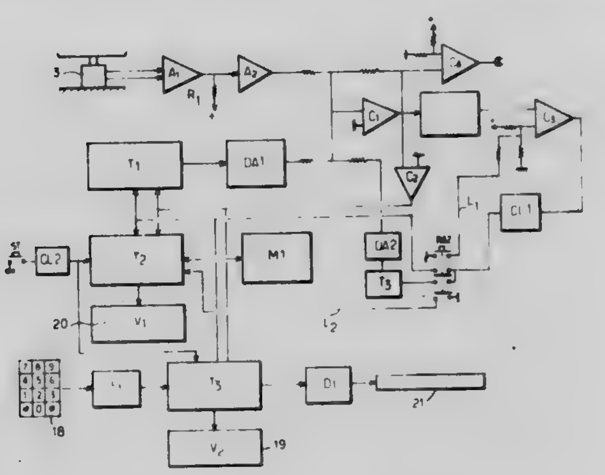
generating signals at regular intervals representative of the weight readings from said scale, and

averaging the weight signals occurring during one complete vibrational cycle, or integral multiple thereof.

4,379,496
WEIGHT MEASURING BALANCE
Jean Godat, Olivet, and Jean Paget, Breuillet St. Yon, both of France, assignors to Fonderie & Ateliers des Sablons, France
Filed Mar. 10, 1981, Ser. No. 242,400
Claims priority, application France, Mar. 28, 1980, 80 06975
Int. Cl.³ G01D *19/22*
U.S. Cl. 177—25 **5 Claims**

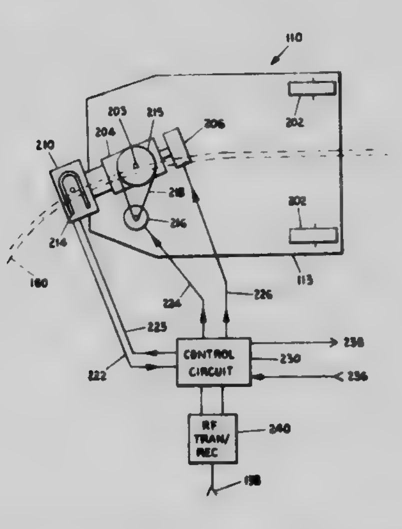
1. A weight measuring balance for proportioning a liquid product mixture from cumulative formulas in weight furnishing the weight of each of the products added, cumulative with the weight of the products previously added, including a pan

supported by a gauge which furnishes a signal representative of the weight of the load, comprising:
a. a first display for displaying the weight detected by said gauge, which is equal to the weight of the load of materials already on the pan;
b. a keyboard on which is entered the weight of a new cumulative weight of products to be on said pan, which is indicated in the cumulative formula, which weight corresponds to the sum of the quantity of products already loaded, plus the quantity of the new product to be loaded;
c. means for subtracting the weight of the products already loaded on said pan from the new cumulative weight of



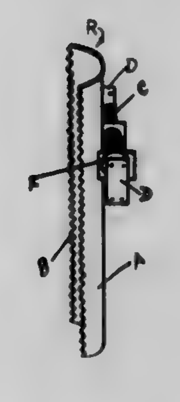
products to obtain only the weight of the new material or product to be loaded;
d. a second display for initially displaying the weight of the new material or product to be loaded as determined by said subtracting means;
e. means for displaying on said second display a decreasing value from the initially displayed value of said second display in terms of the quantity of products loaded on the pan, so that a return to zero of said second display indicates that a given quantity of product has been loaded; and
f. a signalling means for allowing a visual indication of the approach to zero of the weight of the quantity which should be loaded on said pan.

4,379,497
VEHICLE COLLISION AVOIDANCE SYSTEM
Thomas E. Hainsworth, Holland, and Robert W. Houskamp, Grand Rapids, both of Mich., assignors to Bell & Howell, Company, Chicago, Ill.
Filed Sep. 2, 1980, Ser. No. 183,241
Int. Cl.³ B62D *1/28*
U.S. Cl. 180—168 **17 Claims**



1. In an automatic guidance system having first and second self-propelled vehicles adapted to follow a predetermined guidepath having an intersecting portion defining a potential congestion zone on a floor surface, each of said vehicles having energizing means for driving the vehicle along said guidepath, the improvement which comprises:
marker means on said floor surface a spaced distance from said intersecting portion of said guidepath for indicating the proximity of said intersecting portion on said guidepath;
first sensing means on said first vehicle to detect said marker means and for generating a first proximity signal responsive thereto;
first transmitter means on said first vehicle and connected to said first sensing means for transmitting a polling signal responsive to said first proximity signal;
first receiver means on said first vehicle for detecting spatial communication signals generated by said second vehicle;
second sensing means on said second vehicle for detecting said marker means and generating a second proximity signal responsive thereto;
second receiver means on said second vehicle for receiving said polling signal;
second transmitter means on said second vehicle for transmitting a blocking signal in response to said polling signal when said second vehicle is within said potential congestion zone;
said first receiver means on said first vehicle is responsive to said blocking signal for generating a stop signal corresponding thereto; and
first control means on said first vehicle coupled to said first receiver means for disabling said energizing means of said first vehicle in response to said stop signal generated by said first receiver means until such time as said blocking signal is no longer received by said first receiver means, whereby said first vehicle will automatically stop when approaching said potential congestion zone as long as said second vehicle is passing therethrough.

4,379,498
SAFETY DEVICE FOR LADDERS
Richard H. Krusmark, 812 Pembroke Ave., Wabasha, Minn. 55981
Continuation-in-part of Ser. No. 129,118, Apr. 21, 1980, abandoned. This application Jun. 30, 1981, Ser. No. 278,988
Int. Cl.³ E06C *7/48*
U.S. Cl. 182—107 **21 Claims**



1. A safety device for a ladder having a pair of spaced side rails joined by spaced rungs, said safety device comprising:
(a) a holding member;
(b) means for rotatably fastening said holding member to the rung of the ladder, for rotational movement about a longitudinal axis of the rung; and
(c) means for gripping a cylindrical object, said gripping means connected to said holding member in a manner wherein said gripping means is disposed to lie generally perpendicular to the rung, whereby when the ladder is placed against a vertically positioned cylindrical object, said gripping means engage the cylindrical object along a length generally parallel to a longitudinal axis of the cylindrical object.

4,379,499

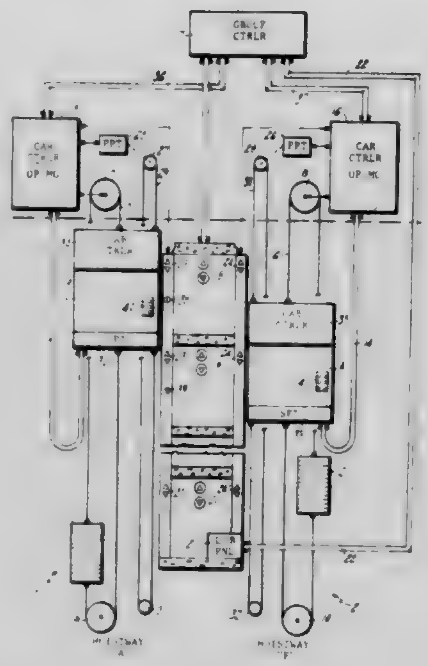
EMERGENCY POWER ELEVATOR RECOVERY AND SERVICE SYSTEM

Frederick H. Nowak, Southington, Conn., assignor to Otis Elevator Company, Farmington, Conn.

Filed Jul. 6, 1981, Ser. No. 280,843

Int. Cl.³ B66B *5/02*

U.S. Cl. 187—29 R **10 Claims**



1. An elevator system including a group controller means and a plurality of elevators operable either in response to normal electrical power provided by a feeder or in response to emergency electrical power in the absence of normal power at said feeder;

each elevator including a car movable between landings of a shaftway in a building, motion means for providing and arresting motion of the related car in its shaftway, and car controller means, for registering requests for service to said landings, for providing car control signals indicative of said requests for service and of conditions of said car, and for controlling said motion means and providing access between said car and said landings in response to said car control signals, for monitoring said feeder and for providing in response to loss of power at said feeder and to a signal indicative of said group controller selecting said elevator to run, signals to said motion means to cause said car to approach and provide access to said designated landing and either a first signal indicative of providing access to said designated landing or a second signal indicative of failure to provide access to said designated landing after a determined time period;

said group controller means comprising means for exchanging signals with each of said car controller means, for monitoring said feeder and providing, to said car controller means, in response to loss of normal power at said feeder, select signals indicative of successive ones of said elevators selected to run on emergency power to recover said elevators to a designated landing, the select signal for each elevator ending in response to receipt of either said first signal or said second signal from the related car controller means, for providing a phase two signal in response to receipt from each of said car controller means of either said first signal or said second signal, and for providing to at least one of said car controller means said select signal indicative of the related elevator being designated to run in response to said phase two signal; characterized by:

each of said car controller means comprising means for providing a third signal indicative of the related car not being at said designated landing, responsive to the absence of said select signal for rendering the related elevator inoperative, responsive to concurrence of said second signal and said phase two signal for a given time interval to cease providing said second signal, and responsive to the absence of said first signal concurrently with the presence of said select signal to cause said car to approach and provide access to said designated landing; and

said group controller means comprising means responsive to the absence of said second signal concurrently with the presence of said third signal from the same one of said car controller means and said phase two signal for providing a select signal to said one car controller means, whereby any car not recovered prior to provision of the phase two signal may be periodically selected to run in an attempt to recover the car to the designated landing after provision of the phase two signal.

4,379,500

PARKING BRAKE CABLE ADJUSTING DEVICE

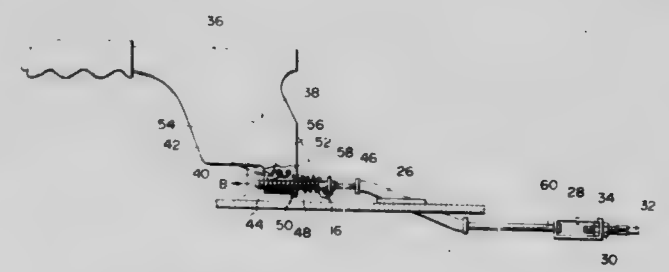
Kyoichi Kamino, Fujisawa, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Mar. 17, 1981, Ser. No. 244,345

Claims priority, application Japan, Mar. 25, 1980, 55-39778[U]

Int. Cl.³ F16D *65/54*

U.S. Cl. 188—196 B **4 Claims**



1. A parking brake cable adjusting device comprising:

a brake lever;

a control cable interconnecting said brake lever and a brake-operating mechanism;

a ratchet mechanism interconnecting a first end section of said control cable and said brake lever and permitting said control cable first end section to advance in one axial direction relative to said brake lever thereby taking up any slack in said control cable; and

biasing means for urging said control cable first end section in said one axial direction;

said ratchet mechanism including a series of ratchet teeth formed on said control cable first end section along the axis thereof and a pawl pivotally mounted on said brake lever in a position to engage said ratchet teeth;

said control cable having a flange mounted thereon at a location adjacent said control cable first end section, said biasing means including a tension spring whose ends are respectively attached to said brake lever and said control cable flange.

4,379,501

VENTILATED DISK BRAKE

Yutaka Hagiwara, Fujisawa; Toshiaki Takada, and Tetu Yamazaki, both of Yokohama, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Feb. 24, 1981, Ser. No. 237,620

Claims priority, application Japan, Feb. 27, 1980, 55-22811

Int. Cl.³ F16D *65/847*

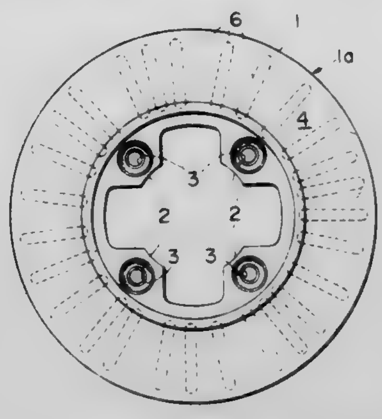
U.S. Cl. 188—218 XL **12 Claims**

1. A ventilated disk brake comprising:

a pair of brake pads;

a rotor having a brake-pad engaging portion with a pair of brake-pad engaging walls arranged to be pressed between and by the pair of brake pads;

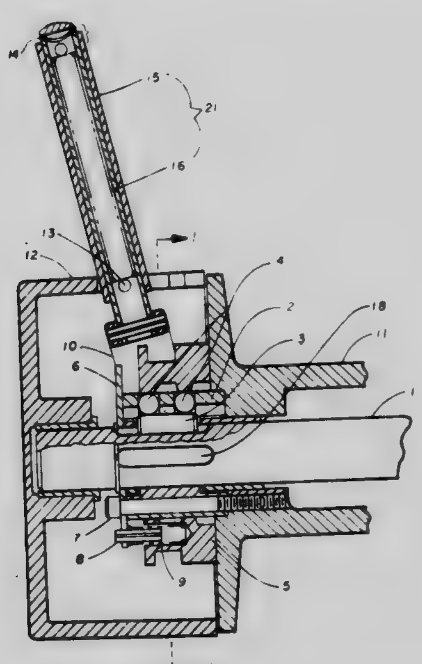
a plurality of cooling ribs extending radially between the pair of brake-pad engaging walls, the spacing and thick-



ness pattern of said ribs being randomized so that any identical spacing and thickness pattern is not repeated.

4,379,502
WINCH CLUTCH

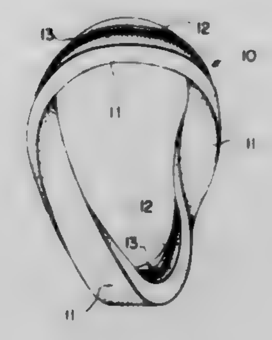
Harold M. Ball, Broken Arrow, and Robert G. Beach, Tulsa, both of Okla., assignors to Ramsey Winch Company, Tulsa, Okla.
Filed Dec. 22, 1980, Ser. No. 218,349
Int. Cl.³ F16D *11/12;* B66D *1/00*
U.S. Cl. 192—71 **4 Claims**



1. In a winch, a clutch assembly comprising a housing, a power shaft having four slots spaced equidistantly on the surface of the said power shaft, a cylindrical clutch housing having a retainer plate mounted on one end of the said cylindrical clutch housing with at least one dowel pin and at least two steel balls located in said cylindrical clutch housing, the said cylindrical clutch housing being attached to a cable drum; a cylindrical clutch locking ring having a pair of grooves therein, being slidably mounted around the said cylindrical clutch housing, the said cylindrical clutch locking ring being actuated by a yoke pivotly mounted on the clutch housing; the said yoke being attached to a clutch handle.

4,379,503
GRAVITY ROLLERWAY CONVEYOR

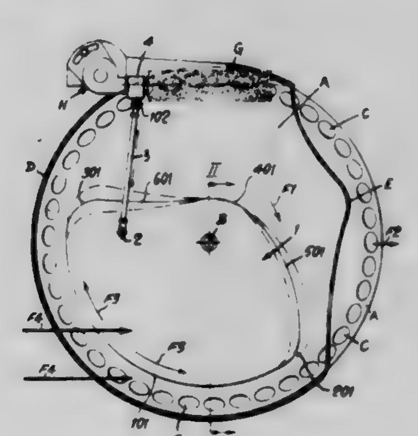
Andrew T. Kornylak, Hamilton, Ohio, assignor to Kornylak Corporation, Hamilton, Ohio
Continuation of Ser. No. 782,936, Mar. 30, 1977, abandoned. This application Sep. 6, 1978, Ser. No. 940,078
Int. Cl.³ B65G *13/00*
U.S. Cl. 193—37 **5 Claims**



3. A roller, comprising: a substantially rigid hub having bearing means for rotating the roller about an axis; an outer annular tire at least partially extending radially outwardly from the remainder of the roller to provide a load engaging surface, with the annular tire having an outer peripheral surface and an inner peripheral surface; said hub supportingly engaging said annular tire inner peripheral surface; said annular tie, when supported on its hub, being of an elastomeric material having a relaxed tension that is uniform throughout its cross-section when removed from said hub and turned inside out; when said tire is removed from said hub in a relaxed state inside out with respect to its positioning on said hub, the inner diameter of said tire being substantially smaller than the outer diameter of said hub; each of said tires having a maximum peripheral tension at its outer peripheral surface uniformly changing along a radius to a maximum compression at its inner peripheral surface to constitute means to provide a rolling resistance at substantially zero speed that is substantially less than the rolling resistance it would exhibit if the annular tire was turned inside out from its mounted position and replaced on said hub.

4,379,504
ARTICLE FEEDING DEVICE

Sandro Salicini, Bologna, Italy, assignor to Carle & Montanari S.p.A., Bologna, Italy
Filed Dec. 15, 1980, Ser. No. 216,711
Claims priority, application Italy, Dec. 21, 1979, 15339/79[U]
Int. Cl.³ B65G *47/12*
U.S. Cl. 198—455 **8 Claims**



1. A device for feeding articles in orderly succession for further processing, comprising
(a) a horizontally disposed, circular disc having a crown of recesses spaced along its circumference for receiving said articles;
(b) means for rotating said disc;
(c) the surface of said disc being subdivided into

(i) a larger receiving portion acting as a feed reservoir completely enclosed by a fixedcircumferential side wall extending along the periphery of said disc, and a fixed partition wall extending across the interior of said disc; and

(ii) a smaller delivery portion located outside of said feed reservoir;

(d) a distributor dish of generally conical shape which covers a portion of said receiving portion and has an arcuate circumferential portion adjacent to the inner periphery of said crown of recesses, said distributor dish presenting, in top plan view, the approximate shape of a sector with rounded corners, the arc of said sector being concentric with the rotation axis of said disc and extending close to the inner periphery of said crown of recesses, and the radial edge of said sector located upstream in the direction of rotation of said disc being curved in a convex manner, while the radial edge of said sector located downstream in the direction of rotation of said disc is curved in a concave manner; and

(e) means for driving said distributor dish in a rotary oscillating path in a plane parallel to the surface of said disc about a vertical axis;

(f) whereby said articles fed into said feed reservoir are agitated sufficiently to prevent clogging of said reservoir and to facilitate their orderly reception in said recesses.

4,379,505

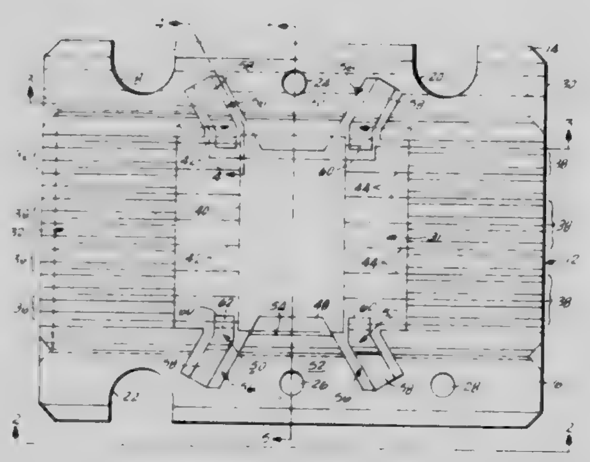
INTEGRATED CIRCUIT CARRIER

James C. Alemanni, Oceanside, Calif., assignor to Gibson-Egan Company, Duarte, Calif.

Filed Oct. 20, 1981, Ser. No. 313,000

Int. Cl.³ B65D *73/02, 85/42*

U.S. Cl. 206—329 **10 Claims**



1. A carrier for an integrated circuit flat pack having a body with a plurality of leads projecting from opposite ends of the body, the carrier comprising a base; an opening in the base for receiving the body of the flat pack; end walls at opposite ends of the opening having a plurality of grooves for receiving the leads of the flat pack; resilient retaining fingers on the base extending generally into corners of the opening, the retaining fingers having flanged tips in which the flanges project toward the opening transversely to the length of the grooves at opposite ends of the opening; separate ridges on the base extending into opposite sides of the opening for holding the bottom edges of a flat pack body inserted in the opening; the retaining fingers being bendable away from the opening, under application of an external bending force, for allowing the leads of the flat pack to bypass the bent retaining fingers and fit into the grooves at opposite ends of the opening, the retaining fingers returning to a normal locking position, when the external bending force is released, for positioning the flanged tips of the fingers over adjacent leads of the flat pack for retaining the flat back in the opening of the carrier.

4,379,506

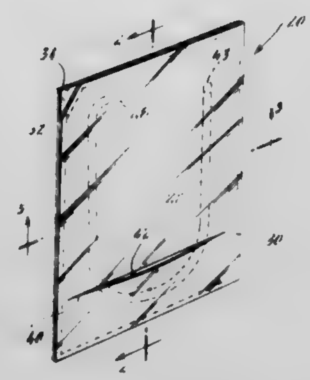
CATHETER ASSEMBLY

Alan C. Davidson, 15 Edgehill Dr., Woodbridge, Conn. 06525

Filed Apr. 2, 1981, Ser. No. 250,239

Int. Cl.³ B65D *27/36, 85/08*

U.S. Cl. 206—364 **10 Claims**



1. A package assembly for storing a device such as catheters and the like in a sterile manner while enabling manual removal of the device without breaking its sterility, comprising:

a bottom layer underlying the device;

a top layer overlying the device and the bottom layer and being releasably attached to the top layer to retain the device between the layers, said bottom and top layers being formed of a material enabling the protection of the device against contamination, said top layer further being sufficiently flexible while attached to the bottom layer to enable one to manually grip the device through said top layer while attached to the bottom layer, said top layer being separable from said bottom layer while gripping the device with one hand through the top layer and tearing away the bottom layer from the top layer with the other hand;

said top layer being provided with a backing located on a side opposite to the bottom layer, said backing being attached to said top layer at spaced locations selected to enable said one hand to fit between the backing and the top layer to permit the back of said hand to restrain said top layer as the bottom layer is torn away in a direction away from said hand, whereby upon said layer separation said device is exposed for use while being held in a sterile manner by said one hand through the separated top layer.

4,379,507

OPTICAL DISK CASSETTE

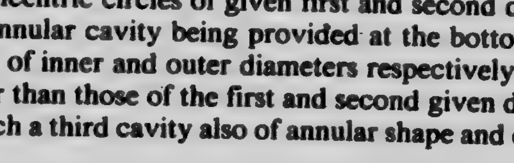
Raymond Llabres, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Mar. 6, 1981, Ser. No. 241,112

Claims priority, application France, Mar. 7, 1980, 80 05197

Int. Cl.³ B65D *85/57, 85/02;* **G11B** *5/16, 17/00*

U.S. Cl. 206—444 **9 Claims**



1. A cassette for an optical disk of the type comprising a plate possessing a first circular cavity for taking an optical disk and an envelope for containing the said plate, the envelope having an opening through which the plate may be inserted and the disk possessing a recording area on each side defined by two concentric circles of given first and second diameters, a second annular cavity being provided at the bottom of said first cavity of inner and outer diameters respectively less than and greater than those of the first and second given diameters, and in which a third cavity also of annular shape and of dimen-

sions virtually equal to those of said second cavity is provided in the inner surface of the envelope cover, said second and third cavities being concentric when the plate is inserted in the envelope so that only unrecorded portions of said disk touch said plate or envelope independent of the orientation of said cassette in space.

4,379,508

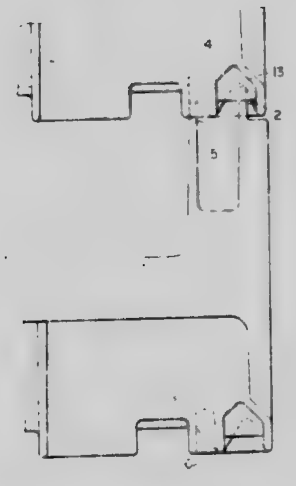
NESTING TRAY WITH STACKING KEYED INTERLOCK

Daniel R. Miller, Cincinnati; Thomas Deaton, Mason, and Robert Royer, Cincinnati, all of Ohio, assignors to Nestier Corporation, Cincinnati, Ohio

Filed Oct. 14, 1981, Ser. No. 311,376

Int. Cl.³ B65D *21/04*

U.S. Cl. 206—507 **8 Claims**



1. A plurality of trays, comprising:

each tray being of a one piece construction molded from synthetic resin material, having a rectangular structure, parallel opposed side walls, a bottom wall and parallel opposed end walls, said side walls and said end walls extending vertically upward from said bottom walls, said end walls having a height greater than said side walls, and said end walls having free upper and lower edges:

said side walls and said end walls having surface means formed thereon for enabling said trays to be stacked in a vertically aligned position, and for enabling said trays to be stacked in a nested position when one of said trays is rotated at least 90 degrees relative to another of said trays about an axis perpendicular to said bottom walls from said stacked position;

said surface means including upper stacking elements formed integrally with said end walls extending along said upper edges of said end walls, and lower stacking elements formed integrally with said end walls at said lower edges of said end walls;

one of said upper and lower stacking elements comprising a ridge and the other of said upper and lower stacking elements comprising groove means wide enough and deep enough to receive said ridge;

web means extending across the width of said groove means for preventing the seating in said groove means of portions of said ridge which are vertically aligned with said web means when said upper and said lower stacking elements of adjacent stacked trays engage;

said ridges including notches having dimensions that correspond with the dimensions of said web means such that the engagement of said web means within said notches permits the seating of said ridge within said groove means of adjacent stacked trays;

a first plurality of said trays being identical and having a unique pattern of said web means and corresponding said notches of said upper and said lower stacking elements so that when said first plurality of said trays are stacked on and vertically aligned with one another each of said web means will be received within a notch of the adjacent tray;

a second plurality of said trays being identical to each other and differing from said first plurality of said trays substantially only in having a second unique pattern of said web means and corresponding said notches of said upper and said lower stacking elements so that when said second plurality of said trays are stacked on and vertically aligned with one another each of said web means will be received within a notch of the adjacent tray; and

said first plurality of said trays unique pattern having a difference between said second plurality of said trays unique pattern such that said difference prevents the seating of said ridge of any one of said first plurality of said trays within said groove means of any one of said second plurality of said trays.

4,379,509

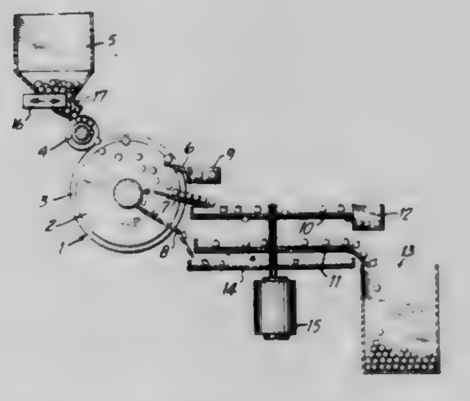
HIGH EFFICIENCY SORTING APPARATUS

Lorenz Bohle, Im Luren 5, 4722 Ennigerloh, Fed. Rep. of Germany

Filed Jan. 15, 1981, Ser. No. 225,350

Int. Cl.³ B07C *5/34*

U.S. Cl. 209—598 **17 Claims**



1. Apparatus for sorting items according to size comprising a pair of opposed sorting discs having facing sides with the spacing between said sides varying radially of said discs, means for depositing items to be sorted to between said facing sides of said sorting discs and means interposed at various radial locations between said facing sides for withdrawing said items separately from between said sorting discs in accordance with the size of said items; said depositing means being located to permit said items to fall by force of gravity to between said facing sides of said sorting discs; said depositing means comprising container means, oscillating conveyor means for receiving said items from said container means, and a pair of feed discs having sides generally aligned with the facing sides of said sorting discs, said feed discs being arranged to receive said items from said conveyor means between said facing sides thereof and to deposit said items to between said facing sides of said sorting discs.

4,379,510

METHOD AND APPARATUS FOR SORTING STONES

Douglas H. Ziegel, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 31, 1981, Ser. No. 249,730

Int. Cl.³ B07C *5/00;* **G01N** *21/00*

U.S. Cl. 209—643 **8 Claims**

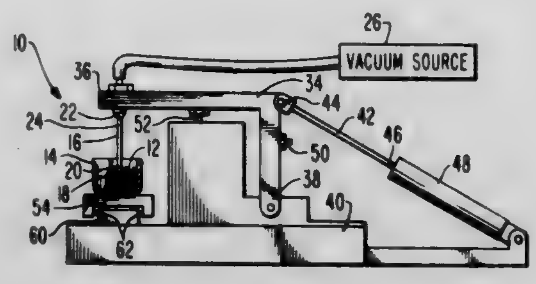
1. An apparatus for sorting stones contained within a supply reservoir by viewing said stones individually through a microscope comprising:

a pick-up tube having a first opening disposed at one end thereof, said first opening adapted to form a substantially airtight seal with one of said stones,

a vacuum source connected to a second opening disposed at the other end of said pick-up tube, said second opening being in communication with said first opening,

support means supported by a platform and connected to the other end of said pick-up tube for moving the one end of said tube between a first position disposed at a transfer

location whereat said one end is exposed to the stones within the supply reservoir, and a second position outside said reservoir whereat said one end is positioned exactly within the field of view of an objective of said microscope such that a stone held adjacent said first opening is disposed precisely at the focal length of said microscope objective, and



a sliding tray adapted to support said supply reservoir along with a reject reservoir and an accept reservoir, said tray attached to said platform by means for sliding said tray back and forth to allow each of said reservoirs to be positioned at said transfer location wherein the one end of said pick-up tube, while at said first position, has access thereto.

4,379,511

DEVICE FOR DRAWING LIQUIDS FROM CONTAINERS

Mario F. del Fabro, Santiago, Chile, assignor to Fiora del Fabro Y Cia. Ltda., Santiago, Chile

Filed Apr. 30, 1981, Ser. No. 259,196

Claims priority, application Chile, May 9, 1980, 308/80

Int. Cl.³ B65D *83/00*

U.S. Cl. 215—1 A **13 Claims**

1. A straw through which liquid can be drawn comprising at least one extended open channel member having flotation means connected to said channel member which flotation means extends the full length of said channel member for causing the device to float at a predetermined level within the liquid.

4,379,512

CLOSURE HAVING AN IMPROVED LINER

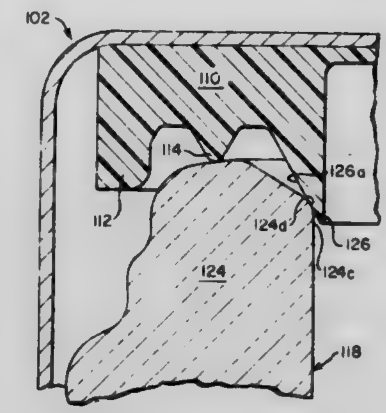
Hidehiko Ohmi, Hiratsuka; Katsuhisa Kitagawa, Kasugai; Shoji Morimoto, Komaki; Tateo Kubo, Hiratsuka; Misao Ohno, Komaki, and Seitaro Takahashi, Komaki, all of Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

Filed Nov. 19, 1980, Ser. No. 208,398

Claims priority, application Japan, Nov. 24, 1979, 54-151334

Int. Cl.³ B65D *53/04*

U.S. Cl. 215—327 **4 Claims**



1. A closure including a metal shell having a circular top surface and a substantially cylindrical skirt depending from the peripheral edge of the top surface, and a synthetic resin liner press formed on the inside top surface of the shell with the liner having at least first and second concentric annular projections with said first annular projection being positioned radially outwardly of said second annular projection and with the inner peripheral surface of said first annular projection adapted to seal with the outer peripheral surface of a container including a mouth having an upper horizontal surface; the improvement comprising in that said second annular projection has a radial thickness such decreases towards a projection tip at the end thereof and has a radially outward peripheral surface inclined radially inwardly towards said tip with said tip adapted to initially contact the horizontal upper surface of a container to be bent inwardly when the shell and liner are sealed to a container and said radially outwardly peripheral surface adapted to be bent radially inwardly when positioned against an upper surface of a mouth of a container to form a seal therewith and in that a third concentric annular projection is positioned radially inwardly of said second annular projection and is adapted to initially contact an inner peripheral edge of the mouth when the shell and liner are sealed to a container and then to be bent inwardly to be spaced from the inner peripheral edge of the mouth.

4,379,513

PRESSURE VESSEL FASTENING MEANS

Ernest P. Basterfield, Bedfordview, and Llewellyn P. Basterfield, Silvermont, both of South Africa, assignors to Chem Developments (Proprietary) Limited, Edenvale, South Africa

Filed Jun. 18, 1981, Ser. No. 274,727

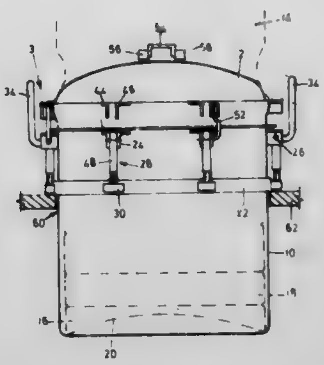
Claims priority, application South Africa, Jun. 30, 1980, 80/3903

Int. Cl.³ B65D *45/16*

U.S. Cl. 220—325 **5 Claims**

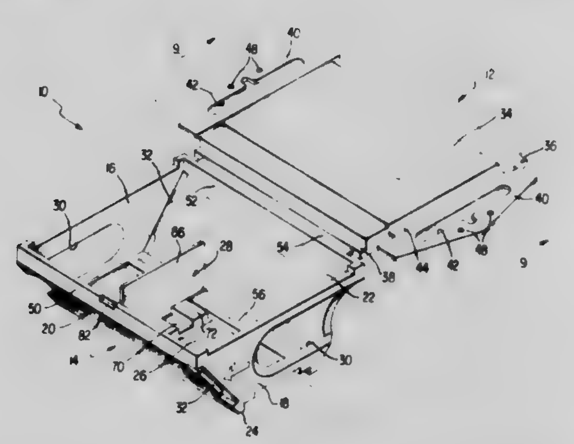
1. A pressure vessel comprising a container, a lid sealingly engageable with the container, and means for securing the lid to the container in an air tight manner, the securing means comprising a plurality of brackets on the lid and a plurality of clamping devices which are on the container, each bracket including two supports which are spaced from each other and fixed to the lid, extending radially outwardly from the lid, the outer end of each support including an upwardly extending formation, and each clamping device including a threaded shank which is pivotally movable into the space between the two supports, and a member threadly engaged with the shank which is screwed down to secure the lid to the container, the

upwardly extending formations on the supports permitting a degree of release of the clamping device and preventing pivotal movement of the shank out of the space when the threaded



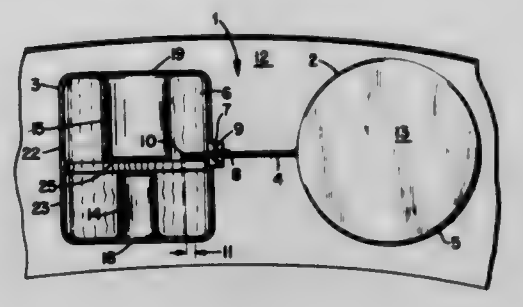
member is below a first position on the shank, so that excess pressure can escape from the container while the lid is still secured to the container.

4,379,514
BLADE HOLDER AND DISPENSER
Edward J. Joffe, Linden, N.J., assignor to Howard Strauss, Union, N.J., a part interest
Filed Mar. 26, 1981, Ser. No. 247,994
Int. Cl.^{3} B65G *59/00*
U.S. Cl. 221—279 **8 Claims**



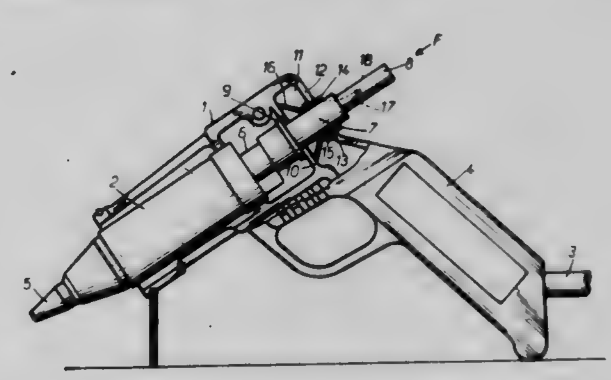
1. A holder and dispenser for replaceable knife blades comprising:
a back plate having a rectangular main portion;
a cover having a front face, opposed side faces and opposed end faces, said cover mating with said back plate to define therewith a magazine for receiving a plurality of blades in stacked relation, at least one end face having an aperture extending partially thereacross from one side face, the opposite side face having a blade discharge slot immediately adjacent said one end face, the front face having an opening extending the length thereof and, on each side of said opening and extending the length thereof, a rail recessed from the front surface of said front face; and
a manually movable follower slideably received in said opening of said front face, said follower including a plate portion projecting into said magazine and shoulder portions slidingly engaging each of the rails of the sides of the opening.

4,379,515
AUTOMATIC DISPENSER FOR RINSE WATER ADDITIVE
Marvin S. Towsend, 1365 Potomac Heights Dr., Fort Washington, Md. 20744
Filed Sep. 25, 1981, Ser. No. 305,720
Int. Cl.^{3} B67D *5/08*
U.S. Cl. 222—52 **10 Claims**



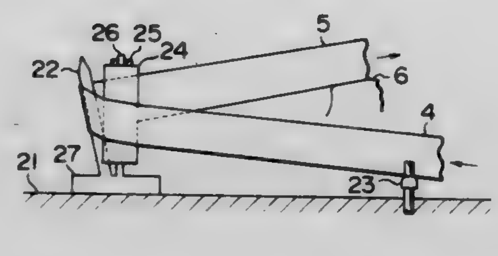
1. An article for automatically dispensing laundry additive during the rinse cycle in an automatic washing machine, comprising:
a reservoir having a collapsible wall and a quantity of laundry additive, said wall being collapsible during the spin cycle of the automatic washing machine;
a rigid receptacle for receiving the laundry additive and for dispensing the laundry additive; and
a communication means for passing the laundry additive from said reservoir to said receptacle during the spin cycle.

4,379,516
DEVICE FOR DISPENSING FUSED MATERIALS SUCH AS THERMOPLASTIC ADHESIVES
Rene Barlogis, Vagney, France, assignor to Societe Francaise d'Agrafage Industriel - Sofragraf, Vagney, France
Filed Dec. 12, 1980, Ser. No. 215,739
Claims priority, application France, Dec. 14, 1979, 79 30718
Int. Cl.^{3} B67D *5/62*
U.S. Cl. 222—146 HE **11 Claims**



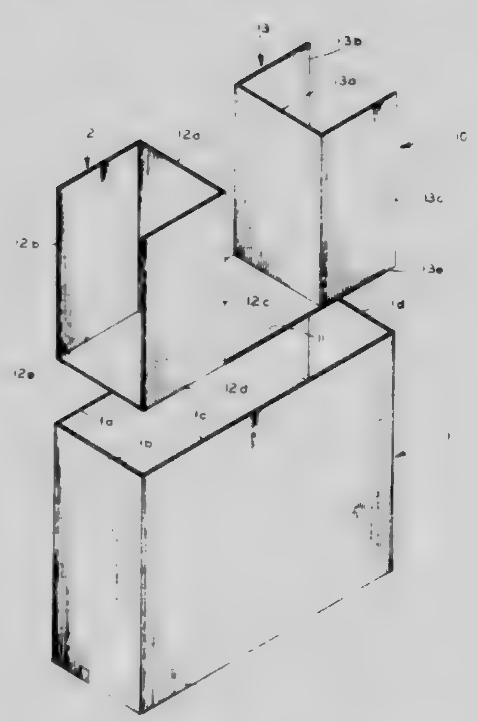
1. A device for dispensing a fused material such as a thermoplastic adhesive, comprising a housing equipped with a heating chamber including a delivery nozzle and an inlet tube for progressively introducing a rod of the material to be dispensed into said heating chamber, whereby the material of the introduced rod is progressively fused and expelled outside of the heating chamber through said delivery nozzle, a clamping member arranged so as to catch the rod, so that said clamping member is carried away with said rod when a push is exerted on said rod, and means for generating a resilient return force when said clamping member is carried away with said rod, so that said rod is brought rearwards under the action of said return force when a push is no longer exerted on said rod.

4,379,517
MAGNETIC TAPE RUNNING SYSTEM
Seii Miyakawa; Manabu Ikeda, both of Yokohama; Shin Hashizume, Kamakura, and Kazunori Iijima, Shimoinayoshi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Oct. 28, 1980, Ser. No. 201,615
Claims priority, application Japan, Oct. 29, 1979, 54-138791
Int. Cl.^{3} B65H *17/22*
U.S. Cl. 226—189 **5 Claims**



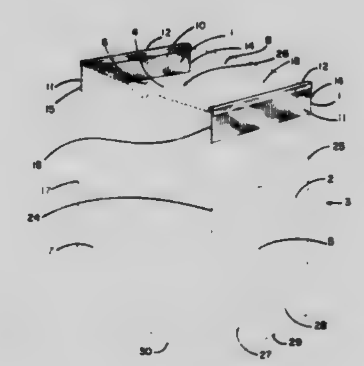
2. In a magnetic tape running system in which said magnetic tape is guided by guide rollers and tape guides such that said magnetic tape runs along a cylinder lead with a selected inlet angle so as to effect magnetic recording and reproduction: the improvement comprising means including an adjustable tape guide for guiding the lower edge of said magnetic tape to determine the vertical position thereof and a guide roller having a stopper for limiting axial movement of said guide roller around which said tape passes, the inlet side and outlet side of said magnetic tape to said guide roller being inclined downwardly to the inlet side and upwardly to the outlet side respectively at a predetermined angle (θ) to the line normal to the axis of said guide roller, and means for finely adjusting said predetermined angle (θ) by moving up and down said adjustable tape guide to cause said magnetic tape to move along the selected inlet angle of said cylinder lead.

4,379,518
THREE CELL DIVIDER FOR CARTON
Edwin C. Taylor, Sr., Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Aug. 17, 1981, Ser. No. 293,824
Int. Cl.^{3} B65D *5/48*
U.S. Cl. 229—15 **4 Claims**



1. A three cell corrugated divider for insertion in an open top of a rectangular box comprising a single blank folded to define:
(1) a horizontal bottom portion insertable in the box and conforming to the bottom of the box;
(2) a first horizontally U-shaped vertical divider having the vertical bight portion adapted to traverse the space between opposed side walls of the box and two vertical arm portions respectively adapted to abut opposed end areas of said opposed side walls, only one of said vertical arm portions being foldably secured to a portion of one edge of said horizontal bottom portion, and
(3) a second horizontally U-shaped vertical divider having a vertical bight portion adapted to traverse the space between said opposed side walls of the box in horizontally spaced relation to the bight portion of said first vertical divider and two vertical wall portions respectively adapted to abut the other opposed end areas of said opposed side walls of the box, only one of said vertical wall portions of said second vertical divider being foldably secured to a portion of the other edge of said horizontal base portion.

4,379,519
PAPER BAG STIFFENER
Tom W. Sherwood, Las Vegas, Nev., assignor to Unique Products Company, Inc., Las Vegas, Nev.
Filed Apr. 20, 1981, Ser. No. 255,540
Int. Cl.^{3} B65D *33/02*
U.S. Cl. 229—55 **3 Claims**

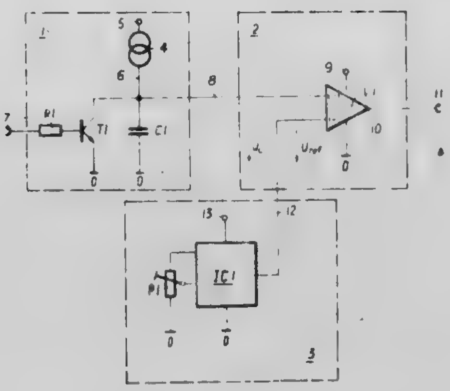


1. In combination, a bag adapted to be maintained in an open position or a folded position, the bag having front, rear, and opposing side panels defining a rectangular horizontal cross-section when the bag is in the open position, upper edges of said panels defining a bag mouth, the opposing side panels having the intermediate vertical creases therein, and
stiffening members, each having a length greater than the horizontal dimension of the side panel of the bag, removably mounted over the upper edges of the opposing side panels to maintain the bag mouth in the open position.

4,379,520
TEMPERATURE REGULATING SYSTEM FOR AIR CONDITIONING OR HEATING PLANTS, PREFERABLY IN RAILWAY VEHICLES
Peter Tomsu, Vienna, Austria, assignor to Alex Friedmann Kommanditgesellschaft, Vienna, Austria
Filed Aug. 5, 1981, Ser. No. 290,211
Claims priority, application Austria, Aug. 6, 1980, 4057/80
Int. Cl.^{3} G05D *23/00;* **G01K** *7/00*
U.S. Cl. 236—49 **6 Claims**

1. A temperature-regulating system for an air conditioning or heating plant which includes
a programmable digital processing unit which includes at least one input and at least one output, and
a value-measuring unit which includes at least one temperature sensor, a capacitor, a switching element, a switching means and a reference voltage-generating means, each temperature sensor being connected to a capacitor so as to charge the capacitor by a current proportional to the measured temperature, the switching element being connected to the output of the digital processing unit and to the capacitor so as to cause the capacitor to discharge at a rate determined by the digital processing unit, the switch-

ing means including an output connected to the input of the digital processing unit and two inputs, the capacitor being connected to one input of the switching means and the other input of switching means being connected to the reference voltage-generating means, the digital processing unit acting via the switching element to discharge the



capacitor and also repeatedly checking the output of the switching means for a signal change, the number of such checks commencing from the beginning of measurement to a change in the signal representing digital values corresponding to the measured temperature, the switching means changing its output signal when the capacitor voltage reaches the reference voltage.

4,379,521

SPRING RAIL FASTENING SYSTEM

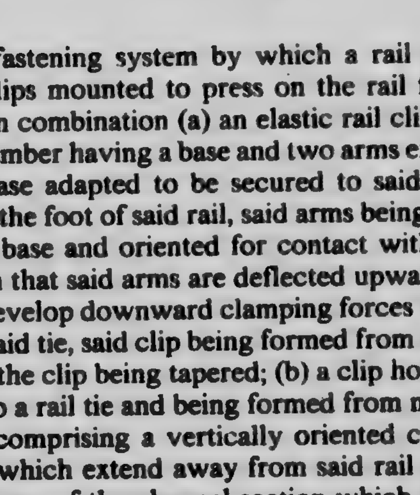
Hartley F. Young, Melton, Australia; Hendrikus M. Verhoef, deceased, late of Broadview, Australia (by Edmund M. Verhoef, executor), and Wally A. Remes, Redwood Park, Australia, assignors to Ralph McKay Limited, Victoria, Australia

Filed Dec. 19, 1980, Ser. No. 218,109

Claims priority, application Australia, Dec. 19, 1979, 54004/79

Int. Cl.³ E01B *9/30, 21/04, 29/24*

U.S. Cl. 238—349 **3 Claims**



1. A rail fastening system by which a rail is secured, by elastic rail clips mounted to press on the rail flange, to a tie comprising in combination (a) an elastic rail clip comprising a U-shaped member having a base and two arms extending therefrom, said base adapted to be secured to said tie outwardly spaced from the foot of said rail, said arms being bent inwardly beyond said base and oriented for contact with the flange of said rail such that said arms are deflected upwardly relative to said rail to develop downward clamping forces tending to hold said rail on said tie, said clip being formed from metal plate and each arm of the clip being tapered; (b) a clip holder adapted to be secured to a rail tie and being formed from metal plate, said clip holder comprising a vertically oriented channel section, the sides of which extend away from said rail and are slotted toward the base of the channel section which lies adjacent to said rail, said slots being adapted to receive said one portion of the rail clip, and an upwardly inclined surface on the top edge of the base of said vertically oriented channel section such that the top edge of said inclined surface is at least at the level of the foot of said rail; and (c) a rail locking element adapted for location between the clipholder and the rail flange, the locking element interfitting with said clipholder in a wedge-like relationship such that movement of the locking element in the longitudinal direction of the rail is translated into a holding force perpendicular to the edge of the rail flange, said locking element being formed of an electrically insulating material and (d) an insulator pad for location between the rail and the tie.

4,379,522

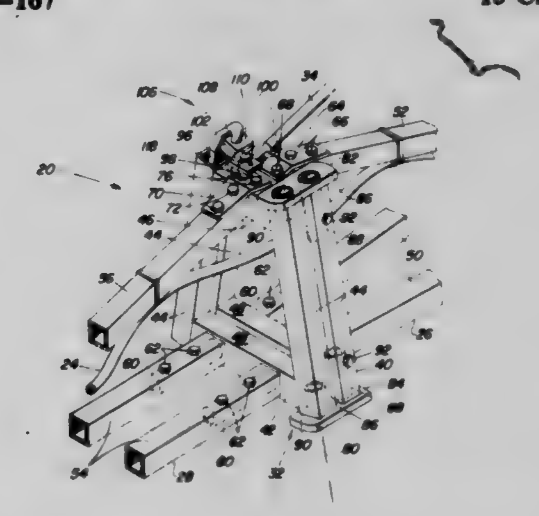
FOLDING SPRAY BOOM ASSEMBLY

Marion D. Elliott, Woodward, and Wendell D. Reece, Ankeny, both of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Apr. 13, 1981, Ser. No. 253,494

Int. Cl.³ B05B *1/20*

U.S. Cl. 239—167 **15 Claims**



1. In a mobile sprayer adapted for forward movement over a field and having a support frame, a spray boom assembly comprising:

an inner boom and an outer boom, each said boom having inboard and outboard ends;

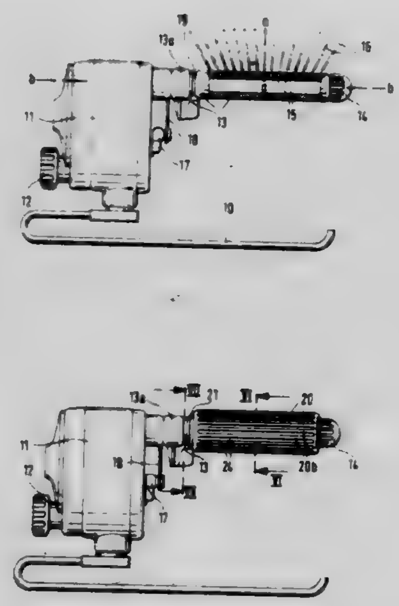
means for mounting the inboard end of the inner boom on the boom support frame;

hinge means pivotally connecting the outboard end of the inner boom to the inboard end of the outer boom for rocking outer boom with respect to the inner boom generally horizontally about a substantially upright axis between preselected positions including a generally outwardly extending, unfolded position and an inwardly extending, folded position;

elongated support means extending above the inner boom connected to the outer boom adjacent the hinge means and to the support frame and tensioned therebetween for providing vertical stability to the inner and outer booms when the latter is in either its folded or unfolded position; and

overcenter means connecting the support means to the outer boom for biasing the outer boom towards the unfolded position when it is within a range of positions between the unfolded position and an intermediate position between said folded and unfolded positions, said overcenter means including a bracket member fixed to the outer boom and offset in the fore-and-aft direction to one side of the pivotal axis when the outer boom is in the unfolded position, said bracket offset to the opposite side of the axis when the outer boom is in the folded position.

4,379,523
SPRINKLER
Friedrich Schanz; Emil Schücker, both of Calw, and Alexander Perrot, Althengstett, all of Fed. Rep. of Germany, assignors to Perrot-Regnerbau GmbH & Co., Calw, Fed. Rep. of Germany
Filed Sep. 4, 1981, Ser. No. 299,521
Claims priority, application Fed. Rep. of Germany, Sep. 5, 1980, 3033417
Int. Cl.³ B05B *3/06*
U.S. Cl. 239—222 **9 Claims**



1. A swivelling fan-jet sprinkler which is convertible from a coarse sprinkling mode in which it covers a relatively large irrigation area to a gentler spraying mode in which it covers a smaller irrigation area, the sprinkler comprising in combination:

a sprinkler housing with a sprinkler stand supporting the housing;

a hose connector on the sprinkler housing for the supply of pressurized water to the sprinkler housing;

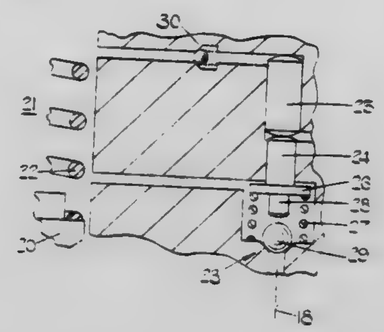
a tubular nozzle cylinder having a longitudinal axis, said tubular nozzle cylinder extending horizontally from the sprinkler housing in a cantilever fashion, the nozzle cylinder being rotatably supported by the sprinkler housing and having arranged on an upper side of said nozzle cylinder a row of nozzle bores oriented in a diverging fantail spray pattern with a common plane;

means utilizing the water flow in the sprinkler housing for driving the nozzle cylinder to execute a slowly reciprocating swivelling motion about said longitudinal axis; and

a spinner cage having a longitudinal bore extending therethrough, and a plurality of passage means extending from said longitudinal bore to an outer surface of said spinner cage for causing rotation of said spinner cage upon impact by water jets exiting from the nozzle bores, said spinner cage having positioning means cooperating with the tubular nozzle cylinder for axially positioning the spinner cage on the nozzle cylinder in a freely rotatable manner for readily attachable and detachable connection to the nozzle cylinder for the conversion of the latter from a coarse sprinkling mode with a detached spinner cage to a gentle spraying mode with an attached spinner cage; and wherein

the spinner cage, when attached to the sprinkler, surrounds the nozzle cylinder, being freely rotatable thereon, the water jets exiting from the nozzle cylinder being disturbed by the spinner cage, while imparting a rotary motion to the latter to accomplish said gentler spraying mode.

4,379,524
FUEL INJECTION NOZZLES
Richard J. Andrews, Guildford, England, assignor to Lucas Industries Limited, Birmingham, England
Filed Mar. 18, 1981, Ser. No. 245,166
Claims priority, application United Kingdom, May 16, 1980, 8016231
Int. Cl.³ F02M *61/20*
U.S. Cl. 239—533.8 **5 Claims**



1. A fuel injection nozzle comprising a fuel pressure operable valve member slidable within a bore, a seating at one end of the bore, the valve member being shaped for co-operaton with said seating to prevent fuel flow from an inlet to an outlet, resilient means for biassing the valve member into contact with the seating, a chamber, a valve through which fuel under pressure can flow to said chamber, a surface in said chamber, the fuel pressure acting on said surface creating a force which assists the action of said resilient means characterized in that the valve is located in a first passage connecting said inlet with said chamber, said valve including a valve element and a valve seating, the valve element being lifted from the valve seating by the fuel pressure at the inlet to allow fuel flow into said chamber, a first piston subject at one end to the pressure in said chamber, a second piston of larger diameter than the first piston, one end of said second piston being engaged with the other end of said first piston, a second passage through which the other end of said second piston is subject to the pressure in said chamber, resilient means opposing movement of the pistons under the action of the pressure in the chamber acting on the differential area of the pistons, said pistons being positioned so that when they move against the action of the resilient means, the valve element of said valve will be held upon the valve seating to prevent a further increase in the pressure of fuel in the chamber.

4,379,525
PROCESS FOR RECYCLING PLASTIC CONTAINER SCRAP
Casimir W. Nowicki, Sylvania, and Alan M. Jaffee, Toledo, both of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio
Filed Aug. 6, 1981, Ser. No. 290,643
Int. Cl.³ B02C *19/14*
U.S. Cl. 241—20 **15 Claims**

1. A process for purifying scrap plastic granules from thermoplastic containers by removing label residue therefrom comprising the steps of:
(a) charging a mixing tank with a batch of said granules;
(b) charging said mixing tank with hot water from a hot water reservoir to form a mixture of said hot water and said granules;
(c) agitating said mixture to separate a first portion of said label residue from said granules;
(d) removing said hot water and said label residue from said granules;
(e) filtering said label residue from said hot water;
(f) returning said hot water to said reservoir;
(g) repeating steps b–f sufficiently to remove substantially all of said label residue from said granules;
(h) charging said mixing tank with an amount of said hot water from said reservoir to overflow said granules over an overflow weir into a dewatering tank;

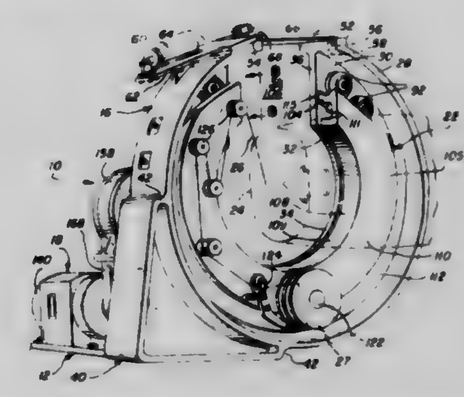
(i) separating said granules from a major portion of said hot water and returning said hot water to said hot water reservoir; and

(j) subsequently drying said granules to remove substantially all of said residual water from said granules.

4,379,526
ORE MILL AND METAL SEPARATING DEVICE
William E. Dodds, 478 Jessie Ave., Winnipeg, Manitoba, Canada (R3L 0P6)
Filed Feb. 9, 1981, Ser. No. 232,916
Claims priority, application Canada, Apr. 21, 1980, 350311
Int. Cl.³ B02C *4/02*
U.S. Cl. 241—79.1 6 Claims

1. An ore mill and metal separating device, said separating device comprising in combination means to receive the mill sludge from the ore mill, conveyor means conveying said sludge from said means to receive same, a mercury bed, said conveyor moving said sludge to one side of said bed and through said bed and discharging means at the other end of said bed, said separating device including a first solid blade type screw conveyor portion inclining downwardly at an angle from said means to receive the mill sludge, a substantially horizontal container for said mercury bed, a central, solid blade type screw conveyor spanning said container and being partially submerged in the mercury within said mercury bed and being operatively connected by one end thereof to one end of said first conveyor portion, and a third solid blade type screw conveyor portion inclining upwardly at an angle from the other end of said bed and being operatively connected by one end thereof to the other end of said central screw conveyor thereby forming a continuous articulated conveyor assembly.

4,379,527
SHUTTLE DRIVE ASSEMBLY
Ronald T. Albo, Los Gatos; James E. Carney, Jr., Santa Cruz, and Robert E. Riehl, Sunnyvale, all of Calif., assignors to Caterpillar Tractor Co., Peoria, Ill.
PCT No. PCT/US80/00020, § 371 Date Jan. 9, 1980, § 102(e) Date Jan. 9, 1980, PCT Pub. No. WO81/02000, PCT Pub. Date Jul. 23, 1981
PCT Filed Jan. 9, 1980, Ser. No. 130,490
Int. Cl.³ B65H *81/04;* B29H *17/02;* H01F *41/08*
U.S. Cl. 242—4 BE 17 Claims



1. A shuttle drive assembly (10) having a base (12) and comprising:

a support frame (16) carried by said base (12) and having an article-receiving opening (32) in the midportion therein, said support frame (16) having a cutout segment providing an access passage (38) into said article-receiving opening (32) therein,

a shuttle (22) having an article-receiving opening (108) in the midportion thereof, said shuttle (22) having a cutout segment providing an access passage (106) into said article-receiving opening (108) therein, said opening (108) and passage (106) in said shuttle (22) being alignable with the opening (32) and passage (38) in said frame (16) for receiving a toroidal-shaped article (24) in said aligned openings (108,32) through the aligned access passages (38,106) in said frame (16) and said shuttle (22),

means (85,87) for supporting and rotatably driving said shuttle (22), said means (85,87) including a drive roll assembly carried by said frame (16) and having drive rollers (92), mating means (115) for engaging with said drive rollers (82), said mating means being mounted on said shuttle (22) and disengaging from each of said drive rollers (82) during a portion of each full rotation of said shuttle (22),

a motor (140), and

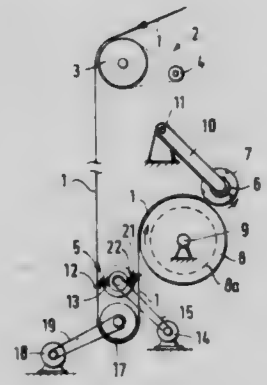
motion transmission means (192, 191, 190, 186, 188) for connecting said drive roll assembly means (85,87) to said motor (140) for rotatably driving said shuttle (22) relative to said frame (16) in a plane substantially transverse to said toroidal-shaped article (24),

said drive roll assembly means (85, 87) comprising a plurality of long drive roll assemblies (87) and a plurality of short drive roll assemblies (85), each long drive roll assembly (87) having two axially aligned pulleys (84,84) on one side of said frame (16) and a roller (92) on the other side of said frame (16).

4,379,528
THREAD REELING APPARATUS
Alfred Tschentscher, Cologne, Fed. Rep. of Germany, assignor to FMN Schuster GmbH & Co. KG, Fed. Rep. of Germany
Filed Apr. 15, 1981, Ser. No. 254,565
Claims priority, application Fed. Rep. of Germany, Apr. 30, 1980, 3016662
Int. Cl.³ B65H *54/28*
U.S. Cl. 242—43 R 6 Claims

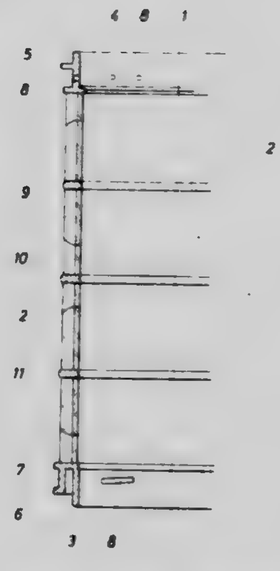
1. An apparatus for reeling thread on a bobbin, said apparatus comprising:

(a) a rotary cam drum having a helical groove extending along the longitudinal axis thereof,
(b) a first traversing thread guide assembly mounted to move along said helical groove and effective to guide the thread to-and-fro along the longitudinal axis of the rotary cam drum,
(c) tension controlling means located between the rotary cam drum and the bobbin to receive the thread from the first traversing thread guide assembly for controlling the tension of the thread, and



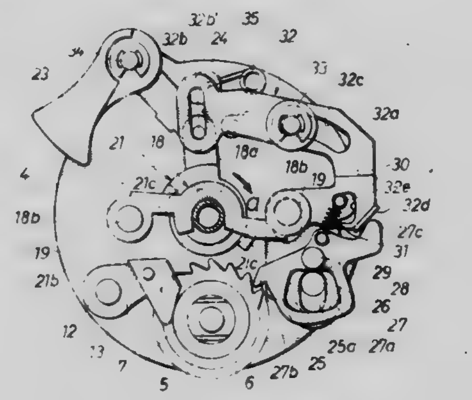
(d) a friction roller for rotating the bobbin,
(e) said tension controlling means including a smooth roller located downstream from said first traversing thread guide assembly for receiving a thread on its smooth peripheral surface and a second traversing thread guide assembly between the smooth roller and the friction roller,
(f) said second traversing thread guide assembly being effective to guide the thread between the smooth roller and the friction roller.

4,379,529
TUBE FOR YARN BOBBIN
Hans B. Nielsen, Bühlstrasse 3, CH-8125 Zollikerberg, Switzerland
PCT No. PCT/DK80/00033, § 371 Date Feb. 19, 1981, § 102(e) Date Feb. 19, 1981, PCT Pub. No. WO80/02832, PCT Pub. Date Dec. 24, 1980
PCT Filed May 28, 1980, Ser. No. 237,149
Int. Cl.^{3} B65H *75/20*
U.S. Cl. 242—118.11 **6 Claims**



1. A tube made of molded plastic material for yarn bobbins of variable axial length, said tube including a plurality of axially spaced apart concentric rings each of which has a plurality of arms extending longitudinally of the tube, said arms having outer sides which together form a cylindrical or slightly conical surface of the tube for receiving yarn bobbins, said including and rings being connected together by resilient spring members molded integrally with said rings and located radially inward of said surface formed by said arms, said spring members being of such dimensions that the tube may be compressed in axial direction by virtue of the resilience of the plastic material and said spring members being stretchable in the axial direction of the tube and when so stretched said spring members extend substantially parallel to the generatrixes in the surface of the tube.

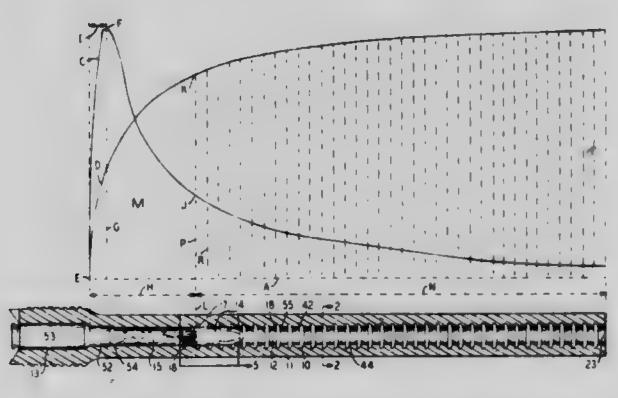
4,379,530
FISHING REEL
Takehiro Kobayashi, Fukuyama, Japan, assignor to Ryobi Limited, Fuchu, Japan
Filed Sep. 3, 1980, Ser. No. 183,768
Claims priority, application Japan, Sep. 3, 1979, 54-122129[U]
Int. Cl.^{3} A01K *89/02*
U.S. Cl. 242—220 **8 Claims**



1. A fishing reel comprising:
a base plate;
a main rod;
means for rotatably mounting said main rod relative to said base plate;
a handle;
a supporting shaft;
means for affixing said handle to said supporting shaft;
means for rotatably mounting said support shaft relative to said base plate;
a main gear;
means for affixing said main gear to rotate in unison with said supporting shaft;
a pinion;
means for slidably mounting said pinion in an axial direction on said main rod, said pinion being normally forced to mesh with said main gear;
a clutch lever;
means for mounting said clutch lever relative to said base plate to permit limited axial movement relative to said main rod;
means for affixing said clutch lever to said pinion;
a clutch cam;
means for rotatably mounting said clutch cam relative to said base plate;
a kick lever;
means for interlocking said kick lever with said clutch cam;
a slider;
means for slidably mounting said slider on said base plate;
means for attaching said kick lever to said slider wherein movement of said kick lever imparting a sliding movement to said slider;
a kick plate;
means for pivotally mounting said kick plate on said slider;
a ratchet wheel;
means for affixing said ratchet wheel to said support shaft, said ratchet wheel being coaxially mounted on said support shaft relative to said main gear;
said kick plate including a first end being selectively, operatively engageable with said ratchet wheel;
said kick lever being movable in a first direction to impart rotary motion to said clutch cam to axially move said

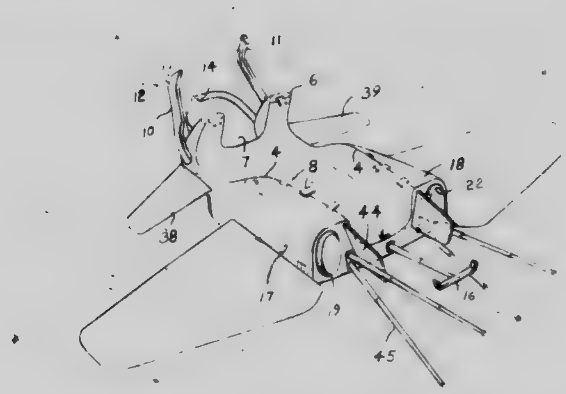
clutch lever and said pinion to disengage said pinion from said main gear, movement of said kick lever in said first direction imparts sliding motion to said slider to position said first end of said kick plate into operative engagement with said ratchet wheel, subsequent rotation of said handle imparts rotary movement to said support shaft and said ratchet wheel to impart a rotary movement to said first end of said kick plate to slide said slider and impart movement to said kick lever to rotate said clutch cam to axially move said clutch lever and said pinion to reengage said pinion with said main gear.

4,379,531
PROJECTILE
John R. Manis, 418 Millburn Ave., Millburn Township, Essex County, N.J. 07041
Division of Ser. No. 444,008, Feb. 20, 1974, Pat. No. 4,176,487, which is a continuation of Ser. No. 308,755, Nov. 22, 1972, abandoned, and a continuation of Ser. No. 90,608, Nov. 18, 1970, abandoned. This application Oct. 15, 1979, Ser. No. 84,735
Int. Cl.³ F42B *15/14*
U.S. Cl. 244—3.23 **8 Claims**



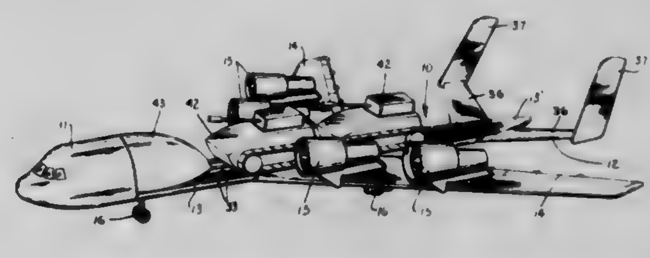
1. A firearm projectile, comprising,
a cylindric forward area, and a helicoidal rearward area in the form of a series of helical notches constructed and arranged to completely surround said rearward area, all of said helical notches structure arranged to begin immediately from the adjacent demarcation point of a laterally disposed one of the other of said notches construction.

4,379,532
AIRCRAFT ATTACHABLE TO THE BODY OF A PILOT
Igor Dmitrowsky, 92-36 54th Ave., Elmhurst, N.Y. 11373
Filed Oct. 22, 1980, Ser. No. 199,496
Int. Cl.³ B64C *39/00, 15/02*
U.S. Cl. 244—4 A **3 Claims**



2. A winged aircraft comprising a saddle form aircraft body adapted at its exterior underside to be mounted upon and secured to the back of a pilot; multiple engines housed in the aircraft body having exhaust tubes opening through the rear of the aircraft body for issuing propulsive streams to propel and sustain the aircraft in flight; angularly adjustable fins projecting from opposite sides of the aircraft body for effecting selectable flight patterns; the exhaust tubes having terminal elements relatively pivotable to deflect issuing propulsive streams in selectable directions; pilot operable control means connected with the fins and the terminal elements for effecting simultaneously selective pivoting of the terminal elements and angular adjustment of the fins, the pilot operable control means including a handgrip swivelled to a handle for movement in selectable directions, and a plurality of control cables connecting the fins and the terminal elements with the handgrip; and the aircraft body having laterally spaced walls in each of which one of the engines is housed.

4,379,533
TRANSPORT AIRPLANE
Edward W. Caldwell, Kennesaw, and Rollo G. Smethers, Jr., Atlanta, both of Ga., assignors to Lockheed Corporation, Burbank, Calif.
Continuation of Ser. No. 54,275, Jul. 2, 1979, abandoned. This application Mar. 23, 1981, Ser. No. 246,670
Int. Cl.³ B64D *9/00*
U.S. Cl. 244—118.1 **9 Claims**

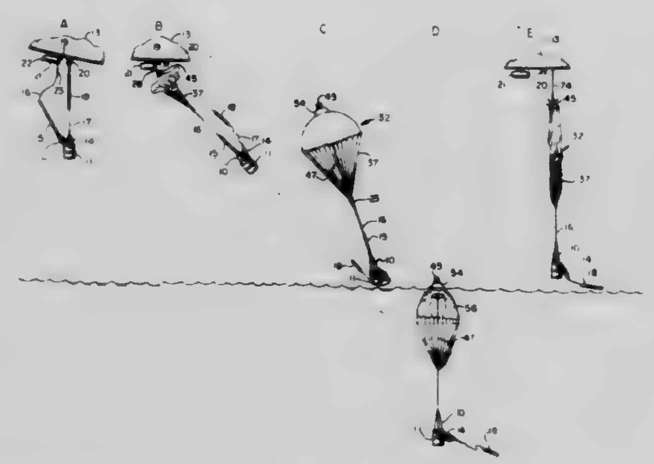


1. A transport airplane formed at the forward end by a control cabin and aft by a basic flyable backbone adapted to removably secure and carry a payload selected from at least one of a variety of payloads of different shapes and sizes thereon including sizes and shapes defining non-aerodynamic configurations extending beyond the limits of structural members forming a part of and carried by said backbone, said backbone comprising:
a flatbed formed by a payload supporting surface planar throughout its length and extending aft from the rear of said cabin adjacent the bottom thereof to the extremity of the airplane and substantially parallel to the ground at all times;
a pair of fixed wings one secured to and extending laterally from each side of said flatbed and below said payload supporting surface, said wings being located approximately midway between said cabin and said aft airplane extremity thereby establishing the location of the center of gravity of the airplane whereby said selected payload center of gravity is located vertically above and substantially aligned with said airplane center of gravity;
at least one engine carried by each said wing; and
an empennage formed by a horizontal aerodynamic surface contiguous to and extending laterally from each side of said flatbed below said payload supporting surface and a vertical surface extending upwardly from the outer end of said horizontal surface, said empennage being immovably secured to said flatbed at all times.

4,379,534
CARGO LIFT SYSTEM
Ralph A. Miller, Monmouth Beach, N.J., and Randall F. White, Paradise, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Mar. 2, 1981, Ser. No. 239,305
Int. Cl.³ B64D *1/08, 17/72*
U.S. Cl. 244—137 R **5 Claims**

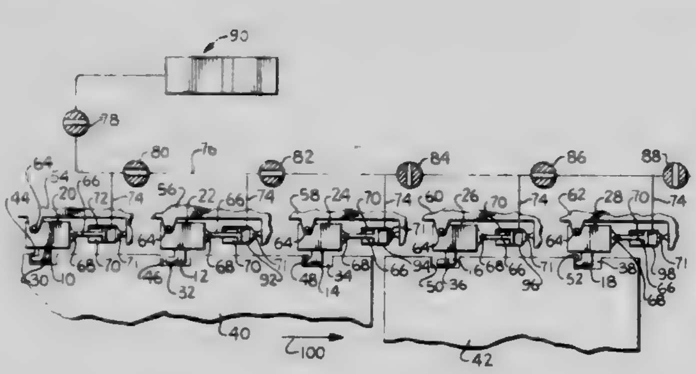
1. In a cargo lift system having a support bridle, support sling, and hook for transporting externally slung cargo by an elevated platform, an improved cargo recovery apparatus comprising, in combination:

a recovery bridle formed at one end to be connected to the cargo;
a streamlined container closed at one end;
pivot means connected between said ends of said container and formed to be secured to the platform for providing a 360° rotation of said container about a vetical axis therethrough to permit alignment of said other end of said container with the cargo;
a hinged door releasably connected at said other end of said container and having a shear pin for releasably latching thereto;



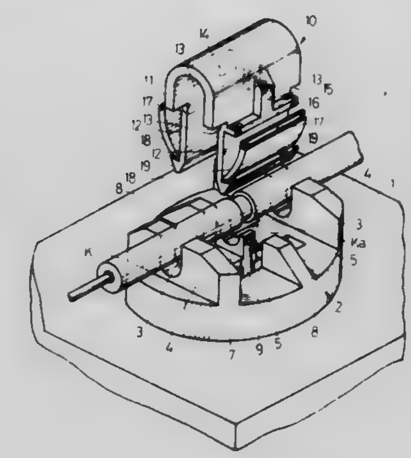
a pendant means formed at one end to be connected to said recovery bridle and at said other end having a connector through which said shear pin releasably latch said door to said container;
uninflated parachute means deployably stowed in said container; and
inflator means connected within said uninflated parachute means having a compressed gas reservoir for inflating said uninflated parachute means.

4,379,535
PALLET RESTRAIN SYSTEM
Floyd G. Baldwin, Garden Grove, and Donald E. Evans, Marina Del Rey, both of Calif., assignors to McDonnell Douglas Corporation, Long Beach, Calif.
Filed Jul. 6, 1981, Ser. No. 280,460
Int. Cl.³ B64D *1/10, 1/12*
U.S. Cl. 244—137 R **6 Claims**



1. A restraint system for use on floor in aircraft cargo bay to engage and hold a pallet in air drop sequence comprising:
two load sensitive latches moveably mounted on said floor in such a manner that they will engage one side of the pallet;
hydraulic actuators attached to said latches and to said cargo floor to provide movement to said latches;
hydraulic interconnection between hydraulic actuators to provide transfer of hydraulic fluid from one actuator to the other, thereby moving the latches into full engagement with said pallet, and
guide means to engage the side of the pallet opposite the load sensitive latches to assist in restraining and guiding of said pallet from said aircraft cargo bay.

4,379,536
MEANS FOR RETAINING A ROD-SHAPED MATERIAL
Yoshiro Mizuno, and Akihiko Kitamura, both of Aichi, Japan, assignors to Kojima Puresu Kogyo Kabushiki Kaisha, Aichi, Japan
Filed Mar. 9, 1981, Ser. No. 241,673
Claims priority, application Japan, Mar. 11, 1980, 55-31317[U]
Int. Cl.³ F16L *3/08*
U.S. Cl. 248—73 **15 Claims**



1. For use in the support and retention of a rod-shaped material, having an annular groove peripherally thereabout, solely for rotational movement:
a mounting body having a top surface with a pair of laterally spaced slits defined therethrough, said mounting body being adapted to receive and support the rod-shaped material in overlying relation to said top surface between said slits;
a clip having a holding portion formed in generally U-shaped configuration for accommodation of said rod-shaped material therein, and a pair of depending leg members extending from said U-shaped holding portion and insertable through said top surface into said slits to the opposite sides of a body-supported rod-shaped material, each of said leg members having a resilient locking pawl extending from its lower end remote from said U-shaped configuration for resilient securing engagement with said slit, each locking pawl terminating in a free end and including an arresting face at the free end adapted to engage with the lower edge of the corresponding slit upon insertion of the leg member into the slit to preclude withdrawal of said pawl; and
at least one of said mounting body and said clip having a retaining element projecting therefrom for engagement with the annular groove formed on the periphery of said rod-shaped material.

4,379,537
CABLE HANGER
Frederick Perrault, Torrance, and Raymond E. Perrault, Rancho Palos Verdes, both of Calif., assignors to Whipple Patent Management Corporation, Sherman Oaks, Calif.
Filed Aug. 10, 1981, Ser. No. 291,350
Int. Cl.³ F16L *3/08*
U.S. Cl. 248—74 R **10 Claims**

1. A bracket for supporting a cable or the like comprising
a unitary one-piece member having
an internally threaded sleeve,
a substantially flat plate spaced from one end of said sleeve and substantially perpendicular to the axis thereof, with a portion of said substantially flat plate being opposite a portion of said one end of said sleeve,
an interconnecting element forming a continuation of and extending axially from said one end of said sleeve to one side edge of said substantially flat plate for connecting said sleeve to said plate,
and opposite end flanges projecting from said plate

toward said sleeve, said end flanges defining slots therethrough adapted to receive a strap extended around said

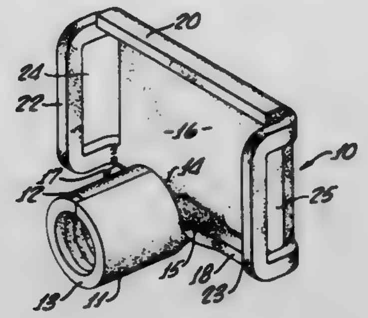


plate to hold cables to the surface of said plate opposite from said sleeve.

4,379,538

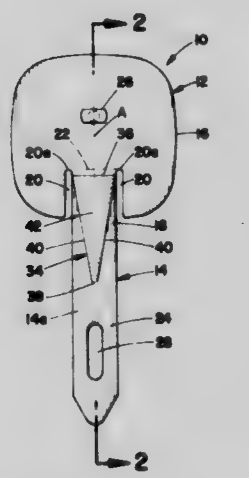
ARTICLE SUPPORTING DEVICE

Theodore W. Welles, 23400 Shaker Blvd., Shaker Heights, Ohio 44122

Filed Dec. 3, 1980, Ser. No. 212,494

Int. Cl.^{3} B65B *67/12*

U.S. Cl. 248—95 16 Claims



1. An article support comprising a mounting portion and a strap portion of thin flexible plastic material, said mounting portion and strap portion having corresponding front and back sides, means on said back side of said mounting portion for attaching said article support to a surface, said strap portion having an inner end interconnected with said mounting portion along a line of juncture and an outer end spaced from said line of juncture, said outer end of said strap portion being displaceable toward said mounting portion and to a fastening position in which said strap portion forms an article supporting loop having a bight portion between said line of juncture and said outer end for supporting an article in suspension means to releaseably retain said outer end of said strip portion in said fastening position, and said strap portion including constraining means between said line of juncture and said outer end constraining said bight portion of said loop to have a generally uniform curvature under the weight of an article supported in suspension thereby, said mounting portion having an outer peripheral edge and said inner end of said strap portion being defined by slits extending inwardly of said peripheral edge and having terminal ends spaced inwardly from said peripheral edge, said terminal ends being spaced apart to define said line of juncture between said inner end of said strap portion and said mounting portion, said constraining means including plastic member means integral with said front side of said strap portion and having an outer surface spaced outwardly from said front side, said plastic member means having a first end adjacent said terminal ends of said slots and a second end spaced from said first end in the direction toward said outer end of said strap portion, said outer surface of said plastic member means converging toward said front side of said strap portion in the direction from said first end toward said second end, said plastic member means further having opposite side edges between said first and second ends and converging with respect to one another in the direction from said first end toward said second end, and said means to releaseably retain said outer end of said strap portion in said fastening position including interengaging fastener means on said front side of said mounting portion and said outer end of said strap portion.

4,379,539

POWER SEAT ADJUSTER

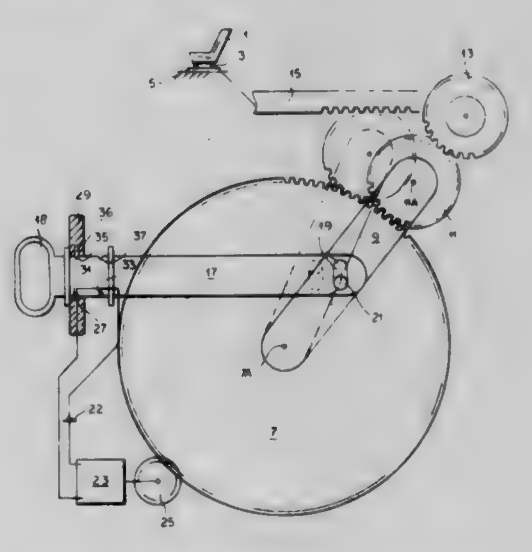
Claude Rion, and Winfried Ruckheim, both of Ingolstadt, Fed. Rep. of Germany, assignors to Audi Nsu Auto Union Aktiengesellschaft, Neckarsulm, Fed. Rep. of Germany

Filed Dec. 18, 1980, Ser. No. 217,783

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1979, 2952030

Int. Cl.^{3} A47G *25/00*

U.S. Cl. 248—371 17 Claims



1. An adjuster for displacing an automotive seat relative to a vehicle frame, said adjuster comprising:

a sun gear centered on and rotatable about a sun gear axis relative to said frame;

a planet gear meshing with said sun gear;

support means for displacement of said planet gear angularly of said axis while in mesh with said sun gear between a pair of angularly offset end positions;

control means connected to said planet gear for displacing same between said end positions;

a first output gear meshable with said planet gear in one of said end positions;

a second output gear meshable with said planet gear in the other of said end positions;

drive means for rotating said sun gear and thereby rotating said planet gear and driving any gear in mesh with said planet gear from said sun gear; and

means connecting said output gears to said seat for displacement of said seat in a first direction when said first output gear is driven by said sun gear through said planet gear in said one position thereof and for displacement of said seat in a second direction different from said first direction when said second output gear is driven by said sun gear through said planet gear in said outer position thereof.

4,379,540

ADJUSTABLE SUPPORT DEVICES FOR SWIVEL CHAIRS

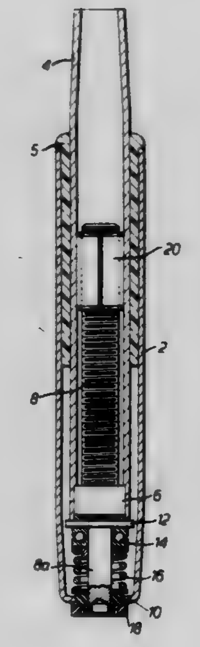
John A. W. French, Milton Keynes, England, assignor to WIPAC Group Sales Limited, Buckingham, England

Filed Oct. 2, 1980, Ser. No. 193,305

Claims priority, application United Kingdom, Oct. 6, 1979, 7934765

Int. Cl.^{3} F16M ***11/00***

U.S. Cl. 248—406 **1 Claim**



1. In an adjustable support device for a swivel chair, of the type comprising inner and outer telescopic tubes having an axis arranged, in use, to extend vertically with the seat part of the chair mounted at the upper end of one of said tubes, said one tube being rotatable and the other tube being stationary, bearing means, a screw rotatably mounted within the inner and outer tubes on the axis of the tubes by said bearing means which permits the screw to rotate about a vertical axis, a nut rigid with the said one tube and engaged with the screw, said screw being mounted for vertical movement, spring means biasing said screw into an upper limit position, and friction clutch means comprising a first friction member carried by the screw, and a second, stationary, friction member, said first friction member engaging said second friction member in the upper limit position of the screw in order to prevent the screw from rotating whereby rotation of the nut relative to the screw in this position effects adjustment of the seat height, and said clutch means being released by downwards movement of the screw from its upper limit position by a vertical load applied when the chair is occupied, the improvement comprising a drag-applying member mounted on the screw and resiliently engaging the interior surface of the said one tube to apply a continuous but limited frictional drag between the screw and the nut, said drag being less than the force exerted by the engaged friction members of the clutch means to prevent rotation of the screw in the upper limit position, but said drag being sufficient to ensure that the screw and the nut rotate as a unit when the said one tube is swivelled with the chair occupied, the drag-applying member being of annular section and being interposed between the screw and the said one tube, and being split axially to provide the resilient bias.

4,379,541

HOLDER FOR A CONTAINER

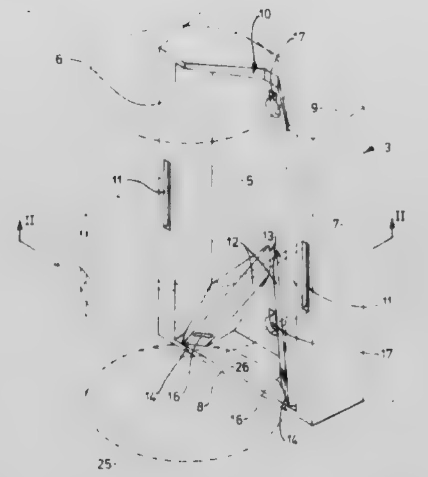
Donald M. Harkness, 294 Main North Rd., Christchurch, New Zealand

Filed Jun. 24, 1980, Ser. No. 162,435

Claims priority, application New Zealand, Jul. 23, 1979, 191083

Int. Cl.^{3} A47K ***1/08***

U.S. Cl. 248—544 **10 Claims**



1. A holder for a container, comprising, a backplate one face of which has an engagement surface thereon, a ledge spaced from said engagement surface, the plane of said ledge being substantially perpendicular to said one face, a guide which slopes from said one face downwards and outwards towards said ledge, a step on said guide, and a semi-rigid retaining strap each end of which is secured to the backplate so as to define a space between part of one face of the retaining strap and said one face of the backplate, said part of one face of said retaining strap having thereon at least one projection with a curved outer face, said engagement surface, ledge, guide, retaining strap and projection being dimensioned and arranged such that when the holder is in use, a container occupies said space with at least part of the base of the container resting on said ledge, an upper part of the container wall bearing against said engagement surface, and an intermediate part of the container wall bearing against said projection.

4,379,542

SUSPENSION MEANS FOR MOUNTING AN INSTRUMENT SUSCEPTIBLE TO SHOCK

Ludwig Pietzsch, Max-Beckmann-Str. 27, 7500 Karlsruhe 41, Fed. Rep. of Germany, and Rudolf Hartmann, Karlsbad-Auerbach, Fed. Rep. of Germany, assignors to Ludwig Pietzsch, Karlsruhe, Fed. Rep. of Germany

Filed Aug. 6, 1979, Ser. No. 63,774

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1978, 2844114

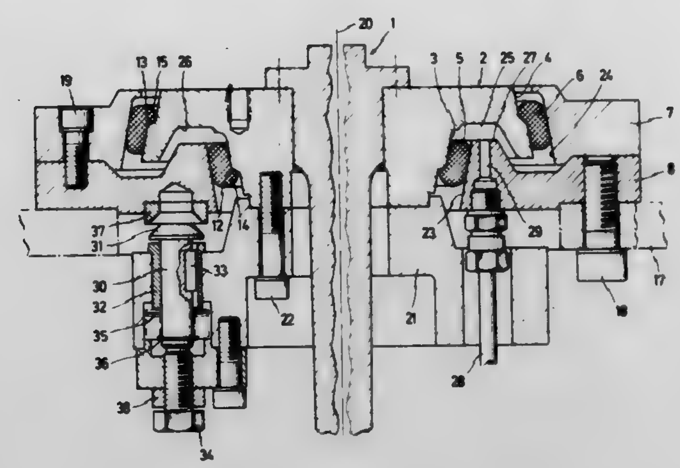
Int. Cl.^{3} F16M ***13/00***

U.S. Cl. 248—561 **21 Claims**

1. A suspension means for mounting on a movable carrier an instrument or the like which is susceptible to shock, said means comprising:

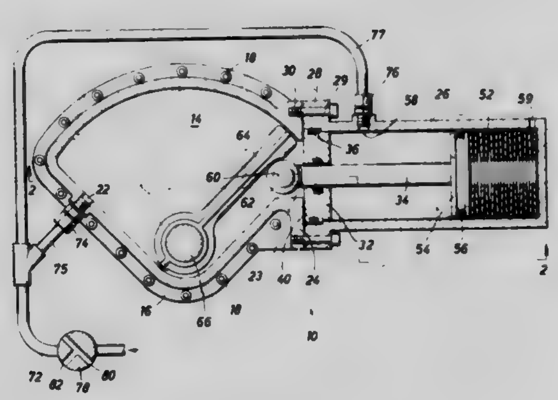
flexible sealing means adapted to absorb shocks in at least one direction, said flexible sealing means including two coaxial, radially spaced rubber-elastic sealing rings which are biased between the annular surfaces of an inner ring connected with the instrument and an outer ring connected with the carrier, said inner and outer rings being

disposed to radially define a fluid pressure cavity which controls the axial spacing of said sealing rings; and



a blocking device adjustable against the resiliency of the sealing means in the axial direction for rigidly coupling the instrument with the carrier.

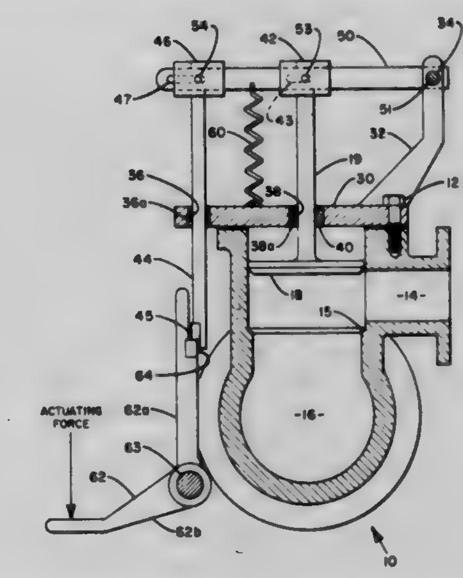
4,379,543
VANE TYPE VALVE ACTUATOR
V. Randon Reaves, Houston, Tex., assignor to Valinco, Inc., Houston, Tex.
Filed Aug. 5, 1980, Ser. No. 175,661
Int. Cl.³ F01C *9/00;* **F16J** *1/10*
U.S. Cl. 251—59 **6 Claims**



1. A valve actuator, comprising:
(a) a housing sealingly enclosing a vane connected to a valve via a shaft rotated by said vane;
(b) means for moving said vane in said housing to a valve open position;
(c) a movable piston and return spring enclosed by a piston housing fixedly secured to said vane housing, said piston joined to an elongate rod wherein one end of said rod protrudes through an opening in said vane housing to contact said vane;
(d) said elongate rod including a cylindrical cross-bar perpendicularly extending from said one end of said rod, said cross-bar providing a bearing surface for a bearing means to enable rolling contact with said vane.

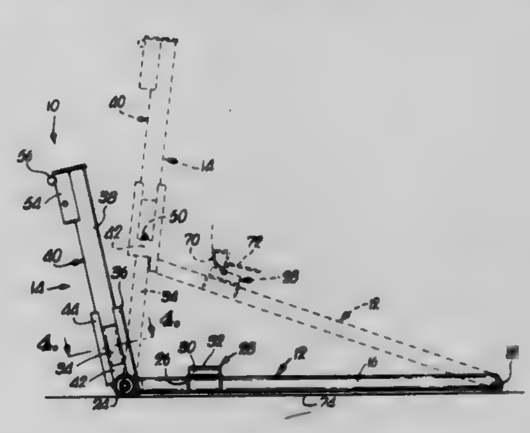
4,379,544
TURBINE TRIP VALVE MECHANISM
Eugene V. Angelo, Greensburg, Pa., and Prem Pratap, Westboro, Mass., assignors to Elliott Turbomachinery Company, Inc., Jeannette, Pa.
Filed May 1, 1981, Ser. No. 259,398
Int. Cl.³ F16K *31/44*
U.S. Cl. 251—74 **4 Claims**

1. A trip mechanism for a trip valve controlling the flow of operating fluid to a turbine comprising:
actuating means pivotally mounted and adapted to be moved by an actuating force;
valve body means having an inlet and an outlet with a valve seat therebetween;
a valve member in said valve body means and including a valve stem having an end extending through said valve body means in guiding arrangement whereby said valve member is guidably movable into and out of seating engagement with said valve seat;
guide stem means extending through a portion of said valve body means in guiding arrangement and having one end adapted to be engaged by said actuating means;
reset lever means pivotably secured to said valve body means and slidably secured to said end of said valve stem



and the other end of said guide stem means for movement therewith;
biasing means acting on said lever means to move said valve member to the seated position whereby when said guide stem means is engaged by said actuating means said valve member is held out of seating engagement with said valve seat and when said actuating means is acted upon by an actuating force and pivots in response thereto, said guide stem means becomes disengaged from said actuating means permitting said biasing means to move said reset lever means causing said valve member to seat and said guide stem means to move to a position preventing reengagement with said actuating means until manually reset.

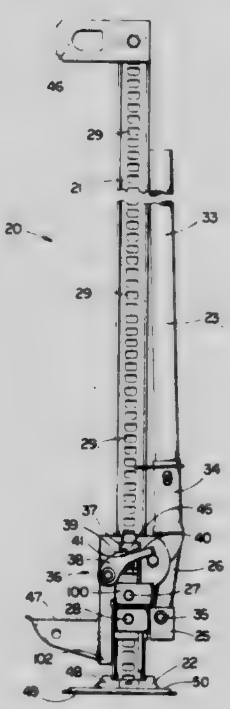
4,379,545
SIDE LIFT JACK FOR UNIBODY AUTOMOBILES
Joseph L. Gray, and James J. Gray, both of St. Joseph, Mo., assignors to Gray Manufacturing Co. Inc., St. Joseph, Mo.
Filed Mar. 6, 1981, Ser. No. 241,436
Int. Cl.³ B66F *3/00*
U.S. Cl. 254—8 B **14 Claims**



1. A jack assembly for tilting a four wheel vehicle off the ground, comprising:
elongated lifting arm means presenting an inner end and an outer end;
upright post means including extensible means; and

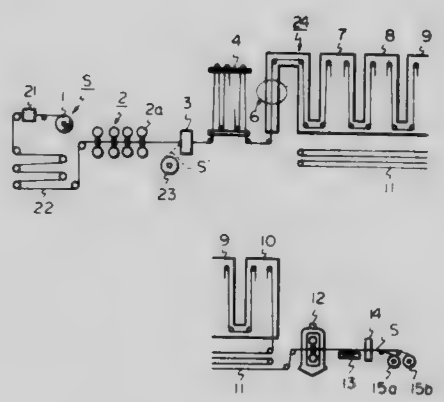
means rigidly connecting said post means and arm means adjacent said inner end of the latter to present an included obtuse angle between the arm means and post means,
said arm means being constructed and arranged for positioning at least partially under said vehicle from one side thereof and of a length to extend across the width of the vehicle from said one side with said outer end engaging an outer contact area on the ground more than one-half of the wheel track dimension of said vehicle,
said assembly having inboard ground-engaging means for engaging an inner contact area on the ground proximal to said post means,
said extensible means including means for swinging the arm means through an arc to engage the vehicle and extert a tilting force thereon,
said included angle remaining constant during said travel of said arm means with said outer end of said arm means pivoting adjacent said outer contact area, and with said inboard ground-engaging means shifting along said ground, at least a portion of said shifting being toward said vehicle.

4,379,546
LIFTING JACK
Thomas K. McIntosh, Bloomfield, Ind., assignor to Bloomfield Manufacturing Co., Inc., Bloomfield, Ind.
Filed Jan. 19, 1981, Ser. No. 226,072
Int. Cl.^{3} B66F *1/04*
U.S. Cl. 254—111 **7 Claims**



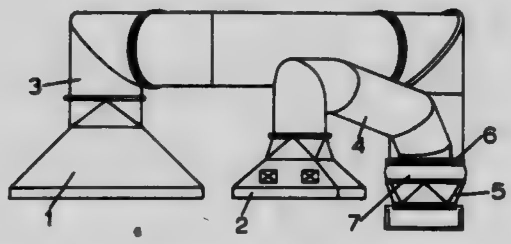
1. A lifting jack comprising:
a standard having a plurality of spaced apertures;
an upper runner disposed about said standard;
a first climbing pin carried by said upper runner and adapted to fit within said apertures;
a lower runner disposed about said standard;
a second climbing pin carried by said lower runner and adapted to fit within said apertures;
level means pivotally attached to said upper runner for moving said upper runner along said standard;
a pitman pivotally attached at a first end to said lever means and at a second end to said lower runner thereby cooperatively coupling said upper and lower runners together, movement of said upper and lower runners including alternately positioning said first and second climbing pins into said apertures, said pitman being die-formed of a single-piece construction and having a generally U-shaped lateral cross-section configuration and having a narrowing taper from said second end to said first end; and
reversing means for changing the direction of movement of said upper and lower runners from a first direction to a second direction opposite to said first direction.

4,379,547
CONTINUOUS COLD ROLLING AND ANNEALING APPARATUS FOR STEEL STRIP
Ichiro Shimbashi; Hiroshi Ikegami, both of Kitakyushu, and Hideharu Bando, Tokyo, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan
Filed Apr. 10, 1981, Ser. No. 252,805
Claims priority, application Japan, Apr. 11, 1980, 55-46935
Int. Cl.^{3} C21D *7/02, 9/56*
U.S. Cl. 266—103 **5 Claims**



1. A continuous cold rolling and annealing apparatus for a steel strip, comprising:
a continuous annealing furnace having a heating zone;
at least one cold rolling mill located upstream of the entrance of said continuous annealing furnace for cold rolling a steel strip;
an intermediate reel for supplying a spare steel strip to said continuous annealing furnace when the supply of the steel strip from the cold rolling mill is interrupted, said intermediate reel being located between said cold rolling mill and said continuous annealing furnace;
a welder for connecting said spare steel strip to a previously processed steel strip, said welder being located between said intermediate reel and said continuous annealing furnace;
a coil car for supplying a spare steel strip coil to said intermediate reel; and
a coil skid which is capable of holding a plurality of spare steel strip coils thereon and of moving each spare steel strip to a predetermined position for supplying it to said coil car.

4,379,548
EXHAUST SYSTEM ESPECIALLY FOR USE IN THE CAST HOUSE OF A BLAST FURNACE
Billy Boshoven, Heerhugowaard, Netherlands, assignor to Estel Hoogovens BV., IJmuiden, Netherlands
Filed Mar. 6, 1981, Ser. No. 241,253
Claims priority, application Netherlands, Mar. 7, 1980, 8001371
Int. Cl.^{3} C21B *7/22;* C21C *5/38*
U.S. Cl. 266—158 **13 Claims**



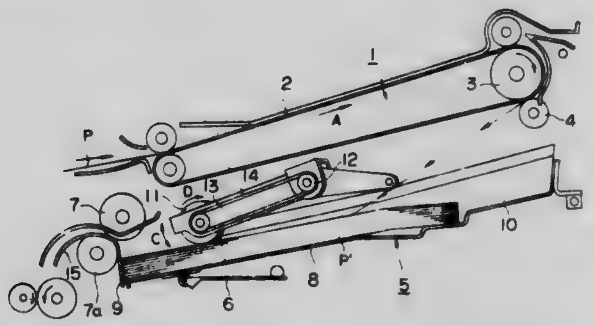
1. In an exhaust apparatus, especially for use in the cast house of a blast furnace, comprising at least one movable

exhaust hood which is connected by a duct to a suction source for extraction of gas from the hood, said duct having a fixed duct section and a swivelling duct section swivellable about an axis and connecting the hood to the fixed duct section, the hood being carried by the swivelling duct section,

the improvement that:

said fixed duct section and said swivelling duct section each have a portion extending generally coaxially with said axis of swivelling of the swivelling duct section, which portions are connected together, and that said swivelling duct section is supported so as to extend in cantilever fashion substantially freely to said hood, by low friction bearing means located outside the duct and extending circumferentially around the duct, and said bearing means is supported by said portion of the fixed duct section which thereby carries the swivelling duct section and the hood.

4,379,549
SHEET PAPER STACKING APPARATUS
Kenichi Mizuma, Kawasaki, Japan, assignor to Ricoh Company, Ltd., Japan
Filed Feb. 12, 1981, Ser. No. 233,623
Claims priority, application Japan, Feb. 29, 1980, 55-24712
Int. Cl.³ B65H *5/22*
U.S. Cl. 271—3.1 **13 Claims**



1. Apparatus for receiving sheets of paper one by one to arrange them in the form of a stack and then discharging the thus stacked sheets of paper one by one, comprising:

a bottom plate on which said stack is to be formed;

side reference means for providing a side reference line with which one side edge of each of said sheets of paper is to be aligned;

front reference means for providing a front reference line with which the front edge of each of said sheets of paper is to be aligned;

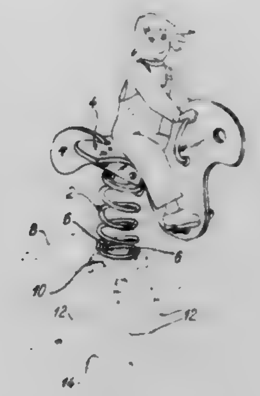
rotating means disposed above said bottom plate, said rotating means being movable between two positions including an operative position where said rotating means brings said sheets of paper into alignment with said side and front reference lines during a sheet paper receiving mode and an inoperative position where said rotating means is separated away from said stack during a sheet paper discharging mode;

a discharging path for receiving sheets from said stack, said discharging path extending from an entrance thereto located above said front reference means;

discharging means disposed in the vicinity of the entrance of said discharging path for discharging said stacked sheets of paper one by one upon contact during a sheet paper discharging mode; and

control means for changing the relative positional relation between said bottom plate and said discharging means such that the topmost sheet of said stack is located away from said discharging means during a sheet paper receiving mode and the topmost sheet of said stack is in contact with said discharging means during a sheet paper discharging mode.

4,379,550
GROUND SUPPORTED PLAYGROUND DEVICE
Tom L. Petersen, Fruens Böge, Denmark, assignor to Multikunst Legepladser I/S, Ringe, Denmark
Filed Jul. 9, 1979, Ser. No. 56,147
Int. Cl.³ A63G *17/00*
U.S. Cl. 272—52 **1 Claim**

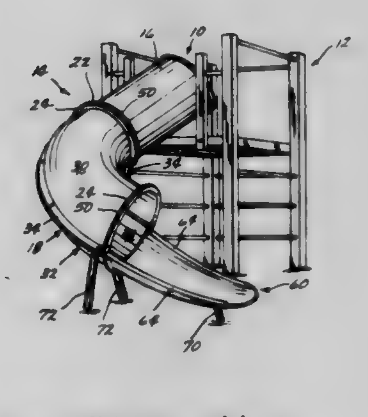


1. A playground device of the type carried on resilient means for support which, in use, is likely to be subjected to tilting or displacement forces, said resilient means for support being secured to base anchoring means for firmly anchoring the lower end of the resilient means for support to the ground, characterized in that said base anchoring means comprise a lightweight mounting member for holding the lower end of the resilient means for support generally in the ground surface level and provided with mutually spaced, downwardly protecting leg members which, at their respective lower ends, are secured in lightweight plate means which are mounted or mountable in a generally horizontal, subterranean position,

the mounting member is an inverted cup-shaped sheet metal member provided with holes in its depending edge flange for receiving fastening bolts for the upper ends of said leg members,

and underneath the top portion of the cup member there is arranged a cross member, the opposite end portions of which are spaced from the cup top portion by distance members secured to the cup top portion by means of bolts additionally serving to hold the lower end of the resilient means for support against the cup member top side, the central portion of the cross member being spaced from the underside of the cup top portion so as to define a space in which is received the upper, inwardly bent end portions of the leg members.

4,379,551
PLAYGROUND TUBE SLIDE
Paul W. Ahrens, Grinnell, Iowa, assignor to Miracle Recreation Equipment Company, Grinnell, Iowa
Filed Sep. 2, 1980, Ser. No. 183,049
Int. Cl.³ A63G *21/00*
U.S. Cl. 272—56.5 R **7 Claims**



1. A playground tube slide comprising, an elevated deck,

a bed extending from said deck to the ground,
said bed including a curved tube section having top and bottom half sections interconnected by fastening means engaging laterally outwardly extending flanges along the length of said top and bottom half sections of said curved tube section,
said bed including at least one other section which includes a laterally extending arcuate end flange connected to an adjacent laterally extending arcuate end flange on said curved tube section,
said curved tube section extending in one direction and being adapted to be turned in the opposite direction by rotating said curved tube section relative to said other section,
said half sections of said curved tube section being identical and each including said arcuate end flange at each end, and
the bottom section of said curved tube section including a series of shingled metal bed members overlaying the inside surface of said bottom section.

4,379,552
EXERCISING DEVICE
Ronald W. Webb, and Robert L. Morgan, both of Spokane, Wash., assignors to Rotator, Ltd., Spokane, Wash.
Filed Jun. 12, 1981, Ser. No. 273,053
Int. Cl.[3] A63B *21/00*
U.S. Cl. 272—67 **8 Claims**

1. A hand held device for exercising the muscles of the human arms and wrists, comprising:
a housing;
a first handle stationary on the housing, extending outwardly therefrom along a first axis, adapted to be grasped and held secure along with the housing by a user's hand with the first axis being transverse to the forearm thereof;
shaft means mounted to the housing for rotation thereon about a second axis oriented transversely in relation to the first axis;
a second handle mounted to the shaft means at an angular orientation to the second axis, to be grasped by the user's other hand so the forearm thereof is substantially aligned with the second axis and adapted to be turned about the second axis in one direction by the muscles associated with one wrist motion and in an opposite direction by the muscles associated with an opposite wrist motion; said second handle being mounted at an obtuse angle to the shaft means and wherein the second axis intersects the second handle between the ends thereof; and
adjustable restrictor means on the housing and engaging the shaft means for selectively resisting rotational motion of the shaft about the second axis relative to the first handle in response to movement of the second handle by the hand grasping the second handle.

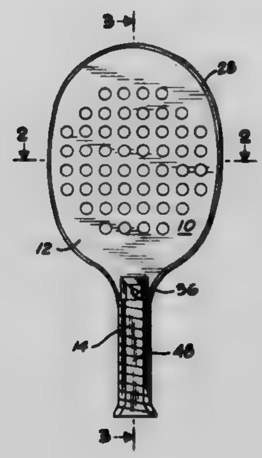
4,379,553
BOWLING LANE WITH FIRE RETARDANT DECORATIVE SURFACE
Peter B. Kelly, Pasadena, Tex., assignor to General Electric Company, Schenectady, N.Y.
Continuation of Ser. No. 59,215, Jul. 20, 1979, abandoned. This application Oct. 28, 1981, Ser. No. 315,972
Int. Cl.[3] A63P *1/04;* B32B *17/02, 17/12, 21/10*
U.S. Cl. 273—51 **25 Claims**

1. In a bowling lane having a surface characterized by a falling ball impact resistance of at least 60 inches, a coefficient of friction of at least 0.16 and a Taber abrasion resistance of at least 500 cycles, said bowling lane comprised of a substrate selected from the group consisting of natural wood, consolidated wood fibers, plywood, flakewood, chipboard, and hardboard, and at least one decorative plastic laminate secured to the surface of said substrate, said plastic laminate comprising a plurality of thermosetting resin impregnated fibrous core sheets, a melamine resin impregnated decorative fibrous print sheet, and an overlying melamine resin containing protective layer, the improvement which comprises
said fibrous core sheets being comprised of sheets of glass and paper, said glass being selected from the group consisting of woven glass cloth, glass net and glass scrim, the interlaminar bond strength between said glass and paper sheets being sufficient to prevent delamination of said glass and paper sheets upon impact with a dropped bowling ball from heights up to about 4 feet, said glass also being impregnated with an organic fire retardant material and said paper sheets also being impregnated with an inorganic fire retardant material.

23. In a decorative plastic laminate of a length and width for securing to a substrate selected from the group consisting of natural wood, consolidated wood fibers, plywood, flakeboard, chipboard, and hardboard to form therewith all or part of a bowling lane having a surface characterized by a falling ball impact resistance of at least 60 inches, a coefficient of friction of about 0.16 and a Taber abrasion resistance of at least about 500 cycles, said plastic laminate sheet comprising a plurality of thermosetting resin impregnated fibrous core sheets, a melamine resin impregnated decorative fibrous print sheet, and an overlying melamine resin containing protective layer, the improvement which comprises:
said fibrous core sheets being comprised of sheets of glass and crepe paper, said glass being selected from the group consisting of woven glass cloth, glass net and glass scrim, said glass also being impregnated with an organic fire retardant material and said crepe paper also being impregnated with an inorganic fire retardant material.

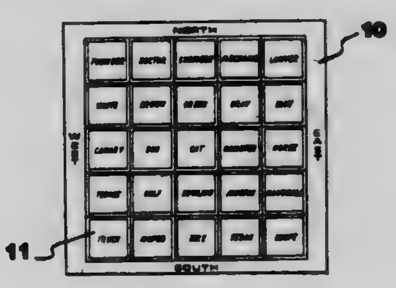
25. The method of producing a bowling lane having a surface characterized by a falling ball impact resistance of at least 60 inches, a coefficient of friction of about 0.16 and a Taber abrasion resistance of at least about 500 cycles comprising:
impregnating a plurality of glass core sheets with a formulation comprised of a thermosetting resin and an organic fire retardant material;
impregnating a plurality of creped paper sheets with a formulation comprised of a thermosetting resin and an inorganic fire retardant;
laying said plurality of impregnated glass core sheets between said plurality of impregnated crepe paper core sheets in an alternative manner beginning with and ending with a crepe paper core sheet;
consolidating said impregnated core sheets, a resin impregnated decorative fibrous print sheet, and an overlying resin containing protective layer under heat and pressure to produce a unitary decorative plastic laminate sheet; and
securing at least one such plastic laminate sheet to a substrate selected from the group consisting of natural wood, consolidated wood fibers, plywood, flakeboard, chipboard and hardboard to produce the desired bowling lane.

4,379,554
PLATFORM TENNIS PADDLE
Andreas D. Schuyler, Wyckoff, and Richard K. Maier, Allendale, both of N.J., assignors to Skymar Corporation, Wyckoff, N.J.
Filed Aug. 24, 1981, Ser. No. 295,733
Int. Cl.³ A63B *59/00*
U.S. Cl. 273—67 R **3 Claims**



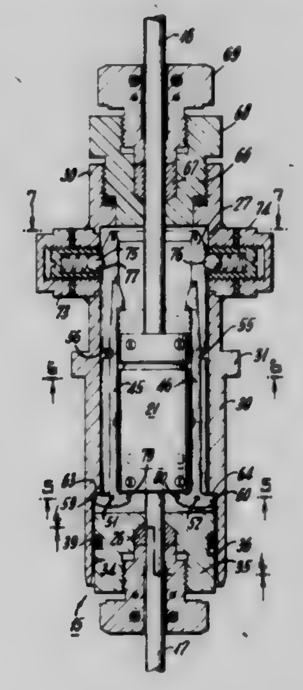
1. A platform tennis paddle comprising in combination:
a. a blade portion in turn comprising in combination;
(1) an inner laminated ply structure having uniform thickness defined by opposed substantially planar surfaces;
(2) a central aperture in said inner laminated ply structure;
(3) a pair of outer laminated ply structures having substantially planar surfaces, each one attached to one of said opposed substantially planar surfaces of said inner laminated ply structures;
(4) said blade portion including a plurality of holes being defined by said inner and outer ply structures;
(5) resilient plug means for insertion into said central aperture dimensioned to fit therewithin;
b. a handle portion in turn comprising in combination:
(1) a pair of half-handles attached to either side of said blade portion; (and)
(2) plurality of peg means for securing the ply structures to said half-handles;
(3) grip means for encasing said half-handles(.) ; and,
c. wherein said central aperture is less than 50 percent of the area of said blade portion.

4,379,555
PUZZLE-GAME
Carl J. Dean, RFD, Southbridge, Mass. 01550
Filed Sep. 19, 1980, Ser. No. 188,927
Int. Cl.³ A63F *3/00*
U.S. Cl. 273—236 **1 Claim**



1. A puzzle game for one or more players comprising:
a planar surface having areas for representing a plurality of positions in adjacent rows;
a set of indicia-bearing elements for disposing at said positions to attempt to achieve a predetermined pattern of said indicia unknown to said player or players;
cue elements for providing a number of independent cues which taken together establish said predetermined pattern, each of said independent cues including a message of a relationship between two or more indicia and an indication of one or more positions in which said indicia may properly be disposed, said indication of one or more positions being a replica of said plurality of positions in adjacent rows with one or more of said positions marked to indicate positions in which said indicia may properly be disposed.

4,379,556
STRIPPING GLAND FOR MULTICABLES WITH CONNECTOR
Herbert A. Rundell, Houston, and Eugene B. Horton, Jr., Bellaire, both of Tex., assignors to Texaco Inc., White Plains, N.Y.
Filed Jun. 14, 1982, Ser. No. 388,354
Int. Cl.³ E21B *33/08;* **F16J** *15/56*
U.S. Cl. 277—12 **13 Claims**



1. A stripping gland for maintaining a pressure seal with multicables having a larger diameter connector joining pairs of said cables, comprising in combination
a packing gland for each of said cables,
a housing for said connector;
a latching holder for said housing,
said holder incorporating one of said packing glands, and
a receptacle for said latching holder having another of said packing glands associated therewith.

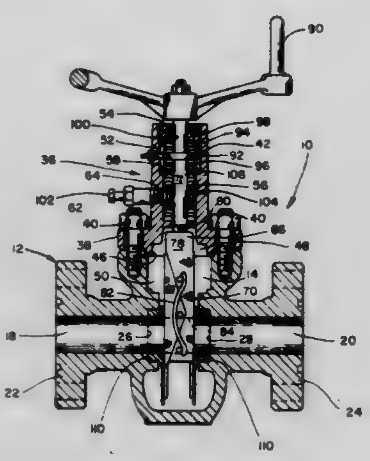
4,379,557
VALVE STEM PACKING STRUCTURE
Hamid J. Saka, Houston, Tex., assignor to ACF Industries, Incorporated, New York, N.Y.
Filed Mar. 5, 1981, Ser. No. 240,700
Int. Cl.³ F16J *15/18, 15/40*
U.S. Cl. 277—59 **12 Claims**

1. A packing structure for a valve stem extending through a packing chamber in a valve housing having a flow passage therethrough wherein said packing chamber is provided with packing stops at the ends thereof, one of said packing stops being an inner packing stop located nearest to the flow passage of the valve and exposed to the fluid pressure of the flow passage of the valve, and the other packing stop being an outer packing stop located outward of the inner packing stop with respect to the flow passage, said packing structure comprising:
a low temperature packing assembly positioned within the packing chamber between the valve stem and valve housing in surrounding relation to said valve stem and resting on said inner packing stop, said low temperature packing assembly being in sealing contact with the stem and valve

housing at normal temperature conditions of the valve housing;

a rigid spacer member received about the valve stem and positioned within the packing chamber outwardly of said low temperature packing assembly and in engagement therewith; and

a high temperature packing assembly positioned within the packing chamber between the valve stem and valve housing in surrounding relation to said valve stem and located outwardly of said spacer member so as to be sandwiched between said outer packing stop and said spacer member, said high temperature packing assembly being in sealing contact with the valve stem and valve housing at normal temperature conditions of the valve housing and at abnormally high temperature conditions of the valve housing which are destructive to said low temperature packing assembly so that the packing structure will not leak flow passage fluid when subjected to abnormally high temperatures.

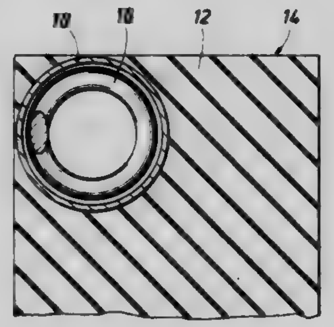


4,379,558
ANTI-EXTRUSION PACKING MEMBER

Fred B. Pippert, Houston, Tex., assignor to Utex Industries, Inc., Houston, Tex.

Filed May 1, 1981, Ser. No. 259,454
Int. Cl.³ F16J *15/18*

U.S. Cl. 277—188 A **6 Claims**



1. A packing comprising:

an extrudable body member having at least one sealing surface thereon; and

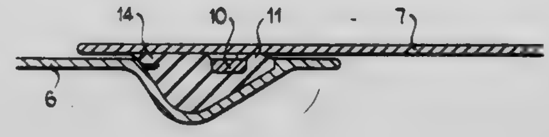
anti-extrusion means incorporated in said body member to form a reinforced portion of said body member; said anti-extrusion means serving to resist extrusion forces acting on said body member in the area contiguous to said reinforced portion, said anti-extrusion means being comprised of a flat helical spring with adjacent helical spring segments overlapping to form a tubular shell.

4,379,559
PIPE SEALING DEVICE

Nils-Erik Bohman, Forsheda, Sweden, assignor to Forsheda Gummifabrik AB, Forsheda, Sweden

Continuation of Ser. No. 53,701, Jun. 29, 1979, abandoned. This application May 20, 1981, Ser. No. 265,619
Int. Cl.³ F16L *19/00*

U.S. Cl. 277—207 A **3 Claims**



1. A pipe joint comprising, in combination,

an outer pipe having an annular groove therein and an inner pipe inserted within said outer pipe,

a sealing ring having a body portion of resilient material, said sealing ring positioned in the annular groove in said outer pipe and having a sealing portion adapted to sealingly engage said inner pipe introduced therein,

said sealing ring having a first radially inwardly extending projection having an annular conical entry surface to center the inner pipe as it is being inserted into the outer pipe and to remove any foreign matter which may be present from the outer surface of the inner pipe,

said sealing ring having a second radially inwardly extending projection forming said sealing portion and having an annular conical surface to provide an elongated deformation length which serves as a sealing area with respect to the inner pipe when the inner and outer pipes are assembled,

an annular groove provided in the body portion between the first and second projections,

an annular retainer ring positioned in the annular groove of the body portion for retaining the sealing ring in the annular groove in the outer pipe,

said first projection being deformed by the inner pipe inserted into the outer pipe to engage the inner surface of the retainer ring and being compressed between said retainer ring and inner pipe to provide force on said retainer ring so that the body portion of said sealing device is securely maintained in the annular groove of the outer pipe, and

said second projection being folded radially outwardly as the inner pipe is inserted to form a seal between the inner and outer pipe.

4,379,560
TURBINE SEAL

Gordon J. Bakken, Plymouth, Mass., assignor to Fern Engineering, Bourne, Mass.

Filed Aug. 13, 1981, Ser. No. 292,688
Int. Cl.³ F01D *11/00;* **F02C** *07/28*

U.S. Cl. 277—236 **3 Claims**

1. Turbine seal, comprising:

(a) an outer tubular element,

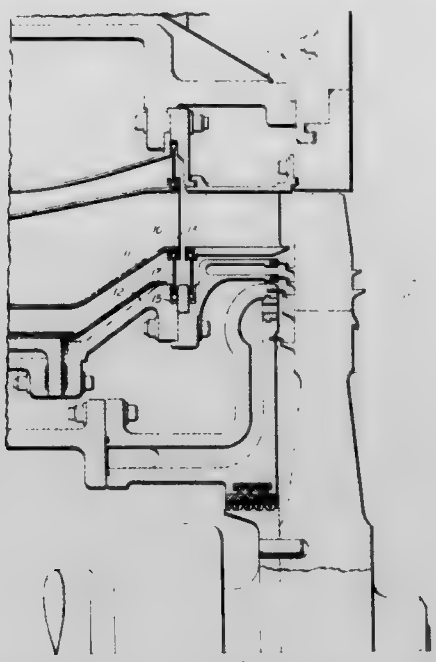
(b) an inner tubular element, the elements being concentric and radially spaced,

(c) a first ring joined to the outer tubular element, the ring having an inwardly-directed groove,

(d) a second ring joined to the inner tubular element, the ring having an outwardly-directed groove, each groove of the first and second rings being with spaced, parallel radial surfaces, and

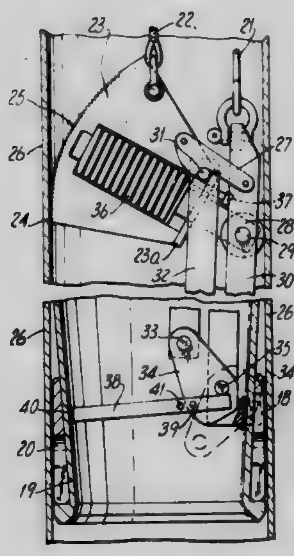
(e) a junction element in the form of a washer having an outer peripheral edge lying in the inwardly-directed groove and an inner peripheral edge lying in the outwardly-directed groove, the edge of the junction element lying

in each groove having an annular enlargement of circular cross-section that fits snugly between the radial surfaces,



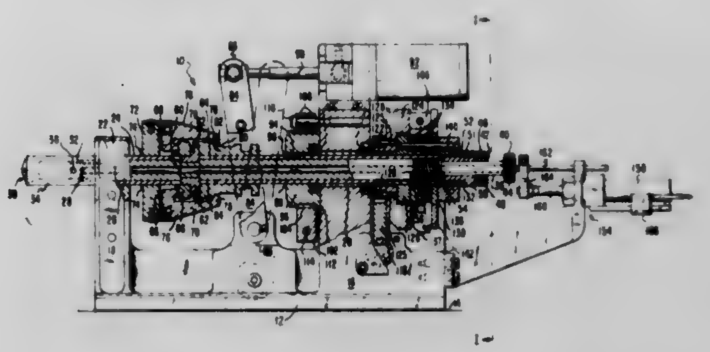
the grooves in the first and second rings having a depth in the radial direction that is at least greater than the minor diameter of the enlargement.

4,379,561
WELL PACKER
Hugh D. Nelson, Sydney, Australia, assignor to Mono Pumps Limited, Manchester, England
Filed Jan. 28, 1982, Ser. No. 343,568
Claims priority, application United Kingdom, Jan. 29, 1981, 8102742
Int. Cl.[3] E21B *23/00, 43/00*
U.S. Cl. 277—237 R **20 Claims**



1. A well packer comprising: a packer sleeve means; means defining a tapered external surface portion of said packer sleeve; expansible annular collet means; means defining an internal surface to said collet means of a taper able to cooperate with that of the external tapered surface portion of the packer sleeve means; means defining an external surface of said collet means capable of frictionally engaging a well casing pipe having a diameter larger than the external diameter of the packer sleeve means; said expansible collet means being resiliently deformable from a relaxed first configuration in which it has a first diameter to a second configuration in which it has a diameter smaller than said first diameter and it engages the tapered external surface portion of the packer sleeve means; collet-holding means for holding said collet means in said second configuration while engaged around the tapered external surface portion of the packer sleeve means; and collet release means operable from a remote location to release said collet means from its said second configuration to spring radially outwardly towards its said first configuration.

4,379,562
INDEXING APPARATUS
Carlos J. Corbacho, Newark, N.J., assignor to Joyal Products, Inc., Linden, N.J.
Filed Jan. 5, 1981, Ser. No. 222,558
Int. Cl.[3] B23Q *3/08*
U.S. Cl. 279—5 **9 Claims**

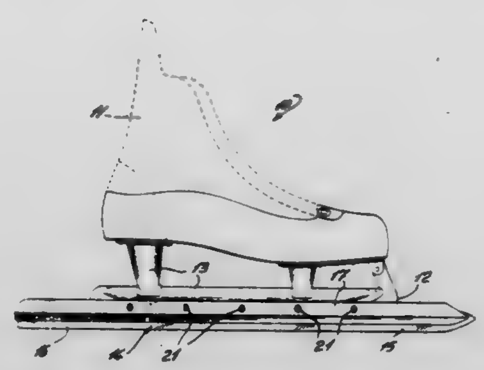


1. Indexing apparatus, comprising rotating means for incrementally rotating a workpiece to be indexed, said rotating means including a first end, a second end, a first tubular member, a second tubular member mounted for reciprocating and rotating movement within said first tubular member, gripping means threadedly attached to said second tubular member at said first end of said rotating means and keyed to said first tubular member such that said gripping means is free to move axially relative to said first tubular member but is prevented from rotating relative to said first tublar member, said gripping means being movable in response to the axial position of said second tubular member relative to said first tubular member between a first position in which said gripping means grips the workpiece to be indexed and a second position in which said gripping means releases a workpiece after it has been indexed, locking means for releasably locking said first tublar member to said second tubular member such that said second tubular member is rotatable conjointly with said first tubular member, and determining means for determining the increments of rotation of said rotating means, said determining means being removably positioned adjacent to said second end of said rotating means to facilitate the removal of said determining means for replacement purposes; moving means positioned between said gripping means and said determining means for moving said gripping means between said first position and said second position in response to the axial position of said second tubular member relative to said first tubular member, said moving means including reciprocating means for axially reciprocating said second tubular member within said first tubular member and connecting means for connecting said reciprocating means to said second tubular member such that said second tubular member is rotatable about its longitudinal axis relative to said first tubular member when said second tubular member is not locked to said first tubular member, whereby said second tubular member can be rotated relative to said first tubular member and hence said gripping means when said second tubular member is not locked to said first tubular member to thereby threadedly detach said gripping means from said second tubular member for replacement purposes.

4,379,563
AUXILIARY ICE SKATE BLADE
Serge Arsenault, 1700 Longueuil, St. Bruno, Quebec, Canada
Filed Mar. 24, 1981, Ser. No. 247,125
Int. Cl.[3] A63C *3/00*
U.S. Cl. 280—7.1 **7 Claims**

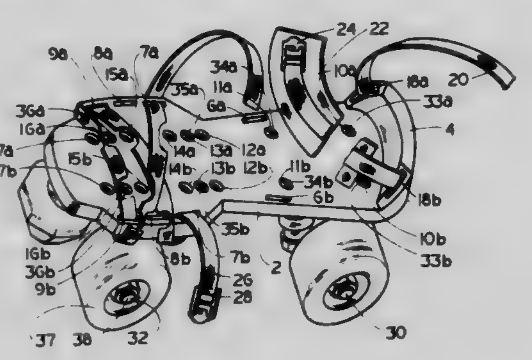
1. An auxiliary ice skate blade for attachment to a skate blade secured to a skate boot, said auxiliary skate blade comprising a rigid blade support member having a lower blade retention

slot, a narrow elongated blade having an ice contacting edge portion and a securable upper end portion retained in said retention slot, and attachment means in said support member



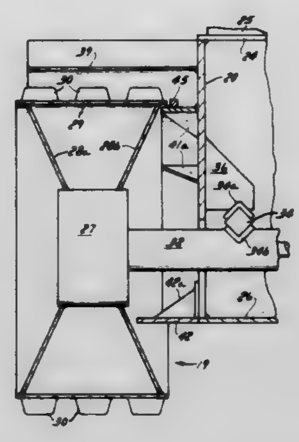
for detachable securement of said support member to a skate blade secured to a boot whereby said skate blade and elongated blade are in axial planar alignment.

4,379,564
ROLLER SKATE
John J. Welker, 1904 LaFontenay Ct., Louisville, Ky. 40223
Continuation of Ser. No. 75,699, Sep. 14, 1979, abandoned. This application Jan. 7, 1982, Ser. No. 337,630
Int. Cl.[3] A63C *17/14*
U.S. Cl. 280—11.2 **7 Claims**



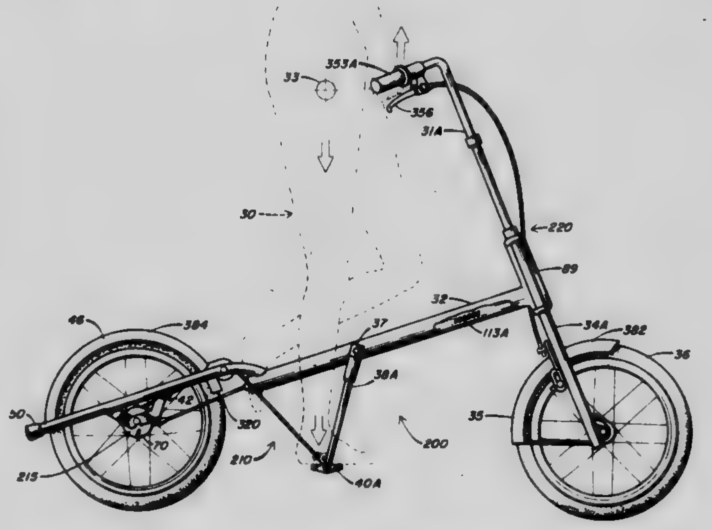
1. A roller skate comprising:
a foot-plate member with a toe portion and a heel portion having at least two pairs of slots in said toe portion thereof, each pair of slots being aligned and on opposite sides of said member receiving a first adjustable belt therethrough, said member including means on said heel portion receiving a second adjustable belt therethrough; and, a first front pair of aligned spaced rollers rotatively mounted to a first axle of a first truck assembly including a support portion centrally disposed of said first axle and extending transversely from the underside of said toe portion of said member and a second rear pair of aligned spaced rollers rotatively mounted to a second axle of a second truck assembly, said second truck assembly including a support portion centrally disposed of said second axle and extending transversely from the underside of said heel portion of said member, spacing between rollers of said first pair of spaced rollers is less than the spacing between rollers of said second pair of rollers, the center of the tread of each of said rollers of said first pair of rollers being in substantially longitudinal alignment with the inside edge of each of said rollers of said second pair of rollers which are on the same side of said member, said first pair of rollers and said second pair of rollers being of substantially the same size and diameter whereby the first and second axles swing in use in opposite directions to enable steering of said roller skate by tilting of the foot plate member.

4,379,565
NONFOULING WHEEL HOUSING FOR COMPACTION VEHICLE
Charles F. Riddle, Brookfield, Wis., assignor to Rexworks Inc., Milwaukee, Wis.
Filed Jul. 20, 1981, Ser. No. 285,202
Int. Cl.[3] B60R *19/00*
U.S. Cl. 280—160 **10 Claims**



1. In a vehicle for compacting sanitary landfill refuse and the like including paired, opposite cleated drum wheels spaced from the respective side walls of the vehicle housing, said walls extending downward to the projected underside of the vehicle, wheel closure means between each side wall and wheel comprising a partial cylinder extending from the wall to the periphery of the wheel drum which is above the projected underside of the vehicle, and a flat plate fixed to and extending from the vehicle underside to the inner wheel face and joined to the lower margins of said fixed partial cylinder, the minimum operating clearance which is required to be provided between said fixed cylinder and wheel drum being located a substantial distance from the side wall such that refuse is unlikely to be drawn into said clearance and, for example, wrapped around the axle housing.

4,379,566
OPERATOR POWERED VEHICLE
Steven E. Titcomb, Stoneham, Mass., assignor to Creative Motion Industries, Inc., Danvers, Mass.
Filed Jan. 26, 1981, Ser. No. 228,264
Int. Cl.[3] B62K *21/18;* **B62M** *1/04*
U.S. Cl. 280—251 **38 Claims**



1. An operator powered vehicle comprising:
a. a vehicle frame;
b. a drive-wheel assembly including drive hub, a drive wheel rotatably mounted on said frame, and coupling means including a unidirectional clutch coupling said hub to said drive wheel to prevent relative forward rotation of said hub with respect to said drive wheel but permit relative

forward rotation of said drive wheel with respect to said hub;

c. a force-reception element mounted on said frame for reciprocation from a rest position thereof to other position thereof;

d. a cable attached to said force-reception element and trained in a path for travel upon movement of said force-reception element, said cable being coupled to said hub to permit rotation of said hub without travel of said cable when said force-reception element is in its rest position but to constrain said hub, while said force-reception element is in at least a drive portion of its other positions, to rotate in the forward direction upon travel of said force-reception element away from said rest position thereof, propulsion of said vehicle forward thereby being possible by reciprocation if said force-reception element, but rearward movement of said vehicle being possible without travel of said cable when said force-reception element is in its rest position.

4,379,567

FRONT SUSPENSION SYSTEM FOR A MOTORCYCLE

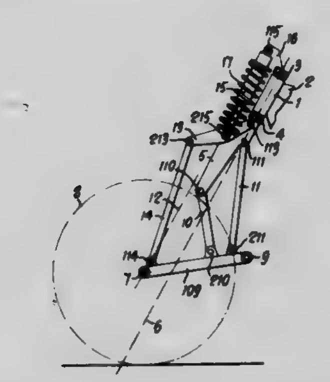
Valentino Ribi, Genoa, Italy, assignor to Honda Giken Kogyo Kabushiki Kaisha, Asaka, Japan

Filed Nov. 19, 1980, Ser. No. 208,373

Claims priority, application Italy, Nov. 22, 1979, 12835 A/79

Int. Cl.³ B62K *21/02*

U.S. Cl. 280—276 **11 Claims**



1. A front suspension wheel system for a motorcycle wheel, comprising

(a) a downwardly and forwardly inclined suspension structure mounted on the steering column;

(b) two swinging arms pivoted at one end to said suspension structure and at the other end to a wheel-carrying element so that said suspension structure, said two swinging arms and said wheel-carrying element form an articulated quadrilateral;

(c) resilient means acting on said articulated quadrilateral to oppose relative movement between said suspension structure and said wheel-carrying element due to a load applied to the motorcycle;

(d) a swinging lever having one part fulcrumed to said suspension structure, and another part connected to said resilient means and to a downwardly extending connecting rod;

(e) a prolongation on said wheel-carrying element extending forwardly beyond the pivot points between said two swinging arms and said wheel-carrying element, and adapted for mounting a motorcycle wheel;

(f) said articulated quadrilateral being located rearwardly of said suspension structure and said resilient means being mounted on a forward portion of said suspension structure and being connected to one of (1) said two swinging arms and (2) said wheel-carrying element, through said connecting rod.

4,379,568

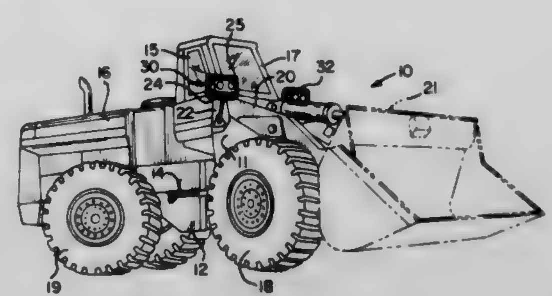
ARTICULATED TRACTOR LOADER WITH SIDE REAR VIEW MIRRORS

Thomas W. Kerkman, Salem, Wis., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Nov. 17, 1980, Ser. No. 207,105

Int. Cl.³ B62D *63/04*

U.S. Cl. 280—400 **4 Claims**



1. In an articulated tractor loader comprising a front frame section supported on front rubber tired wheels and supporting an operator's cab, a rear frame section hingedly connected to the front frame section and supported on rear rubber tired wheels and supporting a power plant, said front wheels and said rear wheels being disposed outboard of their respective frame sections, a pair of right and left boom arms mounted on transverse pivots on opposite sides of the front frame section forwardly of the operator's cab, a pair of right and left support standards fixedly mounted to the sides of the front frame section and supporting a pair of right and left headlight housings forwardly of the cab and above the boom arm pivots outboard of the front frame section, and a pair of right and left side rear view convex mirrors mounted to the headlight housings providing a panoramic rearward and downward view looking from the operator's cab, said view including at least the sides of the tractor loader vehicle rearwardly of the front wheels, the ground area between said front and rear wheels, and a ground area rearwardly of the rear wheels.

4,379,569

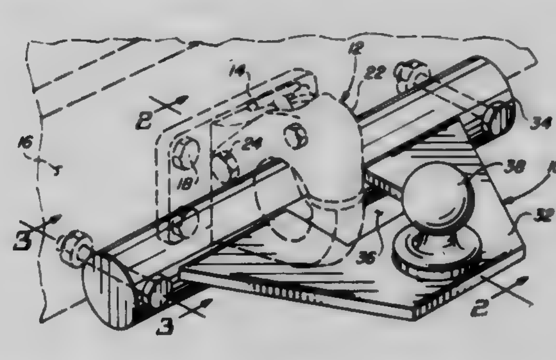
TRAILER HITCH ADAPTOR

Richard L. Koch, 314 E. Rovey Ave., Phoenix, Ariz. 85012

Filed Jul. 30, 1981, Ser. No. 288,518

Int. Cl.³ B60D *1/06*

U.S. Cl. 280—415 A **3 Claims**



1. A hitch adaptor for use in combination with a pintle hook that is mounted to a towing vehicle to convert the pintle hook hitch into a ball-and-socket type, the pintle hook hitch including a hook and closure member that form an eyelet when mated, the hitch adaptor including a cylindrical bar that is closely received through the eyelet, the improvement comprising:

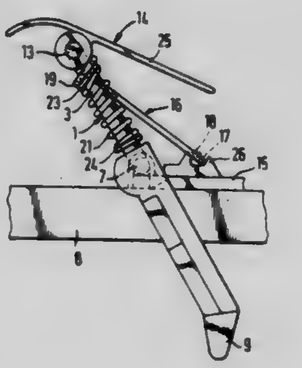
the bar extending beyond the width of the pintle hook hitch;

a base plate mounted along the length of the bar and extending directly therefrom having a first aperture formed centrally therein to accommodate the hook and closure member and a second aperture formed near the rear portion of said base plate to receive a ball member; and

mounting means disposed at each end of the bar for affixing

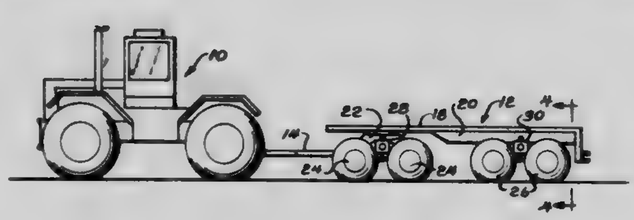
the hitch adaptor to the towing vehicle while providing stability and preventing rotation of the hitch adaptor about the pintle hook hitch.

4,379,570
SKI STOPPER
Gerhard Sedlmair, Farchant, Fed. Rep. of Germany, assignor to Marker-Patentverwertungsgesellschaft mbH., Baar, Switzerland
Filed May 22, 1980, Ser. No. 152,193
Claims priority, application Fed. Rep. of Germany, May 23, 1979, 2920981
Int. Cl.³ A63C *7/10*
U.S. Cl. 280—605 **6 Claims**



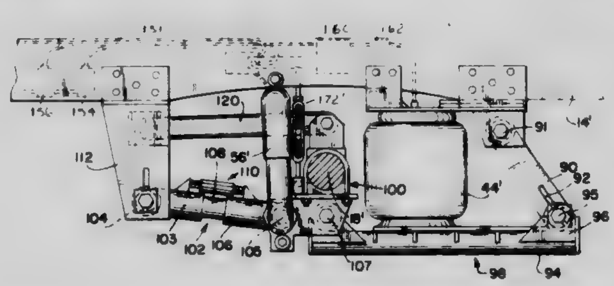
2. A ski brake mountable on a ski for impeding the movement of a ski down a slope when the ski is detached from a skier's boot, said ski brake comprising:
first and second braking spurs, said first braking spur being on the opposing side of the ski from said second braking spur;
a pivot pin having an axis; said braking spurs being moveable about said axis of said pivot pin between a non-braking skiing position and a braking position;
a base plate fixed to said ski, said base plate pivotally connecting said pivot pin to said ski;
an arm attached to said pivot pin, said arm operable by a ski boot for moving said braking spurs from said braking position to said non-braking position when said boot engages said arm;
spring biassing means on said arm for biassing said braking spurs to said braking position when said ski is detached from a skier's boot;
coupling means for coupling said spring biassing means to said ski; and
connecting means spaced from said pivot pin axis for releasably connecting said coupling means to said ski, said coupling means being deliberately releasable from said connecting means to disable said spring biassing means.

4,379,571
TRAILER WITH ADJUSTABLE WHEELS
Lovel R. Simmons, P.O. Box 1206, Jackson, Miss. 39205
Continuation of Ser. No. 925,308, Jul. 17, 1978, abandoned. This application Feb. 6, 1980, Ser. No. 119,094
Int. Cl.³ B62D *61/10*
U.S. Cl. 280—656 **2 Claims**



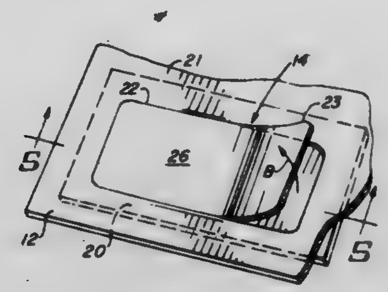
1. A load carrying machine comprising structure of substantially rectangular outline having a front end and a back end for receiving and supporting a load, a plurality of wheels comprising at least two sets of wheels, each set comprising at least four wheels arranged as two tandem pairs, the pairs of each set being axially spaced transversely of said machine, one set of which is adjacent the front end and one set of which is adjacent the rear end of said load supporting structure, the wheels of each tandem pair being respectively adjacent opposite sides of said structure, said front set of wheels being mounted from said machine for pivoting about a substantially vertical axis, means interconnecting said wheels and said structure for moving axially spaced tandem pairs of said wheels of each set toward and away from one another axially of such wheels, and means for moving all of said wheels up and down relative to said supporting structure to vary the height of said supporting structure, the underside of said structure adjacent the front thereof being substantially flat to permit said front set of wheels to pivot with said wheels in axially extended relation, the wheels of each tandem pair respectively being mounted on tandem pairs of pivot arms, each tandem pair of pivot arms being pivoted on a common member, each such member being mounted from said structure for rocking about a respective axis transverse of said machine, said pivot arms being pivoted on said member relatively adjacent the upper portion of said member and diverging downwardly therefrom respectively in fore and aft directions, and wherein the means for moving up-and-down comprises means acting between pairs of pivot arms to effect pivoting thereof to raise or lower the wheels relative to said supporting structure, said arms having portions thereof abuttable with lower portions of a respective common member to serve as stops for said arms to limit lowering of said wheels.

4,379,572
UNIVERSAL AIR SUSPENSION SYSTEM
William E. Hedenberg, 490 Buffalo Grove, Buffalo Grove, Ill. 60090
Filed May 12, 1980, Ser. No. 149,008
Int. Cl.³ B60G *11/26*
U.S. Cl. 280—711 **2 Claims**



1. An air suspension system for a vehicle, said vehicle having a frame, a front axle, at least one rear axle and wheels mounted near opposite ends of said rear axle, said air suspension system being mounted adjacent each wheel on said rear axle to support at least that portion of the load of said vehicle applied through said frame to said axle and to absorb forces imparted to each wheel and said axle during movement of said vehicle, said air suspension system including carrier arm means having a pivotal link means at the rear end thereof, one end of said pixotal link means being pivotally connected to said frame, and a mounting platform portion, said mounting platform portion being pivotally connected to the other end of said pivotal link means, said carrier arm means being connected to said axle by an axle hanger assembly being fixedly attached to said mounting platform portion of said carrier arm means at a lower portion thereof, said air suspension system including means to adjust the alignment of said axle after mounting of said air suspension, said means to adjust alignment being pivotally connected between the forward end of said carrier arm means and said frame, and an air spring disposed on said mounting platform portion of said carrier arm means between said pivotal link means and said axle hanger assembly and interposed between said mounting platform portion and said frame.

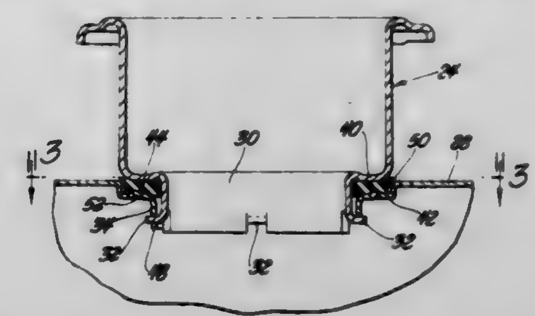
4,379,573
BUSINESS FORM WITH REMOVABLE LABEL AND METHOD FOR PRODUCING THE SAME
Ronald C. Lomeli, and Gary E. Stewart, both of Phoenix, Ariz., assignors to Trade Printers, Inc., Phoenix, Ariz.
Filed Oct. 9, 1980, Ser. No. 188,502
Int. Cl.³ G09F *3/04*
U.S. Cl. 428—42 **1 Claim**



1. A business form having a die cut label area removable therefrom, said form including
(a) a sheet of paper having a back side, an imprinted front side and an outer peripheral edge;
(b) at least one piece of transfer tape including a layer of adhesive adjacent a layer of backing material and having an outer peripheral edge, said tape being secured to a limited area on the back of said paper sheet by contacting said sheet with said layer of adhesive such that the outer peripheral edge of said piece of transfer tape generally lies within said outer peripheral edge of said paper sheet; and
(c) a label area die cut in said sheet of paper above said piece of transfer tape and having an outer peripheral edge,
(i) the outer peripheral edge of said die cut label generally lying within the outer peripheral edge of said transfer tape,
(ii) a portion of said business form lying between the peripheral edge of said die cut label and the peripheral edge of said transfer tape and including a first portion of said layer of adhesive sandwiched between a section of said sheet of paper and a section of the layer of backing material of said transfer tape, and
(iii) a second portion of said layer of adhesive lying between said label and said layer of backing material of said transfer tape, and adhering to said label and separating from said backing material when said label is peeled away from said backing material, and
said transfer tape being sized such that said first portion of adhesive in said portion of said business form between the peripheral edge of said die cut label and the peripheral edge of said transfer tape is sufficient to maintain said transfer tape in position on said paper sheet when said label is peeled from said backing material of said transfer tape.

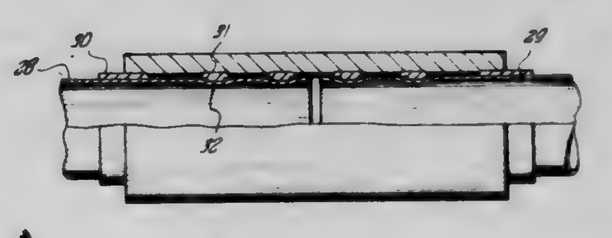
4,379,574
RADIATOR ASSEMBLY (BAYONET LOCK)
Ludwig Leichtl, Troy, Mich., assignor to Ex-Cell-O Corporation, Troy, Mich.
Filed Dec. 22, 1980, Ser. No. 218,836
Int. Cl.³ F16L *5/02*
U.S. Cl. 285—211 **5 Claims**

1. A tank assembly of the type utilized in a heat exchanger such as a radiator, said assembly comprising; a tank wall having an opening, a cylindrical spout extending from said opening in said tank wall, said spout having a lower portion extending into said opening, said lower portion having at least two radially extending tabs, said opening having a skirt extending inwardly from said tank wall, said skirt having at least two cam/lock sections with each cam/lock section including a cam surface leading from a receiving end to a locking recess, said cam surface increasing in distance from said tank wall in the direction from said receiving end thereof to said locking recess, said spout and said tank wall having radially extending overlying portions, and sealing means disposed between said overlying portions, said tabs being disposed in said locking recesses to compress said sealing means between said overlying portions and retaining said spout in said opening, said overlying portion of said tank wall defining an annular seal recess to define an annular shoulder for radially retaining said sealing



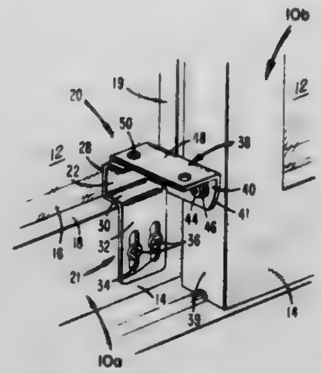
means in said recess, said spout including an upper cylindrical portion of a greater diameter than said lower portion thereof, said overlying portion of said spout comprising a radially extending shoulder integrally interconnecting said upper and lower portions, the outer diameter of said upper portion of said spout being no greater than the diameter of said annular shoulder of said seal recess.

4,379,575
COMPOSITE COUPLING
Charles L. Martin, Palo Alto, Calif., assignor to Raychem Corporation, Menlo Park, Calif.
Continuation of Ser. No. 118,867, Feb. 6, 1980, which is a continuation of Ser. No. 608,209, Aug. 27, 1975, abandoned, which is a continuation-in-part of Ser. No. 404,723, Oct. 9, 1973, abandoned, and a continuation-in-part of Ser. No. 404,724, Oct. 9, 1973, abandoned. This application May 15, 1981, Ser. No. 263,993
Int. Cl.³ F16L *17/02*
U.S. Cl. 285—369 **5 Claims**



1. A composite coupling for joining cylindrical substrates which comprises:
(a) a tubular heat recoverable compression sleeve made of a memory metal that recovers when heated above its transition temperature; and
(b) a tubular metallic insert snuggly and concentrically disposed within the sleeve, the insert having an interior principal surface adjacent to the substrates when said substrates are inserted into the coupling and an exterior principal surface adjacent to the sleeve, each principal surface including a plurality of axially spaced apart radial teeth, the teeth being aligned pairwise, one over the other, each tooth on the exterior principal surface of the insert having a width greater than the width of its aligned tooth on the interior principal surface for maximum transmission of recovery forces to the substrates, the insert being capable of forming a secure and gas-tight connection between said substrates when said sleeve is heated above its transition temperature.

4,379,576
SLIDING CLOSURE SECURITY SYSTEM
LeVone A. Blough, 4437 Mumford Dr., Hoffmann Estates, Ill. 60195, and David L. Gregory, 10207 Union Park Dr., Orlando, Fla. 32817
Filed Oct. 9, 1980, Ser. No. 195,617
Int. Cl.³ E05C *3/04*
U.S. Cl. 292—205 **15 Claims**



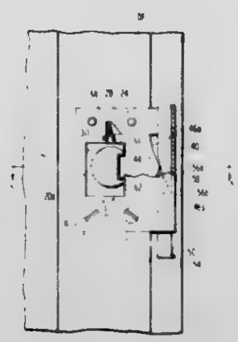
1. A locking system for securing sliding closures which move within tracks and wherein at least one of the sliding closures comprises a glass patio door formed of a glass pane and a frame mounting the pane to form a recess defined by the pane and peripheral edge surfaces of the frame bounding said pane, comprising:

locking means attached to the closures for preventing relative movement therebetween when in an operative configuration and for allowing relative movement between the sliding closures when in an inoperative configuration, the locking means comprising a stationary locking element mounted to a face of one of the closures and a pivotable stop element mounted to a leading edge of the other closure, the stop element being pivotable to a blocking relationship with the stationary locking element to prevent movement between the closures, the stationary locking element further comprising a U-shaped portion and a flange portion extending vertically from a first leg of the U-shaped portion when the stationary locking element is disposed with the longitudinal axis thereof in a vertical orientation, the U-shaped portion fitting into the recess contiguous to lower horizontal peripheral edge surfaces of the frame and being spaced from vertical peripheral edge surfaces of the frame, and means for mounting the stationary mounting element to the frame; and,

blocking means disposed upon upper horizontal frame surfaces of the closures between said closures and the tracks for preventing the closures from being lifted out of the tracks.

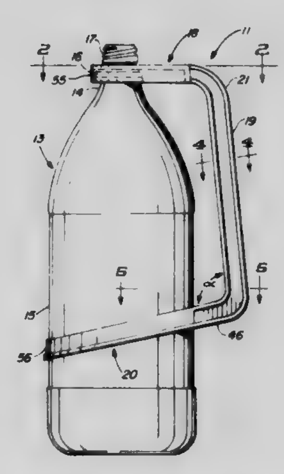
4,379,577
LATCH BOLT STRIKE LOCK
Gene V. Robertson, 1906 Esther Dr., Carlisle, Pa. 17013
Filed Jul. 28, 1980, Ser. No. 172,691
Int. Cl.³ E05C *13/02*
U.S. Cl. 292—341.15 **11 Claims**

1. A latch bolt strike lock comprised of a door jamb, said door jamb having a recessed portion, a door lock mounted in a door, said door lock having a lock bolt, said lock bolt having a flat face, having a bolt locking recess in said flat face, being movable between extended and retracted positions, and engaging said recessed portion of said door jamb when said door is closed and said lock bolt is in the extended position, there not being any holes, openings or grooves in the rim of said recess, a door striker plate attached to said door jamb and having an opening therein corresponding to said recessed portion of said door jamb to allow entry of said lock bolt, and a locking plate attached to or mounted in or on said striker plate so as to be reciprocal between a first position wherein said locking plate does not engage said bolt locking recess in said lock bolt and a second position wherein said locking plate engages said bolt locking recess in said lock bolt to thereby prevent undesired retraction of said lock bolt, said door striker plate being ⊔-shaped, and said locking plate being slidably mounted within a



⊔-shaped spacer plate, said ⊔-shaped spacer plate being mounted within said striker plate.

4,379,578
REUSABLE BOTTLE HOLDER
Heriberto Schuler, P.O. Box 1553, Casselberry, Fla. 32707
Continuation-in-part of Ser. No. 126,455, Mar. 3, 1980, abandoned. This application Mar. 20, 1981, Ser. No. 246,084
Int. Cl.³ B65D *23/10*
U.S. Cl. 294—31.2 **5 Claims**

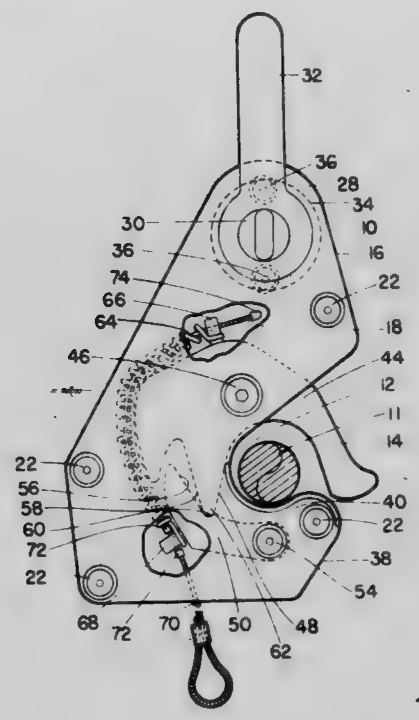


1. A reusable bottle holder adapted to be used with a necked bottle having a neck flange comprising:

a handle member; and

means connected to the handle member for securing the neck of the bottle having a top member having an aperture with a width greater than the width of the neck of the bottle immediately above the neck flange; a side wall connected to the perimeter of said top member having a width greater than the width of the neck flange; and a bottom member connected to the side wall, and having a semi-annular first section with a central angle greater than one hundred eighty degrees (180°) and terminating in a pair of projections disposed a distance less than the diameter of the neck of the bottle immediately below the flange, from each other, and an angular section gently sloping from the respective projections to the side wall, said semi-annular first section having a radius which is approximately the same as the radius of the neck of the bottle immediately below the neck flange.

4,379,579
AUTOMATIC LOCKING AND EJECTING HOOK ASSEMBLY
Richard S. Mahan, Cuyahoga Falls; Paul G. Tritt, Norton, both of Ohio, and James H. Ward, Jr., Plymouth, N.C., assignors to The B. F. Goodrich Company, Akron, Ohio
Filed Dec. 16, 1981, Ser. No. 331,120
Int. Cl.³ B66C *1/38;* **A44B** *13/00*
U.S. Cl. 294—83 R **9 Claims**

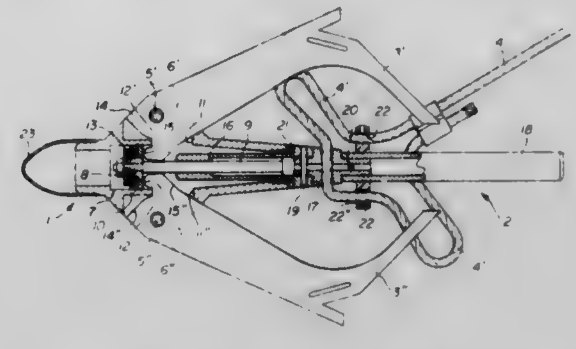


1. An automatic hook assembly for locking a ring in a hook load retaining eye when loaded and ejecting the ring from the eye upon release of the load comprising a hook body having a hook portion, a hook supporting portion spaced from said hook portion, a locking and ejecting cam pivotally mounted on said hook body between said hook portion and said supporting portion, said cam having a locking jaw movable into a locking position at said load retaining eye, a releasable latch pivotally mounted on said body, said latch being engageable with said cam to lock said jaw in said locking position, an actuating member connected to said latch for arming said hook assembly by rotating said latch out of engagement with said cam, said cam having an ejecting surface for engagement with said ring, resilient means connected to said releasable latch and to said cam for yieldingly urging said cam in a direction to maintain said releasable latch in said locking position prior to arming of said assembly and in the same direction after arming to move said hook jaw out of said locking position and press said cam ejecting surface against said ring for ejecting said ring upon release of loading pressure by said hook on said hook portion of said body.

4,379,580
GRAPNEL
Jackie Staempfli, Geneva, Switzerland, assignor to Valinor, S.A., Vaduz, Liechtenstein
Filed May 14, 1981, Ser. No. 263,734
Claims priority, application Switzerland, May 22, 1980, 4004/80
Int. Cl.³ B66C *1/10;* **F42B** *13/56*
U.S. Cl. 294—86 R **8 Claims**

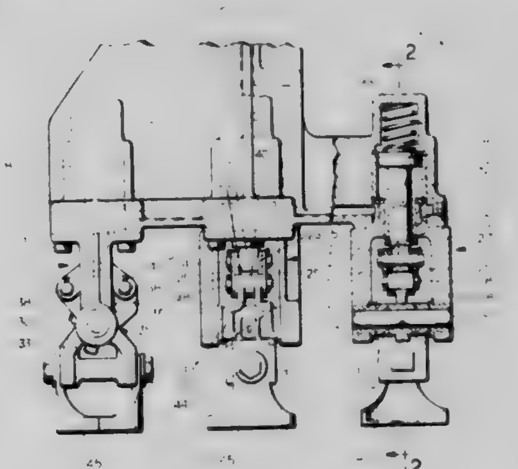
1. A grapnel comprising a substantially rod-shaped body, a plurality of grapnel arms and means for attaching a rope, said body comprising at least first and second body parts in longitudinally movable relationship with each other, said grapnel arms being pivotably mounted on said first body part and adapted for pivoting between a retracted position close to the body and a position in which they are outwardly extending from said body, each arm comprising a cam-shaped portion adapted to co-operate with an actuating piston coupled to said second body part so as to urge said arms into the outwardly extending position when said second body part is longitudinally moved with respect to said first body part by a traction on the rope, and

wherein said second body part comprises a guiding rod for launching the grapnel along a ballistic trajectory by means of a launching tube, said guiding rod forming the tail portion of said body, said means for attaching a rope



comprising means for retaining a first end of at least one loop of said rope on said second body part near the forward end of said guiding rod and comprising a movable attaching member slidably mounted on said guiding rod and retaining a second end of said loop of the rope, so as to retain the rope in the stretched condition thereof near the free end of said guiding rod.

4,379,581
TAKE-OUT TONG ASSEMBLY
Jack I. Perry, Sylvania, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Nov. 14, 1980, Ser. No. 206,765
Int. Cl.³ B66C *1/42, 1/28*
U.S. Cl. 294—115 **4 Claims**



1. In glassware take-out mechanism wherein a pair of opposed tongs are moved into operative relationship with respect to the neck or finish of a glass container and closed about the neck for lifting the container by the neck and transferring the container to a machine dead plate, the improvement in the tong operating mechanism comprising:

a cylinder housing;

a piston positioned in said cylinder housing having a rod extending vertically downward therefrom;

a bifurcated hanger assembly extending generally parallel to said piston rod and at either side thereof;

a shaft extending between the lower ends of said hanger assembly;

a pair of tong holders mounted on said shaft and pivotally supported with respect to the axis of said shaft;

a compression spring biasing said piston in a downward direction into its lowermost positions;

at least a pair of equal length links pivotally connected to and extending from the lower end of said piston rod to the

upper ends of said tong holders respectively, said links describing a straight line when the piston rod is in its fully extended, lowermost position.

4,379,582

DEVICE FOR IMPROVING AERODYNAMIC AND SAFETY CHARACTERISTICS OF AUTOMOTIVE VEHICLES

Tsutomu Miwa, 3010-8, Sayamagaoka, 1-Chome, Tokorozawa-shi, Saitama 359, Japan

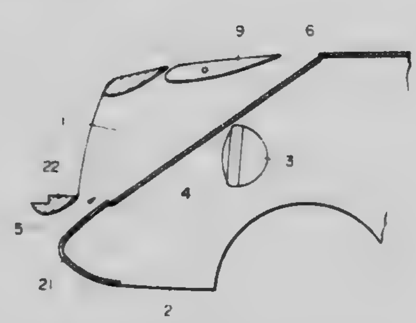
PCT No. PCT/JP80/00020, § 371 Date Oct. 7, 1980, § 102(e) Date Oct. 7, 1980, PCT Pub. No. WO80/01672, PCT Pub. Date Aug. 21, 1980

PCT Filed Feb. 9, 1980, Ser. No. 194,831

Claims priority, application Japan, Feb. 9, 1979, 54-014920; Feb. 14, 1979, 54-016774

Int. Cl.³ B62D *35/00*

U.S. Cl. 296—1 S **6 Claims**



1. A device for improving the aerodynamic and safety characteristics of an automotive vehicle, comprising an impact absorbing member defining an air induction passage extending longitudinally of the vehicle for directing air upwardly and rearwardly of the vehicle from a point forward thereof and through a passage outlet during vehicle movement, and an anti-lift member formed of a material being mounted in said air induction passage, said anti-lift member having a trailing edge positioned higher than a leading edge thereof, said impact absorbing member and anti-lift member being located below the level of a vehicle hood.

4,379,583

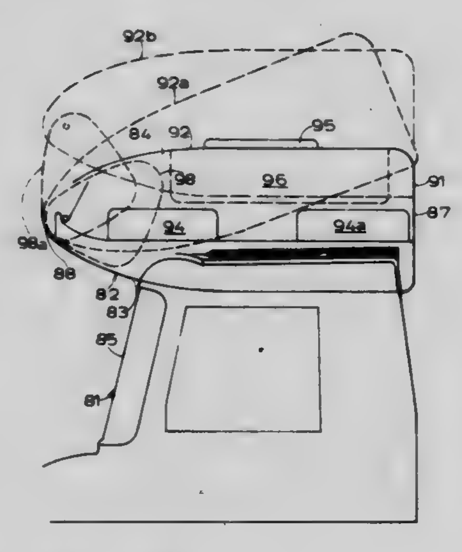
VEHICLE CABS HAVING AIRFLOW DEFLECTORS ON THEIR ROOFS

Merrick W. Taylor; George R. Allen, both of Warwickshire, and Terence Strong, Coventry, all of England, assignors to Motor Panels (Coventry) Limited, Coventry, England

Filed Feb. 4, 1981, Ser. No. 231,391

Int. Cl.³ B62D *35/00, 33/06*

U.S. Cl. 296—1 S **9 Claims**



1. A vehicle cab in which is a driver's seat and which has an airflow deflector on a roof thereof of generally plate form extending over substantially the same width as the cab, pivotal connecting means between said deflector adjacent a front edge thereof and a front upper portion of the cab whereby said deflector can be swung about a horizontal axis between raised and lowered positions relative to the cab, side walls and a rear wall extensibly connected between said deflector and the cab, means for swinging said deflector upwardly about said pivotal connecting means and means to retain said deflector in a raised position at which said deflector and said side and rear walls define a compartment above the cab, an opening in the roof of the cab providing access to said compartment from the cab, and a bunk extending transversely of the cab in an elevated position within the envelope defined by the cab and said compartment and substantially directly above said driver's seat, said bunk being accessible by way of said opening when said deflector is in a raised position.

4,379,584

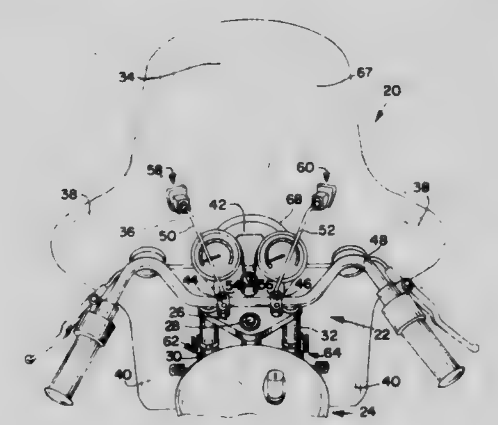
MOTORCYCLE SAFETY WINDSHIELDS

Barry A. Willey, 138 S. 8th Ave., Maywood, Ill. 60153

Filed Mar. 6, 1981, Ser. No. 241,434

Int. Cl.³ B62J *17/04*

U.S. Cl. 296—78.1 **27 Claims**



1. A cycle windshield assembly comprising, in combination, a wind deflector shield unit and a shield mounting portion, said shield unit having front and rear surfaces and a generally transparent first portion adapted to be seen through by the rider of an associated cycle and a second portion adapted to receive mounting braces, at least one pair of spaced apart mounting pad units, each of said pad units having a body portion and a front surface portion with a contour corresponding to the contour of said rear surface of said second portion of said shield unit, said mounting pad front surface portion being adhesively bonded to said rear shield surface, said mounting pad body portion being adapted to receive mounting braces which are in turn adapted to be fixedly received in use with respect to a forward portion of an associated cycle.

4,379,585

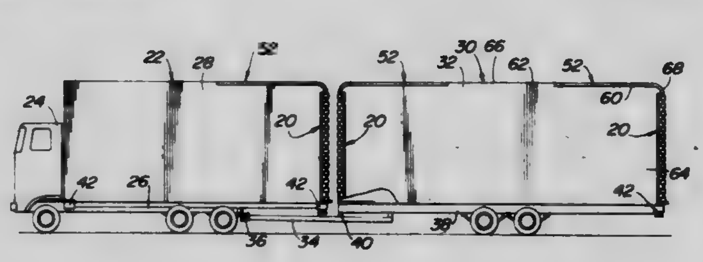
EXTERNAL DOOR FOR VEHICLES

Leonard Strick, 2401 Pennsylvania Ave., Philadelphia, Pa. 19130

Filed Apr. 27, 1981, Ser. No. 258,148

Int. Cl.³ B60J *5/12*

U.S. Cl. 296—146 **17 Claims**

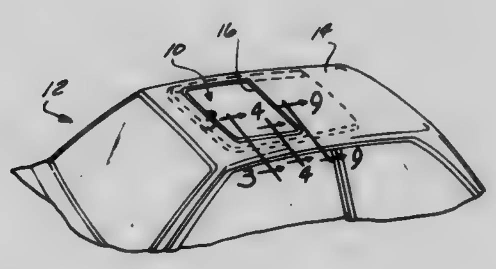


1. In a vehicle body for holding cargo therein having a first end, a pair of opposed sidewalls and a roof, said first end including an opening communicating with the interior of said

body, the improvement comprising an externally disposed sliding door assembly, said door assembly including sliding door means movable from a stored position above said roof to a pivoted open position wherein said door means covers said opening but is pivoted outward from said opening about a pivot axis located adjacent the bottom of said opening, said door being pivotable to a pivoted closed position wherein said door is pivoted toward said opening to fully close said opening.

4,379,586
SLIDING ROOF PANEL ASSEMBLY

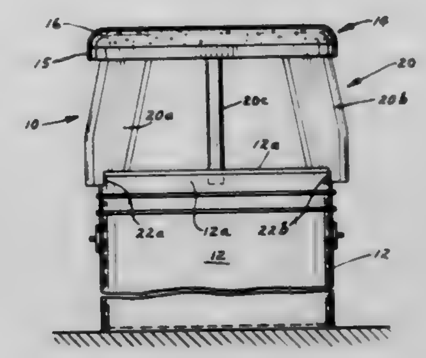
Milton C. Kaltz, Allen Park; Edward M. Chojnowski, Northville; David C. Garascia, Novi; Barney J. Bauer, Howell, and Richard D. George, Brownstown, all of Mich., assignors to American Sunroof Corporation, Southgate, Mich.
Filed Oct. 14, 1980, Ser. No. 196,468
Int. Cl.[3] B60J *7/04*
U.S. Cl. 296—222 **27 Claims**



1. A modular sliding roof panel assembly adapted to be mounted to the stationary roof structure of a vehicle having an opening in the roof thereof which is opened and closed by the sliding roof panel, said assembly comprising:
an integral housing adapted to be mounted to the interior of said stationary roof structure of said vehicle, said housing having an aperture therein aligned with said opening in said roof of said vehicle;
a movable roof panel;
guide rails mounted to said housing and extending in the sliding direction of said movable roof panel;
front and rear guide shoes mounted to said movable roof panel and engaging said guide rails for controlling the movement of said movable roof panel between open and closed positions, said front guide shoes being pivotally mounted to said movable roof panel;
drive means including thrust transmitting drive cables operably connected to said rear guide shoes for moving said movable roof panel between open and closed positions;
guide blocks mounted to said movable roof panel and having a cam track formed therein;
cam follower means pivotally mounted to said rear guide shoes and engageable with said guide blocks for selectively raising the rear edge of said movable roof panel above said stationary roof structure of said vehicle and for lowering said rear edge of said movable roof panel below said stationary roof structure such that said movable roof panel can slide beneath said stationary roof opening;
actuator means for actuating said drive means;
means associated with the end of one of said cables, for detecting when said movable roof panel is in the closed position closing the roof opening; and
control means, responsive to said detecting means, for connecting said actuator means to said drive means to enable said movable roof panel to be selectively moved to an open position from said closed position and to a flip-up venting position from said closed position.

4,379,587
SEAT STRUCTURE

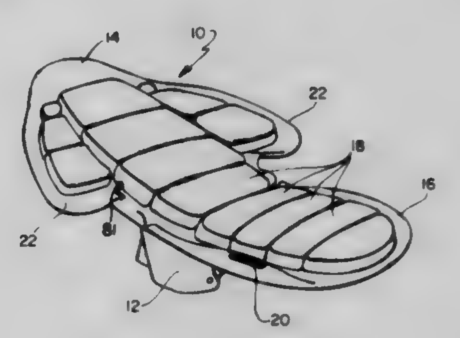
Leo D. Duncan, R.R. #2, Webster, Wis. 54893
Filed Feb. 23, 1981, Ser. No. 236,643
Int. Cl.[3] A47C *9/00*
U.S. Cl. 297—192 **1 Claim**



1. A seat structure for fishing purposes particularly adapted to be elevated upon an upstanding receptacle, having in combination
a rigid seat plate member,
a plurality of spaced leg members depending from said plate member,
said leg members having open ended notches at their bottom end portions,
a cylindrical upstanding receptacle forming a bucket member having an upper rim portion,
said leg members being spaced to have their respective notches seat upon said rim portion, and
said leg members being of such height as to elevate said plate member in such spaced relation to said rim portion to provide free reaching access into said bucket.

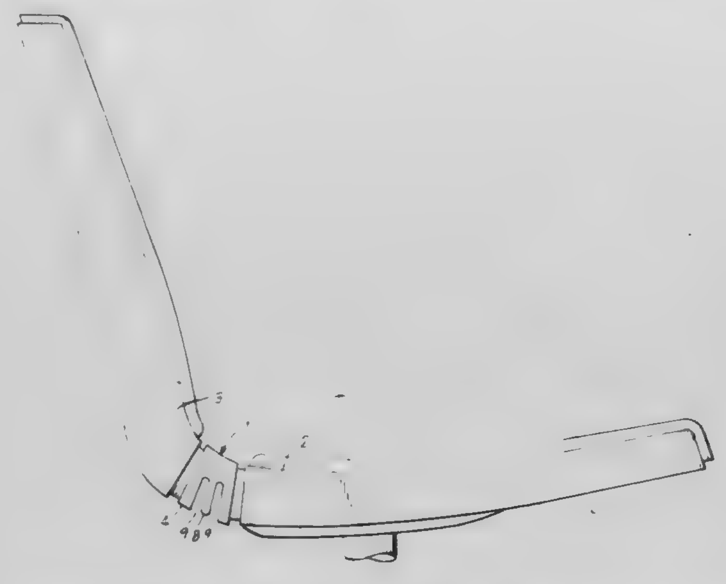
4,379,588
REVOLVING SOLAR LOUNGER

Donald G. Speice, 14 Barberry La., Westerly, R.I. 02891
Filed Nov. 3, 1980, Ser. No. 203,548
Int. Cl.[3] A47C *31/00*
U.S. Cl. 297—217 **7 Claims**



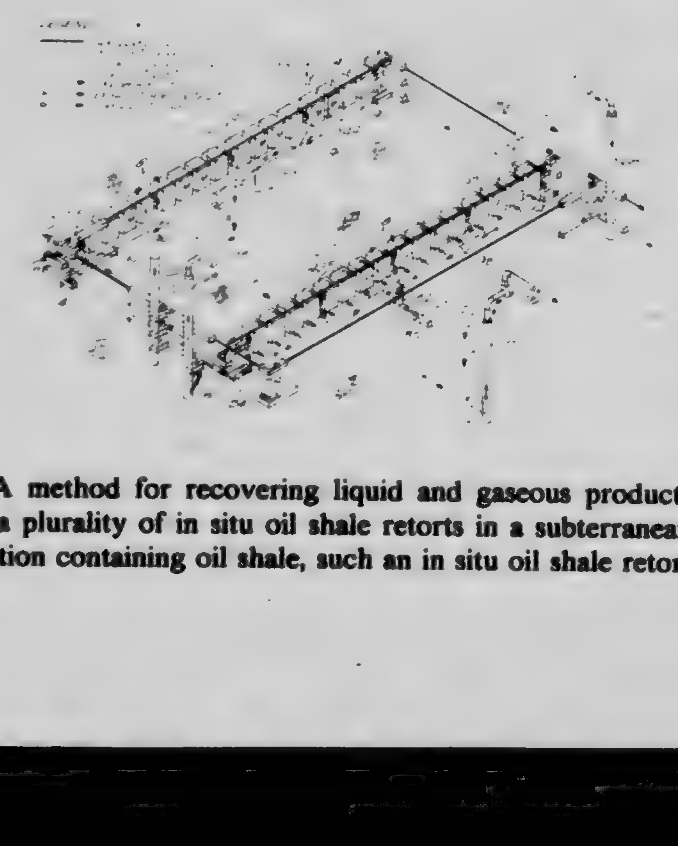
1. A solar lounger comprising:
(a) a base;
(b) means for supporting a person in a reclined disposition on said base;
(c) collecting means disposed in a substantially unobstructed upwardly facing location on said lounger receiving and collecting solar energy and continuously converting same to electrical energy; and
(d) electrical motor means mounted in said lounger and powered by said electrical energy continuously rotating said support means relative to said base during periods when solar energy reaches said collecting means in said lounger so that a person supported on the support means receives even exposure to the sun's rays.

4,379,589
RECLINABLE CHAIR
Mario H. S. Marino, Buenos Aires, Argentina, assignor to Interieur Forma S.A., Capital, Argentina
Filed Oct. 1, 1980, Ser. No. 192,818
Int. Cl.^{3} A47C *3/00*
U.S. Cl. 297—299 4 Claims



1. In a reclinable chair having a back and a seat articulated for reclining movement of the back with respect to the seat, the improvement comprising a generally U-shaped plate having opposed legs disposed at an angle with respect to each other, one of said legs being joined to said back and the other of said legs being joined to said seat, the material of said plate exerting a restoring force tending to restore said legs to said angle when forced away from said angle, said plate being substantially encased by a resilient material generally U-shaped in section, with the legs of said plate being substantially encased within the legs of said U-shaped resilient material, and said resilient material includes a flap extending parallel to and between said legs of said resilient material.

4,379,590
VENTILATION AIR AND PROCESS AIR DISTRIBUTION FOR IN SITU OIL SHALE RETORTS
C. Arthur Lefler, Casa Grande, Ariz.; John E. McCarthy, Palos Verdes, Calif.; Gordon B. French, Bakersfield, Calif.; Eugene A. Mills, Whittier, Calif., and David E. Miall, Lafayette, La., assignors to Occidental Oil Shale, Inc., Grand Junction, Colo.
Continuation of Ser. No. 24,459, Mar. 27, 1979, abandoned, which is a continuation of Ser. No. 892,652, Apr. 13, 1978, abandoned, which is a continuation of Ser. No. 768,878, Feb. 15, 1977, abandoned. This application Jul. 1, 1980, Ser. No. 165,081
Int. Cl.^{3} E21C *41/10*
U.S. Cl. 299—2 26 Claims



1. A method for recovering liquid and gaseous products from a plurality of in situ oil shale retorts in a subterranean formation containing oil shale, such an in situ oil shale retort containing a fragmented permeable mass of formation particles containing oil shale, the method comprising the steps of:

excavating an upper level of underground workings;
excavating a first inlet airway between above ground and at least the upper level of underground workings;
excavating a lower level of underground workings at an elevation below the elevation of the upper level of underground workings;
excavating a second exhaust airway between above ground and at least the lower level of underground workings ;
establishing air communication between the upper level of underground workings and the lower level of underground workings;
withdrawing ventilation air under pressure from the exhaust airway for drawing ventilation air from above ground through the inlet airway, through the upper level of underground workings, through the air communication between the upper level of underground workings and the lower level of underground workings, and through the lower level of underground workings into the exhaust airway;
forming a plurality of in situ oil shale retorts, each of said retorts having a top boundary at an elevation below the elevation of the upper level of underground workings, a bottom boundary at an elevatin at or above the elevation of the lower level of underground workings and containing a fragmented permeable mass for formation particles containing oil shale;
establishing air communication between the upper level of underground workings and the top boundary of each of plurality of such in situ oil shale retorts;
establishing a combustion zone in each of a plurality of such in situ oil shale retorts having air communication with upper level of underground workings;
withdrawing process off gas containing gaseous products under pressure from the bottom boundaries of such a plurality of in situ oil shale retorts having combustion zones therein for drawing process air through the inlet airway and through the upper level of underground workings into such in situ oil shale retorts for advancing such a combustion zone downwardly through such a fragmented mass for retorting oil shale therein, wherein said process off gas is withdrawn from-the in situ retorts at a pressure lower than air pressure in the upper and lower level of underground workings; and
withdrawing liquid products from the bottom boundary of such in situ retorts having a combustion zone therein.

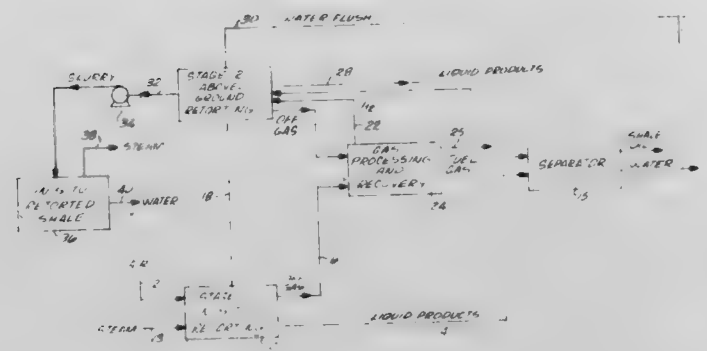
4,379,591
TWO-STAGE OIL SHALE RETORTING PROCESS AND DISPOSAL OF SPENT OIL SHALE
Joseph P. Tassoney, Diamond Bar, Calif., assignor to Occidental Oil Shale, Inc., Grand Junction, Colo.
Continuation-in-part of Ser. No. 752,990, Dec. 21, 1976, abandoned, which is a continuation-in-part of Ser. No. 658,811, Feb. 17, 1976, abandoned, which is a continuation of Ser. No. 496,970, Aug. 13, 1974, abandoned. This application Aug. 21, 1980, Ser. No. 179,988
Int. Cl.^{3} E21B *43/26*
U.S. Cl. 299—2 7 Claims

1. A method for recovering shale oil from a subterranean formation containing oil shale and for disposing of spent shale from surface retorting, comprising the steps of:

forming an in situ oil shale retort containing a fragmented permeable mass of formation particles containing oil shale;
retorting oil shale particles in the fragmented mass for producing liquid and gaseous products of retorting and a spent in situ retort containing a mass of hot in situ retorted oil shale particles having a temperature sufficient to produce steam upon contact with water;
surface retorting a mass of formation particles containing oil shale for producing liquid and gaseous products of retort-

ing and a mass of spent surface retorted formation particles;

drilling through the spent in situ retorted oil shale particles with a drill bit carried on each of a plurality of elongated conduits for installing the conduits at a plurality of locations spaced apart across the horizontal cross section of the spent in situ oil shale retort and in fluid communication with the hot in situ retorted oil shale particles;



introducing a slurry containing water and the surface retorted spent oil shale particles into the spent in situ oil shale retort through the conduits principally to the hot in situ retorted oil shale particles for contacting at least said hot in situ retorted oil shale particles with the water in said slurry for generating steam in the spent in situ oil shale retort; and

withdrawing steam from the spent in situ retort through one or more outlet lines that open into a portion of the spent in situ retort containing such generated steam.

4,379,592

METHOD OF MINING AN OIL-BEARING BED WITH BOTTOM WATER

Gennady I. Vakhnin, poselok Yarega, ulitsa Oktyabrskaya, 2, kv. 11; Vladimir G. Verty, poselok Yarega, ulitsa Kosmonavtov, 4, kv. 29; Pavel G. Voronin, poselok Yarega, ulitsa Mira, 4, kv. 6; Evgeny I. Gurov, ulitsa Mira, 2, kv. 3; Vladimir G. Isaikin, ulitsa 30 let Oktyabrya, 3, kv. 49; Vladimir N. Mishakov, ulitsa Pushkinskaya, 1, kv. 4, all of Komi ASSR, Ukhta; Alexandr I. Obrezkov, poselok Yarega, ulitsa Neftyanikov, 1, kv. 14, Komi ASSR; Vitaly S. Sukrushev, poselok Yarega, ulitsa Mira, 2, kv. 12, Komi ASSR, Ukhta; Vladimir P. Tabakov, ulitsa Sofii Kovalevskoi, 4 "A", kv. 125, Moscow; Boris A. Tjunkin, ulitsa Oplesnina, 30, kv. 33, and Ljudmila I. Fotieva, poselok Yarega, ulitsa Lermontova, 10, kv. 1, both of Komi ASSR, Ukhta, all of U.S.S.R.

Filed Jan. 8, 1981, Ser. No. 223,242

Claims priority, application U.S.S.R., Apr. 17, 1979, 2749653

Int. Cl.^{3} E21C *41/10*

U.S. Cl. 299—2 **2 Claims**

1. A method of mining an oil-bearing bed with bottom water, comprising:

arranging a plurality of underground workings and at least one working gallery;

drilling inlet and recovery wells from said working gallery;

drilling from said working gallery additional wells to the water-bearing portion of the bed in the zone of oil contact with bottom water;

force-feeding a heat carrier through the inlet wells into the oil-bearing bed for heating the latter to a temperature at which oil assumes desired fluidity in the oil-bearing bed and for displacing oil to the recovery wells;

extracting oil from the recovery wells to the working gallery;

extracting water through said additional wells simultaneously with the injection of the heat carrier into the inlet wells and extraction of oil from the recovery wells; and

delivering oil from said working gallery via the workings to the ground surface.

4,379,593

METHOD FOR IN SITU SHALE OIL RECOVERY

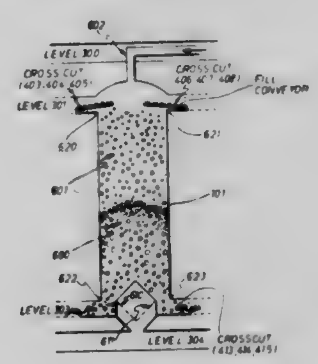
Bernard E. Weichman, Houston, Tex., assignor to Multi Mineral Corporation, Houston, Tex.

Division of Ser. No. 117,570, Feb. 1, 1980, Pat. No. 4,285,547. This application Jan. 19, 1981, Ser. No. 226,041

The portion of the term of this patent subsequent to Aug. 25, 1998, has been disclaimed.

Int. Cl.^{3} E21C *41/10*

U.S. Cl. 299—2 **13 Claims**



9. A method of preparing an underground stope having generally vertical side walls for the in situ processing of oil shale ore comprising the steps of:

(a) removing a portion of the oil shale ore from the stope;

(b) rubblizing the remaining ore in the stope;

(c) extracting the rubblized ore from the stope;

(d) crushing the extracted ore to obtain ore particles of a size desired for retorting; and

(e) laterally supporting said side walls of the stope while the rubblized ore is being extracted by restoring at least a portion of the crushed oil shale particles to the stope at approximately the same rate as the rubblized ore is extracted to maintain the stope substantially filled.

4,379,594

PROCESS FOR SINKING OF SHAFTS

Alfred Zitz; Otto Schetina; Herwig Wrulich, and Arnulf Kissich, all of Zeltweg, Austria, assignors to Voest-Alpine Aktiengesellschaft, Vienna, Austria

Filed Nov. 5, 1980, Ser. No. 204,382

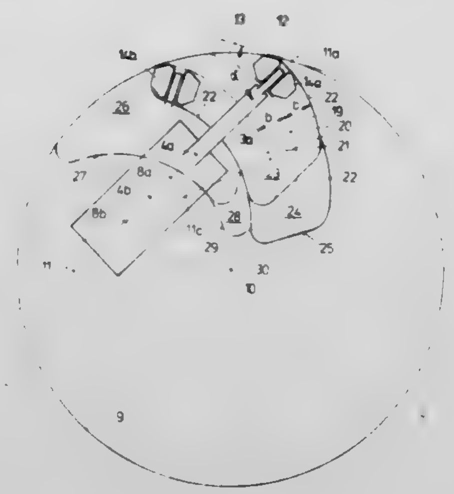
Claims priority, application Austria, Nov. 9, 1979, 7210/79

Int. Cl.^{3} E21D *1/06*; E21C *41/00*

U.S. Cl. 299—10 **12 Claims**

1. Process for sinking of shafts into the earth by means of a partial-cut cutting tool, characterized in that the shaft is sunk by means of a partial-cut cutting machine, having an universally pivotable cutting arm carrying at least one cutting head

and having a chassis fitted with crawler tracks, along a screw surface in the earth having its axis coinciding with the shaft to



be sunk, the cutting machine being moved on said screw surface.

4,379,595

RIPPER WITH OFFSET IMPACTING MEANS AND SLOTTED SHANK

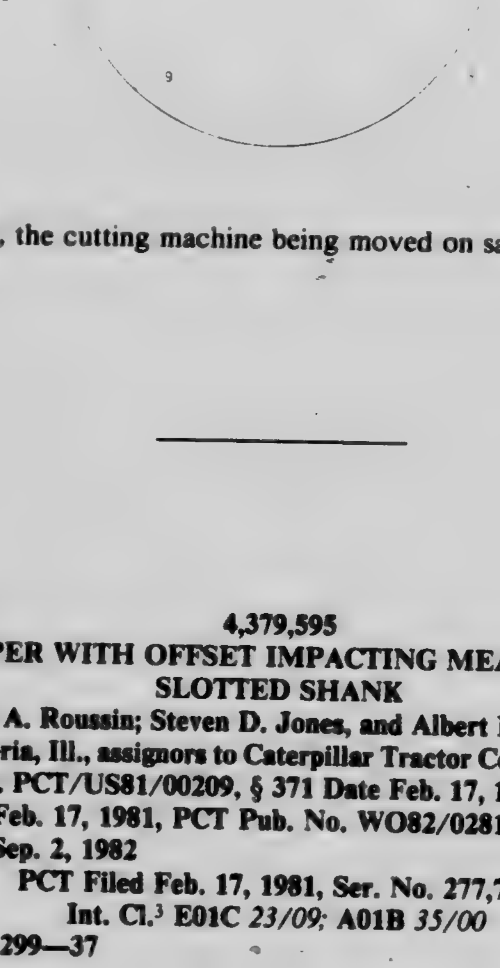
Michael A. Roussin; Steven D. Jones, and Albert L. Woody, all of Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US81/00209, § 371 Date Feb. 17, 1981, § 102(e) Date Feb. 17, 1981, PCT Pub. No. WO82/02813, PCT Pub. Date Sep. 2, 1982

PCT Filed Feb. 17, 1981, Ser. No. 277,741

Int. Cl.[3] E01C *23/09;* A01B *35/00*

U.S. Cl. 299—37 17 Claims



1. In a ripper apparatus (11,11*a*) having a movable support member (14,14*a*), a ripper tip (13) mounted on said support member and disposed for impacting movement along a first line (L_1), and an impacting means (17) for intermittently applying an impacting force to said support member (14,14*a*) in the direction of a second line (L_2), the improvement comprising
said first (L_1) and second (L_2) lines being substantially offset relative to each other and spring means (25,25*a*) between said impacting means (17) and said ripper tip (13) for inducing transmission of said impacting force from said second line (L_2) to said first line (L_1) directly.

4,379,596

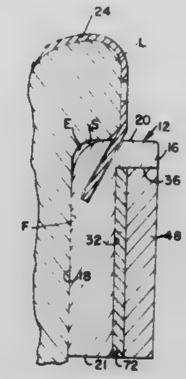
SUPERPOSITIONED VEHICLE WHEEL BALANCE WEIGHTS AND METHOD

Bernard J. Green, Bristol, Tenn., and Jerome J. Chorosevic, Bristol, Va., assignors to Speed Clip Manufacturing Corp., Bristol, Tenn.

Filed Sep. 14, 1979, Ser. No. 75,665

Int. Cl.[3] B60B *13/00*

U.S. Cl. 301—5 B 4 Claims



1. A balance weight for counterbalancing vehicle wheels having a rim flange with a protruding lip comprising,
a mass of a heavy metal having a body forming, a first balance weight for positioning on said flange,
a wheel securing means positioned on said weight for securing the weight to the wheel,
said body having a front face directed outwardly from the wheel when the weight is affixed to the wheel,
said front face having a plurality of cutout areas for receiving at least one additional weight,
said cutout means including side wall and rear wall surfaces, said side wall surfaces forming a retention means for said additional weight,
said retention means for restraining said additional weight from movement transverse to said side walls within the plane parallel to the plane of said vehicle wheel,
at least one additional mass of heavy metal forming a balance weight positioned within at least one of said cutout areas,
said additional weight including an adhesive layer to secure said additional weight to said rear wall surface of said cutout area to restrain said additional weight from movement transverse to the plane of said vehicle wheel,
whereby more than one additional weight may be affixed to said first balance weight without removing said first balance weight from said vehicle wheel.

4,379,597

EDGE LUGGED TIRE CARRYING RIMS, WHEELS AND FASTENING ASSEMBLIES

William D. Walther, Kettering, Ohio, assignor to Dayton-Walther Corporation, Dayton, Ohio

Filed Jun. 27, 1977, Ser. No. 810,436

Int. Cl.[3] B60B *23/10*

U.S. Cl. 301—12 R 4 Claims

1. A combination of dual inner and outer tire carrying rims seated and locked by inner and outer rim fastening assemblies on a vehicle wheel,
said wheel (120) having a plurality of inner and outer spoke members, each of said inner spoke members having a felloe comprising a radially outer axially oriented surface (131) substantially parallel to the rotational axis of said wheel and an adjacent radially inwardly directed surface (132) substantially perpendicular to the rotational axis of said wheel and providing a mounting location for an axially projecting component of said fastening assemblies, each of said outer spoke members having a felloe comprising a radially inwardly directed surface (137) substantially perpendicular to the rotational axis of said wheel and providing a mounting location for an axially projecting component of said fastening assemblies and an adjacent

radially inner axially oriented lateral surface (138) substantially parallel to the rotational axis of said wheel,

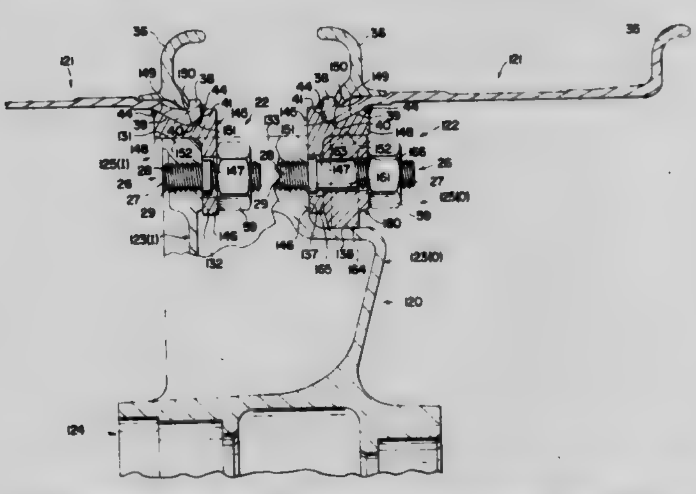
each of said rims (121) having a rim base edge portion comprising a radially inclined axially inner surface intersecting an axially oriented radially inner surface intersecting a radially directed axially outer surface, said rim base edge portion having a plurality of radially inwardly projecting clamp lugs integrally secured thereto,

each said clamp lug (145) having a curved body portion (148) with a radially outer face comprising surfaces for mating engagement with conforming rim base edge portion surfaces when each said clamp lug is being integrally secured to said rim base edge portion,

each said clamp lug (145) still further having a radially inwardly directed leg portion (146) extending inwardly from said body portion (148) substantially perpendicular to the rotational axis of said rim and having a bore (147) therein for receiving said axially projecting component of said fastening assemblies, said bore having an effective diameter greater than the effective diameter of an axially projecting component of said fastening assemblies,

each said clamp lug body portion having a radially inner axially oriented lateral surface (152) adjacent said leg portion (146),

each said outer rim fastening assembly (122) comprising said axially projecting component and a clamp element (160) and a rotatable nut (59) carried thereon, said clamp element having a bore (161) therein for receiving said axially



projecting component, said bore having an effective diameter greater than the effective diameter of said axially projecting component,

each said clamp element further having dual concentric and segmental axially movable axially oriented surfaces; a radially outer surface (163) and a radially inner surface (164),

each said clamp element still further having parallel axially movable radially directed surfaces; an axially inner surface (165) and an axially outer surface (166),

whereby, said inner rim is seated on, and thereafter locked on, said wheel by initial and final tightening of said inner rim fastening assemblies against each said clamp lug leg portion, said initial tightening of said inner rim fastening assemblies seating said axially oriented clamp lug lateral surfaces (152) in concentric registry with said axially oriented wheel felloe surfaces (131); said final tightening of said inner rim fastening assemblies locking said rim on said wheel by the full surface engagement of said clamp lug leg portions (146) with said radially inwardly directed wheel felloe surfaces (132),

and, whereby, said outer rim is seated on, and thereafter locked on, said wheel by initial and final tightening of said outer rim fastening assemblies, said initial tightening of said rotatable nuts (59) against said axially outer clamp element surfaces (166) seating said axially oriented clamp lug lateral surfaces (152) in concentric registry with said radially outer clamp element surfaces (163) and seating said radially inner clamp element surfaces (164) in concentric registry with said radially inner axially oriented wheel felloe surfaces (138); said final tightening of said rotatable nuts (59) against said axially outer clamp element surfaces (166) locking said rim on said wheel by the full surface engagement of said axially inner clamp element surfaces (165) with said clamp lug leg portions (146) and by the full surface engagement of said clamp lug leg portions (146) with said radially inwardly directed wheel felloe surfaces (137).

4,379,598

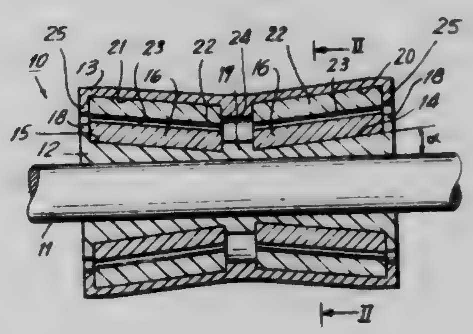
MAGNETIC BEARING

Michael P. Goldowsky, Valhalla, N.Y., assignor to North American Philips Corporation, New York, N.Y.

Filed Dec. 22, 1980, Ser. No. 219,058

Int. Cl.[3] F16C *39/06*

U.S. Cl. 308—10 **15 Claims**



1. A bearing structure comprising

an inner cup-shaped ring of magnetic material, having an outer surface and outwardly extending flanges,

a first permanent magnet ring comprising a plurality of angularly distributed, radially and axially extending segments disposed on said outer surface between said flanges, said ring supporting and restraining said segments and providing a flux return path for said first ring,

an outer cup-shaped ring of magnetic material, having an inner surface and inwardly extending flanges, and

a second permanent magnet ring comprising a plurality of angularly distributed, radially and axially extending segments disposed on said inner surface between said inwardly extending flanges, said outer ring supporting and restraining the segments of said second ring and providing a flux return path therefor,

said first and second rings being spaced from each other to provide a gap therebetween, said magnets being poled perpendicular to the gap with like poles facing one another.

4,379,599

BEARING INNER RING

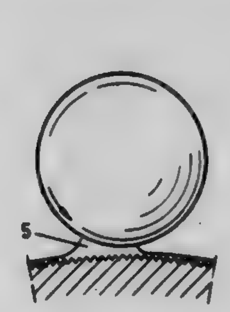
Yngve Sundqvist, Partille, Sweden, assignor to SKF Industries, Inc., King of Prussia, Pa.

Filed Dec. 29, 1980, Ser. No. 221,018

Claims priority, application Sweden, Jan. 28, 1980, 8000631

Int. Cl.[3] F16C *33/58, 33/66*

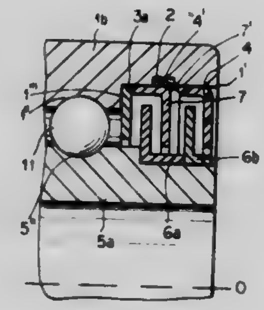
U.S. Cl. 308—187 **2 Claims**



1. An inner ring for a rolling bearing having at least one raceway, a plurality of rolling elements travelling in a prede-

termined direction relative to said raceway, means defining a plurality of closely spaced grooves which extend over substantially the entire raceway surface substantially transversely to said predetermined direction of the rolling elements, said grooves being formed by a grinding operation on said inner raceway surface and the spacing between adjacent grooves being less than about one hundredth the diameter of a rolling element, said grooves operable to retain a lubricant therein and form a layer or film between the raceway and the rolling elements.

4,379,600
JOURNAL BEARING WITH DUST SEAL
Armin Müller, Kronungen, Fed. Rep. of Germany, assignor to FAG Kugelfischer Georg Schäfer & Co., Schweinfurt, Fed. Rep. of Germany
Filed Dec. 17, 1980, Ser. No. 217,390
Claims priority, application Fed. Rep. of Germany, Dec. 20, 1979, 7935867[U]
Int. Cl.³ F16C *33/80*
U.S. Cl. 308—187.1 **4 Claims**

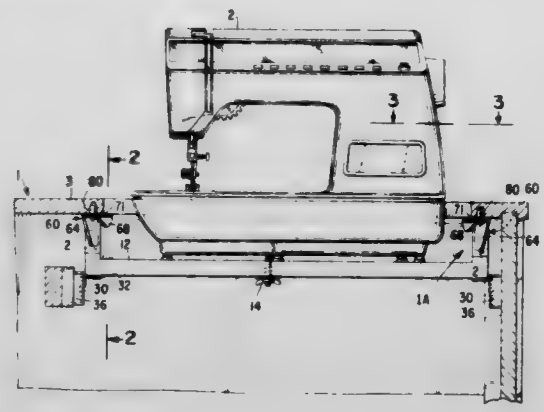


1. In a journal bearing having an inner race and an outer race with confronting, generally cylindrical coaxial surfaces accommodating a set of rotary bodies in a clearance therebetween,

the combination therewith of a sealing ring of generally L-shaped half-section centered on the axis of said surfaces and provided with a plastically deformed peripheral lip received in an annular groove of one of said surfaces near an annular edge thereof, said sealing ring having a web extending radially close to the other of said surfaces at a location spaced axially outwardly from said groove for substantially closing said clearance toward the outside, said one of said surfaces being formed with a transverse shoulder spaced axially inwardly from said groove, and an annular member centered on said axis and in contact with said one of said surfaces between said shoulder and said groove, said member being provided with an annular camming edge overlapping said groove and facing said sealing ring while locking said lip in said groove.

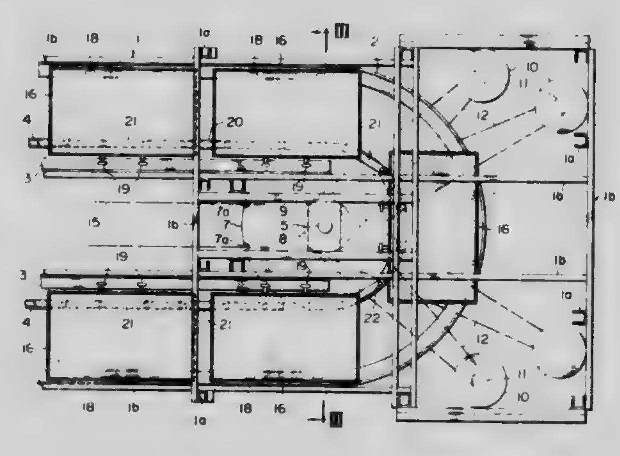
4,379,601
SEWING MACHINE CRADLE SAFETY INTERLOCK
William G. Hauser, Fanwood, N.J., assignor to The Singer Company, Stamford, Conn.
Filed Mar. 16, 1981, Ser. No. 244,376
Int. Cl.³ A47B *81/00*
U.S. Cl. 312—21 **5 Claims**

1. A cabinet for a sewing machine having a top surface provided with an opening through which a sewing machine may project, a sewing machine, a platform having the machine mounted thereon and being movable with respect to said top surface into either a first position within said opening below the level of the said top surface and substantially horizontal for sewing, or a second position extending downwardly under said top surface for storing the sewing machine when not in use, latch means with mutually engagable parts on the cabinet and said platform for selectively retaining the platform in said first position, the latch means being capable of being unlatched by raising said platform a predetermined amount from the said first position, a flap hingably attached to the cabinet and disposed within said opening, said flap being movable with respect to said top surface from a position substantially coplanar with said top surface to positions approximately 90 degrees above and 90 degrees below said top surface, and interlock



means mounted on the cabinet for movement into and out of a position wherein the interlocking means supports said flap in the said position substantially coplanar with said top surface and wherein the interlocking means interferes with upward movement of the platform by said predetermined amount to prevent the unlatching of said latch.

4,379,602
ROTATABLE STOCK CONTAINER CLOSET
Takusuke Iemura; Takeshi Goto, and Hiroshi Komaki, all of Yokohama, Japan, assignors to Okamura Corporation, Japan
Filed Nov. 3, 1980, Ser. No. 203,449
Claims priority, application Japan, Mar. 11, 1980, 55-30585[U]
Int. Cl.³ A47B *49/00;* **B65G** *17/16*
U.S. Cl. 312—268 **8 Claims**

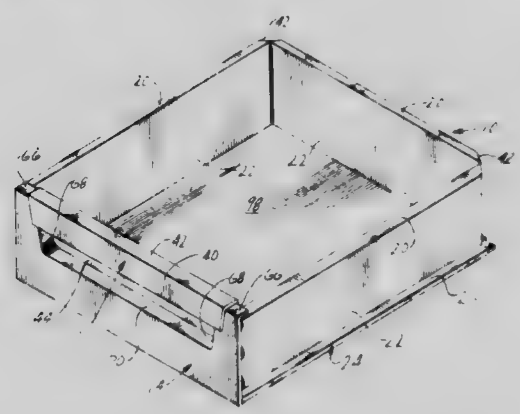


1. A rotatable stock container closet including a plurality of container conveying units arranged vertically one on another, each container conveying unit comprising:

(a) an endless loop outer rail means extending in the horizontal plane; the outer rail means generally having an elliptic shape comprising a pair of discrete straight sections extending in parallel with each other and a pair of discrete curvilinear sections, with the sections having free ends and the free ends of the curvilinear sections being connected to the free ends of the straight sections;
(b) discrete inner rail means extending in the horizontal plane, arranged inside the outer rail means at a certain distance away therefrom;
(c) discrete guide channel means extending in the horizontal plane, arranged between the inner and the outer rail means at a certain distance away therefrom;
(d) an endless loop traction chain means which is guided by the guide channel means and is adapted to be moved along the same;
(e) a means for driving the traction chain means; and

(f) a plurality of container means releasably disposed to the traction chain means and connected to ride along the rail means so as to be moved on and along the inner and the outer rail means and together with the traction chain means.

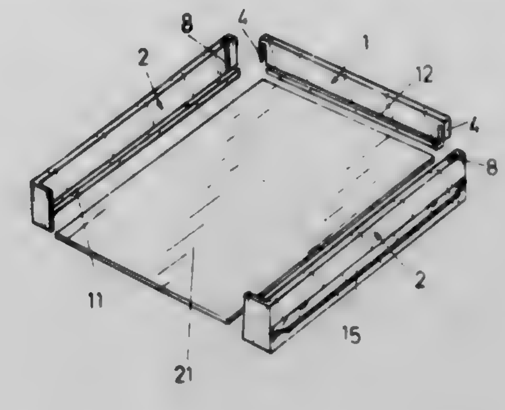
4,379,603
DRAWER WITH REMOVABLE HANDLE
John R. Johnson, Arcadia, and Robert Brydolf, Pasadena, both of Calif., assignors to Acme General Corporation, San Dimas, Calif.
Filed Dec. 22, 1980, Ser. No. 218,529
Int. Cl.³ A47B *95/02*
U.S. Cl. 312—320 **10 Claims**



1. A drawer assembly comprising:
a drawer front structure having a front face and a rear face; a pair of spaced apart upper edges above the front and rear faces; and a recess formed in the front and rear faces between the upper edges of the drawer front structure, the recess having a lower edge extending across the drawer front structure below said upper edges;
a slot formed adjacent the rear face of the drawer front structure below the lower edge of the recess; and
a drawer handle for being removably attached to the drawer front structure, the drawer handle having a cross-section of generally inverted U-shaped channel configuration including spaced apart front and rear flanges on opposite sides of a base portion of the channel; and a locking flange on a lower portion of the rear flange projecting toward the front flange of the channel, the locking flange being shaped to extend into the slot adjacent the rear face of the drawer front structure for releasably interlocking the locking flange in the slot to hold the rear flange in a fixed position with respect to the drawer front structure when the base portion of the channel rests on the upper edges of the drawer front structure for maintaining the front flange in a fixed position adjacent the front face of the drawer front structure, while the rear flange extends adjacent the rear face of the drawer front structure and covers at least a portion of the recess in the drawer front structure.

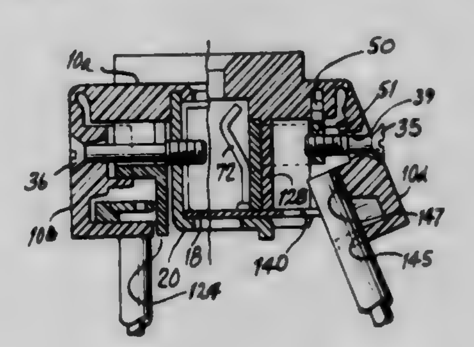
4,379,604
DRAWER
Erich Röck, and Josef Brunner, both of Höchst, Austria, assignors to Julius Blum Ges.m.b.H., Höchst, Austria
Filed Nov. 25, 1980, Ser. No. 210,397
Int. Cl.³ A47B *88/00;* **B65D** *6/00*
U.S. Cl. 312—330 R **5 Claims**

1. A drawer for an article of furniture, said drawer comprising:
two side members and a back member;
each said member being formed of a plastic material;
opposite ends of said back member including integral first connecting elements connectable to respective second connecting elements of said side members by relative vertical movement between said back member and said side members;
each of one of said first and second connecting means comprising a vertically extending T-shaped rail;
each of the other of said first and second connecting means comprising a vertically extending slot of a dimension to vertically slidably receive by complementary abutting surface contact a respective said T-shaped rail;
the said member having therein each said slot having a hollow box-like configuration including an inner side wall



and an upper web, said slot being formed in said inner side wall and opening into a T-shaped opening in said upper web;
said back member and said side members having formed in inner sides thereof respective longitudinal horizontal grooves extending in a single horizontal plane when said back member and said side members are connected; and
a bottom drawer member slidably fitting into said grooves.

4,379,605
ELECTRICAL RECEPTACLE OF MOLDED BODY CONSTRUCTION
Ernest G. Hoffman, Middlefield, Conn., assignor to Harvey Hubbell Incorporated, Orange, Conn.
Filed Nov. 17, 1980, Ser. No. 207,345
Int. Cl.³ H01R *13/38*
U.S. Cl. 339—14 R **42 Claims**



1. A general purpose type of duplex receptacle comprising:
a receptacle body having a plurality of side walls;
a front cover mounted on said side walls;
at least one side cover connected to said front cover by a web hinge to pivot relative thereto toward and away from said receptacle body;
first and second groups of spaced-apart receptacle apertures extending through said front cover, each group of apertures accommodating the male blades of a male plug insertable into one or both of the groups,
a plurality of female contacts made of electrically conductive material, each of said female contacts mounted in substantial alignment with a different one of the apertures for making electrical contact with a corresponding blade of a male plug in an aperture;
a plurality of terminal members composed of electrically conductive material mounted in the receptacle body connected to different ones of said female contacts, each of said terminal members having an insulation severing por-

tion whereby electrical contact may be made with an insulation-covered conductor wire by penetrating the insulation:

means for electrically connecting a first one of said female contacts in the first group of apertures with a first one of said terminal members and means for electrically connecting a second one of said female contacts with a second one of said terminal members;

the one side cover having conductor pusher surfaces, operative when said at least one side cover is pivoted toward said receptacle body, to press an insulation-covered conductor having an unstripped free end placed on one of said terminal members against the one terminal member to cause severing of the conductor insulation by said one terminal member and the making of an electrical connection therebetween.

4,379,606

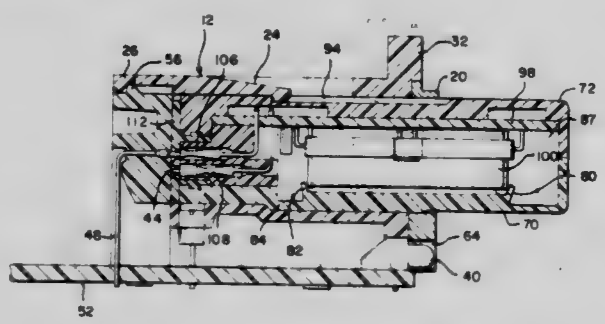
CARTRIDGE HOLDER AND CONNECTOR SYSTEM

Richard P. Clark, Hershey; Robert H. Frantz, Carlisle; Gary W. Hawk, Halifax, and John A. Root, Harrisburg, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 8, 1981, Ser. No. 252,511

Int. Cl.³ H01R *23/70*

U.S. Cl. 339—17 CF **12 Claims**



1. A cartridge receiving connector system comprising:

a holder housing having means for mounting said holder housing on a circuit board, said holder housing defining a cartridge receiving cavity;

a connector housing detachably secured to said holder housing to close one end of said cartridge receiving cavity;

a plurality of electrical terminals mounted in said connector housing, each said terminal having one end making interconnection to said circuit board and an opposite end extending into said cartridge receiving cavity;

face plate means mountable on said holder housing defining a profiled entry to the other end of said cartridge receiving cavity; and

a cartridge assembly receivable in said cartridge receiving cavity and formed by a pair of mating cover members defining a circuit cavity therebetween, a circuit assembly mounted in said circuit cavity and having electrical connector means directed outwardly of said circuit cavity, and an apertured cover plate enclosing said circuit cavity and defining a profile for said cartridge which allows it to be inserted into said cartridge receiving cavity of said holder housing.

4,379,607

SHUTTERED RECEPTACLE

Wade R. Bowden, Jr., Northport, N.Y., assignor to Slater Electric Inc., Glen Cove, N.Y.

Filed Oct. 6, 1980, Ser. No. 194,615

Int. Cl.³ H01R *13/44*

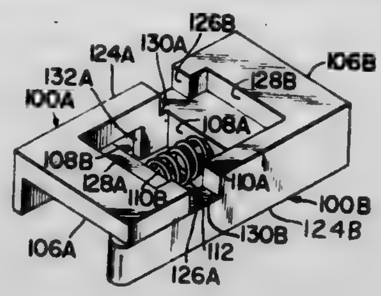
U.S. Cl. 339—40 **23 Claims**

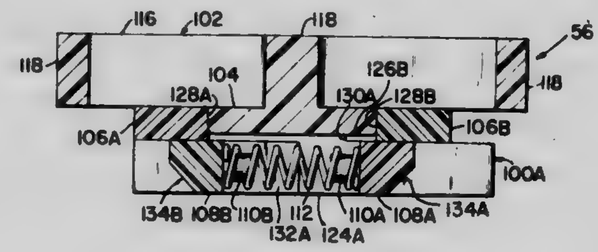
1. A shutter for selectively opening the slots of an electrical receptacle, said shutter comprising:

a frame and a pair of slides in contact therewith for sliding thereon;

each of said slides being formed of a longitudinal member having two transverse members coupled thereto, said transverse members being offset from each other in both longitudinal and transverse directions relative to said longitudinal member;

one of said slides being located about said frame in opposed relationship to the other of said slides wherein said longitudinal member of one of said slides is spaced apart from





the longitudinal member of the other of said slides; and wherein

a first of said transverse members of each of said slides serves as a barrier for closing the passageway of one of said slots, a second of said transverse members of each of said slides serves as a cam for deflecting said barrier when an implement is inserted through another of said slots.

4,379,608

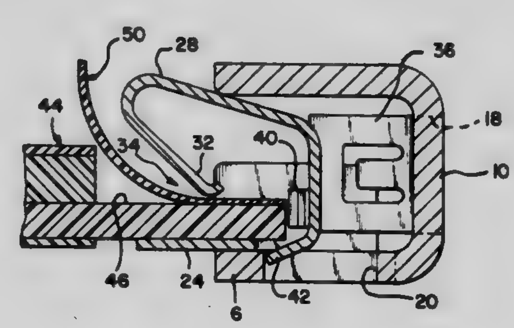
FLAT CABLE TO PLANAR CIRCUIT CONNECTOR

Billy E. Olsson, New Cumberland, and Lit-Yan Kam, Camp Hill, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 11, 1981, Ser. No. 242,748

Int. Cl.³ H01R *23/66*

U.S. Cl. 339—75 MP **4 Claims**



1. A flat cable to substrate connector, comprising:

a clamping bar having a sidewall and a row of resilient springs spaced from said sidewall to define a width of an open side of said bar,

a housing having an opening receiving said clamping bar with said open side initially projecting from said opening and having an initial width larger than the width of said opening and larger than the combined thicknesses of a flat cable and a circuit carrying substrate when inserted into said open side,

said springs being biased by said housing upon relative displacement of said springs into said housing opening to clamp against the combination of said cable and said substrate,

means for latching said clamping bar to said housing while said springs are biased by said housing,

said means comprising at least one resilient flange of said clamping bar having a tab projecting through a respective slot in said housing and impinged against an external surface of said housing.

4,379,609

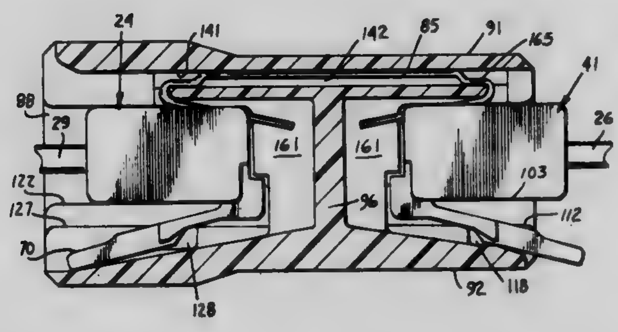
MODULAR CORD COUPLER JACK HAVING A DISCONNECTION ENCUMBRANCE

Edwin C. Hardesty, Perry Hall, Md., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Mar. 9, 1981, Ser. No. 241,951

Int. Cl.³ H01R *13/639*

U.S. Cl. 339—91 R **36 Claims**



1. A modular cord having connectorized ends, said cord comprising:

a length of cordage which comprises a plurality of individually insulated conductors which are enclosed in a jacket of plastic material;

a modular plug which terminates each end of said length of cordage, said plug comprising a body, a plurality of terminals mounted in said body and a resilient tab having one end connected to said body, a free end, and a pair of oppositely extending locking shoulders spaced from said free end, said tab in a normal orientation extending obliquely outwardly from said plug body; and

a coupler jack which is connected to one of said modular plugs which terminate said length of cordage, said coupler jack comprising:

a housing which includes two modular plug-receiving cavities each communicating with an associated external surface of said housing, a plurality of passageways that extend between and communicate with said cavities, and means formed within each of said cavities for cooperating with said oppositely extending shoulders of the tab of a plug that is received in each of said cavities for locking the plug within the housing when the plug tab is in said normal orientation, said one plug which terminates an end of said length of cordage being disposed in one of said cavities with at least said one of said cavities extending sufficiently inwardly from its associated external surface to cause the free end of the tab of a plug received in said one cavity to be within said one cavity and spaced from its associated external surface a distance which is sufficient to prevent facile unlocking and withdrawal of said one plug from said housing; and

a plurality of wire-like contact elements each having a linear portion which is positioned in one of said passageways and retroflexed end portions which are positioned in said cavities and which are adapted to be engaged by terminals of modular plugs that are inserted into said plug-receiving cavities.

4,379,610

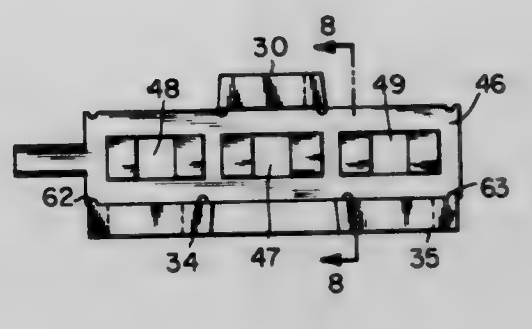
ELECTRICAL CONNECTOR WITH POLARITY BARRIER

James E. Upchurch, Indianapolis, Ind., assignor to Woods Wire Products, Inc., Carmel, Ind.

Filed Feb. 9, 1981, Ser. No. 232,882

Int. Cl.³ H01R *13/50, 13/64*

U.S. Cl. 339—184 R **2 Claims**



1. A female polarized electrical connector formed within a mold to receive a polarized electrical plug having a pair of blades, one of which is narrower than the other comprising:

a first and second female electrical contact, each with a wire extending therefrom, each contact including a top and bottom longitudinally extending edge with receiving means disposed therebetween and sized to receive a blade of said electrical plug;

housing means formed by said mold and enclosing said first and said second contact and including contact passage means leading externally from said receiving means;

a polarity barrier of electrically nonconductive material mounted on said first contact prior to insertion into said mold for formation of said housing means and positioned between said passage means and said receiving means of said first contact and defining at least one contact hole sized to allow passage of only the narrower of said blades of said plug, said barrier sized to fit with said first contact entirely within said mold;

first stop means on said barrier with said first stop means engaged with said top and bottom longitudinally extending edges of said first contact limiting relative lateral motion between said first contact and said barrier and wherein:

said barrier includes a top wall and a downwardly extending portion integrally connected together, said top wall has a downwardly facing surface which extends over and adjacent said top edge of said first contact with said one contact hole extending though said top wall toward said receiving means, said barrier further includes a bottom portion integrally attached to said downwardly extending portion, said bottom portion has an upwardly facing surface positioned adjacent said bottom edge of said first contact, said first stop means being located on said downwardly facing surface and said upwardly facing surface and holding said first contact adjacent said downwardly facing surface;

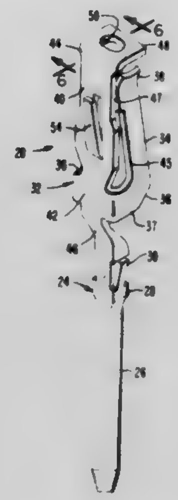
said first stop means includes at least one projection on said downwardly facing surface forming a first channel adjacent said downwardly extending portion receiving said top edge of said first contact;

said first stop means further includes at least one projection on said upwardly facing surface forming a second channel adjacent said downwardly extending portion and aligned with said first channel receiving said bottom edge of said first contact.

4,379,611
CONNECTOR WITH LOW FORCE SOCKET CONTACT HAVING AN INTEGRAL HOOD

Ronald E. Foege, Mission Viejo, and Leslie L. Kerek, Irvine, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Nov. 3, 1980, Ser. No. 203,180
Int. Cl.³ H01R *13/40, 13/12*
U.S. Cl. 339—217 S **15 Claims**



1. A socket contact for removable emplacement within a cavity in a connector body comprising:

means having an opening for receiving a pin contact and including at least one spring member normally positioned in the opening and movable out of the opening when contacted by the pin contact;

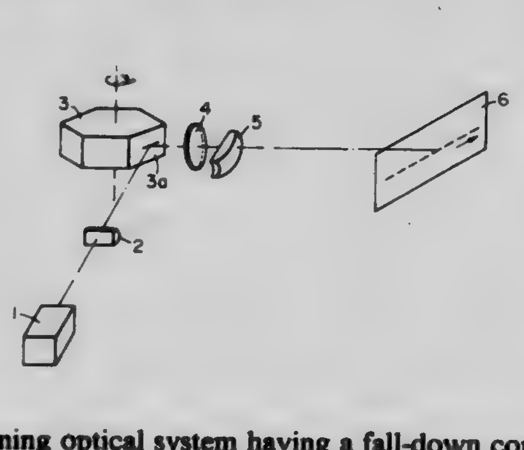
a resilient support movable generally perpendicularly to the movement of said spring member; and

a hood shielding said opening means and coupled to said resilient support, said hood having means defining a non-circular opening larger than the pin contact and having larger and smaller dimensions, with the larger dimension extending generally parallel to the direction of the spring member movement to permit easy entry of the pin contact into electrical contact with said spring member even if the pin contact has an axis which is not centrally aligned with either of the openings, said hood being movable by the pin contact in a direction generally parallel with the smaller dimension of said non-circular opening means through flexure of said resilient support.

4,379,612
SCANNING OPTICAL SYSTEM HAVING A FALL-DOWN CORRECTING FUNCTION

Kazuhiko Matsuoka, and Kazuo Minoura, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 28, 1980, Ser. No. 182,088
Claims priority, application Japan, Sep. 4, 1979, 54-113094
Int. Cl.³ G02B *27/17*
U.S. Cl. 350—6.8 **7 Claims**



1. A scanning optical system having a fall-down correcting function, comprising:

a light source portion;

a first imaging optical system for linearly imaging the light beam from said light source portion;

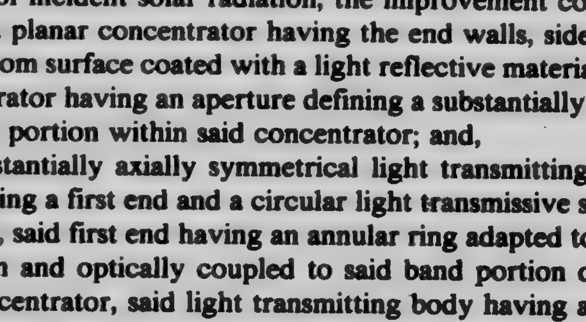
a deflector having its deflecting-reflecting surface near the linear image formed by said first imaging optical system; and

a second imaging optical system disposed between said deflector and a medium to be scanned, having means for making constant the moving velocity of a light beam spot on said medium, and comprising, in succession from the deflector side, a spherical single lens and a single lens having a toric surface, said toric surface having its curvature radius, in the deflecting surface formed by the light beam deflected by said deflector, greater than its curvature radius in the plane orthogonal to the deflecting surface, said single lens having a toric surface having a positive refractive power and comprising a surface having a negative refractive power on the deflector side and a surface having a positive refractive power on the medium side, in a cross-section containing the optical axis of said spherical single lens and perpendicular to the deflecting surface, said single lens having a toric surface further satisfying $(1/r_3)>(1/r_4)$, where r_3 is the curvature radius of the deflector side surface thereof in said deflecting surface and r_4 is the curvature radius of the scanned medium side surface thereof in said deflecting surface.

4,379,613
SOLAR ENERGY COLLECTOR

John F. Coburn, Cranford, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Feb. 23, 1981, Ser. No. 236,824
Int. Cl.³ G02B *5/172*
U.S. Cl. 350—96.10 **7 Claims**



1. A planar fluorescent concentrator having a surface for receipt of incident solar radiation, the improvement comprising: said planar concentrator having the end walls, side walls and bottom surface coated with a light reflective material, said concentrator having an aperture defining a substantially circular band portion within said concentrator; and,

a substantially axially symmetrical light transmitting body having a first end and a circular light transmissive second end, said first end having an annular ring adapted to mate with and optically coupled to said band portion of said concentrator, said light transmitting body having a coating on the exterior surfaces thereof other than said annular ring and said circular light transmissive second end whereby light incident on said planar concentrator is internally reflected and radially directed toward said circulr band, enters said light transmitting body and is directed to and exits from said second end of said light transmitting body.

4,379,614

SPLICE CONNECTION FOR A PAIR OF LIGHT WAVEGUIDE CABLES WITH OPTICAL FIBERS IN TUBULAR SHEATHS

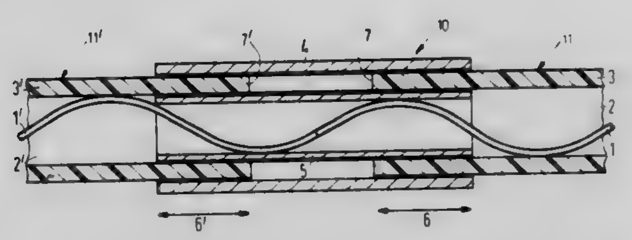
Heinrich Liertz, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Aug. 27, 1980, Ser. No. 181,946

Claims priority, application Fed. Rep. of Germany, Sep. 11, 1979, 2936716

Int. Cl.^{3} G02B *7/26*

U.S. Cl. 350—96.21 **2 Claims**



1. A connecting device for a pair of light waveguide cables each having an optical fiber being loosely enclosed and arranged in a helical formation in a tubular sheath with an end of the fiber extending out of the end of the sheath, the device comprising the ends of the two optical fibers being butt-spliced together, an inner tube surrounding the butt-splice of the two fibers and having its ends being telescopically inserted into the ends of the sheaths to bridge the interval therebetween, and an outer tube having a longitudinally extending slot and being telescopically received on the ends of the sheaths, said outer tube being reduced in diameter to grip the ends of the sheaths so that the ends of the sheaths are supported by the inner tube as they are gripped by the outer tube.

4,379,615

DEVICE FOR TRANSMITTING ENERGY THROUGH ELECTRIC WIRE OR OPTICAL CABLE WOUND ON DRUM

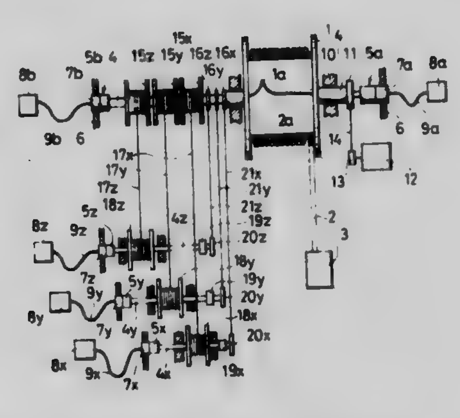
Yuichi Toda; Kohji Yano, and Katsuji Sakamoto, all of Yokohama, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Aug. 8, 1980, Ser. No. 176,609

Claims priority, application Japan, Aug. 20, 1979, 54-104929; Aug. 20, 1979, 54-104930

Int. Cl.^{3} G02B *5/14, 5/172;* **H04B** *9/00*

U.S. Cl. 350—96.23 **11 Claims**



1. A device for transmitting signals between a movable unit and a plurality of stationary units, comprising:
a multi-core cable, each core of said multi-core cable having a first end connected to said movable unit;
a rotor for winding said multi-core cable therearound;
at least one dummy bobbin;
means for coaxially mounting said at least one dummy bobbin with said rotor so as to be integrally rotatable therewith;
at least one dummy cable wound around said at least one dummy bobbin, a first end of said at least one dummy cable being connected to a second end of one of said multi-core cable cores, a second end of said at least one dummy cable being connected to one of said stationary terminal units; and
at least one dummy cable storing device arranged between said at least one dummy bobbin and said one of said stationary terminal units for storing said at least one dummy cable as said rotor is rotated.

4,379,616

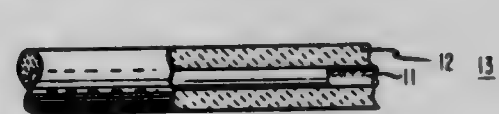
ALUMINUM METAPHOSPHATE OPTICAL FIBERS

James W. Fleming, Jr., Fanwood, and John W. Shiever, Cedar Grove, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 26,410, Apr. 2, 1979, Pat. No. 4,302,074. This application May 1, 1981, Ser. No. 259,431

Int. Cl.^{3} C03B *37/05;* **G02B** *5/172*

U.S. Cl. 350—96.34 **2 Claims**



1. An optical fiber comprising a core and a cladding, the said fiber comprising aluminum metaphosphate, and in which fiber the molar ratio of aluminum to phosphorus is given substantially by the formula $Al(PO_3)_3$, the N.A. is greater than 0.3 at 0.9 microns, and the material dispersion is less than 0.07 nanoseconds/nanometer-kilometer at 0.9 microns.

4,379,617

REAR PROJECTION SCREEN FOR A COLOR TELEVISION PROJECTOR

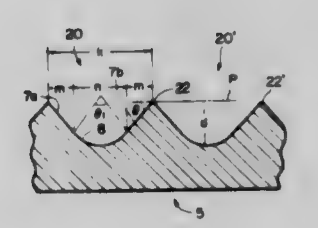
Yasutomo Funakoshi, Sakai, and Tamotsu Wakahata, Katano, both of Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed Apr. 7, 1981, Ser. No. 251,903

Claims priority, application Japan, Apr. 8, 1980, 55-46392; Apr. 8, 1980, 55-46393

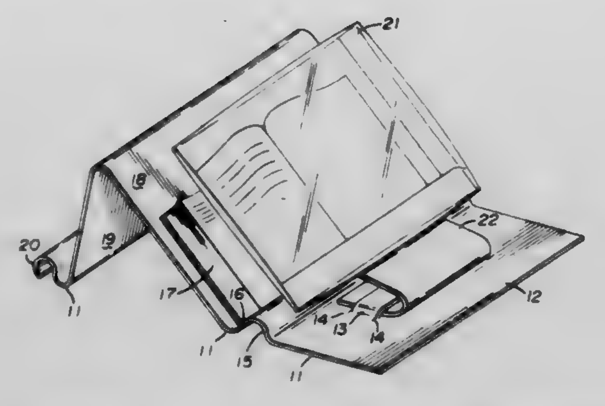
Int. Cl.^{3} G03B *21/60*

U.S. Cl. 350—126 **14 Claims**



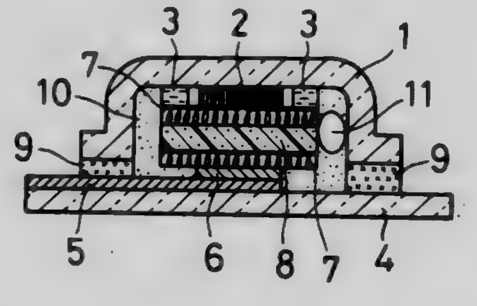
1. A rear projection screen for a color television projector, comprising:
(a) a body in the form of a sheet made of a transparent synthetic resin; and
(b) a plurality of lenticular lenses integrally formed with said body, said plurality of lenticular lenses being arranged in parallel on one surface of said sheet, each of said plurality of lenticular lenses having a cross-section the contour of which is formed of a pair of linear portions and an arcuate portion interposed between the pair of linear portions, each of said linear portions having an inclination angle with respect to said sheet that is less than a total internal reflection angle defined by the material of said lenticular lenses.

4,379,618
MAGNIFIER VIEWER AND STAND
Marion A. Tall, 10419 NW. 32nd Pl., Apt. 236, Bellevue, Wash. 98004
Filed Mar. 16, 1981, Ser. No. 243,838
Int. Cl.^{3} G02B *27/02, 7/02*
U.S. Cl. 350—239 4 Claims



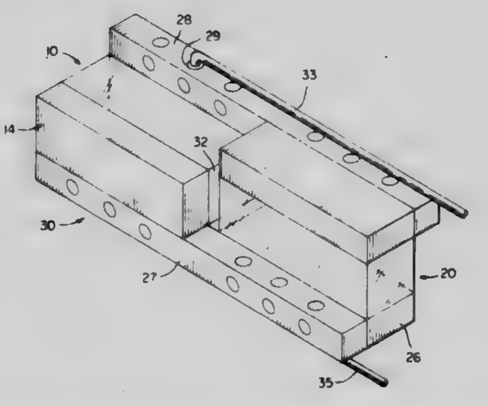
1. A magnifier viewer and stand having a one-piece base consisting of a rectangular sheet of synthetic resin formed in a continuous shape defining a flat horizontally disposed front portion, an upwardly extending compound curved portion adjacent said front portion and extending transversely of said base, the longitudinal edges of said curved portion being disposed on the plane of said flat front portion, an upwardly angled inclined portion adjacent said curved portion on the opposite edge thereof with respect to said front portion, said inclined portion arranged to support an opened book to be viewed with said book engaging said curved portion, a downwardly angled portion adjacent said inclined portion having a transversely extending lower section on said plane of said front portion, a secondary curved portion adjacent said lower section of said downwardly angled portion and extending transversely of said base, said secondary curved portion forming the terminal back edge of said one-piece base, transversely extending spaced slits in said flat front portion defining a band like section therebetween raised with respect to said plane of said front portion and a rectangular molded magnifier lens of a size comparable with said inclined portion of said base, a support arm for said lens, said support arm being curved between its ends to define a flat extension on one end slidably disposed beneath said band-like section of said front portion and an angled extension on its other end engaging said lens arranged to position said lens on the same angle as said upwardly angled inclined portion of said base.

4,379,619
ELECTRO-CHROMIC DISPLAYS
Hiroshi Kuwagaki, Kyoto; Kohzo Yano, and Sadatoshi Takechi, both of Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Dec. 19, 1980, Ser. No. 218,419
Claims priority, application Japan, Dec. 26, 1979, 54-170974
Int. Cl.^{3} G02F *1/17*
U.S. Cl. 350—357 3 Claims



1. In an electro-chromic display wherein the outer frame of the display, comprising a pair of oppositely disposed substrates, confines an electrolyte, the improvement comprising joining the peripheral edges of said oppositely disposed substrates with an addition reaction type silicone resin adhesive containing an inorganic substance in the form of a fine powder, said inorganic substance preventing the electrolyte from leaking out of the display in gaseous form through the adhesive.

4,379,620
LIGHT MODULATOR EMPLOYING ELECTROOPTIC CRYSTALS
Kent E. Erickson, Brookside, N.J., assignor to Keuffel & Esser Company, Morristown, N.J.
Filed Mar. 20, 1980, Ser. No. 132,025
Int. Cl.^{3} G02F *1/03*
U.S. Cl. 350—387 8 Claims



1. An electrooptic modulator comprising an assembly comprising:

(a) a pair of electrooptic crystal subassemblies, each of which comprises:
 (i) an elongate, rectilinear, transparent crystal element consisting essentially of a compound exhibiting electrooptic birefringence, said crystal element having a transverse directional optic axis disposed perpendicular to two parallel opposing longitudinal faces of said crystal element and,
 (ii) a pair of rigid, elongate, electrically-conductive electrodes, each of which is affixed to and contiguous with a respective one of said opposing faces, thereby establishing, with respect to said directional optic axis, a front and a back electrode for said subassembly;
(b) said subassembly pair being arranged end-to-end with the longitudinal axes of said crystal elements in line and the respective optic axes of said crystal elements disposed orthogonal to one another and to the longitudinal axis of said end-to-end arrangement; and
(c) a pair of rigid, electrically-conductive pole pieces respectively affixed to and bridging the front electrode of the first and the back electrode of the second of said subassembly pair, and the front electrode of the second and the back electrode of the first of said subassembly pair.

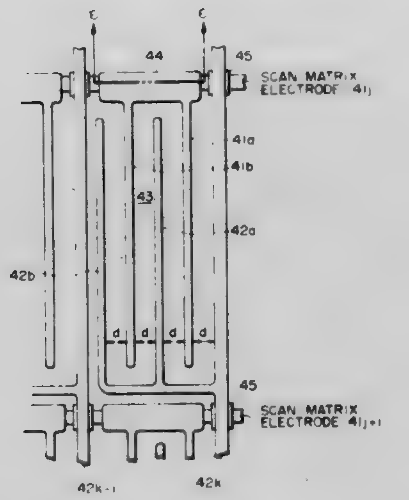
4,379,621
IMAGE DISPLAY DEVICE UTILIZING BIREFRINGENCE PROPERTIES OF FERROELECTRIC CERAMIC MATERIAL
Masaru Ikedo, Neyagawa; Masafumi Watari, Moriguchi; Yoshitake Yasuno, Kyoto, and Tadaoki Yamashita, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan
Filed Oct. 31, 1980, Ser. No. 202,658
Claims priority, application Japan, Nov. 1, 1979, 54-142642; Nov. 15, 1979, 54-148417
Int. Cl.^{3} G02F *1/03*
U.S. Cl. 350—392 14 Claims

1. An image display device comprising:

first and second polarizers having their planes of polarization oriented at right angles to each other;

a transparent electrooptic plate of ferroelectric material between said first and second polarizers; and

a matrix electrode arrangement secured to one surface of said electrooptic plate including a plurality of parallel rows of electrodes and a plurality of parallel columns of electrodes to define a plurality of elemental areas on said electrooptic plate, said matrix arrangement further including in each of said elemental areas first parallel finger



electrodes connected in circuit with a said row electrode and second parallel finger electrodes connected to a said column electrode, and a unidirectionally conductive means connected between said first finger electrodes and the said row electrode for reducing cross coupling between plural elemental areas defined by the said row electrode, said first and second finger electrodes being interleaved with each other and oriented at 45 degrees to the planes of orientation of said first and second polarizers.

4,379,622

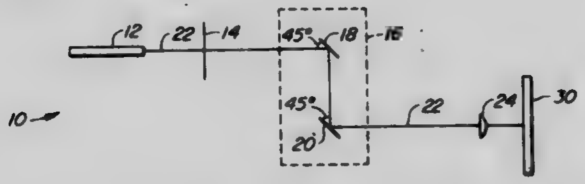
BROAD BAND PHASE SHIFT SYSTEM

Dennis G. Fischer, Mountain View, and Arnold L. Bloom, Menlo Park, both of Calif., assignors to Coherent, Inc., Palo Alto, Calif.

Filed Oct. 2, 1980, Ser. No. 193,240

Int. Cl.³ G02B *5/30, 27/28*

U.S. Cl. 350—394 **2 Claims**



1. A broad band phase shift system having phase retardation of substantially ninety degrees comprising:

two substantially identical reflecting means, each having an angle of phase retardation of substantially forty-five degrees;

each reflecting means comprising:

a substrate of a material having high reflectivity;

a plurality of first dielectric material having low refractive index;

a plurality of second dielectric material having high refractive index; and

said first and second dielectric materials on said substrate in alternate layers.

4,379,623

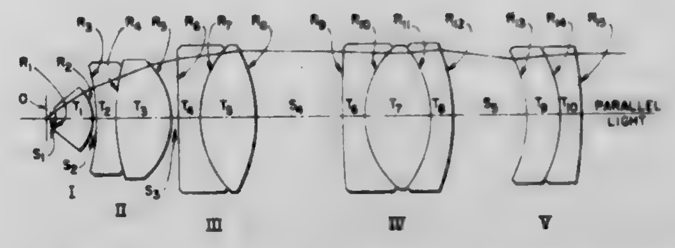
40X MICROSCOPE OBJECTIVE

Edward B. Rybicki, Depew, N.Y., assignor to Warner Lambert Technologies, Inc., Southbridge, Mass.

Filed Apr. 28, 1980, Ser. No. 144,478

Int. Cl.³ G02B *9/60, 21/02*

U.S. Cl. 350—414 **3 Claims**



1. A semi-apochromatic microscope objective having a numerical aperture of 0.80 which comprises, aligned in sequence along an optical axis, a concavo-convex positive singlet I, a concavo-convex positive doublet II, a plano-convex positive doublet III, a biconvex positive triplet IV and a concavo-convex negative doublet V, said biconvex positive triplet IV comprising a convex-concavo first element, a biconvex second element, and a concavo-convex third element.

4,379,624

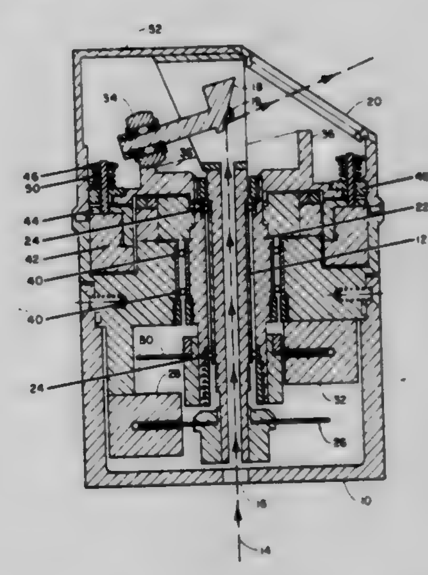
LASER BEAM STEERING DEVICE

Samuel A. Miller, and Larry L. Jeffris, both of Ridgecrest, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 13, 1981, Ser. No. 253,417

Int. Cl.³ G02B *27/17*

U.S. Cl. 350—486 **5 Claims**



1. A laser beam steering mechanism for azimuth and elevation direction control of an incident laser beam comprising:

an inner shaft with an aperture the length of its axis, said axis aligned with said incident laser beam to permit direct passage of said incident laser beam;

an outer shaft concentrically mounted around said inner shaft for providing a dual rotational axis around said incident laser beam;

a pivoted mirror rigidly attached to said inner shaft for deflecting said incident laser beam after it has passed through said inner shaft aperture, said mirror reflecting said beam in a given azimuthal direction determined by the rotation of said inner shaft;

means for determining the orientation of said inner shaft;

means for monitoring the orientation of said outer shaft;

a cam attached to said outer shaft for changing the elevation of said mirror;

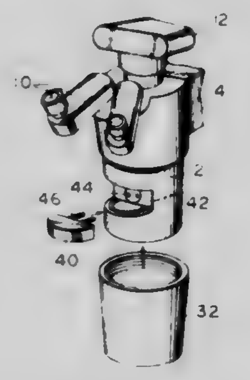
a cam follower connected to said mirror and set to the azimuthal position of said inner shaft for following said cam;

a torque motor set against said outer shaft for rotating said inner shaft;

a clutch assembly mounted to said outer shaft for coupling said inner shaft to the motion of said outer shaft at selected times, said inner and outer shaft either can be turned together or only said outer shaft turns; and

a dome with at least one window mounted to said inner shaft for transmitting said reflected laser beam despite rotation of said inner shaft.

4,379,625
OPERATION MICROSCOPE
Yoshihisa Uchiumi, and Akira Tanabe, both of Tokyo, Japan, assignors to Tokyo Kogaku Kikai Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 27, 1981, Ser. No. 248,032
Claims priority, application Japan, Apr. 3, 1980, 55-44012[U]; Oct. 31, 1980, 55-154786[U]
Int. Cl.³ G02B *21/06*
U.S. Cl. 350—528 **4 Claims**



1. An operation microscope comprising a body, an objective lens, a pair of magnification power changing lens systems located behind said objective lens and in parallel with an optical axis of said objective lens, a light dividing means for dividing light passed through at least one of the pair of magnification power changing lens systems and for introducing said light into a pair of eye lenses and a camera, a first illumination system for illuminating operated parts of a patient's body for observation, and a second illumination system for illuminating operated parts of the patient's body for photographing, said second illumination system including a lamp house and a socket, said socket being positioned in a recess formed in said microscope body at a side of said pair of magnification power changing lens systems, said lamp house having a plug and being adapted to be fitted to said recess after removing said objective lens from said microscope body so as to insert said plug into said socket, and said lamp house including a light source.

4,379,626
FACILITY FOR CONDUCTING OPHTHALMOLOGICAL EXAMINATIONS
Paul F. Bailey, Jr., 4885 NW. Barnes Rd., Portland, Oreg. 97210
Filed Oct. 14, 1980, Ser. No. 196,261
Int. Cl.³ A61B *3/00*
U.S. Cl. 351—200 **6 Claims**

1. A facility for conducting ophthalmologist tests on a plurality of patients comprising:

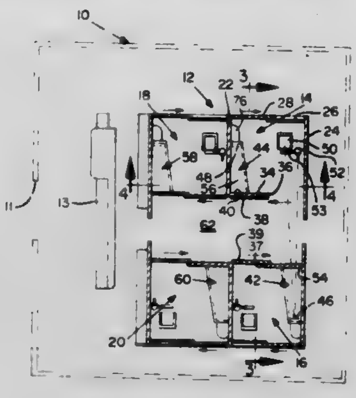
a first examining station defined by a room having an opening provided in one wall thereof;

a second examining station defined by a room also provided with an opening in one wall thereof opposed laterally to said first examining station;

first display means disposed inside said second examining station for displaying test indicia to be visually perceived by a patient situated in said first examining station;

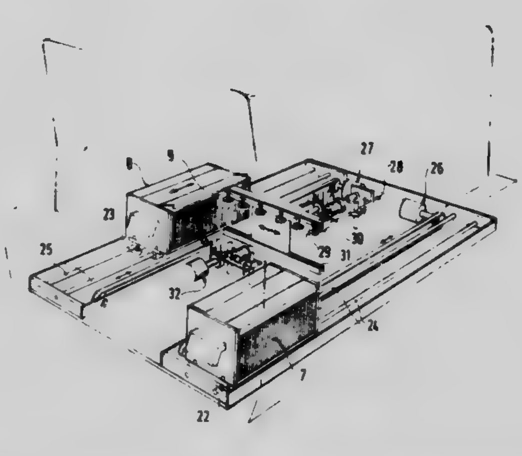
second display means disposed inside said first examining station for displaying test indicia to be visually perceived by a second patient situated in said second examining station;

first isolating means for isolating said first display means from said second examining station including a window presented toward and substantially aligned with the opening of said first examining station; and



second isolating means for isolating said second display means from said first examining station including a window presented toward and substantially aligned with the opening of said second examining station.

4,379,627
TRAY FOR STORING AND CLASSIFYING SLIDES AND A VIEWER FOR SLIDES DISPOSED IN SUCH TRAYS
Albert Naël, Sainte Genevieve des Bois, France, assignor to Compagnie Generale d'Automatisme CGA Alcatel, Paris, France
Filed Aug. 19, 1981, Ser. No. 294,275
Claims priority, application France, Sep. 9, 1980, 80 19406
Int. Cl.³ G03B *23/08*
U.S. Cl. 353—27 A **6 Claims**



1. A tray for storing and classifying slides, said tray comprising:

parallel, plane, top and bottom members held in fixed relationship to each other,

said parallel, plane, top and bottom members being provided with corresponding facing sets of transverse, slide-receiving grooves,

said tray being symmetrical about a longitudinal plane passing through the mid points of both sets of grooves and having open left and right sides via which slides may be inserted in or removed from the tray, and

two, symmetrically disposed, independently movable side flaps pivotably mounted on at least one of said top and bottom members,

each side flap having a first, open position in which it allows slides to be inserted or removed via its side of the tray, and a second, closed position in which it prevents insertion or removal of slides.

4,379,628

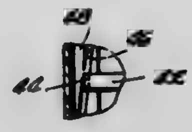
FOLDING TRANSPARENCY (MICROFICHE) VIEWER

John N. Graef, West Bend, Wis., assignor to Realist, Inc., Menomonee Falls, Wis.

Filed Aug. 10, 1981, Ser. No. 291,247

Int. Cl.³ G03B *21/30*

U.S. Cl. 353—73 **10 Claims**



1. A folding viewer for transparencies comprising
a housing containing means providing a light source and a folded light path including a condenser lens and a projection lens,
means for positioning a transparency between the lenses,
a second housing pivotally connected to the first housing for movement between a folded position in which the second housing fits over the first housing in telescopic fashion and a viewing position in which it lies under the first housing,
a screen depending into the second housing when the second housing is in said viewing position, said screen being positioned to have an image of the transparency projected thereon,
a mirror fixed in the second housing,
a viewing aperture in the second housing permitting the user to see the image on the screen as reflected by the mirror.

4,379,629

APPARATUS FOR CONTROLLING FILM ADVANCEMENT IN A CAMERA

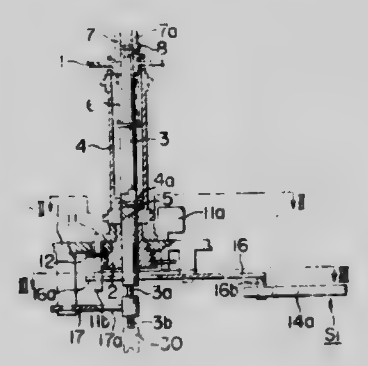
Koichi Daitoku, Tokyo, Japan, assignor to Nippon Kogaku K.K., Japan

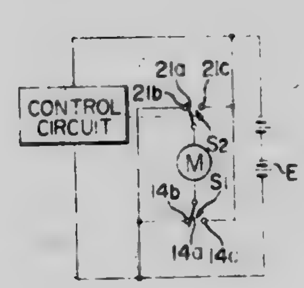
Filed May 13, 1981, Ser. No. 263,173

Claims priority, application Japan, May 21, 1980, 55-66381

Int. Cl.³ G03B *1/18*

U.S. Cl. 354—173 **8 Claims**





1. An apparatus for controlling film advancement in a camera of the type that has driving means, including an electrical motor, for driving a take-up spool to wind film thereon from a supply spool for film take-up and for alternatively driving the supply spool to rewind film, and which has change-over switch means having a first state for supplying current in one direction to the electrical motor to drive the motor in a forward direction for film take-up and having a second state for supplying current in the opposite direction to the electrical motor to drive the motor in a reverse direction for film rewind, the apparatus comprising:
a displacement member for controlling the state of the change-over switch means, the displacement member having a first position at which it disposes the change-over switch means in the first state and having a second position at which the change-over switch means is in the second state;
means for controlling the position of the displacement member, the controlling means including first and second members, each having first and second operating positions, and first and second biasing means for respectively biasing the first and second members to the first operating position, the first and second members being operable to hold the displacement member in its first position upon at least one of the first and second members being in the first operating position and being operable to permit movement of the displacement member to its secomd position only upon both the first and second members being in the second operating position, the first member being disposed in the second operating position when film is wound upon the take-up spool, and the second member being disposed in the second operating position in response to the initiation of film rewind; and
means operable upon initiation of film rewind for releasably holding the second member in the second operating position until initiation of subsequent film take-up.

4,379,630

TRANSFER ROLLER FOR ELECTROPHOTOGRAPHIC APPARATUS

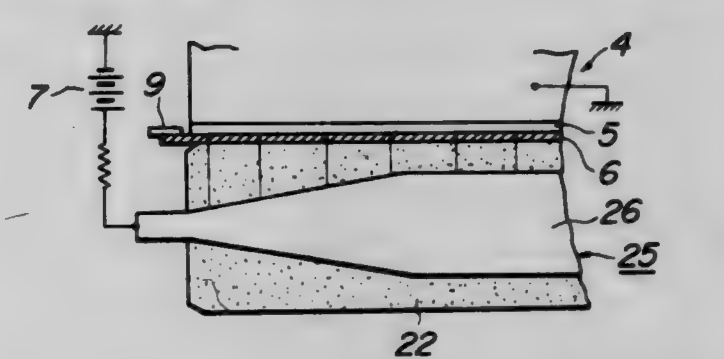
Yoshiro Suzuki, Hachioji, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Filed Mar. 27, 1981, Ser. No. 248,279

Claims priority, application Japan, Apr. 1, 1980, 55-41158; Aug. 29, 1980, 55-122935[U]

Int. Cl.³ G03G *15/16*

U.S. Cl. 355—3 TR **16 Claims**



1. In a transfer roller for electrophotographic apparatus for transferring a toner image formed on a latent image electric charge holding body to a record sheet by making the record sheet closely contact with the latent image electric charge holding body, the improvement comprising:
an electrically conductive roller shaft connected to a transfer bias electric source and operative to apply a given transfer bias voltage between the roller shaft and the latent image electric charge holding body; and
an electrically conductive resilient member coated around the outer periphery of the electrically conductive roller shaft, said resilient member having a constant outer diameter and having a resistance value which is increased toward the respective end faces at two end portions of the electrically conductive resilient member.

4,379,631

APPARATUS HAVING A COPIER FUNCTION AND A PRINTER FUNCTION

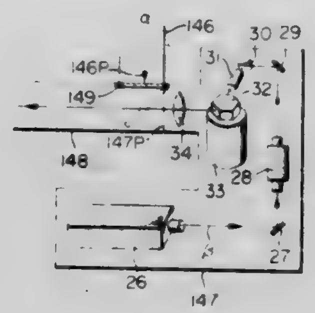
Takashi Kitamura, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 3, 1980, Ser. No. 156,218

Claims priority, application Japan, Jun. 8, 1979, 54-72611; Jun. 11, 1979, 54-73635; Jul. 13, 1979, 54-89112; Dec. 26, 1979, 54-169565; Dec. 28, 1979, 54-171332

Int. Cl.³ G03G *15/00;* **G03B** *19/00*

U.S. Cl. 355—14 R **5 Claims**



1. An apparatus for recording on a recording medium with a beam carrying information, said apparatus comprising:
an original table having a transparent plate providing a surface on which an original may be placed;
means defining a first optical path extending between said original table and the recording medium;
means for producing a high energy beam carrying information;
means defining a second optical path extending between said beam producing means and the recording medium; and
means; provided across said first optical path, for blocking the high energy beam produced by said producing means from being projected to said original table.

4,379,632

METHOD AND APPARATUS FOR PREVIEWING EXPOSED PHOTOGRAPHIC FILMS OR THE LIKE

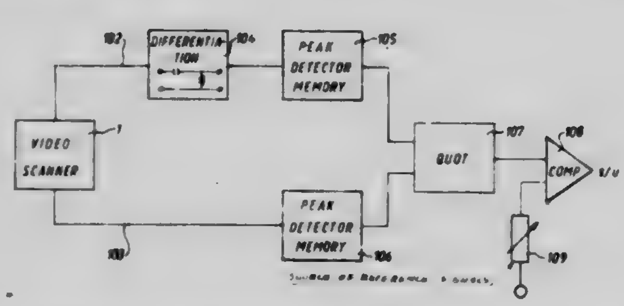
Hubert Dedden, Langenfeld, and Jürgen Pfingst, Leverkusen, both of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 102,152, Dec. 10, 1979, abandoned, which is a continuation of Ser. No. 854,906, Nov. 25, 1977, abandoned. This application Nov. 12, 1981, Ser. No. 320,473

Claims priority, application Fed. Rep. of Germany, Dec. 3, 1976, 2654943

Int. Cl.³ G03B *27/80*

U.S. Cl. 355—68 **37 Claims**



21. Apparatus for examining a series of successive originals of varying sharpness, such as exposed and developed film frames, to allow for detection of those originals which are unfit for the making of reproductions, comprising means for moving successive originals of a series of originals to a predetermined position; means for photoelectrically scanning at least a selected portion of the original in said position, including means for generating signals which are indicative of the characteristics of such selected portion of the original in said position; means for utilizing said signals to ascertain the density range of the selected portion of the original in said position; means for processing said signals to determine the density gradient of at least one scanned region of the selected portion of the original in said position; means for forming a quotient of the determined density gradient and the density range of the respective selected portion; a source of reference signals denoting a predetermined threshold value; and means for comparing said quotient with said threshold value, an original being considered fit for the making of reproductions when said quotient exceeds said threshold value.

4,379,633

APPARATUS FOR MAINTAINING ADJUSTMENT OF COINCIDENCE AND RELATIVE PHASE RELATIONSHIP OF LIGHT BEAMS IN AN INTERFEROMETER

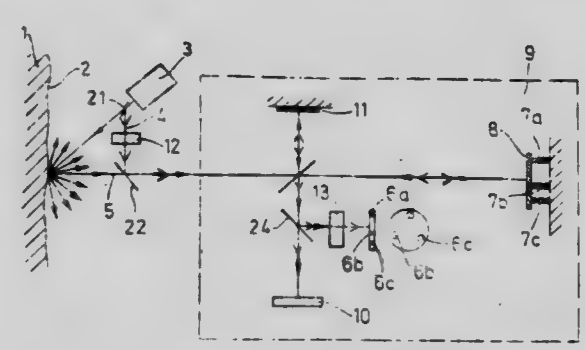
Wolf Bickel, Bergisch Gladbach; Walter Kaule, Cologne, and Erik Primbsch, Ahrensburg, all of Fed. Rep. of Germany, assignors to Krautkramer-Branson, Inc., Stratford, Conn.

Filed Jul. 10, 1981, Ser. No. 282,036

Claims priority, application Fed. Rep. of Germany, Aug. 6, 1980, 30 29 716

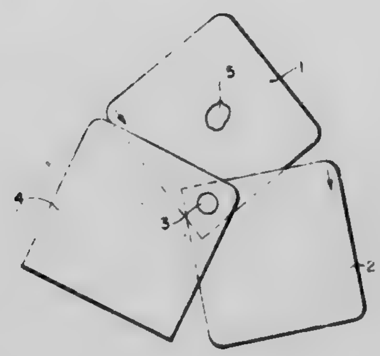
Int. Cl.³ G01N *29/04;* **G01B** *9/02*

U.S. Cl. 356—359 **21 Claims**



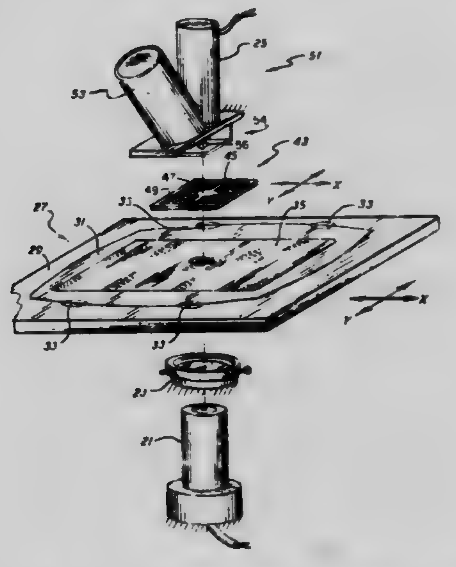
1. The method for automatically maintaining an adjustment of the coincidence and of the relative phase relationship of beams of light in the field of view of an interferometer in which beams of laser light are so delayed in time relative to one another over the different optical paths as to satisfy the interference condition required for producing an amplitude modulated signal from a measuring beam which has been frequency modulated by ultrasonic deformations manifest on a workpiece surface comprising:
illuminating the workpiece surface on which ultrasonic wave deformations are manifest with a beam of laser light and passing the light reflected at said workpiece surface as a measuring beam, frequency modulated by said deformations, to an optical interferometer;
separating a portion of said laser light from said laser beam before it is incident on the workpiece surface and passing said non-incident portion as a control beam to said interferometer;
causing said measuring beam and said control beam to traverse said interferometer through substantially the same optical paths;
sensing by means of first photoelectric means said measuring beam after it has traversed said interferometer and providing a corresponding amplitude modulated electrical signal;
disposing in the field of view plane of the control beam second photoelectric means which responsive to the control beam illumination thereupon provide an electrical control signal adapted to indicate a change of the alignment of the optical paths of the interferometer from a set condition, and
applying said control signal from said second photoelectric means to electromechanical positioning means supporting an optical component of the interferometer to cause a positioning adjustment of said optical component for restoring said set condition responsive to said control signal being indicative of such change.

4,379,634
METHOD AND DEVICE FOR DETECTING BIREFRINGENT SUBSTANCES IN LIQUIDS
Moshe Rosenthal, Bündnerstrasse 18, Basel, Switzerland (4055)
Filed Sep. 20, 1977, Ser. No. 835,015
Claims priority, application Switzerland, Sep. 28, 1976, 12282/76
Int. Cl.^{3} G02B *27/28;* **G01N** *1/10, 21/23*
U.S. Cl. 356—365 **4 Claims**



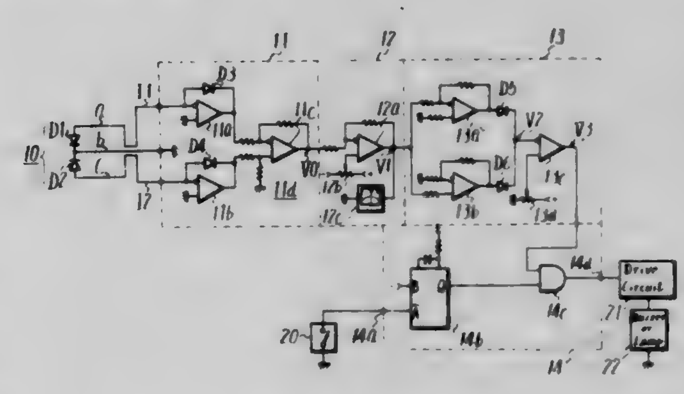
1. Method for determination of birefringent solid particles or crystals in liquids, said method comprising placing a small amount of the liquid to be analysed between two polarizing sheets, moving said two sheets relative to each other to a relative position where they directly overlie each other with crossed directions of polarization, pressing said two sheets against each other, and observing in transmitted light the presence or absence of light traces contrasting against the dark background of the crossed polarizers, the presence of which traces indicating the presence of birefringent solid particles or crystals in said liquid.

4,379,635
AUTOMATIC APERTURE SIZE MEASUREMENT APPARATUS AND PROCESS
James R. McColl, Concord, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.
Filed Apr. 7, 1981, Ser. No. 251,833
Int. Cl.^{3} G01B *11/02*
U.S. Cl. 356—387 **13 Claims**



1. In apparatus for automatically measuring aperture size of a slotted apertured material having a plurality of slots each with a longitudinal axis, a comparator mask means overlaying the slotted apertured material, a light source and light detector positioned on opposite sides of said comparator mask means and slotted apertured material and providing a light beam for passage therethrough and a computer means coupled to the slotted apertured material and comparator mask means and responsive to a signal from said light detector representing light transmission of the slots, the improvement comprising a light-beam size control means including a rhombic-shaped aperture having a diagonal axis substantially normal to said longitudinal axis of said slots whereby substantially uniform movement of said slotted apertured material and comparator mask means and said light beam size control means with respect to one another along said diagonal axis provides a relatively uniform rate of change of light passing through said slots.

4,379,636
INSPECTION DEVICE
Hajime Yoshida, Tokyo, Japan, assignor to Hajime Industries Ltd., Tokyo, Japan
Filed Sep. 25, 1980, Ser. No. 190,712
Claims priority, application Japan, Oct. 18, 1979, 54-134502
Int. Cl.^{3} G01J *3/50*
U.S. Cl. 356—407 **7 Claims**



1. An inspection device comprising:
(a) a color sensor means having photoelectric conversion elements, each being responsive to respective different wave lengths of light from an object to be inspected and producing an electrical signal;
(b) a light wave length detecting means for receiving the electrical signal from said color sensor means and for producing an output voltage which is varied to negative and positive sides in response to wave length component ratio of light incident from said object on said color sensor means;
(c) a zero balance setting means which processes the output voltage from said light wave length detecting means and then takes a zero balance when a standard object is picked by said color sensor means;
(d) a tolerance range setting means which receives an output of said zero balance setting means and produces an abnormal signal when the last mentioned output exceeds a predetermined tolerance range;
(e) a location detection means which produces an electrical signal to notify when said object arrives at a predetermined location; and
(f) a detection location timing means which receives the electrical signal from said location detection means, produces a pulse signal with a short time width and passes the output of said tolerance range setting means only when the output pulse signal appears.

4,379,637
RADIATION MEASURING APPARATUS
Carl J. Schmid, Port Washington, N.Y., assignor to Peerless Electronics Research Corp., Commack, N.Y.
Continuation-in-part of Ser. No. 15,943, Feb. 28, 1979, Pat. No. 4,273,449. This application May 11, 1981, Ser. No. 262,174
Int. Cl.^{3} G01N *21/85;* **G02B** *27/14*
U.S. Cl. 356—411 **18 Claims**

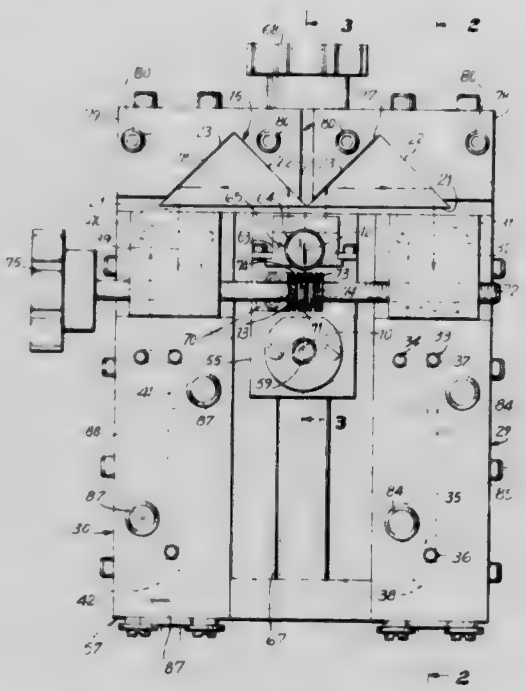
1. Apparatus for measuring a characteristic of a sample, the apparatus comprising, in combination:
a source of radiation;
means for receiving radiation from said source and directing the same along an optical axis;
housing means supporting the radiation directing means for

movement in a direction at least substantially transverse to said optical axis;

radiation dividing means disposed in a stationary position along said optical axis for separating radiation from said radiation directing means into separate beams;

an optical system located in spaced relationship with said optical axis for receiving one of said beams;

a sample holder in position to receive said one beam from said optical system;



a detector for receiving said one beam from the sample holder and for detecting the intensity of the received beam; and

means for moving the housing means in said substantially transverse direction to move said radiation directing means toward and away from said optical system and thereby change the intensity of said one beam.

4,379,638

DEVICE FOR PUTTING INTO CONTACT SUBSTANCES EXISTING IN AT LEAST TWO DIFFERENT PHASES

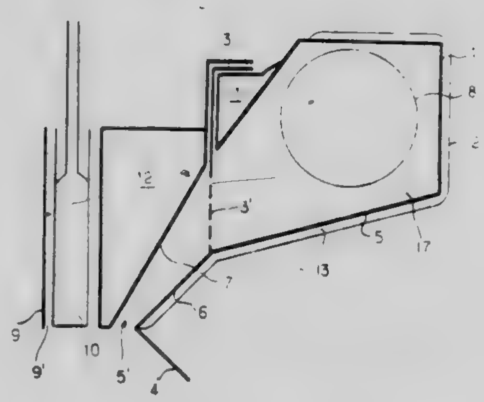
Francois J. Prudhon, Versailles, and Augustin L. Scicluna, Aubervilliers, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Continuation of Ser. No. 19,362, Mar. 12, 1979, abandoned. This application Apr. 9, 1981, Ser. No. 252,358

Claims priority, application France, Mar. 14, 1978, 78 07248

Int. Cl.³ B01F *5/00, 15/06, 15/02*

U.S. Cl. 366—149 **5 Claims**



1. A device for putting into contact substances existing in different phases, at least one of which is a fluid or gaseous phase comprising a housing of circular cross section, an inlet adjacent the outer periphery of the housing for introduction of the fluid or gaseous phase tangentially into the housing for helicoidal flow therein, an axial outlet opening at the center of the housing, said housing having a converging section extending inwardly to said outlet opening, a divergent section extending from the outlet opening to define a bicone between said converging and diverging sections which define a restricted axial passage at the outlet, at least one axial pipe, the outlet of which is at the level of the restricted passage through which at least one of the other phases is introduced for issuance at the restricted passage to be engaged by the helicoidal flow at about the restricted passage, and a cylindrical dividing member which extends axially through the housing intermediate the inlet and outlet, having passages therein for enabling the helicoidal flow of the one phase for enabling passage of the helicoidal flow of the one phase therethrough from the inlet to the outlet.

4,379,639

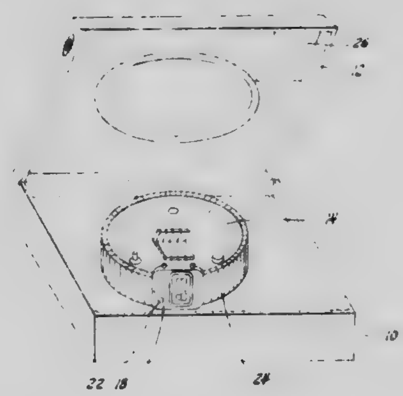
ALARM WATCH WITH REMOTE SONIC AMPLIFIER

Eugene Stephens, 19311 Montrose, Detroit, Mich. 48235

Filed Oct. 14, 1980, Ser. No. 196,542

Int. Cl.³ G04B *47/00*

U.S. Cl. 368—12 **7 Claims**



1. An alarm device comprising:

a watch having means for producing an audio signal at a selected time;

audio amplifier means physically separated from said watch, and sensing means for energizing said audio amplifier means in response to an audio alarm produced by said watch; and

the audio amplifier means including a silicone element, and a microphone for amplifying the alarm, said microphone being partially embedded in the silicone element.

4,379,640

TIMEPIECES HAVING A DEVICE OF REQUESTING AND RECITING TIME SETTINGS IN THE FORM OF AUDIBLE SOUNDS

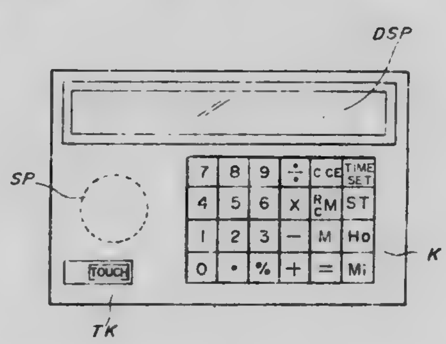
Tomohiro Inoue, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 96,319, Nov. 21, 1979, abandoned. This application Sep. 14, 1981, Ser. No. 302,130

Claims priority, application Japan, Nov. 22, 1978, 53-144401

Int. Cl.³ G04B *21/08;* **G10L** *1/00*

U.S. Cl. 368—63 **3 Claims**



1. A timepiece including a voice synthesizer system for automatically instructing an operator by audibly presenting time setting instructions comprising:

time indicating means for informing the operator of the actual time of day;
first storage means for holding synthetic speech data in a plurality of locations;
second storage means for holding position data representative of the locations of said synthetic speech data, said position data being stored in a plurality of locations, each representative of a portion of a said instruction;
first selection means for selecting locations in said second storage means, thereby selecting instructions to be audibly reproduced;
said instructions audibly instructing the operator of the correct procedures for programming the actual time of day;
second selection means for recalling synthetic speech data from said first storage means in correspondence to the position data produced by said second storage means; and
synthetic speech generator means for producing audible instructions derived from said synthetic speech data to instruct a timepiece user of the correct time setting procedures.

4,379,641

MULTI-ALARM ELECTRONIC WATCH

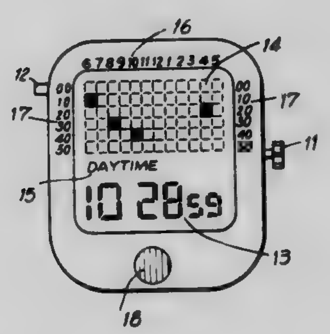
Shuji Maezawa, and Masami Murata, both of Suwa, Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Jun. 18, 1980, Ser. No. 160,767

Claims priority, application Japan, Jun. 18, 1979, 54-77189

Int. Cl.^{3} G04B *23/02*

U.S. Cl. 368—74 **21 Claims**



1. In a multi-alarm electronic watch having an oscillator generating a high frequency time standard signal, a divider circuit dividing down said high frequency standard signal, timekeeping means accumulating said divided signals in a plurality of time units, liquid crystal display means for display of said accumulated timekeeping signals, the improvement therein comprising:
an alarm circuit, said alarm circuit capable of being simultaneously and selectively set for a plurality of alarm times;
means for actuating said alarm circuit at each time corresponding to a set alarm time;
liquid crystal display means for simultaneous display of said plurality of set alarm times, signals from said alarm circuit causing said simultaneous display, said display means for simultaneous display providing a visible time schedule of said plurality of set times in the form of a grid matrix,
said time schedule display means including a first group of electrodes, said first group of electrodes being divided into rows, and a second group of electrodes, said second group of electrodes being divided into columns, said rows and columns being transverse one to the other, the overlapped portions of said transverse electrodes forming picture elements in said grid matrix,
said columns representing hours and said transverse rows representing portions of an hour in minutes, each selectable alarm time having a unique fixed location on said grid matrix, selected alarm times being indicated by an ON condition of said display at said respective fixed locations, non-selected alarm times being in an OFF condition at said respective fixed locations.

4,379,642

APPARATUS FOR THE SELECTION OR CORRECTION OF DATA IN AN ELECTRONIC WATCH

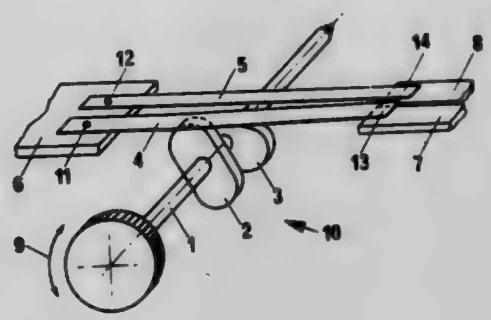
Clement Meyrat, LeLanderon, Switzerland, assignor to Ebauches, S.A., Switzerland

Filed Feb. 9, 1981, Ser. No. 232,864

Claims priority, application Switzerland, Feb. 13, 1980, 1161/80

Int. Cl.^{3} G04C *9/00;* **G04B** *29/00*

U.S. Cl. 368—188 **7 Claims**



1. Apparatus for the selection or the correction of data in an electronic watch provided with a rotatable spindle, the apparatus comprising commutation means operated by the rotation of the spindle in one direction or the other and arranged to produce two series of commutation pulses which are phase-displaced with respect to each other, the sign of the phase displacement depending on the direction of rotation of the spindle, and a circuit responsive to the series of commutation pulses to provide a signal indicating the direction of rotation of the spindle and to produce selection or correction pulses, the commutating means comprising two cams mechanically coupled to the rotatable spindle and angularly displaced one with respect to the other and two resiliently flexible strips of electrically conductive material each of which cooperates with a respective one of the cams and has one fixed end and one free end, the free end of each strip being alternately brought in contact with and moved away from a respectively fixed contact during the rotation of the spindle.

4,379,643

TIMEPIECE CASE/BACKCOVER ASSEMBLY

James J. Halicho, Sunnyvale, Calif., assignor to Timex Corporation, Waterbury, Conn.

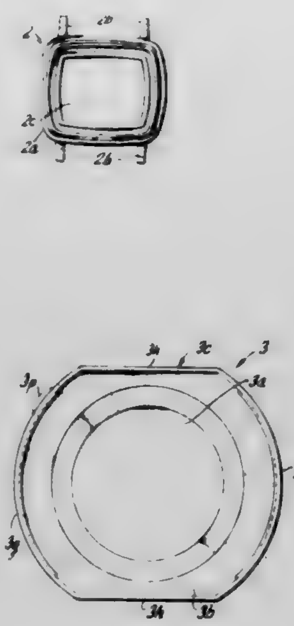
Filed Jul. 24, 1981, Ser. No. 286,423

Int. Cl.^{3} G04B *37/00, 29/00*

U.S. Cl. 368—309 **14 Claims**

1. In a timepiece construction, the combination of:
(a) a case having a first engagement surface with a polygonal plan profile composed of a plurality of first circular arc surface portions having a common center point and a plurality of first noncircular surface portions connecting the first circular arc surface portions together, and
(b) a back cover member having a second engagement surface with a polygonal plan profile composed of a plurality of second circular arc surface portions having a common center point and a plurality of second noncircular surface portions connecting the second circular arc surface por-

tions together, the second circular arc surface portions being adapted for snap-fitting against the respective first



circular arc surface portions to hold the back cover member and case releasably together.

4,379,644

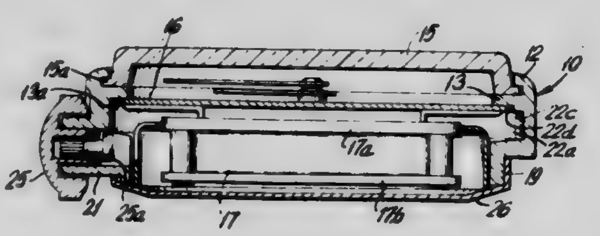
TIMEPIECE CASE/DIAL PLATE ASSEMBLY

David F. Capolupo, Oakville, and James J. Donnelly, Wolcott, both of Conn., assignors to Timex Corporation, Waterbury, Conn.

Filed Jun. 8, 1981, Ser. No. 271,499

Int. Cl.³ G04B *37/00*

U.S. Cl. 368—314 **2 Claims**



1. In a timepiece, the combination of:

a. a non-circular dial plate having a first plan dial plate dimension and second plan dial plate dimension, and

b. a case for housing the dial plate, said case having a rear surface with a projecting wall defining an access opening, an inner wall defining an interior chamber in communication with the access opening and a front wall defining an annular seat extending into the chamber and on which the dial plate rests in the chamber, said access opening having a first plan dimension larger than the corresponding first plan dial plate dimension and a second plan dimension smaller than the corresponding second plan dial plate dimension such that the dial plate is oversized in the second plan dimension, said case having an undercut portion in the direction of the second plan dimension of said access opening defining a maneuvering recess for the dial plate, whereby the second plan dimension of said dial plate can be inserted through the access opening by tilting the dial plate relative to the access opening and inserting a portion of the dial plate along the second plan dimension in the maneuvering recess to thereby accommodate the oversize in the second plan dimension and allow the remainder of the dial plate along the second dimension to be pivoted through the access opening.

4,379,645

LARGE FORMAT PAPER HANDLING ASSEMBLY FOR TYPEWRITERS OR LIKE BUSINESS MACHINES

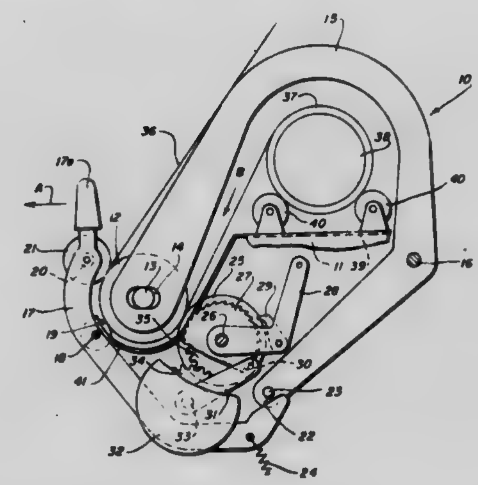
Gunter Scheinpflug, Nuremberg, Fed. Rep. of Germany, assignor to Triumph-Adler A.G. für Büro-und Informationstechnik, Nuremberg, Fed. Rep. of Germany

Filed Oct. 21, 1981, Ser. No. 313,461

Claims priority, application Fed. Rep. of Germany, Mar. 5, 1981, 3108262

Int. Cl.³ B41J *15/06*

U.S. Cl. 400—623 **2 Claims**



1. A large format paper handling assembly for association with a printing element movable in escapement and carriage return directions comprising

a frame

platen support arms pivotably mounted on said frame,

a platen having its ends rotatably and translatably mounted between said support arms,

frame mounted guide rollers and rearwardly spaced feed rollers for rotatably supporting said platen,

paper feed release lever means pivotably mounted on the axis of said guide rollers,

paper hold down rollers supported on said paper feed release lever means for engaging said platen, and

means on said paper feed release lever means for rocking said support arms incident to movement of said paper feed release lever means to a release position to move said platen support arms and said platen from engagement with said guide and feed rollers.

4,379,646

PAPER FEED ROLL ROTATED BY PRINT HEAD CARRIER MOVEMENT

Katsutoshi Maeda, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Japan

Filed Mar. 24, 1980, Ser. No. 133,144

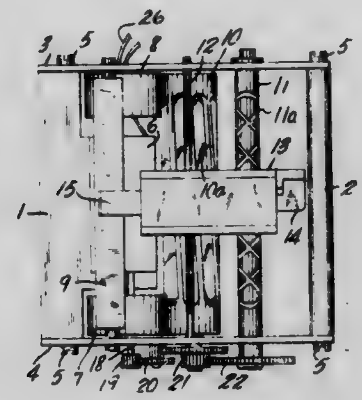
Claims priority, application Japan, Mar. 26, 1979, 54-35378; Sep. 4, 1979, 54-122082[U]

Int. Cl.³ B41J *13/02*

U.S. Cl. 400—636 **7 Claims**

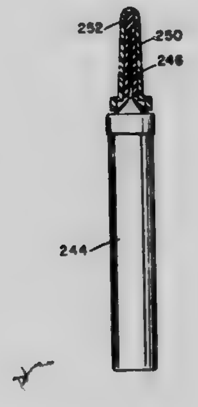
1. A printer comprising: a platen; a print head positioned opposite said platen; a print head driving shaft having a bidirectional cam-groove and oriented parallel to said platen; means on said print head for engaging said bidirectional cam-groove to effectuate reciprocating movement of said print head parallel to said platen in response to rotation of said driving shaft; and paper feeding and positioning means for feeding paper between said print head and said platen and for positioning the paper to be printed on, said paper feeding and positioning means comprising a paper feeding roller having a middle portion and a pair of end portions, said print head and said paper feeding roller middle portion together comprising means for rotating said paper feeding roller through a predetermined angular interval each time said print head travels from one end of said platen to another in one particular direc-

tion, a pair of paper receiving rollers each disposed opposite a respective one of said paper feeding roller end portions, said paper receiving rollers and corresponding ones of said paper feeding roller end portions receiving therebetween, in use, paper to be printed on and which is advanced up to said platen by rotation of said paper feeding roller with the paper gripped between said paper feeding roller end portions and said paper receiving rollers, wherein said paper feeding roller end portions have respective diameters larger than a diameter of said



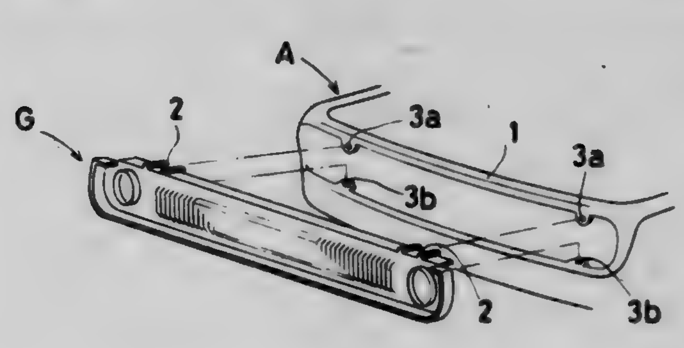
paper feeding roller middle portion, and means comprising a guide surface for guiding paper to advance between said paper feeding roller and said paper receiving rollers, wherein said means comprising a guide surface is comprised of a plate-like member disposed between said paper feeding roller end portions opposite said paper feeding roller middle portion and spaced from said paper feeding roller middle portion a distance less than the difference between the radius of said paper feeding roller middle portion and said paper feeding roller end portions.

4,379,647
OPTICAL COMPARATOR AND INSPECTION APPARATUS
Paul S. Kempf, 703 Stratford Ct., Apt. 7, Del Mar, Calif. 92104, assignor to Paul S. Kempf, Solana Beach, Calif.
Continuation of Ser. No. 117,230, Jan. 30, 1980, abandoned, which is a continuation of Ser. No. 944,890, Sep. 22, 1978, abandoned, which is a continuation of Ser. No. 706,675, Jul. 19, 1976, abandoned, which is a division of Ser. No. 568,866, Apr. 17, 1975, abandoned, which is a division of Ser. No. 190,187, Oct. 18, 1971, Pat. No. 3,888,593. This application Aug. 27, 1981, Ser. No. 297,037
Int. Cl.³ B43K *9/00*
U.S. Cl. 401—262 **1 Claim**



1. A marking pen comprising:
a resilient tubular container for a fluid marking medium;
an elongated nozzle having a central bore, said bore being substantially coextensive with said nozzle;
said nozzle having a substantial uniform exterior and interior cross-sectional area along substantially its entire length and being connected directly to the body of said container;
said bore communicating with the interior of said container;
cap means having an elongated socket for fitting closely about said nozzle over substantially the entire length of said nozzle and said bore, for producing a pumping action upon said cap being pushed along the length of said nozzle, for forcing said fluid marking medium into said container, completely expelling said marking medium and sealing said container, the volume of said socket being greater than the volume of said central bore of said nozzle, whereby said bore is completely evacuated when said nozzle is fully inserted into said socket;
said elongated socket having a substantially uniform cross-sectional area along its length.

4,379,648
FIXING STRUCTURE FOR RADIATOR GRILLE
Shinken Tanaka, Tokyo, and Takuo Yuda, Yokohama, both of Japan, assignors to Nissan Motor Co., Ltd. and Nifco Inc., both of Yokohama, Japan
Filed Jan. 14, 1981, Ser. No. 225,028
Claims priority, application Japan, Jan. 21, 1980, 55-4497[U]
Int. Cl.³ F16B *19/00*
U.S. Cl. 403—24 **4 Claims**

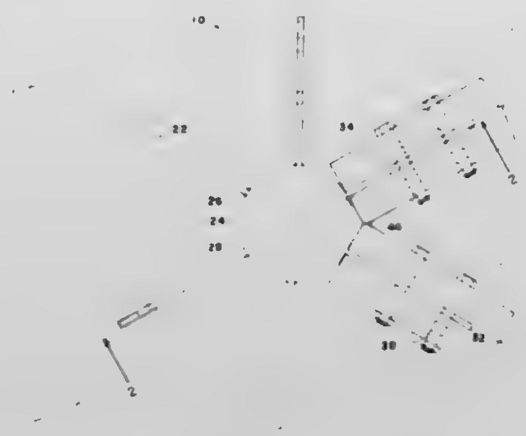


1. A fixing structure for fastening a radiator grille to the fitting portion of an automobile body, comprising a fixture part formed on the radiator grille and a plastic fastener composed of a base plate, a first attaching member formed on one side of said base plate and adapted for attachment to said fixture part and a second attaching member formed on the other side of said base plate and adapted for snapping engagement with a fixing hole in the fitting portion of the automobile body part, said fixture part being composed of a plate member incorporating therein a retaining step and lateral walls disposed one each along the opposite edges of said plate member, and said first attaching member being composed of a base plate, an engaging arm extended from said base plate and provided at the leading end thereof with an engaging claw adapted for engagement with said retaining step in said fixture part, and a pair of pinching members extended from said base plate parallelly to both sides of said engaging arm and adapted to squeeze the lateral walls of said fixture part after completion of engagement between the fixture part and the plastic fastener.

4,379,649
CONNECTOR SYSTEM FOR GEODESIC DOME STRUTS
Martha E. Phillips, 3906 Ridgecroft Rd., Baltimore, Md. 21206
Filed Oct. 1, 1981, Ser. No. 307,377
Int. Cl.³ E04B *1/58*
U.S. Cl. 403—172 **1 Claim**

1. In a connector system for geodesic dome struts, said connector being of the type having a hub with members radiating therefrom in the form of a plurality of peripherally-spaced arms having connection in swept-back-angle relation to a plane through the hub perpendicular to the axis of the hub, said struts having structure forming attachment-apertures in respective ends thereof, the improvement comprising: means permitting connection of a said arm at any location around the hub including each hub being a right-cylinder in configuration with each arm swept-back angle being defined by an angle of said arm at the point of said connection to the hub, each arm being a plate-like member in a plane generally parallel with the axis of

said right cylinder, the diameter of each hub being sufficiently greater across than the width of a said strut affixable thereto to provide for abutting termination of said strut on the hub, the



ratio of hub-diameter to strut width being substantially one and three-quarters to one for a said connector with six arms uniformly spaced around the periphery of the hub, and said connection being welded connection.

4,379,650

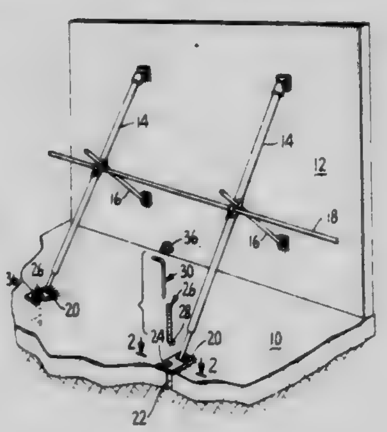
ANCHORING MEANS FOR WALL BRACES

David J. Frankenfield, Burlingame, Calif., assignor to The Burke Company, San Mateo, Calif.

Filed Sep. 2, 1980, Ser. No. 183,724

Int. Cl.³ F16B ***35/04***

U.S. Cl. 403—316 **7 Claims**



1. In a bracing system for tilt-up wall slabs including a floor slab-engaging foot plate to which a tilt-up brace is pivotally attached, the combination with said foot plate of a cylindrical bore formed in a floor slab and extending fully therethrough, an aperture in said foot plate in registry with said bore, a threaded anchor bolt having at least one side which is essentially flat and unthreaded removably extending through said aperture and fully through said bore, said bolt having an abbreviated foot portion extending laterally into underlying relation to the floor slab, the horizontal dimension of said bolt taken through said foot portion being somewhat less than the diameter of said bore to enable emplacement of said bolt through said bore and removal of said bolt therefrom, an anchor bolt-wedging spike removably extending fully through said bore and against said essentially flat and unthreaded side of the bolt to maintain said bolt to one side of said bore and to maintain said foot portion in underlying relation to the floor slab, said spike having a right-angled head portion at its upper end adapted to engage the upper surface of the floor slab and to be disposed within said aperture of said foot plate, and a nut bearing against the foot plate in removably threaded engagement with said anchor bolt and operable while in place to prevent the removal of said spike from said aperture and said bore.

4,379,651

METHOD FOR RELEASABLY RIGIDLY FASTENING TWO INTERSECTED OVERLAPPING METAL PROFILES AND MEANS THEREFOR

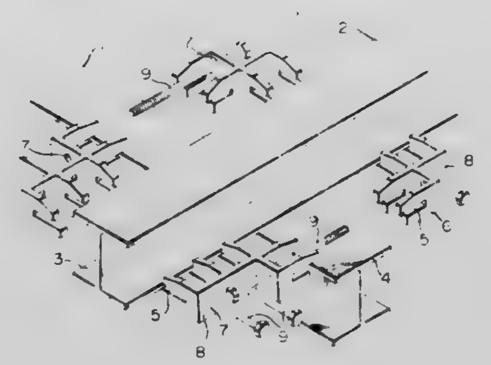
Masaya Nagashima, 4-6, Takayanagi 3-chome, City of Kisarazu, Chiba Prefecture, Japan

Filed Nov. 17, 1980, Ser. No. 207,407

Claims priority, application Japan, Jul. 7, 1980, 55-91789

Int. Cl.³ B25G ***3/36;*** **E04G** ***7/00***

U.S. Cl. 403—387 **4 Claims**



1. A means for releasably rigidly fastening two metal beams intersecting at an angle and lying one upon another, consisting essentially of four L-shaped members each having two vertical sides intersected at one end of each so as to make an angle corresponding to the angle made at the respective corners of said intersection of said metal beams, said sides of each of said L-shaped members being formed on their outer faces with grooves respectively adapted to receive therein the respective edge portions of the lower and upper parts of said metal beams at said respective corners of said intersection, and a number of fastening means adapted to rigidly connect said sides of said L-shaped members protruding above or below said lower and upper parts of said metal beams so as to confront each other.

4,379,652

CLOSED ONE-PIECE ROLLER FRAME FOR VIBRATOR ROLLERS

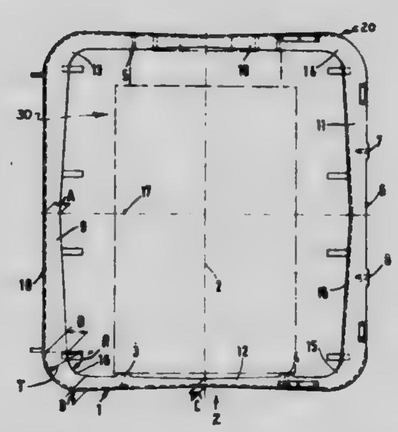
Heinz Buchmann; Bruno Mayer, both of Bochum, and Wolfgang Szybowicz, Erkrath, all of Fed. Rep. of Germany, assignors to Thyssen Industrie AG, Fed. Rep. of Germany

Filed Sep. 23, 1980, Ser. No. 190,040

Claims priority, application Fed. Rep. of Germany, Oct. 3, 1979, 2940048

Int. Cl.³ E01C ***19/38***

U.S. Cl. 404—117 **6 Claims**



1. A vibrator roller assembly and frame comprising a vibrator roller with a horizontal axis of rotation and an unbalance generator, a closed angular one-piece vibrator roller frame member having a pair of side portions, a pair of end portions and four corner portions connected between said side portions and said end portions respectively, said axis of said vibrator roller connected between said end portions so that static and dynamic forces are transferred from said vibrator roller to said

frame member, said four corner portions being internally and externally rounded, said side portions having increasing widths from a median axis of said frame extending perpendicularly to said axis of rotation, said end portions having increasing widths from said axis of rotation, and from the median and horizontal axes to each corner portion, each side and end portion being trapezoidal in shape.

4,379,653

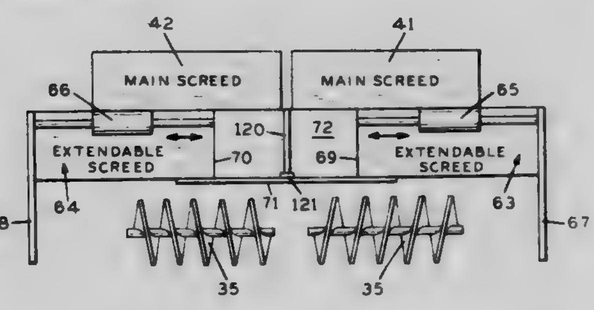
ASPHALT PAVER WITH TELESCOPING SCREED

Robert L. Brown, Mattoon, Ill., assignor to White Consolidated Industries, Inc., Cleveland, Ohio

Filed Jun. 1, 1981, Ser. No. 269,383

Int. Cl.³ E01C *19/22*

U.S. Cl. 404—118 **17 Claims**



1. A screed assembly for a floating screed asphalt paving machine, which comprises

(a) first and second main screed units, each including a front plate and a sole plate,

(b) screed extension units for each of said main screed units, each including a front plate and a sole plate,

(c) means for mounting said screed extension units in front of said main screed units, with the front plates of said extension units being positioned a substantial distance forwardly of the main screed units and the sole plates of said screed extension units extending rearwardly substantially to the front plates of said main screed units,

(d) said mounting means including, for each said extension unit, a pair of spaced guide rods mounted on said screed extension units and extending laterally substantially from one end to the other thereof, and a pair of guide sleeves slideably engaging said guide rods,

(e) said guide sleeves forming part of a support bracket assembly mounted at the front of a main screed unit,

(f) means for effecting vertical adjustment of said support bracket assembly relative to the main screed or screed extension unit, whereby to effect vertical adjustment of said screed extension unit with respect to the main screed unit,

(g) controllable positioning means for effecting controlled lateral extending and retracting movements of the screed extensions, and

(h) clearing means for preventing the accumulation of excessive amounts of paving materials between said screed extensions during retracting movements while paving, such that extending or retracting adjustments of said screed extension units may be effected at any time.

4,379,654

DEVICE FOR KEEPING A LINING-LAYER IN CONTACT WITH THE WALLS OF A CIVIL-ENGINEERING WORKS

Giuseppe Rovelli, Turin, Italy, assignor to Industrie Pirelli S.p.A., Milan, Italy

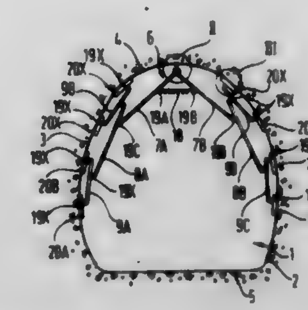
Filed Feb. 19, 1981, Ser. No. 236,218

Claims priority, application Italy, Mar. 12, 1980, 20513 A/80

Int. Cl.³ B65G *5/00;* E21D *11/00*

U.S. Cl. 405—53 **9 Claims**

1. A device for maintaining a flexible liner in contact with the walls of an excavation in the earth comprising a plurality of frames spaced one from the other and disposed in planes which are substantially perpendicular to the larger dimension of the excavation, said frames comprising a double series of rods, means hinging the rods of each series together in a cascade-connection, means hinging the first rods of each series to each other at one end, and to the wall, an elastically deformable member hinged to the ends of the last rods of the series, and at



least one rod intermediate said first and last rods hinged to the immediately preceding rod at a point intermediate of its length and hinged to the rod that follows in each series at its ends, and resilient means for drawing apart the double series of rods.

4,379,655

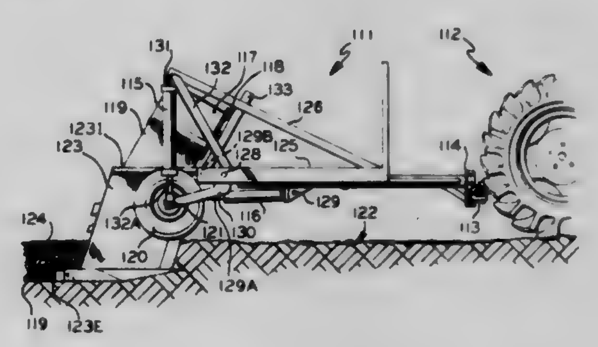
PROCESS AND APPARATUS FOR LAYING A SUBTERRANEAN FILM

Robert L. Brost, Independence, Kans., and Duane W. Gagle, Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 30, 1980, Ser. No. 202,098

Int. Cl.³ E02F *5/10;* F16L *1/02*

U.S. Cl. 405—176 **22 Claims**



1. Apparatus for laying a strip of film under the surface of the soil comprising:

a hollow plow having a film inlet above the soil surface and a film outlet adapted to be below the soil surface when the plow is moving through the soil;

a source of film;

means for passing film from the source of film into the film inlet, through the hollow plow, and out the film outlet under the soil surface while the plow is moving through the soil; and

first means adjacent the film outlet of the hollow plow for supporting the film under the soil after passing the film out of the film outlet under the soil.

4,379,656

BUOYANCY CONTROL VALVE FOR SCUBA DIVING VESTS

Phillip H. Darling, 15711 Williams #173, Tustin, Calif. 92680

Continuation of Ser. No. 815,735, Jul. 14, 1977, abandoned, which is a continuation-in-part of Ser. No. 691,658, Jun. 1, 1976, abandoned. This application Dec. 11, 1978, Ser. No. 968,625

Int. Cl.³ B63C *11/02*

U.S. Cl. 405—186 **33 Claims**

23. A valve for use in combination with a buoyancy compensation vest and breathing air tanks, both carried by a diver, for controlling the buoyancy of said diver, comprising:

a housing fluidly connected to said vest, said housing being an open-ended cylindrical member and said housing including an exhaust port;

a valve closing said exhaust port, said valve being a cup-shaped member having a side opening, said cup-shaped member telescoping over one end of said cylindrical housing;

means biasing said valve to a closed position against said exhaust port, said means permitting automatic opening of said valve in response to a predetermined pressure differential between the interior of said housing and its surroundings to prevent overpressurization of said vest;

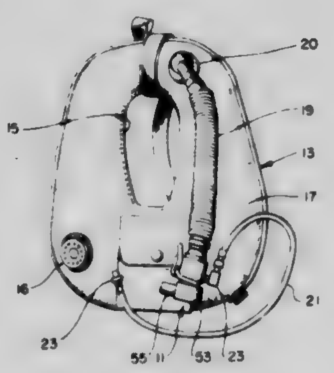
and

an actuator for manually opening said valve.

27. Apparatus for selectively forcing gas in two opposite directions in a conduit, comprising:

a source of pressurized gas;

first means mounted in said conduit, connected to said source of pressurized gas, admitting gas from said source to said conduit in a first direction and utilizing the Coanda effect for forcing gas in said first direction in said conduit; and



second means, independent of said source of pressurized gas, for selectively blocking flow in said first direction in said conduit, said second means forcing said gas simultaneously admitted from said source to said conduit through said first means to reverse and flow in a second direction opposite said first direction.

28. A small, portable, hand-held respirator valve, comprising:

a main flow conduit;

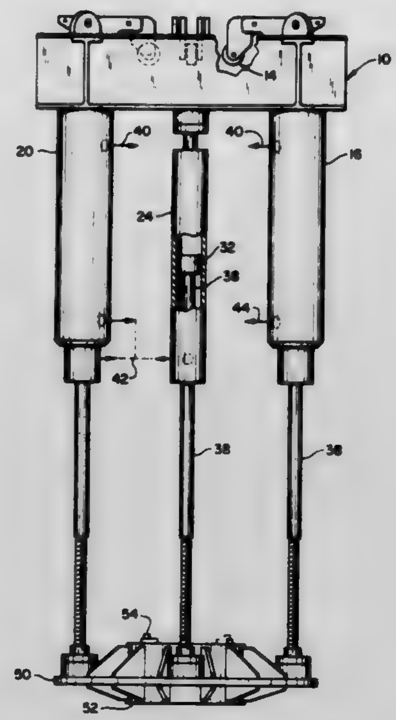
means connecting said main flow conduit to a breathing passage of an animal;

a valve connected to a source of high pressure gas, said valve selectively admitting gas to said flow conduit in a first direction away from said connecting means to entrain air and exhaust the lungs of said animal; and

means independent of said gas source for selectively blocking the flow of gas simultaneously admitted from said souce through said valve to reverse and flow in a second direction toward said connecting means.

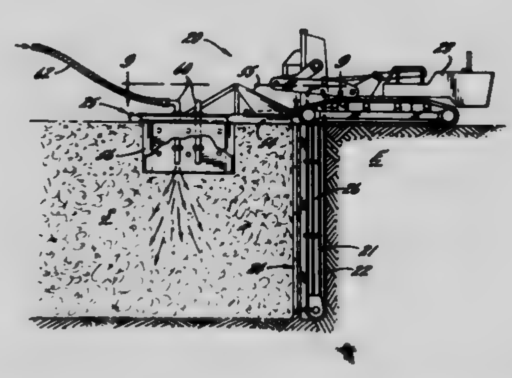
4,379,657
RISER TENSIONER
Karl J. Widiner, Carpinteria, Calif., and Riley G. Goldsmith, Houston, Tex., assignors to Conoco Inc., Ponca City, Okla.
Filed Jun. 19, 1980, Ser. No. 161,235
Int. Cl.³ B63B *35/44*
U.S. Cl. 405—195 **2 Claims**

1. A portable modular riser tensioner for supporting risers from a floating platform comprising: a mounting frame having peripheral supports for supporting said frame from the platform and a central opening; a riser tensioning ring having a central opening and means for supporting a riser within said central opening of said riser tensioning ring; at least two pairs of cylinders, one of each of said pair of cylinders being diametrically opposed to the other of said pair; a piston having a rod end slideable in each of said cylinders; at least two oil accumulators; at least two air accumulators; said cylinders, said oil accumulators and said air accumulators all connected to one of said mounting frame and said tensioning ring; said piston connected to the other of said mounting frame and said tensioning ring through said rod ends; an upper portion of each of said air accumulators in fluid communication with an upper portion of a corresponding oil accumulator; and a lower end of an oil



accumulator in fluid communication with a corresponding pair of said diametrically opposed cylinders at the rod end of said piston.

4,379,658
METHOD AND APPARATUS FOR CONSTRUCTING SLURRY WALLS
Fred C. Schmednecht, LaPorte, Ind., assignor to Thatcher Engineering Corporation, Gary, Ind.
Filed Dec. 3, 1980, Ser. No. 212,691
Int. Cl.³ E02D *5/20*
U.S. Cl. 405—267 **10 Claims**



1. An apparatus for constructing a slurry wall in a trench comprising, in combination:

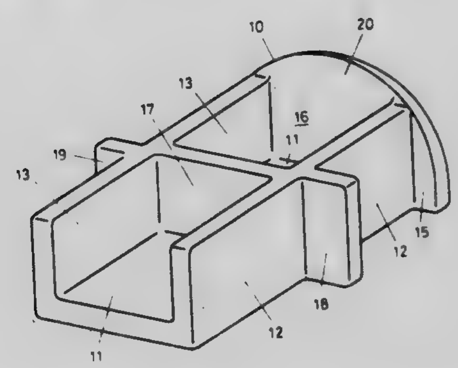
a. a trencher including driving means and a trenching column, the trenching column having a digging chain to excavate soil to form a trench as the trencher is advanced;

b. a slurry isolation means disposed immediately behind the trenching column, the slurry isolation means adapted to slidingly engage the opposite side walls of the trench from the ground level to the bottom of the trench; and

c. trailing means towed by the driving means and including (i) plow means extending rearwardly and outwardly with respect to both sides of the trench from a point just behind the digging chain in close proximity to the slurry isolation means for displacing the excavated soil laterally away from the formed trench and (ii) slurry injection means for introducing slurry material into the trench behind the slurry isolation means whereby a slurry wall may be constructed simultaneously with the excavation of the trench,

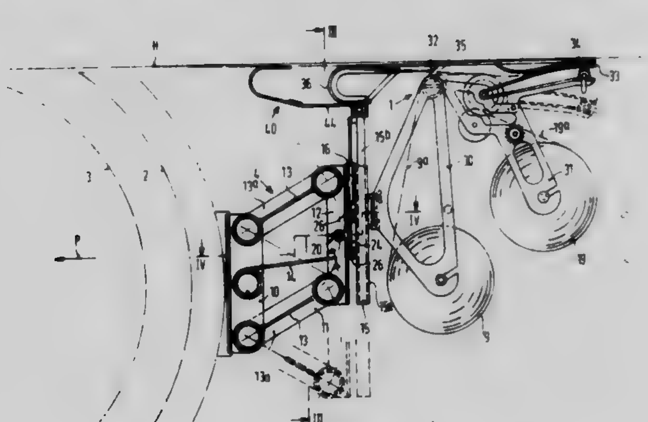
and the slurry isolation means prevent the slurry from entering the area of influence of the digging chain.

4,379,659
BUILDING BLOCKS
Alfred Steiner, Andelfingen, Switzerland, assignor to Steiner Silidur A.G., Andelfingen, Switzerland
Filed Nov. 19, 1980, Ser. No. 208,217
Claims priority, application Switzerland, Sep. 5, 1980, 6698/80; Sep. 5, 1980, 6699/80
Int. Cl.[3] E04C *2/04*
U.S. Cl. 405—284 **11 Claims**



1. A shaped hollow building block comprising in combination, a base wall, side walls, and a face wall having the form of a shield standing perpendicularly to the base wall, having on both sides a margin projecting relative to the side walls and having a height greater than that of the side walls, the side walls and the base wall jointly forming an elongate trough in a direction normal to the face wall, and a transverse wall extends parallel to the face wall in the trough for dividing the inside of said building block into compartments, one of which is open at the rear of the building block opposite said face wall and at the top of the building block opposite said base wall, and the other of which is located between said one compartment and said face wall and is also open at the top of the building block opposite said base wall, with said side walls laterally delimiting both said one compartment open at the rear and said other compartment between said one compartment and the face wall.

4,379,660
METHOD OF AND APPARATUS FOR APPLYING MAT TO THE ROOF OF A MINE WORKING
Karl M. Groetschel, Montsalvatstrasse 1a, D-8000 München, Fed. Rep. of Germany
Filed Sep. 3, 1980, Ser. No. 183,825
Claims priority, application Fed. Rep. of Germany, Sep. 7, 1979, 2936206
Int. Cl.[3] E21D *19/00*
U.S. Cl. 405—288 **14 Claims**



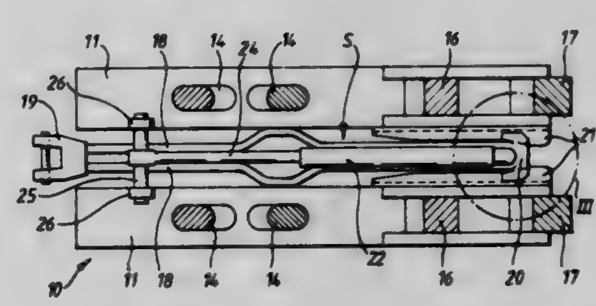
1. In a method of applying a succession of strips to the roof of an underground mine working in a manner such that each successive strip is applied along a previously uncovered zone of the roof bordering the last applied one of the previously applied strips, and with the nearer edges of these two strips in proximate relation to each other, the improvement comprising

a. sensing the lateral position of a previously applied one of said strips,
b. controlling the lateral position of each newly applied strip, as it is undergoing application, in accordance with said sensed lateral position to establish the required proximate relation between the nearer edges of newly applied strip and the last applied strip respectively,

and wherein

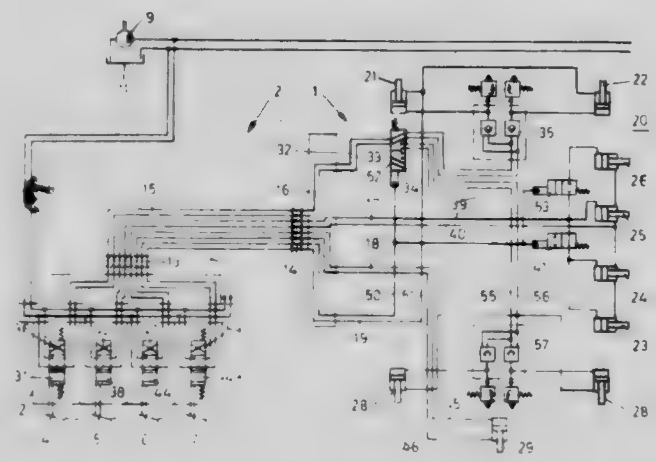
c. application of each of said newly applied strips of mat is effected at a lateral position determined by the lateral position of a transporter means on which a mat applying means for applying the strips is carried, and which travels longitudinally of the zone in which the newly applied strip is required to be applied,
d. the position of the mat applying means is laterally adjusted relatively to that of said transporter means in accordance with the sensed lateral position of said previously applied strip, and in a direction and by an amount such as to compensate for lateral deviation of said transporter in travelling along said zone and which would otherwise cause said proximate edges to be spaced apart or to overlap by more than a predetermined amount.

4,379,661
ADVANCE MECHANISM FOR A MINE ROOF SUPPORT UNIT
Egon Wojaczek, Hamm-Bockum-Hoevel; Mustafa Soliman, Lunen, and Juergen Schulte, Hamm, all of Fed. Rep. of Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Lunen, Fed. Rep. of Germany
Filed Sep. 9, 1980, Ser. No. 185,638
Int. Cl.[3] E21D *23/08*
U.S. Cl. 405—299 **13 Claims**



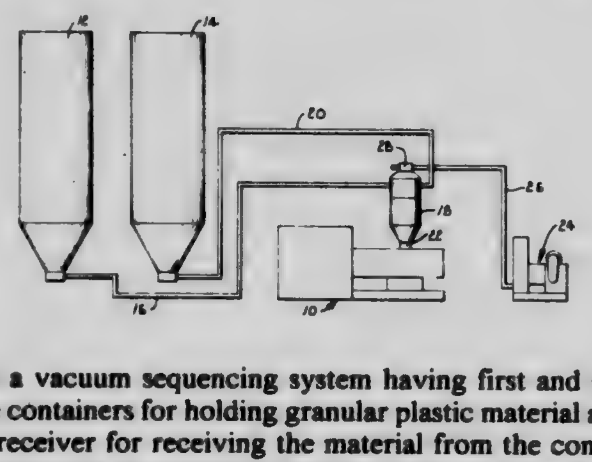
1. An advance mechanism for a roof support unit having a pair of spaced floor girders (11), the advance mechanism comprising a hydraulic advance ram (22) and a pair of generally parallel relay rods (18), one end of each of the relay rods being connected to a head-piece (19) configured for attachment to a longwall conveyor, the other end of each of the relay rods being attached to a guide element (20) which is slidably guided by guide rails (21) attached to the mutually-facing sides of the floor girders, the hydraulic advance ram being pivotally attached to the guide element and to the floor girders, alignment means being provided for aligning the ends of the floor girders remote from the head-piece when the hydraulic advance ram is pressurised, wherein the guide rails are formed with inclined guide surfaces (21c), and the guide element is provided with abutment means (27) engageable with the guide surfaces, said alignment means including the guide surfaces and the abutment means, and the guide surfaces being positioned adjacent said ends of the floor girders remote from the head-piece.

4,379,662
CONTROL DEVICE FOR AN ADVANCING SUPPORT IN UNDERGROUND MINING
Siegmar Block, Essen, Fed. Rep. of Germany, assignor to Thyssen Industrie AG, Fed. Rep. of Germany
Filed Jun. 29, 1981, Ser. No. 278,075
Claims priority, application Fed. Rep. of Germany, Jun. 27, 1980, 3024116
Int. Cl.³ E21D *23/18*
U.S. Cl. 405—302 8 Claims



1. An improved control device for an underground mining working support unit arrangement having hydraulic supports for supporting several load points, means for admitting a hydraulic working medium to the hydraulic supports, the admitting means including an adjacent support unit arrangement hydraulically connected to a working support unit arrangement, a control block having control valves and control conduits connected to the adjacent support unit arrangement for connecting the hydraulic supports for supporting the load points with the control valves, and each of the conduits having a nominal diameter which permits direct control of the hydraulic supports for supporting the control points, the improved control which comprises means for connecting the hydraulic supports for supporting several load points successively over the same control conduits to the control valves of the adjacent support unit arrangement, said connecting means including reversing valves connected to the hydraulic supports of the working unit support arrangement and the conduits and over which the hydraulic supports for supporting the load points are connectable.

4,379,663
VACUUM SEQUENCING SYSTEM WITH WEIGHT CONTROLLED MATERIAL DRAW CYCLE
Robert Allison, Sabetha, Kans., assignor to Mac Equipment, Inc., Sabetha, Kans.
Filed Sep. 22, 1980, Ser. No. 189,673
Int. Cl.³ B65G *53/66*
U.S. Cl. 406—23 10 Claims



1. In a vacuum sequencing system having first and second storage containers for holding granular plastic material and the like, a receiver for receiving the material from the containers and discharging the material in batches through an outlet of the receiver, first and second conduits extending from the respective first and second containers to the receiver to deliver the material therebetween, vacuum means for applying a vacuum to the receiver to draw the material through the conduits from the containers to the receiver, a ratio valve for opening and closing the first and second conduits to control the relative amounts of material loaded into the receiver from the first and second containers, and a dump valve operable when activated to interrupt the vacuum to thereby interrupt the material flow through the conduits and effect discharge of the material in the receiver through the outlet thereof, the improvement comprising:

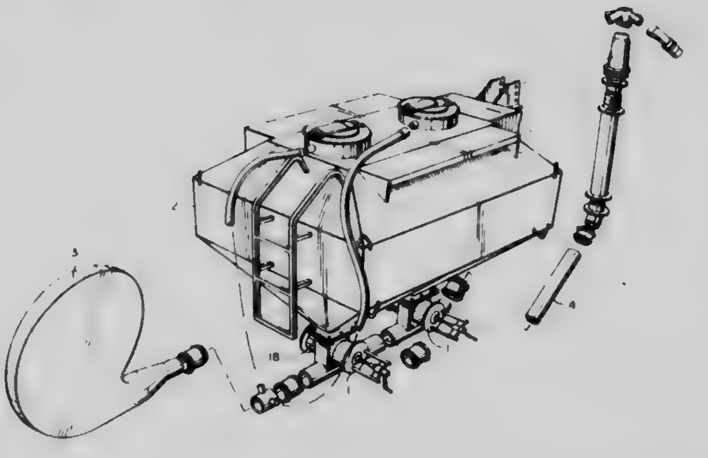
a frame supporting the receiver in a manner permitting the receiver to deflect generally downwardly when material is loaded therein;

switch means for activating the dump valve when the downward deflection of the receiver reaches a first predetermined level, thereby effecting discharge of a batch of material from the receiver when the weight of the batch is sufficient to effect said first predetermined level of deflection of the receiver and

second switch means sensitive to downward deflection of the receiver to a second predetermined level which is less than the first predetermined level, said second switch means being operable when deflection of the receiver is less than said second level to maintain the ratio valve in a first condition wherein the first conduit is open and the second conduit is closed, and when deflection of the receiver exceeds said second level to maintain the ratio valve in a second condition wherein the first conduit is closed and the second conduit is open,

whereby material is loaded into the receiver from the first container when the deflection of the receiver is less than said second level and from the second container when the deflection of the receiver is between said second level and said first level.

4,379,664
SEED CUP ASSEMBLY
Merv V. Klein; Dan W. Kelm, and Salah U. Din, all of Winnipeg, Canada, assignors to Prasco Super Seeder Ltd., Winnipeg, Canada
Filed Sep. 23, 1980, Ser. No. 189,565
Claims priority, application Canada, Jul. 11, 1980, 356042
Int. Cl.³ B65G *53/46*
U.S. Cl. 406—68 1 Claim



1. A seed cup assembly for use with a pneumatic seeding system and adapted for attachment to the underside of a pressurized hopper, comprising in combination a discharge casing; a conduit secured to and in communication with the lower end of said casing and adapted for insertion into the pneumatic system; a rotatable shaft extending transversely through said casing; a metering component journalled for rotation by said shaft and communicating with said casing and providing passage for granular material between said hopper and said conduit; said metering component being adjustably positioned within said casing for controlling the quantity of granular

material transferred from the hopper to the conduit; said metering component comprising a cylindrical body having a plurality of elongated flutes thereon, said flutes engaging material within the hopper and depositing said material into the conduit as the metering component rotates within the casing; means sealing the fluted cylinder of the assembly with an adjacent wall of the casing; means for moving the fluted metering component along said shaft to increase the exposure of the fluted surface to the inside of the casing, said metering component including an elongated portion of reduced diameter extending concentrically outwards from the cylindrical fluted boday; and a cylindrical slider freely and coaxially mounted on said elongated portion adjacent to said fluted cylinder and providing sealing means with the adjacent wall of the casing; means sealing the fluted cylinder comprising a cylindrical housing of greater diameter than said fluted cylinder, one end wall of said housing being secured to said rotatable shaft whereby the cylindrical housing is coaxially positioned over the portion of the fluted cylinder extending through the casing wall; and a disc shaped member at the other end of said cylindrical housing and having a peripheral outer surface providing the seal against the casing wall, and an inner surface profiled to match the fluted surface of the metering cylinder.

4,379,665

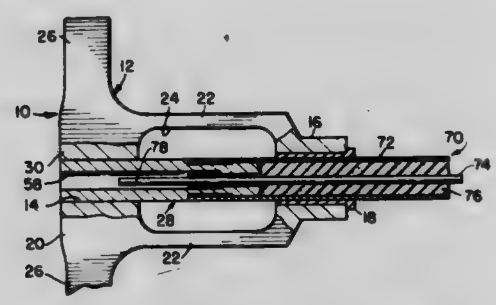
INSULATION STRIPPER FOR COAXIAL CABLE

Homer Hendershot, Cogan Station, and Charles M. Storrs, Williamsport, both of Pa., assignors to Lemco Tool Corporation, Cogan Station, Pa.

Filed Nov. 24, 1980, Ser. No. 209,600

Int. Cl.³ B23B *51/04*

U.S. Cl. 408—204 **10 Claims**



1. An insulation stripping tool for coaxial cable having a body with cable alignment means at one end and a stripping bit at the other end axially aligned with the means, the bit including a cutting end adjacent to the means with an insulation cutting edge and a sleeve stop surface away from the means, wherein the improvement comprises an axial bore extending into the bit from the cutting end and an insulation carrying flute on the surface of the bit extending longitudinally along the bit from the cutting edge past the sleeve stop surface, the cutting edge facing in the direction of stripping rotation of the tool, said flute including a bottom surface extending from one side of the bit past the bit axis and a side wall extending from the bottom wall to the surface of the bit, the side wall including a section extending longitudinally along the bit and a curved section at the cutting end of the bit running from one end of the longitudinal section to the cutting edge whereby upon stripping rotation of the tool and feeding of the bit into an end of a coaxial cable held by the means the cutting edge severs a strip of insulation from between the central conductor and the surrounding conductive sheath and the flute carries the strip away from the cutting edge, axially along the bit and outwardly the cable without jamming while the central conductor is fed into said bore.

4,379,666

APPARATUS FOR MANUFACTURE OF JIGS

John A. Rose, Knaresborough, and Keith Dyer, Leeds, both of England, assignors to AMF Incorporated, White Plains, N.Y.

Filed Sep. 15, 1980, Ser. No. 187,291

Claims priority, application United Kingdom, Sep. 19, 1979, 7932472

Int. Cl.³ B23C *1/16*

U.S. Cl. 409—110 **6 Claims**

1. Apparatus for the manufacture of multiple plate jigs for use in sewing, comprising

a top plate with a contoured outer periphery;

mounting means adapted to removably support in predetermined spatial relationship a work piece of bottom plate material and said top plate above and parallel to the work piece;

forming means for contouring a work piece to form a bottom plate with a contoured periphery and for forming a contoured slot thereby separating the bottom plate into inner and outer portions:

a pair of feeler means each being arranged to move independent of the other along the periphery of said top plate;

one of said feeler means being operatively connected to guide said forming means when contouring the outer periphery of a bottom plate; and

the other of said feeler means being operatively connected to guide said forming means when forming a contoured slot in a bottom plate.

4,379,667

CHUCK FOR MACHINE TOOLS

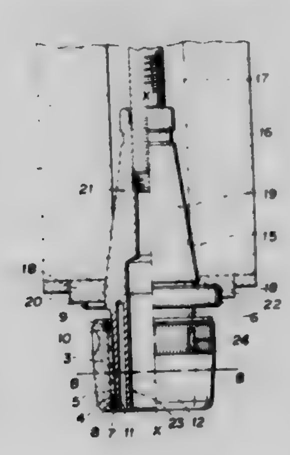
Hisanari Yoshimoto; Taka Tonomura, and Takuo Takamura, all of Toyama, Japan, assignors to Kabushiki Kaisha Fujikoshi, Toyama, Japan

Filed Oct. 23, 1980, Ser. No. 199,813

Claims priority, application Japan, Nov. 8, 1979, 54-154183[U]

Int. Cl.³ B23C *1/00*; B23B *31/04*

U.S. Cl. 409—234 **9 Claims**



1. A needle-roller type chuck for machine tools comprising:

a chuck body having a longitudinal axis and a leading end portion;

a chuck barrel integral with the leading end portion of said chuck body and extending axially therefrom, said chuck barrel having a leading end portion, an outer peripheral conically tapered surface and a plurality of holes circumferentially distributed about said axis and extending from the leading end of said chuck barrel toward said chuck body;

a rotatable clamping ring positioned over said chuck barrel, said clamping ring having an inner conical surface extending in the axial direction of said chuck body and parallel with the outer peripheral surface of said chuck barrel;

a needle roller assembly having a predetermined axial length, said assembly comprising a plurality of needle rollers positioned between said chuck barrel and said clamping ring in rotatable contact with the conically tapered surface of said chuck barrel and conical surface of said clamping ring; and

the axial length of each of the plurality of holes corresponding substantially to the predetermined axial length of the needle roller assembly.

4,379,668

LOCKING DEVICE FOR SECURING CARGO IN A VEHICLE

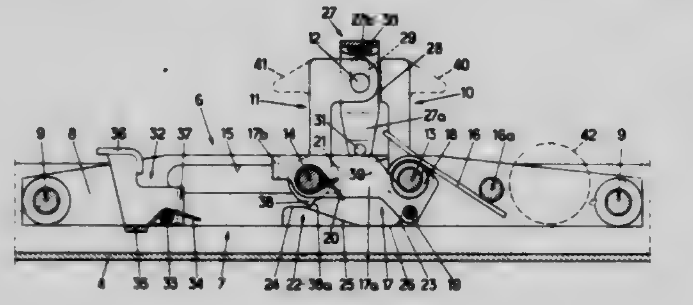
Robert Pelletier, Le Perreux, France, assignor to Pelletier Exploitation, Aubervilliers and Siren, Versailles, both of, France

Filed Feb. 24, 1981, Ser. No. 237,700

Claims priority, application France, Feb. 26, 1980, 80 04242

Int. Cl.³ B60P *7/08*

U.S. Cl. 410—77 **14 Claims**



1. A locking device for securing cargo in a vehicle, comprising:

a frame (7) comprising two first members (8) joined together by two second cross members (9) and capable of being fixed to the floor of the vehicle space intended to accommodate the cargo;

a first latch (10) and a second latch (11) hinged together at one of their ends by a common transverse pivot pin (12), said first latch (10) having at its non-hinged end a transverse hinge pin (13) mounted in a fixed position between said first members (8), and said second latch (11) having at its non-hinged end a transverse hinge pin (14) guided in translation in longitudinal slideways (15) in said first members (8);

means for changing said first and second latches (10, 11) from a cargo unlocking position, in which said latches are retracted down into said frame and said transverse hinge pins (13, 14) are separated to a cargo locking position, in which said first and second latches (10, 11) project above said frame (7) and said transverse hinge pins (13, 14) are brought near to each other;

spring means for drawing said first and second latches (10, 11) from the cargo unlocking position to the cargo locking position; and

first blocking means for blocking said first and second latches (10, 11) in the cargo unlocking position and second blocking means for blocking said first and second latches (10, 11) in the cargo locking position, respectively.

4,379,669

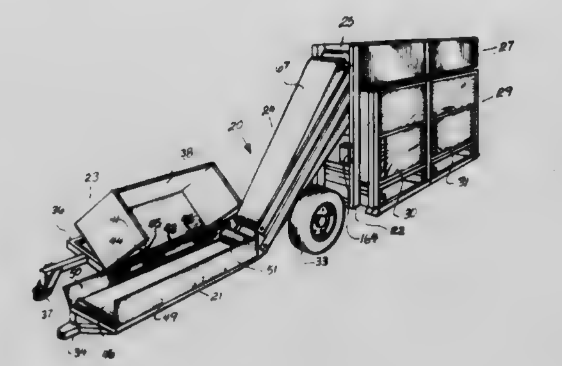
TOBACCO HANDLING APPARATUS

Robert W. Wilson, Charlotte, N.C., assignor to Powell Manufacturing Company, Inc., Bennettsville, S.C.

Continuation of Ser. No. 949,407, Oct. 10, 1978, abandoned, which is a continuation of Ser. No. 629,974, Nov. 7, 1975, abandoned. This application Nov. 17, 1980, Ser. No. 207,288

Int. Cl.³ A01D *45/16*

U.S. Cl. 414—21 **24 Claims**



1. Tobacco leaf handling apparatus for facilitating the loading of tobacco leaves into successive bulk curing structures each of which includes a plurality of parts movable with respect to one another between a tobacco leaf receiving and loading position and a tobacco leaf supporting and curing position, said apparatus being operable to transfer harvested tobacco leaves from a source into contained relation with successive parts of successive tobacco curing structures positioned with an area having a substantial horizontal extent, said apparatus comprising

conveyor means adapted to receive harvested tobacco leaves from a source and arranged for discharging the leaves from an end thereof with a force sufficient to propel the leaves through the air along and to the end of a flow path above said area having a greater horizontal extent than the horizontal extent of said area,

means for supporting successive curing structure parts within said area in a position below said flow path so that discharged tobacco leaves flowing in said path are available to be moved downwardly out of said path into contained relation with respect thereto,

tobacco leaf deflecting means mounted above said part supporting means within said flow path for generally horizontal cyclical movements in the direction of extent of said flow path,

means for effecting continuous cyclical movements of said deflecting means,

said tobacco leaf deflecting means including leaf engaging surface means open in a horizontal direction toward the discharge end of said conveyor means operable during the cyclical movement of said leaf deflecting means to intercept by engagement therewith successively available leaves propelled through the air along the flow path at different horizontal positions determined by the position of cyclic movement of said leaf deflecting means when engagement occurs so as to effect a substantially uniform distribution of the leaves in the direction of extent of the flow path with respect to said part supporting means therebelow.

4,379,670

LINEAR POCKET LETDOWN DEVICE

James G. Hannoosh, Sudbury; Andrew C. Harvey, Waltham; John C. Harding, Sudbury, and Ram Chandrasekhar, Framingham, all of Mass., assignors to Foster-Miller Associates, Inc., Waltham, Mass.

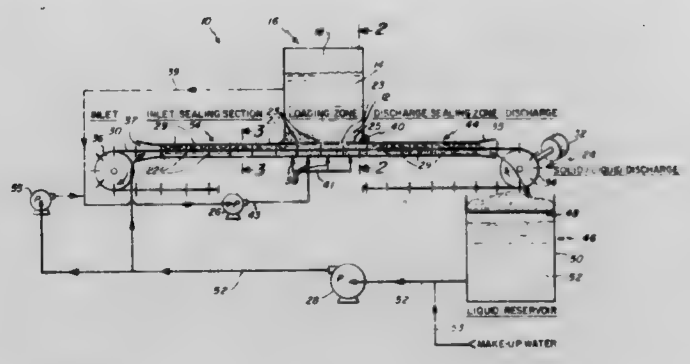
Filed Jul. 7, 1980, Ser. No. 166,151

Int. Cl.³ C10J *3/52*

U.S. Cl. 414—217 **19 Claims**

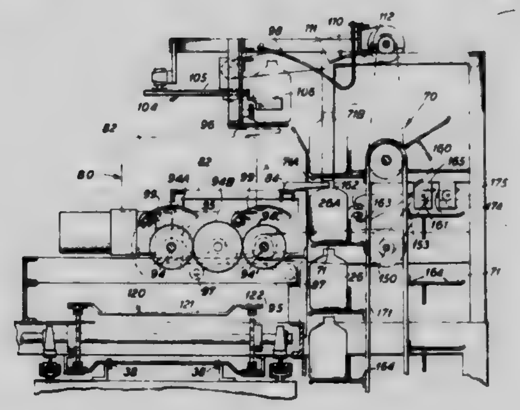
1. A system for removing solid material from the bottom of

a pressure vessel and discharging the solids to ambient conditions without relieving the vessel's pressure comprising a tube having an inlet end and an outlet end and connected intermediate its ends to the bottom of the pressure vessel for receiving the material from the vessel, a conveyor having a course which travels through the tube, motor means connected to the conveyor for driving it along its course, pocket means defined by consecutive pairs of pistons carried by the conveyor for con-



veying the material received in the tube from the vessel and carrying the material to the outlet of the tube, labyrinth seals formed by the pistons in the tube both upstream and downstream of the vessel for preventing vessel pressure loss through the inlet and outlet ends of the tube, a small annular clearance being formed between the pistons and the tube, and means for introducing liquid into the pockets at the inlet end of the tube upstream of the vessel, said liquid cooperating with the pistons to form moving labyrinth seals upstream of said vessel.

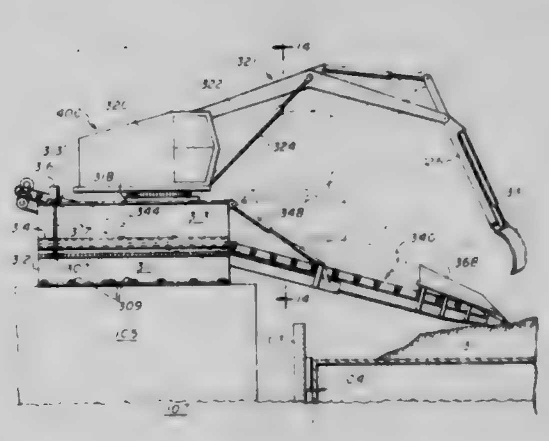
4,379,671
SYNCHRONIZED BOTTLE UNLOADING SYSTEM
Donald D. Cochran, Bartlett, Ill., assignor to National Can Corporation, Chicago, Ill.
Continuation-in-part of Ser. No. 909,617, May 26, 1978, abandoned. This application Jan. 18, 1980, Ser. No. 113,271
Int. Cl.³ B65G *43/10*
U.S. Cl. 414—331 **5 Claims**



1. In an article unloader system having a carrier for holding articles arranged in a stack of shelves, each shelf containing rows of articles, means for intermittently simultaneously unloading only the forwardmost rows of articles from said carrier, an elevator means having a plurality of flights respective to receive the unloaded rows of articles for intermittently transporting the unloaded rows of articles, a transfer mechanism being driven in circular motion cycles for removing the unloaded rows of articles a row at a time as each said flight reaches a predetermined point of travel and passing each said removed row of articles onto a conveyor means, a common drive source, and corresponding drive transmission means extending from said drive source for simultaneously intermittently driving said elevator means and said transfer mechanism, the improvement comprising:

a synchronization control means for regularly detecting the rate of movement of said elevator means at least once every cycle of said transfer mechanism and adjusting the speed of said elevator means to bring said elevator means back into synchronization with said transfer mechanism whenever movement of said elevator means is out of correlation with said transfer mechanism.

4,379,672
COMBINATION HANDLING AND CONVEYING APPARATUS
Roy D. Hunter, 2829 Texas Ave., Texas City, Tex. 77590
Filed May 12, 1980, Ser. No. 148,822
Int. Cl.³ B65G *41/00, 65/04, 67/60*
U.S. Cl. 414—565 **12 Claims**



1. An apparatus for off-loading and handling loose materials from a vessel, comprising
- a base structure,
- a generally inverted U-shaped chassis adapted for limited lateral movement with respect to said base structure, said chassis comprising
  - a pair of spaced beams mounted for horizontal sliding movement with respect to said base structure,
  - engaging means cooperating with said base structure and pair of spaced beams for engaging said base structure and pair of spaced beams and permitting said horizontal sliding movement of said pair of beams with respect to said base structure, and
  - frame means attached to and spanning said pair of spaced beams for forming an upper frame structure,
- drive means for moving said chassis with respect to said base structure,
- a platform rotatably mounted on said upper frame structure of said chassis,
- means for horizontally rotating said platform with respect to said upper frame structure of said chassis,
- an elongated articulated boom means mounted on said platform for rotation therewith and for longitudinal extension beyond said chassis, said boom means having a free extending end,
- longitudinally extendable conveyor means suspended within said
- generally inverted U-shaped chassis below said platform and adapted for limited arcuate vertical movement with respect thereto, said conveyor means having a loading end projecting from said chassis and movable to a position in contact with the loose material for cooperating with said free extending end of said boom means, and
- material handling means disposed on said free extending end of said boom means and cooperating with said conveyor means loading end for loading the materials into said conveyor means.

4,379,673

ARRANGEMENT FOR ATTACHING WORKING IMPLEMENTS TO VEHICLE

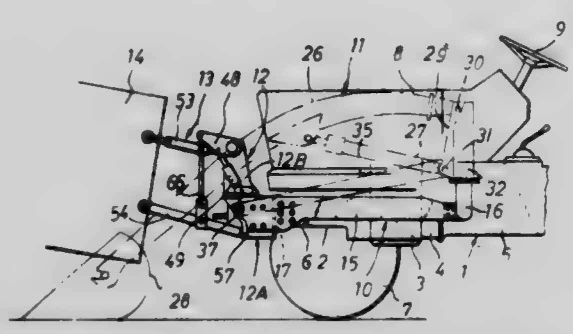
Sadayuki Takahashi; Yorio Komeda; Matsuo Tachibana, and Kenkichi Nosaka, all of Sakai, Japan, assignors to Kubota Ltd., Osaka, Japan

Filed Aug. 20, 1981, Ser. No. 294,796

Claims priority, application Japan, Aug. 26, 1980, 55-121694[U]

Int. Cl.³ E02F *3/72*

U.S. Cl. 414—686 7 Claims



1. An arrangement for attaching working implements to a vehicle comprising a pair of side frames provided on the opposite sides of the body of the vehicle and extending longitudinally thereof, the side frames having mount portions for attaching to the vehicle body a front loader with a pair of booms liftable on the opposite sides of the vehicle body, each of the side frames being provided at its front end with an upright frame extending upward in front of the bonnet of the vehicle and including a mount member at the base portion thereof and an upright member removably attached to the mount member, the side frames and the upright frames being provided with a front three-point linkage for attaching a front working implement to the vehicle body and with lift cylinders for lifting or lowering the front working implement by the front three-point linkage.

4,379,674

LOAD SKIDDING VEHICLE HAVING A POSITIONALLY BIASED GRAPPLE

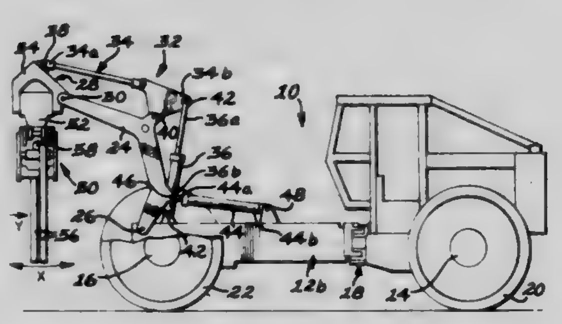
Thomas C. Meisel, Jr., and Robert J. Price, both of Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US81/00950, § 371 Date Jul. 13, 1981, § 102(e) Date Jul. 13, 1981

PCT Filed Jul. 13, 1981, Ser. No. 292,099

Int. Cl.³ B66C *1/32*

U.S. Cl. 414—699 9 Claims



1. A load skidding vehicle (10) comprising:
a vehicle chassis (12);
a boom (24) mounted on said chassis (10);
means (28) connected to said boom (24) for releasably grasping loads, said grasping means (28) being movable between an open, load releasing configuration and a closed, minimum opening load grasping configuration, said grasping means (28) including
a pair of relatively movable tongs (56); and
a fluid grapple ram (58) having a grasping cylinder (58*b*) and a grasping piston (58*a*) displaceably disposed in said grasping cylinder (58*b*), said grasping piston (58*a*) being connected to one of said tongs (56) and said grasping cylinder (58*b*) being connected to said other tong (56), said grasping piston (58*a*) dividing said grasping cylinder (58*b*) into a third (58*c*) and a fourth (58*d*) fluid tight portion;
means (32) for displacing said grasping means (28) to a predetermined position between a rearwardly extending position and a forwardly extending position relative to said chassis (12), said displacing means (32) including
a fluid equalizer ram (36) constituting a cylinder (36*b*) and a piston (36*a*) displaceably disposed in said cylinder (36*b*), said piston (36*a*) dividing said cylinder (36*b*) into a first (36*c*) and a second (36*d*) fluid tight portion, said piston being connected to said grasping means (28) and said cylinder being joined to said chassis (12);
selectively actuatable first means (66,68,70,72,78,62′,68′) for continually biasing said displacing means (32) with a predetermined biasing force toward a selected load skidding position, said first biasing means (66,68,70,72,78,68′) permitting displacement of said grasping means (28) away from said load skidding position in response to load-induced forces greater than said biasing force, said first biasing means (66,68,70,72,78,62′,68′) including
a fluid reservoir (66);
means (68,68′) for supplying pressurized fluid at a discharge pressure;
means (70,72,62′) for providing fluid communication from said pressurized fluid supply means (68,68′) to said first cylinder portion (36*c*) when said biasing force is desired; and
means (78,62′) for providing fluid communication between said second cylinder portion (36*d*) and said reservoir (66) when said biasing force is desired; and
second means (74,96,64′) for biasing said tongs (56) toward said closed, minimum opening load grasping configuration with a predetermined grasping force.

4,379,675

DAMPENED FULLY PIVOTAL HANGER FOR A GRAPPLE

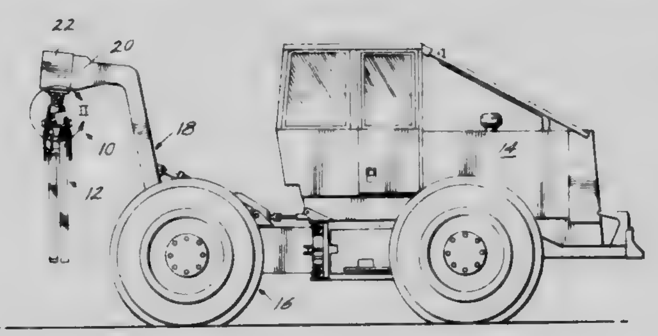
John R. Muntjanoff, Aurora, and Dennis M. Day, Hinckley, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/01647, § 371 Date Dec. 4, 1980, § 102(e) Date Dec. 4, 1980

PCT Filed Dec. 4, 1980, Ser. No. 270,533

Int. Cl.³ B66C *1/00*

U.S. Cl. 414—734 14 Claims



1. A dampened pivotal hanger assembly (10) adapted to be fixed to a supportive structure (14), comprising:
a main mounting member (24) attachable to the supportive structure (14), said main mounting member (24) having two support portions (28) a spaced distance apart;
mounting means (30) attached to each support portion (28);
a pair of first pivoting members (32), each of said first pivoting members (32) being connected to a corresponding one of said mounting means (30) and being pivotable with respect to said support portions (28);
crossmember means (38) joining the first pivoting members

(32) one to the other, said crossmember means (38) supporting two horizontally spaced pivot pins (44);

a pair of second pivoting members (48), each of said second pivoting members (48) being attached to a corresponding one of said second pivot pins (44) and being pivotable with respect to said first pivoting members (32);

first extendable-retractable dampening means (60) connected between said main mounting member (24) and at least one of said first pivoting members (32) for resisting pivoting of said first pivoting members (32); and

second dampening means (68) connected between said crossmember means (38) and at least one of said second pivoting members (48) for dampening pivoting of the second pivoting members (48) relative to said crossmember means (38) wherein said main mounting member (24), said first pivoting members (32) and said second pivoting members (48) define a central, substantially vertically extending recess (71).

4,379,676

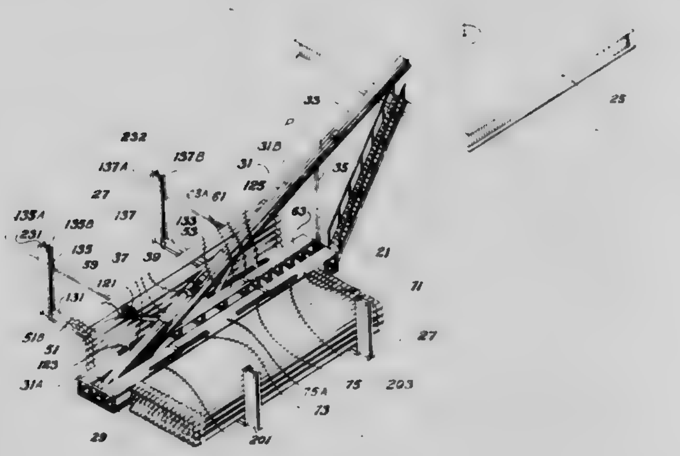
PIPE HANDLING SYSTEM

Robert Frias, Odessa, Tex., assignor to Ingram Corporation, New Orleans, La.

Filed Feb. 27, 1980, Ser. No. 125,162

Int. Cl.³ E21B *19/14*

U.S. Cl. 414—748 **25 Claims**



1. An apparatus for transferring lengths of pipe between a pipe handling apparatus and a pipe rack located on one side of the pipe handling apparatus comprising:

a first arm member having first and second ends, said first end being pivotally connected to said one side for pivotal movement about a first axis;

a second arm member having first and second ends, said first end being pivotally connected to said one side for pivotal movement about a second axis,

said first axis and said second axis being generally parallel and positioned generally on the same horizontal plane,

a first lug means rotatably attached to said first arm member generally at said second end and extending towards said pipe rack,

a second lug means fixedly attached to said second arm member generally at said second end and extending towards said pipe rack,

said first lug means and said second lug means being capable of supporting a length of pipe, and

a pivoting means connected to said first arm member and to said second arm member for pivoting said first arm member about said first axis and said second arm member about said second axis.

4,379,677

DEVICE FOR ADJUSTING THE CLEARANCE BETWEEN MOVING TURBINE BLADES AND THE TURBINE RING

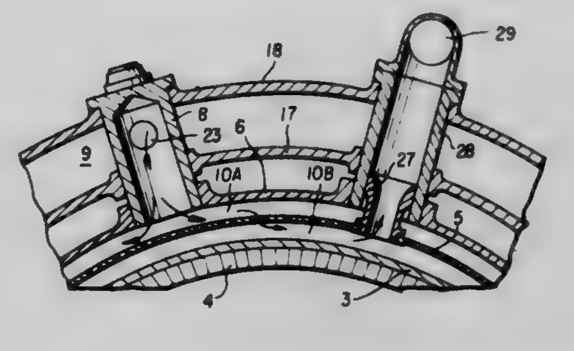
Claude C. Hallinger, and Robert Kervistin, both of Le mee sur Seine, France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.", Paris, France

Filed Oct. 7, 1980, Ser. No. 194,890

Claims priority, application France, Oct. 9, 1979, 79 25028

Int. Cl.³ F01D *11/00, 11/08*

U.S. Cl. 415—175 **8 Claims**



1. A device for adjustment of the clearance between the blades and circumferentially continuous monoblock ring of a turbine, comprising:

an inner sleeve having a seal gasket mounted thereto,

a perforated, cylindrical partition encompassing the sleeve and fastened thereto;

a peripheral wall forming a distribution chamber for the air which heats or cools the ring,

an opposite wall;

an enclosure formed by said inner sleeve which supports said seal gasket, and said opposite wall; and

a plurality of tubular elements radially connecting said enclosure to the distribution chamber and ensuring the passage of heating or cooling air from the distribution chamber to the enclosure,

wherein said inner sleeve and partition are circumferentially continuous and wherein said opposite wall has bore holes for receiving one end of the tubular elements, further comprising an exhaust pipe and tubular exhaust elements, each of said exhaust elements further comprising an end opening into the enclosure and including a nozzle operatively associated with an opening provided in the perforated partition, each of said exhaust elements also including an end opening to the outside of the distribution chamber and means for connecting with said exhaust pipe.

4,379,678

INDIVIDUAL BLADE CONTROL

Gaylord W. Carlock, Joshua; Jimmy G. Garner; Charles M. Gatlin, both of Hurst; Kenneth F. Guinn, Fort Worth, and Peter A. Reyes, Watauga, all of Tex., assignors to Textron, Inc., Providence, R.I.

Filed Oct. 7, 1980, Ser. No. 194,804

Int. Cl.³ B64C *27/74*

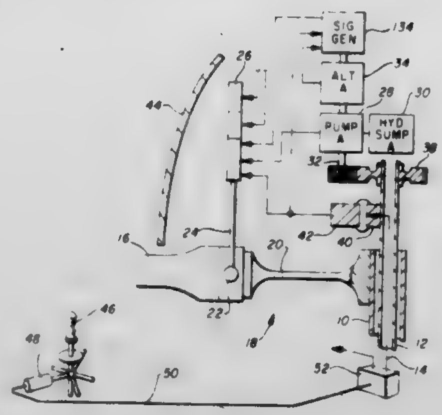
U.S. Cl. 416—98 **19 Claims**

1. Apparatus for individually controlling each blade of a rotor that rotates with a mast which drives the rotor through a rotating hub, the improvement comprising:

a plurality of blade actuators mounted to rotate with the hub and individually coupled to a rotor blade for control thereof;

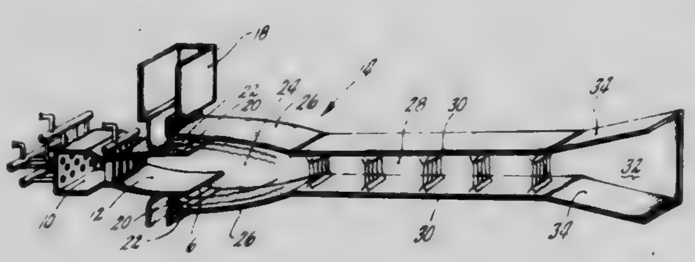
a plurality of power packages mounted to rotate with the rotating hub, each power package individually actuated

by rotation of the hub to provide actuator power and control signals; and



control channels for connecting the actuator power and control signals from each power package to each blade actuator to control blade pitch.

4,379,679
SUPERSONIC/SUPERSONIC FLUID EJECTOR
Roy N. Guile, Wethersfield, Conn., assignor to United Technologies Corporation, Hartford, Conn.
Filed Dec. 1, 1980, Ser. No. 211,613
Int. Cl.[3] F04F *5/46*
U.S. Cl. 417—54 **4 Claims**

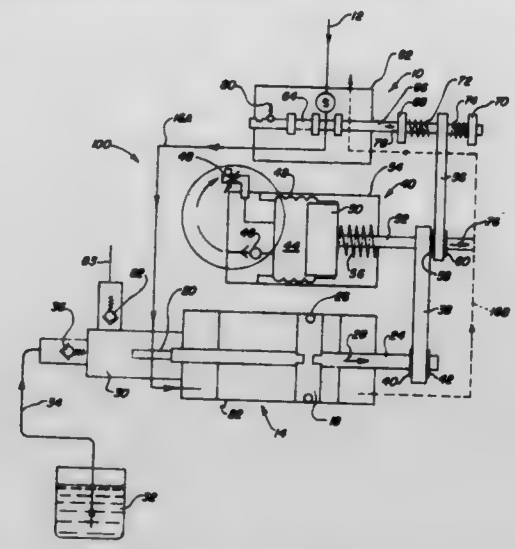


1. In an ejector of the type for pumping a supersonic velocity, ejector driven medium to a higher pressure, the improvement comprising:

means for generating a multiplicity of weak shock waves extending into the driven medium at an acute angle to the direction of flow for compressing the driven medium at supersonic velocities including at least one first driving medium nozzle capable of discharging an ejector driving medium laterally of and parallel to the driven medium at a supersonic velocity greater than the supersonic velocity of the driven medium and at a static pressure above the static pressure of the driven medium.

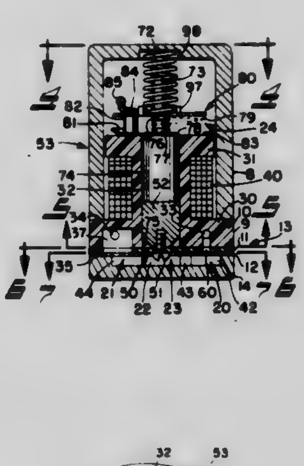
4,379,680
AMBIENT AIR TIMING DEVICE
William L. Barry, Houston, Tex., assignor to Vapor Corporation, Chicago, Ill.
Continuation of Ser. No. 68,728, Aug. 22, 1979, Pat. No. 4,302,159. This application Jun. 18, 1981, Ser. No. 274,787
The portion of the term of this patent subsequent to Nov. 24, 1998, has been disclaimed.
Int. Cl.[3] F04B *49/00*
U.S. Cl. 417—46 **4 Claims**

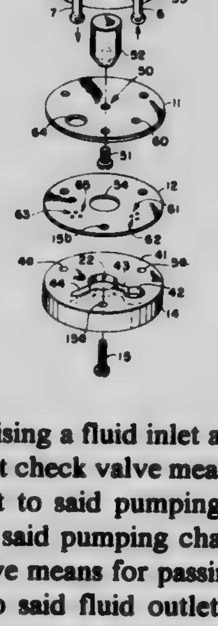
1. A fluid timer for a reciprocating pump wherein said pump includes a housing, a reciprocating piston mounted in said housing and a piston rod secured to said piston, said timer comprising a bellows, said bellows including a moveable wall for varying the fluid volume in said bellows, control means for controlling the rate of fluid flow into and out of said bellows, a supply fluid directional control valve for directing fluid to said pump housing on a selected side of said piston for reciprocating said piston, first lost motion connecting means for connecting said wall and said piston rod for allowing independent movement between said wall and said piston rod during at least a portion of a first stroke of said piston, and second lost motion connecting means connecting said wall to said fluid directional valve for allowing independent movement between said wall



and said fluid directional valve during at least a portion of a second stroke of said piston.

4,379,681
FLUID PUMP WITH DUAL DIAPHRAGM CHECK VALVES
Paul R. Goudy, Jr., 8920 Hampton Ave., Milwaukee, Wis. 53225, assignor to Paul R. Goudy, Jr., Shorewood, Wis.; Bruce J. Landis, Sunrise, Fla. and Kenneth J. Landis, University Heights, Ohio
Filed Jan. 4, 1980, Ser. No. 109,547
Int. Cl.[3] F04B *21/02, 39/10, 43/04*
U.S. Cl. 417—560 **3 Claims**





1. A fluid pump comprising a fluid inlet and a fluid outlet; a pumping chamber; an inlet check valve means for passing fluid flow from said fluid inlet to said pumping chamber and for blocking fluid flow from said pumping chamber to said fluid inlet; an outlet check valve means for passing fluid flow from said pumping chamber to said fluid outlet and for blocking fluid flow from said fluid outlet to said pumping chamber; pumping means for drawing fluid from said fluid inlet via said

inlet check valve into said pumping chamber and for pumping fluid from said pumping chamber via said outlet check valve to said fluid outlet; at least one of said inlet and outlet check valve means comprising a self-sealing check valve assembly, including a first relatively rigid member having a plate-like surface and bounded by boundary portions of said surface; a second relatively rigid member having a plate-like surface and a fluid passage means opening at said plate-like surface of said second relatively rigid member and bounded by boundary portions of said plate-like surface of said second relatively rigid member; flexible means positioned between said plate-like surfaces for cooperating with said boundary portions to provide a substantially fluid-tight seal therewith; and said flexible means including movable means for moving upon flexure of said flexible means in response to a pressure differential across said flexible means, said movable means including means operative when said flexible means moves substantially to opposite extreme positions thereof to block fluid flow between said fluid passage means and to permit such fluid flow, respectively; said flexible means having plural flexible parts each having a resilient characteristic, one of said parts having a surface area portion for blocking fluid flow through at least one of said inlet check valve means and outlet check valve means in response to one directional pressure differential thereacross and being capable of permitting fluid flow through said at least one check valve means in response to an opposite direction pressure differential thereacross, and the other of said parts having an opening aligned with at least one of said fluid passage means and with said surface area of the one of said parts, said opening being adequately large to permit flexible deformation of said other part into said opening.

4,379,682

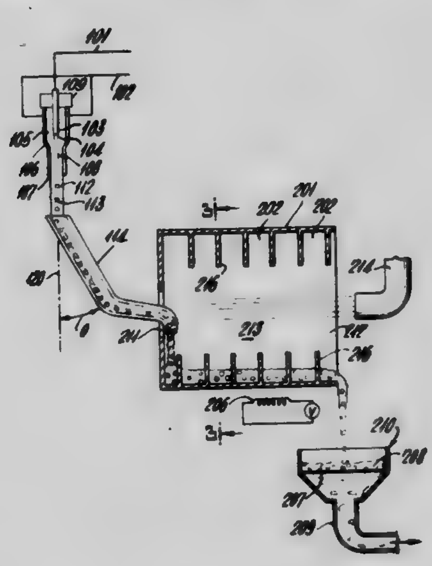
REACTION APPARATUS FOR THE FORMATION OF MICROSPHERES OR MICROCAPSULES

Peter J. Natale, Canton, and Igino Lombardo, Sharon, both of Mass., assignors to Ortho Diagnostics, Inc., Raritan, N.J.

Filed Apr. 29, 1981, Ser. No. 258,715

Int. Cl.³ B29C 23/00

U.S. Cl. 425—10 5 Claims



1. Microparticle formation apparatus for use in a system of microparticle formation from a flowing stream of a core liquid ejected from the exit of a vibrating nozzle concurrently and coaxially into a flowing stream of a sheath liquid forming a composite liquid stream wherein droplets formed of said core liquid within said sheath liquid are formed into microparticles, said formation apparatus further comprising:

(a) a drum having a substantially horizontal longitudinal axis therethrough, said drum defining an inlet end and an outlet end and forming a cavity between said inlet and outlet ends, and an internal spiral channel means extending between said inlet and outlet ends;

(b) mixing means intermittently spaced within said channel means to provide turbulence in the flow of said composite liquid stream from said inlet end to said outlet end; and

(c) means for rotating said drum about said longitudinal axis.

4,379,683

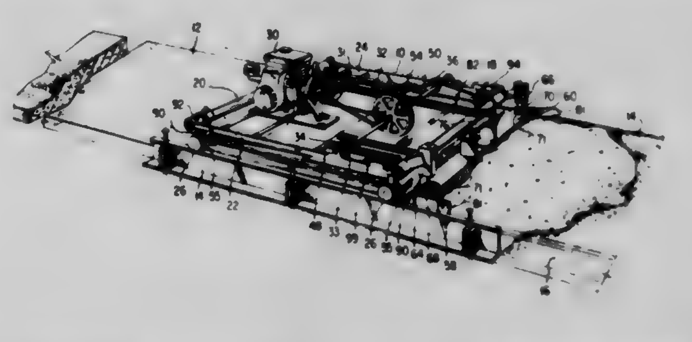
CONCRETE FORMING APPARATUS

Stuart N. Rodgers, and Sidney J. Voycheshin, both of 7605 - 115 St., Delta, British Columbia, Canada (V4C 5M9)

Filed May 14, 1980, Ser. No. 149,726

Int. Cl.³ E01C 19/38

U.S. Cl. 425—62 14 Claims



1. Apparatus for forming, compacting and finishing the top surface of concrete poured between a pair of removable longitudinally extending parallel opposed forms, said apparatus comprising:

(a) a frame having forward and rearward ends which extend transversely between opposed first and second sides of said frame, said ends and said sides substantially defining a plane;

(b) a wooden concrete pre-finishing member disposed along the forward end of said frame, said member having a lower surface configured to vary in vertical distance from said plane along the transverse axes of the forms, and said member being relatively wide when measured in the direction of longitudinal extension of the forms;

(c) vibrator means affixed to said frame for causing vibration of said member;

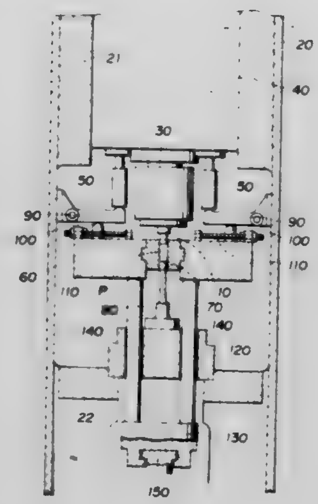
(d) a finishing pan rigidly affixed beneath said frame to the rear of and adjacent said member and extending between said first and second sides of said frame and configured to vary in vertical distance from said plane along the transverse axes of the forms;

(e) transporting means on said first side of said frame and transporting means on said second side of said frame for engaging said frame on top of the forms and permitting movement of the apparatus along the forms with said ends extending transversely of the forms and with said member extending transversely between the forms; and,

(f) propulsion means affixed to said frame for propelling the apparatus along the tops of forms whereby poured concrete beneath the apparatus is formed, compacted and finished to a depth which varies along transverse axes of the forms;

said member having a portion of said lower surface shaped to define a semi-conical recess in regions of relatively abrupt change in said vertical distance, the apex of said recess lying at the rearward edge of said lower surface and the base of said recess lying along the forward edge of said lower surface.

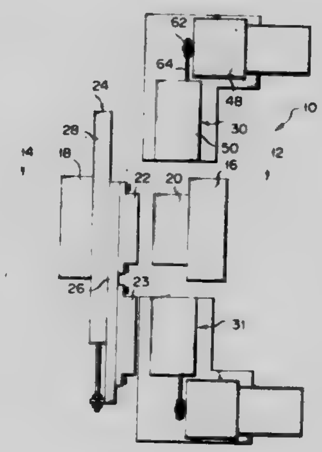
4,379,684
PRESS FOR POWDER METALLURGY
Takeshi Katagiri, Machida, and Takakazu Tsuchifuji, Tokyo, both of Japan, assignors to Yoshizuka Seiki Co., Ltd., Kawasaki, Japan
Filed Jun. 11, 1981, Ser. No. 272,679
Claims priority, application Japan, Jun. 13, 1980, 55-79853
Int. Cl.³ B30B *11/02*
U.S. Cl. 425—78 **3 Claims**



1. A press for powder metallurgy comprising:
a frame;
a die holder mounted on said frame for movement with respect to said frame;
an open-ended die mounted in said die holder;
a lower punch fixed with respect to said frame and forming the bottom of said die;
an upper punch movable with respect to said frame and insertable into said die to form the top thereof;
an upper ram for vertically moving said upper punch into said die at a first rate of speed;
poke rods vertically movable by said upper ram;
levers pivotally connected to and extending inwardly from said frame and having head portions positioned vertically below said poke rods so that said head portions are contacted and pivoted downwardly by said poke rods;
screw threaded rods carried by said die holder and spaced above the upper surfaces thereof; and
receiving pieces translatable along said threaded rods by rotation of said rods, said receiving pieces being positioned vertically below said levers so that said receiving pieces are contacted by said levers when said levers are pivoted downwardly by said poke rods whereby said die is moved downwardly at a rate of speed determined by the positions of said receiving pieces on said rods to thereby subject material in the die to compressive forces simultaneously acting on both the top and bottom surfaces of material in the die.

4,379,685
INJECTION MOLDING MACHINE
Tetsuya Tada, Tokyo, and Yutaka Morishita, Shiki, both of Japan, assignors to Canyon Corporation, Tokyo, Japan
Filed Jul. 30, 1981, Ser. No. 288,405
Claims priority, application Japan, Feb. 5, 1980, 55-12676
Int. Cl.³ B29F *1/00*
U.S. Cl. 425—183 **2 Claims**

1. An injection molding machine comprising:
a fixed die and a movable die defining cavities therebetween;
a die clamping mechanism coupled to said fixed and movable dies for clamping and separating said fixed and movable dies, said die clamping mechanism being movable in a horizontal direction;
an injection mechanism for heating and melting molding material and for injecting the molten material into said cavities defined by said fixed die and said movable die;
a fixed platen provided near said injection mechanism and to which said fixed die is attached;
a movable platen provided near said die clamping mechanism and to which said movable die is attached;
a slider provided on said movable platen and which is reciprocably slideable in a horizontal direction different from the horizontal direction in which said die clamping mechanism is movable;
said movable die and another movable die being attached to said slider so as to alternately come into face-to-face relation with said fixed die as said slider reciprocates;
a pair of product collecting mechanisms respectively disposed on both sides of said fixed die, and arranged to face one of said movable dies which is not facing said fixed die, each of said pair of product collecting mechanisms including:



a product collecting main body having first and second body portions, said first body portion being slideably mounted to said second body portion;
a plurality of first hollow shafts rotatably mounted on said first body portion, said first hollow shafts having respective center bores and being arranged such that a threaded product in said movable die is inserted in a center bore of each said first hollow shafts to be taken out of said movable die; and
a plurality of second hollow shafts as many as said first hollow shafts rotatably mounted to said second body portion, each second hollow shaft having a center bore through which said threaded product can pass;
said first and second hollow shafts having end faces which face each other; and
a power source coupled to said second hollow shafts for rotating each of said second hollow shafts so that facing end faces of said first and second hollow shafts selectively come into contact with each other to selectively frictionally transmit force therebetween.

4,379,686
APPARATUS FOR MOLDING A RECORDED DISC
Robert W. Chambers, Willingboro, N.J.; Michael L. McNeely, and Leslie A. Torrington, both of Indianapolis, Ind., assignors to RCA Corporation, New York, N.Y.
Division of Ser. No. 187,161, Sep. 15, 1980, which is a continuation-in-part of Ser. No. 146,379, May 5, 1980, abandoned. This application Feb. 24, 1982, Ser. No. 352,000
Int. Cl.³ B29D *17/00*
U.S. Cl. 425—290 **7 Claims**

1. In an apparatus for molding a recorded disc which includes a pair of mold plates adapted to form therebetween a disc mold cavity, and a center hole forming pin movable in one of the mold plates toward and away from the other mold plate at the center of the mold cavity, the improvement comprising:
said center hole forming pin being larger in diameter than the hole to be formed and having a cylindrical projection extending from its end surface which is of the diameter of the

hole to be formed, the projection being of a length such that when the end of the projection mates with the other mold

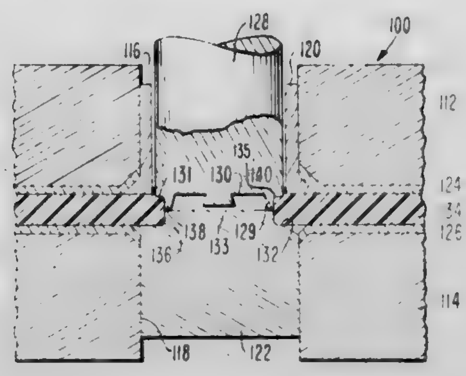


plate to form the hole in the disc, the end surface of the pin around the projection forms an extension of a surface of the mold cavity.

4,379,687

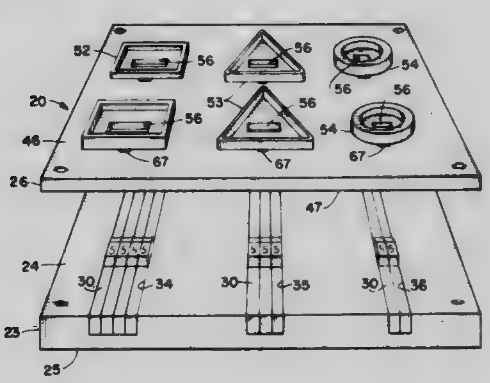
MOLD APPARATUS

Robert E. Wilson, 6116 W. Karen Lee La., Glendale, Ariz. 85306, and Dan Mickelson, 2930 W. Orangewood, Phoenix, Ariz. 85017

Continuation of Ser. No. 160,820, Jun. 18, 1980, abandoned. This application Mar. 6, 1981, Ser. No. 241,249

Int. Cl.³ B29C *17/03*

U.S. Cl. 425—388 **8 Claims**



4. A mold apparatus including in combination, a base member having first and second spaced surfaces, said base member having at least one air duct extending between said first and second spaced surface thereof, a mold member having first and second spaced surfaces, said second surface of said mold member being located adjacent said first surface of said base member, said first surface of said mold member having at least one mold configuration about which material is adapted to be molded, said mold member having a die receiving opening in said mold configuration extending therethrough to said second surface of said mold member, a die member residing in said die receiving opening, indicia means carried on said die member and located within said mold configuration to reproduce said indicia means on the material which is adapted to be molded about the mold configuration, and air evacuation openings extending between said first and second surfaces of said mold member and being in fluid communication with said at least one air duct to evacuate air from said mold configuration.

4,379,688

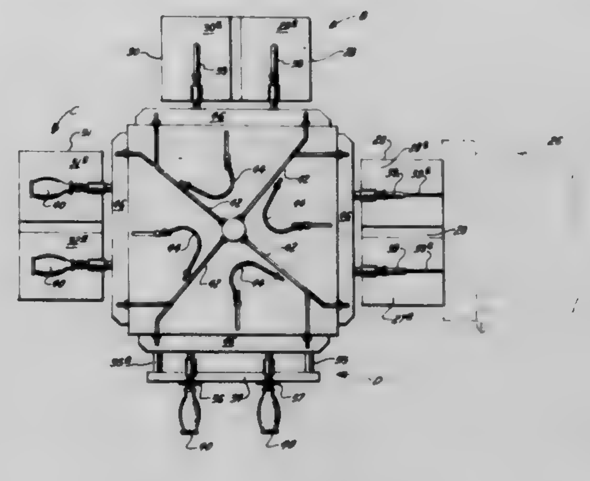
ORIENTED INJECTION BLOW MOLDED CONTAINER PRODUCTION

Dennis J. Tate, Grand View, and Henry Trevino, Kansas City, both of Mo., assignors to Ethyl Development Corporation, Richmond, Va.

Filed Sep. 14, 1981, Ser. No. 301,834

Int. Cl.³ B29C *17/07*

U.S. Cl. 425—526 **11 Claims**



1. An apparatus for producing injection blow molded biaxially oriented plastic articles from plastic parisons comprising:

a. a frame member;

b. a transport table mounted to said frame member for rotational movement about and reciprocally along the central axis of said transport table;

c. a table power means associated with said transport table for effecting said rotational and reciprocal movements;

d. at least one transversally extending hollow core rod fixedly mounted on said table, said rod having a longitudinally extending hollow portion and said rod having first sealing means at its distal end;

e. an elongated stretch pin movably mounted in said hollow portion and said stretch pin having,

i. at its distal end second sealing means for cooperation with said first sealing means to achieve a seal between said first and second sealing means,

ii. first locking means in mounted relationship with the proximate end of said stretch pin, and

iii. first engagement moving means associated with said stretch pin whereby movement of said first engagement moving means causes movement of said stretch pin in said hollow portion;

f. a second locking means mounted to said transport table for cooperation with said first locking means to lock said stretch pin from movement when said stretch pin is in the position within said hollow portion to achieve said seal between the said first and second sealing means;

g. a second engagement moving means movably mounted to said frame member for engagement with said first engagement moving means when said transport table is in its lowered position at the blow molding station of (h);

h. a power means for moving said second engagement moving means when it is in said engagement with said first engagement moving means whereby said movement of said stretch pin in said hollow portion is effected, said seal is broken and the distal end of said stretch pin is moved a distance sufficient to cause axial stretch of said plastic parison carried by said core rod;

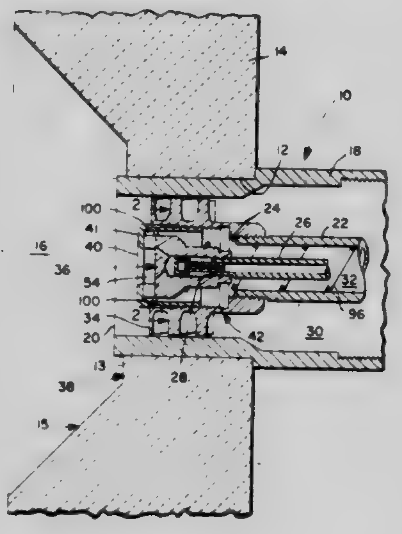
i. unlocking means mounted to said frame member for unlocking said lock between said first and second locking means when said transport table is in its lowered position at the blow molding station of (h);

j. an injection molding station adjacent said transport table for receipt of said hollow core rod so that said parison can be injection formed on said hollow core rod; and

k. a blow molding station for blow forming said article from

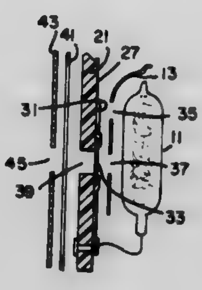
said injection formed parison while said parison is on said hollow core rod, said blow molding station being located adjacent said second engagement moving means and said unlocking means.

4,379,689
DUAL FUEL BURNER
Charles W. Morck, Jr., Philadelphia, Pa., assignor to Selas Corporation of America, Dresher, Pa.
Filed Feb. 13, 1981, Ser. No. 234,357
Int. Cl.³ F23M *9/00*
U.S. Cl. 431—284 **10 Claims**



1. In a burner mountable in a passageway exiting into a furnace, including:
a. a housing, received by said passageway, opening into said furnace;
b. a first conduit within said housing;
c. a second conduit within said first conduit;
d. means for introducing first fluid between said first and second conduits;
e. means for introducing second fluid into said second conduit;
f. means for introducing third fluid between said housing and said first conduit;
g. means proximate said housing opening, for inducing swirling motion to third fluid discharged from said housing into said furnace;
h. means attached to said first conduit for discharging said first and second fluids into said furnace through said housing opening;
the improvement comprising:
i. said housing opening extending into said furnace;
j. said discharge means being recessed within said housing;
k. said swirl-inducing means being recessed within said housing from said discharge means outlet;
l. said discharge means including:
1. an outer member receiving said first fluid from said first conduit, having an open end facing said housing opening, said outer member about said open end tapering away from said housing opening;
2. an inner member, interior of and spaced from said outer member, receiving said second fluid from said second conduit, including
i. a cavity therewithin communicating with said outer member open end;
ii. passageways therethrough connecting said second conduit with said cavity;
iii. channels therethrough connecting said cavity with said space between said inner and outer members;
wherein associated channels and passageways communicate with said cavity at a common location.

4,379,690
PHOTOFLASH SWITCHING ARRAY AND FABRICATION UTILIZING SILVER-OXIDE COATED SOLIDS
Michael R. Kling, White Deer, and Carl F. Kackenmeister, Williamsport, both of Pa., assignors to GTE Products Corporation, Stamford, Conn.
Filed Aug. 13, 1981, Ser. No. 292,372
Int. Cl.³ F21K *5/00*
U.S. Cl. 431—359 **24 Claims**



1. A multilamp photoflash sequential array having at least one radiation-responsive switch including an admixture of a filler material, a binder, silver-coated non-conductive particulate solids and characterized by the improvement wherein said admixture includes silver-salt coated non-conductive particulate solids.

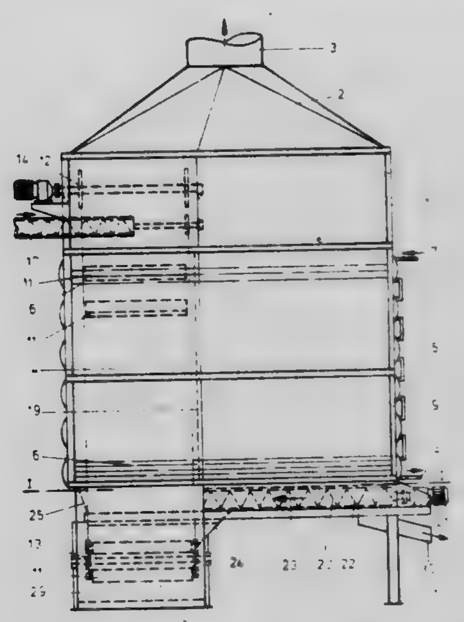
4,379,691
OLIVINE BEDDING MATERIAL FOR SOAKING PITS
Joseph E. Doninger, Lake Forest, Ill., and George D. Hanson, Audubon, Pa., assignors to International Minerals & Chemical Corp., Terre Haute, Ind.
Filed Oct. 13, 1981, Ser. No. 310,960
Int. Cl.³ F27D *1/16;* **C21B** *7/04*
U.S. Cl. 432—3 **9 Claims**

6. In an improved method of operating a metal ingot soaking pit having a horizontal bottom, sidewalls and top defining a heating chamber, the improvement comprising covering the bottom of said soaking pit with a layer of a particulate olivine material having an iron oxide content less than about 11% measured as FeO, and having a heat fusion point of at least about 2600° F., said olivine material providing improved handling, uniform thermal insulation and a substantially horizontal uniform supporting bed for metal ingots being carried in said soaking pit, whereby the ingots retain substantially vertical positions during treatment.

4,379,692
METHOD OF DRYING AND PREHEATING MOIST FINE MATERIAL AND APPARATUS FOR CARRYING OUT THE METHOD
Heinrich Weber, Recklinghausen; Kurt Lorenz, Hattingen, and Horst Dungs, Herne, all of Fed. Rep. of Germany, assignors to Firma Carl Still GmbH & Co. KG, Recklinghausen, Fed. Rep. of Germany
Filed Aug. 3, 1981, Ser. No. 289,235
Claims priority, application Fed. Rep. of Germany, Aug. 2, 1980, 3029398
Int. Cl.³ F26B *9/12, 3/00, 17/12*
U.S. Cl. 432—18 **15 Claims**

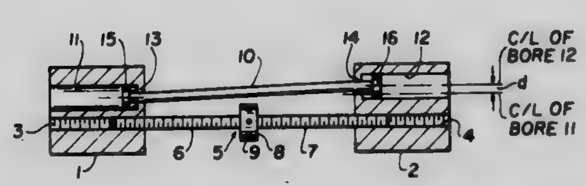
1. A method of drying and preheating moist fine material, in particular bituminous and soft bituminous coal, peat, wood, oil shale, ores or lime stone, in a system having a single open drier chamber with heating means having heating surfaces extending into the drier chamber for indirect heating of the fine material, fine material supplied to a top of the drier chamber being able to fall upon and past the heating surfaces from the top of the drier chamber to a bottom of the drier chamber, the method comprising:

continuously feeding a first amount of moist fine material to the top of the drier chamber above the heating means;
conveying a second amount of predried fine material from the bottom of the drier chamber to the top of the drier chamber;
mixing the second amount of predried fine material with the first amount of moist material at the top of the drier chamber and above the heating means to make a mixture of predried and moist fine material which is fluid;



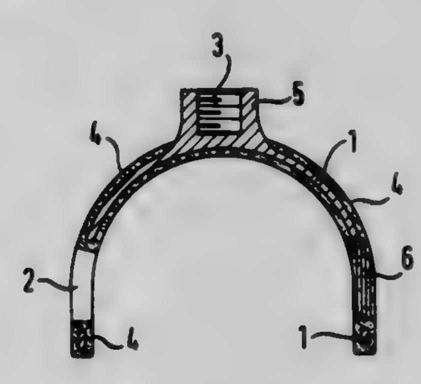
allowing the fluid mixture to slide down the drier chamber onto and between the heating surfaces and to pile up to a level in the drier chamber above the heating means; and
removing a third amount of predried fine material from a bottom of the drier chamber below the heating means, the third amount equaling the first amount of moist fine material being fed to the top of the drier chamber.

4,379,693
ORTHODONTIC BIASSING DEVICE
Melvin Wallshein, 8645 Bay Pkwy., Brooklyn, N.Y. 11214
Continuation-in-part of Ser. No. 785,587, Apr. 7, 1979, Pat. No. 4,200,979. This application Dec. 17, 1979, Ser. No. 104,310
Int. Cl.^{3} A61C *3/00*
U.S. Cl. 433—7 **51 Claims**



1. An orthodontic biassing device comprising:
two body members adapted to engage one or more teeth and to be spaced from each other, each of said body members having a threaded bore therein, said threaded bores being oppositely threaded;
an elongated threaded member having externally threaded end portions which are oppositely threaded and which are engageable in said threaded bores of said body members to selectively expand or contract the spacing between said body members;
each of said body members having a first further bore therein which is laterally offset from said threaded bore, said first further bores having respective axes which are non-colinear with each other;
a first elongated member coupled to both of said body members and slideably engaged in said first further bore of said at least one body member and serving as a guide bar for said biassing device;
each of said body members having a second further bore therein which is laterally offset from said threaded bore and which is laterally offset from said first further bore, said second further bores having respective axes, said first and second further bores being located on the same side of said body member, all of said threaded bores and said first and second further bores having axes which lie substantially in a common plane, to permit substantially free access to said elongated threaded member over at least 180°; and
a second elongated member coupled to both of said body members and slideably engaged in said second further bore of at least one of said body members and serving as a second guide bar for said biassing device.

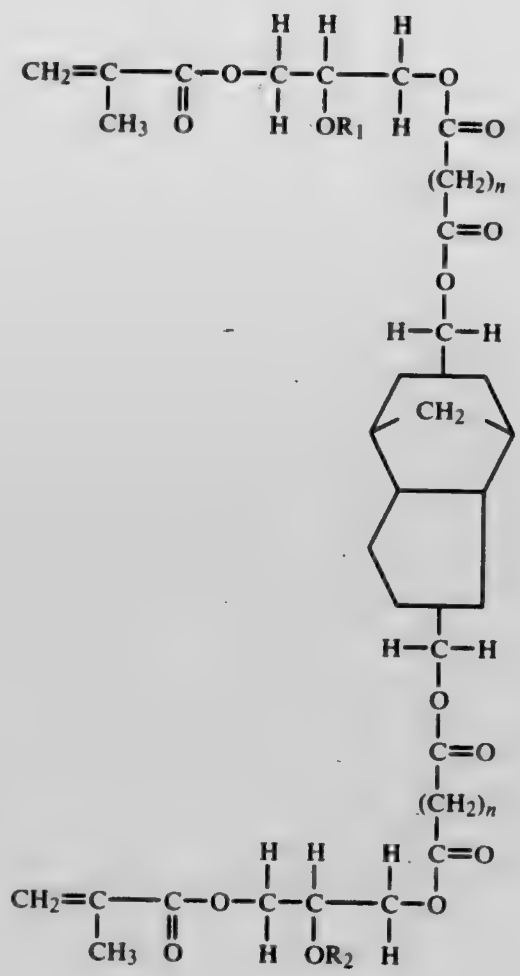
4,379,694
DENTAL IMPLANT
Guido Riess, Garmisch-Partenkirchen, Fed. Rep. of Germany, assignor to Neodontics, Inc., Laguna Niguel, Calif.
Filed Nov. 9, 1978, Ser. No. 959,292
Claims priority, application Fed. Rep. of Germany, Jun. 1, 1978, 2824118
Int. Cl.^{3} A61C *8/00*
U.S. Cl. 433—201 **6 Claims**



1. In a dental implant including a gingiva-compatible metal core member for mounting a dental superstructure in the form of a tooth crown, a fastening element for dental bridges or the like in which the member is connected with a tissue-compatible, biostable polymer matrix having reabsorbable, bioreactive, sintered calcium phosphate, the improvement comprising: said core member being a flat metal plate (**1, 11**) conformed in shape to said implant and being provided with through-apertures (**2, 12**) and the polymer matrix is a coating (**4, 14**) encompassing the metal plate (**1, 11**) on all sides thereof, and said through-apertures (**2, 12**) are filled with reabsorbable, sintered calcium phosphate (**6, 16**).

4,379,695
DENTAL MATERIAL COMPRISING DIMETHYACRYLATE ADDUCTS OF GLYCIDYL METHACRYLATE WITH DIESTERS OF BIS(HYDROXYMETHYL) TRICYCLO[5.2.1.0^{2,6}]DECANE AND DICARBOXYLIC ACIDS
Jan A. Orlowski, Altadena; David V. Butler, West Covina, and Patrick D. Kidd, San Dimas, all of Calif., assignors to Scientific Pharmaceuticals, Inc., Duarte, Calif.
Continuation-in-part of Ser. No. 155,160, Jan. 2, 1980, Pat. No. 4,337,349. This application May 27, 1981, Ser. No. 267,609
Int. Cl.^{3} A61K *6/08*
U.S. Cl. 433—217 **13 Claims**

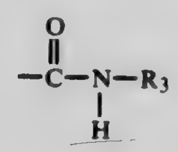
1. A dental material comprising polymerizable unsaturated material comprising at least about 10% by weight of a dimethacrylate monomer
having the following chemical structure:



where

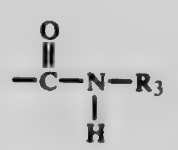
n represents a number of 2 to 8;

R_1 and R_2 are the same or different and are hydrogen or one or more groups of the formula:



where

R_3 is an aliphatic group of 1-14 carbon atoms, aromatic group of 6 to 14 carbon atoms or cycloaliphatic group having 3 to 14 carbon atoms and at least one of R_1 and R_2 is



the remainder of said polymerizable material being at least 10% by weight of at least one acrylic or methacrylic monomer acceptable for oral application associated with dental treatment.

4,379,696

LATEX MYLAR CHIP

Stanley Lerner, Highland Park, Ill., assignor to Color Communications, Inc., Chicago, Ill.

Filed Feb. 12, 1981, Ser. No. 233,843

Int. Cl.³ G09F *7/00;* A44B *7/00*

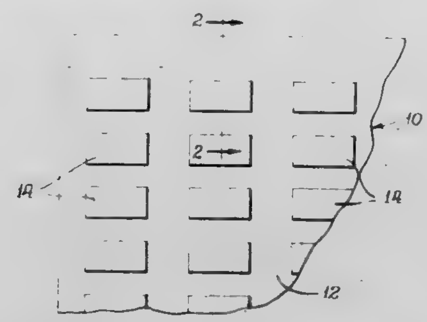
U.S. Cl. 434—98 **12 Claims**

1. A color sample display device capable of being produced with an automated apparatus, said display device comprising a plurality of color swatches consisting essentially of polyethylene terephthalate film having a thickness of from about ½ mil to about 7 mils, a paint coating on the surface of said film;

an adhesive on said coating or unpainted surface of said film; and

a base sheet with said color swatched adhesively affixed thereto.

5. A color display product capable of being produced with an automated apparatus said display product consisting essentially of a polyethylene terephthalate film base with a thickness of from about ½ mil to about 7 mils;



a paint coating on one surface of said film base;

an adhesive coating; and

a mount base, said film base being adhesively affixed to said mount base with said adhesive coating being on said painted coating or on said unpainted surface of said film base.

4,379,697

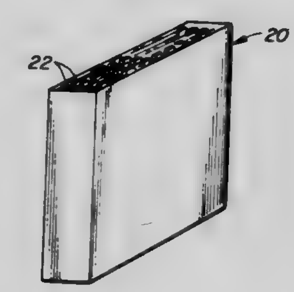
STIMULATOR ARRAY

John G. Linvill, Portola Valley, Calif., assignor to Stanford University, Stanford, Calif.

Filed Oct. 16, 1981, Ser. No. 312,094

Int. Cl.³ G09B *21/00*

U.S. Cl. 434—114 **7 Claims**



1. Tactile stimulator apparatus comprising:

a stack of planar sheets of a piezoelectric polymer material, each sheet having two, opposed, broad, flat faces and at least one tactile surface at one longitudinal end,

separate electrodes covering portions of each flat face of the sheets in predetermined patterns which are mirror images of the corresponding electrode patterns of the next adjacent sheet face,

and wherein each of said sheets is polarized in the direction of its tactile end such that upon application of a stimulating voltage of a predetermined magnitude and polarity from an external source across the electrodes of that sheet, the portion of the sheet between the electrodes will longitudinally extend its tactile surface.

4,379,698

ASTROLOGY CHART APPARATUS

George M. Boyd, 1050 S. Beech, Wichita, Kans. 67207

Filed Mar. 25, 1981, Ser. No. 247,389

Int. Cl.³ G09B *29/00*

U.S. Cl. 434—106 **9 Claims**

1. An astrology chart apparatus, comprising;

(a) a central base means having a base plate member with central plate indicia means thereon;

(b) a first means pivotally connected to said central base means;

(c) said central base means extended beyond the outer edge of said first means with said central plate indicia means having house picture indicia on said extended portion to identify respective houses of heaven;

(d) said central plate indicia means having house characteristic indicia means underlying said first means, associated with a respective one of said house picture indicia;

(e) said first means includes first indicia means and first window means thereon;

(f) said first indicia means includes characteristic categorizing indicia to be associated with said house characteristic indicia;

(g) said first window means having a characteristic window adjacent said characteristic category indicia, said house charateristic indicia, and said characteristic categorizing indicia;

(h) a second means piviotally connected to said central base means on a side opposite said connection of said first means thereto;

(i) said second means includes second indicia means and second window means;

(j) said central plate indicia means includes sign key word indicia underlying said second means; and

(k) said second window means includes a second key words window for aligning and viewing said sign key word indicia therethrough.

4,379,699

METHOD OF AND MEANS FOR IMPROVED READING EFFICIENCY OF PERSONS WITH SPECIFIC DYSLEXIA

Eileen M. Nelson, 71 Cathryn Ct., Fox Lake, Ill. 60020

Filed Oct. 3, 1980, Ser. No. 193,754

Int. Cl.³ G09B *17/00*

U.S. Cl. 434—184 **15 Claims**

1. The method of increasing the reading efficiency of a dyslexiac suffering from specific dyslexia, comprising providing to such dyslexiac reading material wherein the reading matter comprises a first line of lettering having a brightness substantially less than that of the background on which the lettering is provided, and a second line of similar reading matter adjacent said first line and having a second line of lettering having a brightness substantially greater than that of the background on which the second line of lettering is provided.

4,379,700

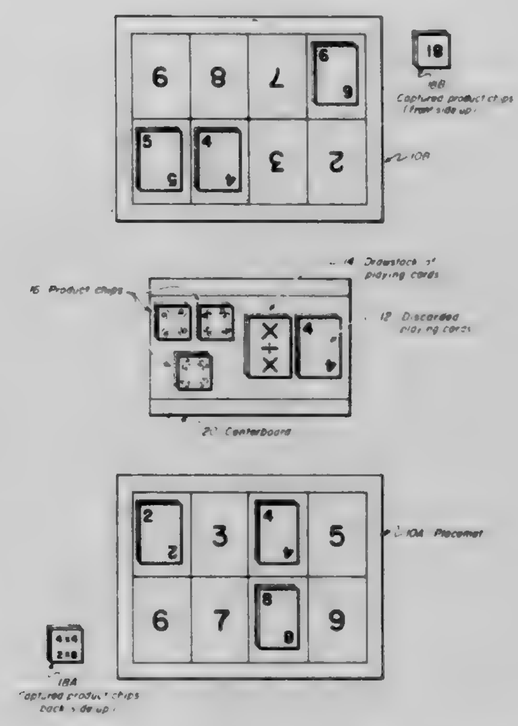
MULTIPLICATION/DIVISION TUTORIAL GAME

Clyde Pollock, 42665 Roberts Ave., Fremont, Calif. 94538

Filed May 18, 1981, Ser. No. 264,467

Int. Cl.³ G09B *19/02;* A63F *1/00*

U.S. Cl. 434—208 **10 Claims**



1. A multiplication/division tutorial game comprising:

(a) a plurality of product pieces, each bearing at least one occurrence of multiplication product number such that each product piece represents a different multiplication product, and such that said plurality of product pieces represent a set of multiplication products

(b) a plurality of multiplier-multiplicand pieces, each bearing at least one occurrence of a whole multiplier-multiplicand number such that each multiplier-multiplicand piece represents only a single multiplier or multiplicand, said multiplier-multiplicand pieces comprising all possible multiplier-multiplicand number combinations of a given set of whole numbers which can be multiplied to equal the set of product numbers represented by said plurality of product pieces.

4,379,701

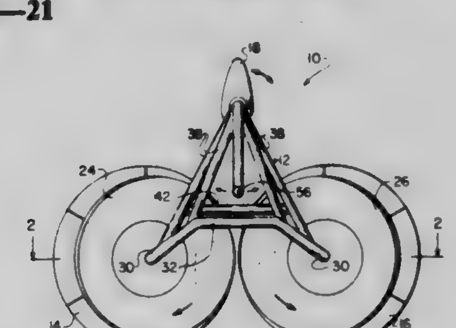
BUOYANT APPARATUS PROPELLED BY A HUMAN OPERATOR

Constant V. David, 4952 Field St., San Diego, Calif. 92110

Filed Mar. 23, 1981, Ser. No. 246,227

Int. Cl.³ B63H *16/00*

U.S. Cl. 440—21 **9 Claims**



1. A buoyant apparatus adapted to be propelled by a human operator comprising:

a frame;

a pair of buoyant annular floats;

a pair of annular platforms, each mounted on the upper side of a corresponding float;

a plurality of paddles mounted on the under sides of the floats at circumferentially spaced locations thereon;

means for rotatably mounting the floats to the frame with their rotational axes converging upwardly,

the convergence of the axes and the buoyancy of the floats being such that a person can be buoyantly supported in the water by the apparatus with the outboard portions of the floats raised out of the water sufficiently to result in forward propulsion of the apparatus when the person rotates the adjacent inboard portions of the platforms rearwardly; and

steering means for enabling the person to direct the apparatus through the water, including an elongate buoyant pontoon, means for mounting the pontoon to the frame for rotation about a substantially vertical axis, and a steering linkage connected to the pontoon mounting means for permitting the person to grasp and move the linkage to turn the pontoon.

4,379,702

INTAKE DUCT FOR AN OUTBOARD ENGINE

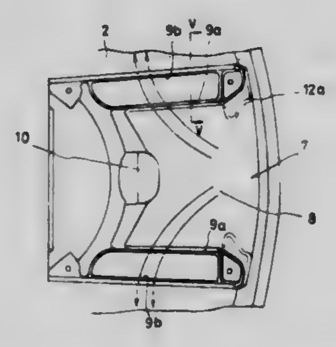
Yukimitsu Takada; Hiroshi Harada, both of Shizuoka, and Shuji Takubo, Hamamatsu, all of Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Jan. 5, 1981, Ser. No. 222,559

Claims priority, application Japan, Jan. 10, 1980, 55-1527

Int. Cl.³ B63H *21/26*

U.S. Cl. 440—77 **6 Claims**



1. An intake duct for an outboard engine, said engine having a cowling atop it, said cowling having a recess in its rear top portion above said engine, a right and left first side wall for said recess, an opening at the rear of said recess, and a back wall opposed to said opening; and a cover plate covering and enclosing the top of said recess, and completing, with said cowling, said rear opening, each of said first side walls defining an intake port located along the top edge of said first side walls and below said cover plate, each said intake port extending for a substantial length at an upper elevation adjacent to said cover plate, and opening into said cowling in a direction lateral to said cowling; air flow into said recess flowing through said rear opening and impinging on said back wall, and then dividing to flow sidewardly, over said first side walls, and through said intake ports in a direction lateral to said cowling.

4,379,703

APPARATUS FOR SECURING FINS TO A SURFBOARD

James A. Mizell, Huntington Beach, Calif., assignor to California Fin Systems, Huntington Beach, Calif.

Filed May 4, 1981, Ser. No. 260,488

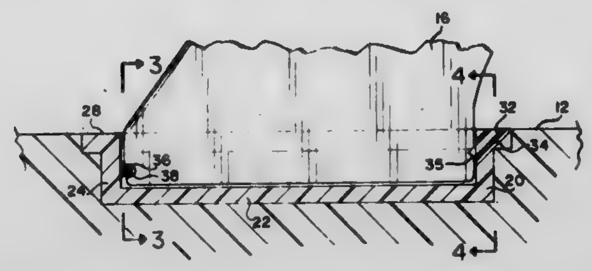
Int. Cl.³ A63C *15/05*

U.S. Cl. 441—79 **3 Claims**

3. A unitary fin box for a surfboard of the type that employs at least one removable fin on the water-side surface thereof, the fin box comprising:

an open elongated box-like member having a floor member, a pair of opposing shorter end members, a pair of opposing longer side members, said floor, end members and side members interconnected to form an elongated slot for receiving the base portion of said removable fin,

said fin box also having a flange member extending substantially parallel to said floor member along the entrance to said slot, and at least one aperture extending diagonally into said slot extending through one of said end members and through said flange member and toward said floor member for receiving fastening means for securing said base portion within said slot.



4,379,704

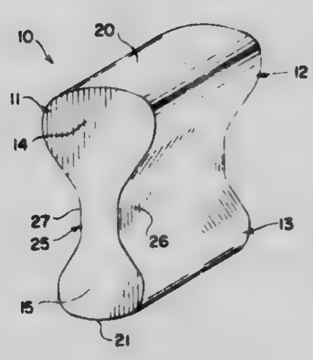
LEG BUOY FOR TRAINING SWIMMERS

Thomas P. Rademacher, Medina, Ohio, assignor to NcNeil Corporation, Akron, Ohio

Filed Apr. 29, 1981, Ser. No. 258,603

Int. Cl.³ B63C *9/08*

U.S. Cl. 441—88 **10 Claims**



1. A buoy for supplementing the buoyancy of a swimmer's legs comprising, a unitary foam member adapted for engagement with and selective retention by the legs of a swimmer, said member having spaced cylindrical elements, said cylindrical elements being of generally prolate circular cross section, the circular cross section of one of said cylindrical elements being substantially smaller than the circular cross section of the other of said cylindrical elements in that engaging the buoy with the cylindrical element of smaller cross-section submerged provides lesser buoyant effect than with the other cylindrical element submerged, shank means spacing and joining said cylindrical elements, said shank means being substantially narrower than the circular cross section of either of said cylindrical elements, and a flexible generally water impervious skin encompassing the entirety of said unitary member.

4,379,705

LIFE BELT

Hikoji Saotome, 1-12-10 Naka-Kokubo, Ichikawa-shi, Chiba-ken, Japan

Filed Aug. 19, 1981, Ser. No. 294,359

Claims priority, application Japan, Aug. 22, 1980, 55-118989[U]

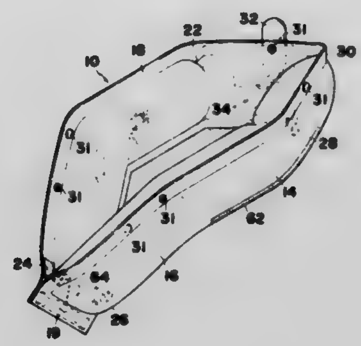
Int. Cl.³ B63C *9/16*

U.S. Cl. 441—94 **4 Claims**

4. An inflatable life belt comprising:

two sheet members each having a first middle portion and second end portions in a symmetrical shape, said second end portions being extended from said first middle portion in an opposite direction and inclined at about 120°-160°

relative to a longitudinal direction of said first middle portion, said two sheet members being sealed together at their circumferences to form as upper flange, lower flange and two end flanges to thereby form a sealed gas chamber, said sheet members sealed together being folded such that said end flanges of the second portions are connected together to thereby form an annular inflatable tubular body,



means for releasably fastening said tubular body around the waist of a person who uses the life belt,

a capsule containing therein compressed gas for inflating said life belt, and

an actuator for releasing the gas into said life belt for inflation.

4,379,706

SLIDABLE-TYPE CONSTANT VELOCITY UNIVERSAL JOINT

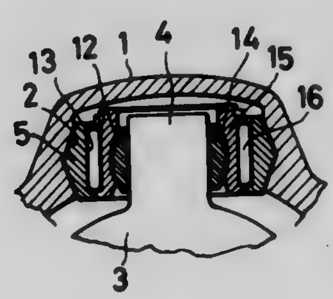
Nobuyuki Otsuka, Kawagoe, and Seiichi Hirai, Sayama, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 958,820, Nov. 8, 1978, abandoned. This application Dec. 8, 1980, Ser. No. 214,289

Claims priority, application Japan, Apr. 5, 1978, 53-39254

Int. Cl.³ F16D *3/20*

U.S. Cl. 464—111 **9 Claims**



1. A slidable constant velocity universal joint comprising inner and outer members having free ends which are interengaged, said outer member having three axially extending grooves disposed parallel to one another, said inner member including three radially projecting pods, a roller slidably received on each pod for movement axially thereof and rollably engaged in a respective groove for transmitting rotatable drive between said members, said members having an axially aligned position and being relatively movable to provide relatively inclined positions of said members, and means supporting each roller on its associated pod for axial slidable movement, for universal pivotal movement and for rotation thereon so that when the inner and outer members are inclined with respect to one another the rollers are tilted and axially moved with respect to their respective pods and remain axially aligned in said grooves, said means including a universal pivoting mounting slidably mounted on each said pod and a roller bearing interposed between said roller and said universal pivotal mounting, each said roller and its associated groove having contact surfaces of conforming shape, said pod having an outer cylindrical surface, said roller having an inner cylindrical surface, said roller bearing being engaged with the cylindrical surface of the roller, said universal pivotal mounting comprising inner and outer guide rings, said inner guide ring being engaged with the cylindrical surface of the respective pod, said outer guide ring being engaged with said roller bearing, said guide rings having contact surfaces engaged with one another of spherical shape.

4,379,707

SPLINED JOINTS

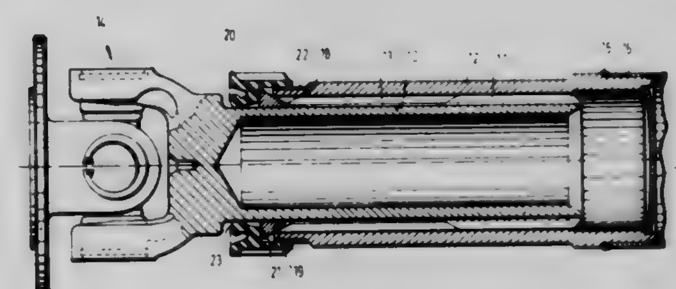
Leslie G. Fisher, Birmingham, England, assignor to BRD Company Limited, Aldridge, England

Filed Aug. 26, 1981, Ser. No. 296,524

Claims priority, application United Kingdom, Aug. 29, 1980, 8028008

Int. Cl.³ F16D *3/06*

U.S. Cl. 464—162 **5 Claims**



1. A slidable splined joint between rotary members, comprising a male member having a plurality of axially extending radially outwardly projecting teeth spaced apart angularly about its rotational axis, a female member having a plurality of inwardly projecting teeth which interfit with the teeth of the male member, and an annular, radially contractible support bearing at the end of the female member engaging the male member to support the latter relative to the female member, wherein there is provided a retaining member by which the support bearing is held in engagement with the female member by way of a tapered surface for contracting the support bearing onto the male member, and screw threaded means by which the retaining member is engaged with the female member, said screw threaded means incorporating a yieldable element so that it cannot be overtightened to cause the support bearing to bind on the male member.

4,379,708

PROCESS FOR TANNING FISH SKINS

Norberto O. S. Rego, 1145 NW. 42st St., Miami, Fla. 33127
Filed Feb. 18, 1982, Ser. No. 349,729
Int. Cl.³ C14C *3/28, 3/04, 3/06*
U.S. Cl. 8—94.12 **17 Claims**

1. A process for the production of tanned fish skins which comprises:
(a) contacting dry fish skins with an aqueous solution of a neutral salt said solution having a pH adjusted into the range 1.5 to 3.5,
(b) subjecting said fish skins to a two step tanning operation wherein after said first tanning step said skins are washed at a temperature of not more than 35° C. and the second tanning step is carried out using a more concentrated solution than the first tanning step at a temperature of not less than 35° C. and
(c) washing the tanned skins and treating them in an aqueous aqueous bath with an anionic grease and then an oil and then with an alkali metal salt of a weak organic acid followed by an alkali to raise the pH to at least 6.

4,379,709

PROCESS FOR DISINFECTING AND PRESERVING HIDES AND SKINS

Franz Margold, Seeheim-Jugenheim, Fed. Rep. of Germany, assignor to Riedel de Haen Aktiengesellschaft, Seelze, Fed. Rep. of Germany
Filed Jun. 17, 1981, Ser. No. 274,388
Claims priority, application Fed. Rep. of Germany, Jun. 19, 1980, 3022849
Int. Cl.³ C14C *9/00*
U.S. Cl. 8—94.18 **6 Claims**

1. A process for disinfecting and preserving one or more hides or skins of any kind and provenance by treating it or them with one or more substances having a disinfectant and preservative action, which comprises contacting the one or more hides or skins with up to 2 weight %, calculated on the weight of said one or more hides or skins, of a mixture consisting of an inorganic zinc salt and an acid amide, or said mixture in combination with at least one further nitrogen-containing organic preservative, and subsequently with 5 to 10 weight %, calculated on the weight of said one or more hides or skins, of common salt and 0.5 to 2.5 weight %, calculated on the weight of said one or more hides and skins, of a mono- or dibasic carboxylic acid of from 1 to 6 carbon atoms.

4,379,710

NOVEL COMPOSITIONS AND PROCESSES

Nathan N. Crounse, Myrtle Beach, S.C., assignor to Sterling Drug Inc., New York, N.Y.
Continuation-in-part of Ser. No. 44,238, May 31, 1979, abandoned. This application Feb. 19, 1981, Ser. No. 235,969
Int. Cl.³ C09B *47/04*
U.S. Cl. 8—527 **7 Claims**

1. A storage-stable dye composition comprising a concentrated, free-flowing aqueous solution containing by weight of the entire composition:
(a) as the dye constituent approximately 9 to approximately 40 percent of acid addition salts of a phthalocyanine of the formula

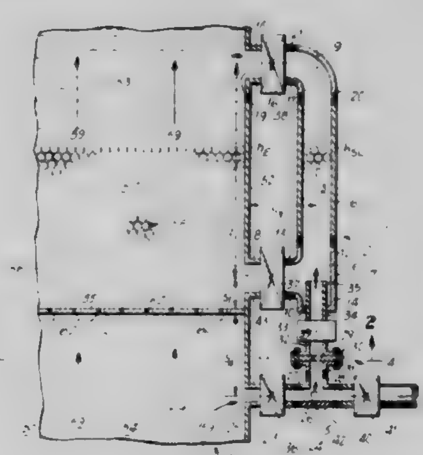
$$\left[\mathrm{CuPc}\begin{array}{l}-\!\!\left[SO_2NHC_2H_4NHC_2H_4NH_2\right]_m\\ -\!\!\left[SO_3H\right]_n\end{array}\right.$$

with a single acid or mixed acids wherein: Pc is phthalocyanine, m is a number from one to five, and n is a number from zero to one;
(b) from zero to approximately 10 percent of a C_1 to C_2 alkanesulfonic acid selected from the group consisting of methanesulfonic acid and ethanesulfonic acid;
(c) approximately 5 to approximately 30 percent of an acid selected from the group consisting of acetic acid, propionic acid, glycolic acid, 3-hydroxypropionic acid, lactic acid, hydrochloric acid and hydrobromic acid;
(d) approximately 5 to approximately 25 percent of urea or a glycol selected from the group consisting of ethylene glycol, propylene glycol, diethylene glycol and diethylene glycol monoethyl ether; and
(e) the remainder being water.

4,379,711

APPARATUS AND METHOD FOR VISUALLY MONITORING AN ION EXCHANGE FLUIDIZED BED

Donald P. Satchell, Jr., Clifton, Ariz., assignor to Phelps Dodge Corporation, New York, N.Y.
Division of Ser. No. 110,839, Jan. 10, 1980, Pat. No. 4,298,466. This application Apr. 13, 1981, Ser. No. 253,293
Int. Cl.³ B01D *35/14;* **B01J** *8/20;* **G01N** *33/00*
U.S. Cl. 436—82 **6 Claims**



1. A method for visually monitoring the characteristics of an ion exchanger fluidized bed, wherein the exchanger includes a process solution for supply to the fluidized bed, the fluidized bed including a preferentially absorbing resin and the solution, the method comprising:
a. establishing a visually observable sample fluidized bed displaced from the exchanger fluidized bed in fluid communication with the exchanger fluidized bed such that resin is transferred between the exchanger fluidized bed and the sample fluidized bed;
b. diverting a quantity of solution from the exchanger to form a solution sample;
c. passing the solution sample through an orifice to establish a predetermined flow rate for the solution sample;
d. introducing the solution sample at a controlled flow rate to the sample fluidized bed;
e. returning the solution sample to the exchanger above the exchanger fluidized bed after the solution sample has passed through the sample fluidized bed, whereby the height of the sample fluidized bed is representative of the height of the exchanger fluidized bed.

4,379,712

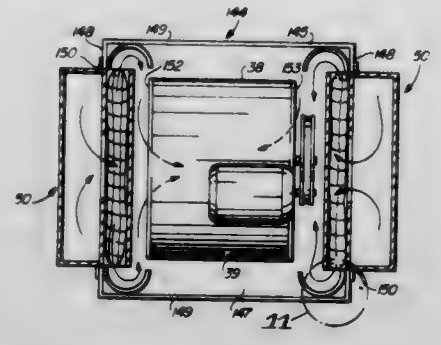
EVAPORATIVE COOLER

Charles J. Sperr, Jr., and Douglas C. Sperr, both of 8432 E. Wilshire Dr., Scottsdale, Ariz. 85257
Filed Aug. 24, 1981, Ser. No. 295,638
Int. Cl.³ B01D *50/00*
U.S. Cl. 55—257 R **4 Claims**

1. In an evaporative cooler including
a housing having an upright surface with an opening therein,
an air pervious, liquid absorbing evaporative pad spanning said opening and having a discharge surface,
means for supplying liquid to said pad, and
blower with said housing means for drawing a stream of air through said pad,

said stream of air exiting said pad in a direction generally normal to said discharge surface and having droplets of said liquid entrained therein,

improvements therein for settling said droplets from said air stream, said improvements comprising:



baffle means downstream of said discharge surface for receiving said air stream thereagainst, said baffle means being generally elongate and having a longitudinal edge substantially parallel to the discharge surface of said pad and being generally arcuate in cross-section such that the direction of said air stream is altered to flow in a substantially opposite direction.

4,379,713

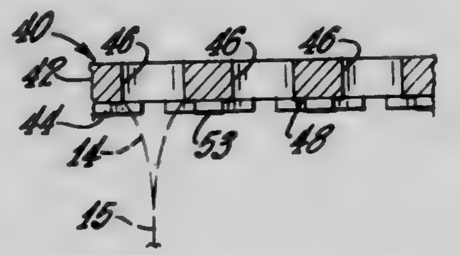
METHOD AND APPARATUS FOR FORMING GLASS FIBERS

Arnold J. Eisenberg, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Dec. 16, 1981, Ser. No. 331,446

Int. Cl.^{3} C03D *37/025*

U.S. Cl. 65—1 **12 Claims**



1. A method of forming glass filaments comprising:

providing a feeder having an orificed wall having a substrate having a plurality of orifices therethrough adapted to issue attenuable streams of molten glass, said substrate and molten material exhibiting a first contact wetting angle; and a control layer joined to said substrate to form a recess around the individual orifices having a network of channels interconnecting said recesses, said channels being adapted to permit said molten glass to move therethrough from one recess to another recess at predetermined times, said channels and recesses having at least a portion of the surface defining said channels and recesses comprised of said substrate, said control layer and said molten glass exhibiting a second contact wetting angle therebetween, the first contact wetting angle being less than the second contact wetting angle such that the molten glass has tendency to prefer to move through said channels from an orifice having a filament attenuation disruption to a non-disrupted orifice;

issuing streams of molten glass from said orificed wall; and attenuating the streams into filaments.

4,379,714

METHOD FOR REGULATING THE GRANULOMETRIC CHARACTERISTIC OF THE COMPONENTS IN METALLURGICAL SLAGS

Stoycho M. Stoev; Shtelyana D. Dshendova; Kiril N. Stoyanov; Raycho V. Dochev, all of Sofia, and Tzvetan P. Krestev, Vratza, all of Bulgaria, assignors to Vish-Minnogeoloshki Institute, Sofia, Bulgaria

Continuation-in-part of Ser. No. 198,621, Oct. 20, 1980, abandoned. This application Dec. 18, 1981, Ser. No. 332,255

Int. Cl.^{3} C03B *5/18*

U.S. Cl. 65—19 **3 Claims**

1. A method for regulating the granulometric characteristics of the components in metallurgical slags, comprising the step of subjecting the slag, after the separation of the slag from a metllurgical furnace and during its cooling, to an adjustable vibration action having a frequency of from 12 to 100 Hz and an amplitude from 0.2 to 5 mm or having an average vibrational radius in circular vibration from 0.4 to 12 mm, whereby rapidly to increase the particle size of the metallic inclusions in the slag.

4,379,715

GOB DISTRIBUTOR FOR GLASS OR OTHER MATERIAL

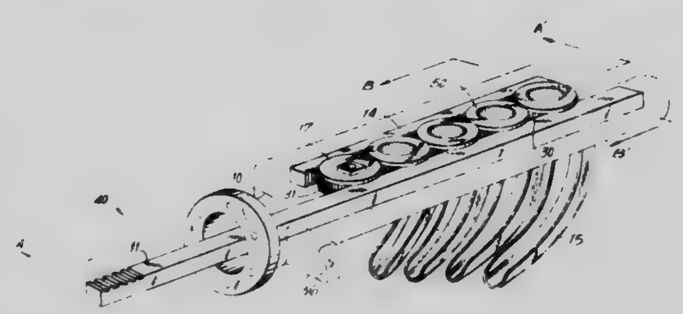
Elio M. Garza, Monterrey, Mexico, assignor to Investigacion Fic Fideicomiso, Monterrey, Mexico

Filed Aug. 28, 1981, Ser. No. 297,309

Claims priority, application Mexico, Oct. 31, 1980, 184566

Int. Cl.^{3} C03B *5/30*

U.S. Cl. 65—225 **10 Claims**



1. In a glass gob distributor of the type including plural curved distributing scoops, each supported within a housing for rotational movement about a vertical axis, a pinion carried by each said scoop, and dual racks each meshed with each said pinion at diametrically opposite sides thereof, said drive racks simultaneously angularly indexing said scoops upon longitudinal movement of said racks relatively to each other, the improvement comprising:

a further pinion independent of said scoop pinions, supported by said housing and interposed between and meshed with both said racks, said further pinion translating movement of one said rack into an equal and opposite movement of the other said rack;

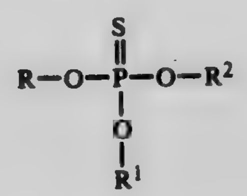
means supporting said further pinion for movement towards one of said racks;

adjustable guide means supporting the other of said racks and movable towards the said one rack to move said other rack and said other pinion towards said one rack to eliminate clearance between the teeth of the respective and said further pinion; and,

members supporting each said scoop on an upper face of both said racks, said scoops extending downwardly with clearance through apertures in a bottom wall of said housing, said racks providing the sole support and positioning members for said scoops.

4,379,716
COMPOSITIONS AND METHODS FOR REDUCING HERBICIDAL INJURY
David E. Schafer, and Albert J. Czajkowski, both of Creve Coeur, Mo., assignors to Monsanto Company, St. Louis, Mo.
Continuation-in-part of Ser. No. 670,789, Mar. 26, 1976, abandoned. This application Jul. 10, 1978, Ser. No. 923,136
Int. Cl.[3] A01N *57/10, 37/00*
U.S. Cl. 71—87 15 Claims

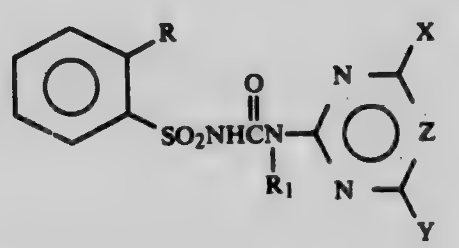
1. A method of reducing injury to grass crops by diallate and triallate herbicides which comprises applying to the soil, crop or crop seed an effective safening amount of a compound of the formula



wherein
R and R^1 independently represent hydrogen, C_{1-13} alkyl, nitro lower alkyl, halo lower alkyl; R^2 is equal to phenyl, phenyl substituted by one to three C_{1-13} alkyl, lower alkyl, halo, NO_2, CN, CF_3 and CH_3S-moieties or para-amino sulfonylphenyl; provided that phenyl cannot be substituted with NO_2 and CF_3 simultaneously.

4,379,717
METHOD OF CONTROLLING WEEDS IN CONIFERS
George Levitt, and Russell C. Weigel, Jr., both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Feb. 13, 1981, Ser. No. 234,236
Int. Cl.[3] A01N *43/54*
U.S. Cl. 71—92 6 Claims

1. A method for controlling undesired vegetation in conifers comprising: applying to the locus of said conifers an effective amount of a compund of the formula:

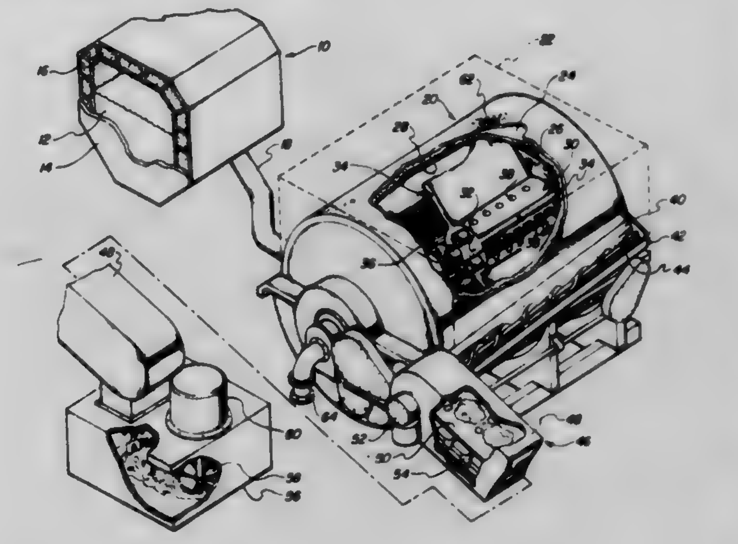


I

wherein
R is CO_2R_2 where R_2 is C_1–C_4 alkyl;
R_1 is H or CH_3;
X is CH_3, or OCH_3;
Y is CH_3 or OCH_3; and
Z is CH; or
an agriculturally acceptable salt thereof.

4,379,718
PROCESS FOR SEPARATING SOLID PARTICULATES FROM A MELT
LeRoy F. Grantham, Calabasas, and James G. Johanson, Malibu Lake, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.
Filed May 18, 1981, Ser. No. 264,496
Int. Cl.[3] C22B *21/00*
U.S. Cl. 75—24 9 Claims

1. In a metal recovery process wherein there is produced a byproduct having solid ash constituents entrained in a melt comprising a major amount of molten salt, the improvement comprising;
introducing said byproduct into a high-temperature filter apparatus containing a substantially cylindrical rotating filter element having inner and outer walls;
maintaining said byproduct at a temperature above the melting points of said salt;
providing a pressure differential across a portion of said filter element walls to cause a substantial amount of said molten salt to pass through said outer wall of said filter element and form a filter cake comprising solid ash constituents on said outer wall;



continuously removing said filter cake from said outer wall by disposing a blade adjacent to the surface of said outer wall; and
separately recovering from said filter apparatus a molten filtrate passing through said filter element walls for recycle to said metal recovery process, said filtrate comprising the molten salt and having a substantially reduced ash content.

4,379,719
ALUMINUM POWDER ALLOY PRODUCT FOR HIGH TEMPERATURE APPLICATION
Gregory J. Hildeman, Murrysville, and Robert E. Sanders, Jr., New Kensington, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.
Filed Nov. 20, 1981, Ser. No. 323,181
Int. Cl.[3] B22F *3/14*; C22C *21/00*
U.S. Cl. 419—60 30 Claims

20. A method of producing an improved aluminum article having high strength at elevated temperatures, comprising the steps:
(a) providing atomized aluminum alloy powder consisting essentially of 4 to 12% iron, 1 to 7% of at least one metal from the group consisting of cerium and misch metal, balance aluminum and impurities and incidental elements, the weight ratio of iron to cerium plus misch metal ranging between 1.2 and 4.4:1;
(b) vacuum compacting said powder at a pressure not exceeding 0.1 torr and a temperature of 700° to 850° F. under sufficient compaction to produce a compact at least 98% of full density; and
(c) working said compact at a temperature of 550° to 850° F. equivalent to a cross-sectional reduction of at least 25% to produce said article characterized by a yield strength of at least 35,000 psi and elongation of at least 5½% at a temperature of 450° F.

4,379,720

NICKEL-ALUMINUM-BORON POWDERS PREPARED BY A RAPID SOLIDIFICATION PROCESS

Ranjan Ray, Burlington, and Viswanathan Panchanathan, North Billerica, both of Mass., assignors to Marko Materials, Inc., North Billerica, Mass.

Filed Mar. 15, 1982, Ser. No. 358,235
Int. Cl.[3] B22F *1/04*
U.S. Cl. 75—251 **3 Claims**

1. A metallic alloy in powder form with particle size below 4 mesh (U.S. Standard), and having the composition described by the formula:

$$Ni_{40\text{-}58}Al_{30\text{-}40}B_{12\text{-}20}$$

wherein Ni, Al, and B are nickel, aluminum, and boron respectively and wherein the subscripts are in atom percent and the total content of Ni, Al, and B is 100; wherein said alloy being prepared by the method comprising the steps:

(a) forming a melt of said alloy

(b) depositing said melt against a rapidly moving quench surface adapted to quench said melt at a rate in the range of approximately 10^5 to 10^7 °C./second and form thereby a rapidly solidified brittle strip of said alloys characterized by hardness values between 800 and 1100 Kg/mm^2

(c) comminuting said strip into powders.

4,379,721

PRESSURE SENSITIVE RECORDING MATERIALS

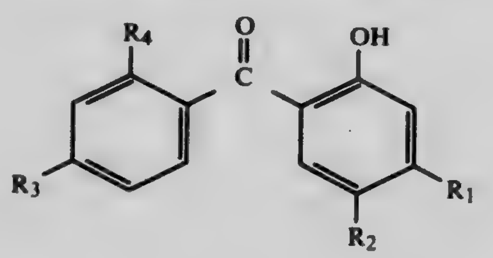
Marion Qualitz, Hilden, and Viktor A. Krupp, Düsseldorf, both of Fed. Rep. of Germany, assignors to Spezial-Papiermaschinenfabrik August Alfred Krupp GmbH & Co., Hilden, Fed. Rep. of Germany

Filed Mar. 9, 1981, Ser. No. 241,523
Claims priority, application Fed. Rep. of Germany, Mar. 14, 1980, 3009754; Mar. 14, 1980, 3009806
Int. Cl.[3] C09D *11/00*
U.S. Cl. 106—21 **51 Claims**

1. Pressure-sensitive recording material having improved storability, lightfastness and heat resistance, which comprises a unit containing a dye precursor and a unit containing a dye acceptor material, which is capable of color formation by reaction with the dye precursor, characterized in that the dye acceptor material is an intimate mixture comprising

(a) either

(aa) a 2-hydroxy-benzophenone of formula I

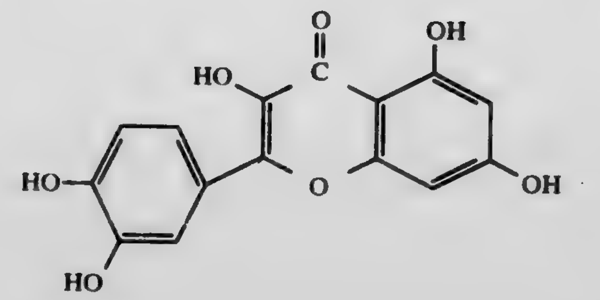


(I)

where R_1 is a hydroxy-group, an unsubstituted alkoxy residue with from 1 to 18 carbon atoms or an alkoxy residue with from 1 to 4 carbon atoms, carrying 1 or 2 hydroxy-groups, an alkoxy residue with from 1 to 4 carbon atoms, carrying 1 or 2 hydroxy groups and esterified with a saturated or olefinically unsaturated carboxylic acid with from 2 to 4 carbon atoms, R_2 is hydrogen, a phenyl residue, the sulphonic acid group —SO_3H or the group —SO_3Me, Me being an alkali metal, R_3 is hydrogen, the hydroxy group, an alkyl group with from 1 to 12 carbon atoms, an alkoxy goup with from 1 to 18 carbon atoms or a phenyl residue, and R_4 is hydrogen, the hydroxy group, a phenyl residue, the carboxy-group —COOH or the group —COOMe, Me being an alkali metal;

or

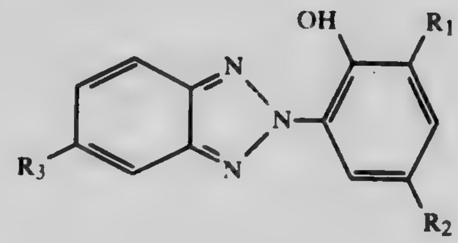
(bb) 3,5,7,3′,4′-pentahydroxy-flavone of formula II



(II)

and

(b) a substituted benzotriazole of formula III



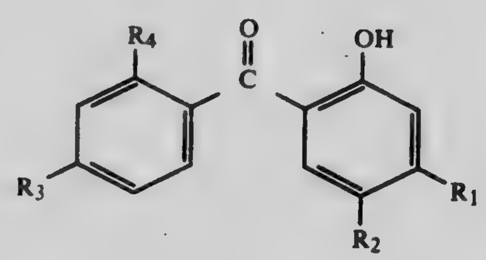
(III)

where R_1 is hydrogen or the tertiary butyl group, R_2 an alkyl residue with from 1 to 12 carbon atoms, an alkoxy residue with from 1 to 12 carbon atoms, the cyclohexyl residue, the sulphonic acid group —SO_3H or the group —SO_3Me, Me being an alkali metal, and R_3 is hydrogen or chlorine.

18. For a pressure-sensitive recording material comprising a unit containing a dye precursor or its solution and a unit containing a dye acceptor material, which is capable of color formation by reaction with the dye precursor, a sheet-like, dye acceptor material containing unit consisting of a carrier material which is in sheet or web form, coated on one side with the dye acceptor material, characterized in that the dye acceptor material is an intimate mixture comprising

(a) either

(aa) a 2-hydroxy-benzophenone of formula I

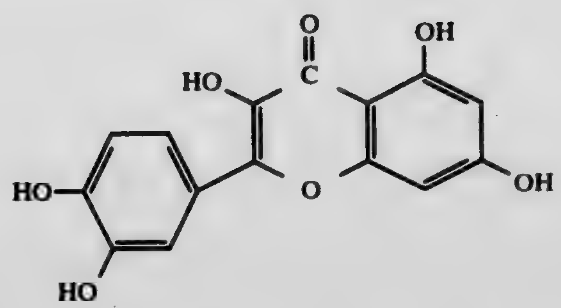


(I)

where R_1 is a hydroxy-group, an unsubstituted alkoxy residue with from 1 to 18 carbon atoms or an alkoxy residue with from 1 to 4 carbon atoms, carrying 1 or 2 hydroxy-groups, an alkoxy residue with from 1 to 4 carbon atoms, carrying 1 or 2 hydroxy groups and esterified with a saturated or olefinically unsaturated carboxylic acid with from 2 to 4 carbon atoms, R_2 is hydrogen, a phenyl residue, the sulphonic acid group —SO_3H or the group —SO_3Me, Me being an alkali metal, R_3 is hydrogen, the hydroxy group, an alkyl group with from 1 to 12 carbon atoms, an alkoxy group with from 1 to 18 carbon atoms or a phenyl residue, and R_4 is hydrogen, the hydroxy group, a phenyl residue, the carboxy-group —COOH or the group —COOMe, Me being an alkali metal;

or

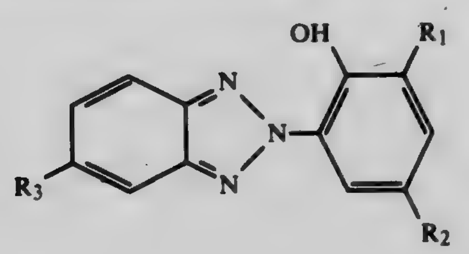
(bb) 3,5,7,3′,4′-pentahydroxy-flavone of formula II



(II)

and

(b) a substituted benzotriazole of formula III



(III)

where R_1 is hydrogen or the tertiary butyl group, R_2 an alkyl residue with from 1 to 12 carbon atoms, an alkoxy residue with from 1 to 12 carbon atoms, the cyclohexyl residue, the sulphonic acid group —SO_3H or the group —SO_3Me, Me being an alkali metal, and R_3 is hydrogen or chlorine.

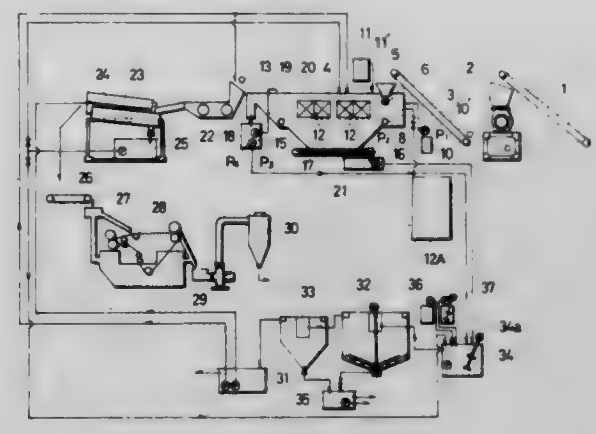
4,379,722
PIPELINE GEL PLUG
Paul R. Scott, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.
Continuation of Ser. No. 932,395, Aug. 9, 1978, abandoned, which is a continuation of Ser. No. 836,876, Sep. 26, 1977, abandoned. This application Jan. 29, 1980, Ser. No. 116,506
Int. Cl.³ B01J *13/00;* **C09K** *3/00*
U.S. Cl. 106—287.17 **2 Claims**

1. A non-thixotropic Bingham plastic composition for a gel plug movable at a predetermined pressure in a pipeline and capable of withstanding hydrostatic forces below said predetermined pressure, comprising about 20–90%w of a vacuum-flashed residue from thermally cracked oils containing aromatics and asphaltenes, about 10–30%w of a tetraalkyl ammonium smectite, and about 0–60%w of a particulate filler.

4,379,723
METHOD OF REMOVING ELECTROCATALYTICALLY ACTIVE PROTECTIVE COATINGS FROM ELECTRODES WITH METAL CORES, AND THE USE OF THE METHOD
Christine Zöllner geb. Möller, Schwaig/b. Nuremberg, Fed. Rep. of Germany, assignor to C. Conradty Nurnberg GmbH & Co. KG, Fed. Rep. of Germany
Filed Aug. 10, 1981, Ser. No. 291,407
Claims priority, application Fed. Rep. of Germany, Aug. 28, 1980, 3032480
Int. Cl.³ H01H *9/30;* **C23G** *1/00*
U.S. Cl. 134—2 **14 Claims**

1. A method of removing an electroconductive coating from a metal core electrode substrate comprising forming a non-adhesive intermediate layer of a compound of the metal substrate between the electroconductive coating and the substrate by thermally treating said electrode in a gas atmosphere containing at least a proportion of an oxygen carbon; nitrogen—or hydrogen yielding component or a mixture thereof and thereafter removing the electroconductive coating.

4,379,724
METHOD FOR RECLAIMING WASTE THERMOPLASTIC RESIN FILM
Hidehiro Kashiwagi, Tokushima, Japan, assignor to Taiyo Denko Kabushiki Kaisha, Tokushima, Japan
Filed Aug. 14, 1981, Ser. No. 293,420
Int. Cl.³ B08B *3/12*
U.S. Cl. 134—1 **7 Claims**



1. A method of cleaning soiled, thermoplastic resin, waste film, which comprises the steps of cutting a mass of said soiled, thermoplastic resin, waste film to provide a mass of pieces of said waste film, which pieces are deformed and contain soil distributed thereon and adhering thereto; feeding said mass of pieces onto one end of the upper surface of an elongated, mesh conveyor which conveyor is disposed within a washing tank filled with heated aqueous cleaning liquid and is moving substantially horizontally therein whereby said pieces are immersed in said liquid, simultaneously supplying a first quantity of said liquid from outside said tank into said tank adjacent to said one end of said conveyor and forcibly directing said heated aqueous cleaning liquid in said tank in a direction lengthwise of said conveyor from said one end thereof toward the opposite end thereof whereby said liquid assists said conveyor in moving said pieces toward the opposite end of said conveyor, simultaneously directing into said tank jets of a second quantity of said liquid supplied from outside said tank, said jets being located above the upper surface of said conveyor close to but upstream of the opposite end of said conveyor, said jets being directed above the upper surface of said conveyor in a direction lengthwise of and opposite to the direction of movement of said conveyor, and simultaneously applying ultrasonic energy to said liquid from positions located longitudinally of said conveyor between said jets and said one end of said conveyor, said positions being opposed to each other and being located on opposite lateral sides of and above the upper surface of said conveyor so that said ultrasonic energy is directed laterally inwardly and across the upper surface of said conveyor substantially at right angles to the direction of movement thereof, said liquid being at a temperature sufficient to soften said pieces and to remove soil therefrom while said pieces are being subjected to said ultrasonic energy so as to be beaten thereby, to smooth the deformations thereof and to assist in removing soil therefrom; discharging said pieces from said tank at the opposite end of said conveyor and then washing said pieces with pressurized water.

4,379,725
PROCESS FOR HOT ISOSTATIC PRESSING OF A METAL WORKPIECE
Willard E. Kemp, 1035 Dairy Ashford, Suite 146, Houston, Tex. 77079
Filed Feb. 8, 1982, Ser. No. 346,503
Int. Cl.³ C21D *1/53, 1/78*
U.S. Cl. 148—4 **13 Claims**

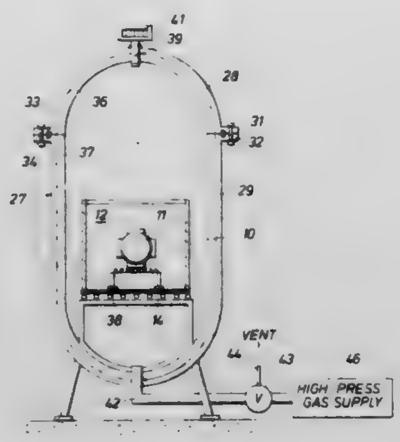
1. A process for treating a metal workpiece comprising the steps of:

(a) subjecting the workpiece to a fluidized particulate bed at

a temperature of a first level until the workpiece throughout reaches substantially this temperature at the first level;

(b) terminating fluidization of the bed;

(c) subjecting the workpiece to superatmospheric gas pressure while leaving the workpiece in the bed at a relatively



constant temperature of about the first level until pressure and temperature dependent internal structural changes have occurred in the workpiece; and

(d) removing the workpiece from the bed and superatmospheric pressure for subsequent utilization.

4,379,726

METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE UTILIZING OUTDIFFUSION AND EPITAXIAL DEPOSITION

Kuniaki Kumamaru, Chigasaki; Shunichi Hiraki, Yokohama, and Toshio Yonezawa, Yokosuka, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

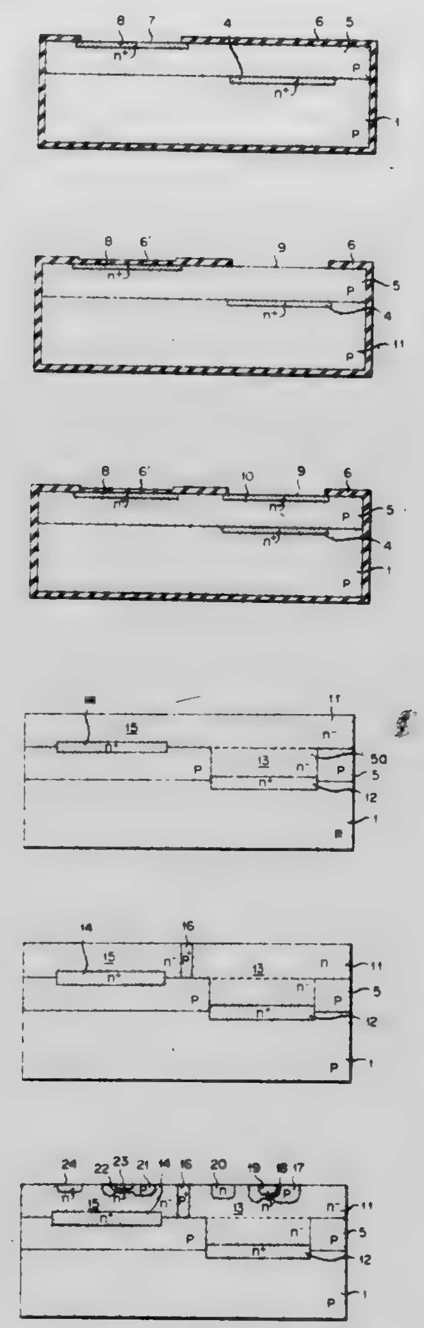
Filed May 6, 1980, Ser. No. 147,334

Claims priority, application Japan, May 17, 1979, 54-60673

Int. Cl.^{3} H01L *21/74, 21/76*

U.S. Cl. 148—175 **1 Claim**

1. A method of manufacturing a semiconductor device comprising the steps of: selectively forming at least one high first impurity concentration region of a conductivity type opposite to the conductivity type of a semiconductor substrate and having a desired depth in said substrate along the principal surface thereof, depositing a first epitaxial layer of the same conductivity type as said substrate on the entire principal surface of said semiconductor substrate, selectively forming at least one second high impurity concentration region of the opposite conductivity type to said substrate in said first epitaxial layer along a surface portion thereof not corresponding to said first high impurity concentration region, selectively forming a low impurity concentration region of the opposite conductivity type to said substrate in said first epitaxial layer along a surface portion thereof corresponding to said first high impurity concentration region, the diffusion rate of the low impurity region being higher than that of the first and second high impurity concentration regions, depositing a second epitaxial layer on the entire surface of said first epitaxial layer, thermally treating the resultant intermediate device to cause diffusion of the impurities in the first and second high impurity concentration regions into the respective first and second epitaxial layers and also causing diffusion of the impurity in the low impurity concentration region into the entire portion of the first epitaxial layer corresponding to the first high impurity concentration region, forming an element isolation region of the same conductivity type as said first epitaxial layer in a portion of said second epitaxial layer between said first and second high impurity concentration regions such that said isolation layer reaches the surface of said first epitaxial layer, and forming at least one high breakdown voltage semiconductor element in said second epitaxial layer in a portion thereof corresponding to said first high impurity concentration region and at least one low breakdown voltage semiconductor element in said second epitaxial



layer in a portion thereof corresponding to said second high impurity concentration region.

4,379,727

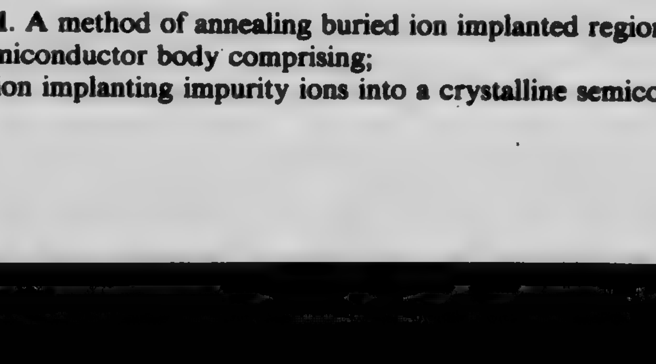
METHOD OF LASER ANNEALING OF SUBSURFACE ION IMPLANTED REGIONS

Howard H. Hansen, Underhill; Jerome B. Lasky, and Ronald R. Silverman, both of Essex Junction, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 8, 1981, Ser. No. 281,267

Int. Cl.^{3} H01L *21/263, 21/265*

U.S. Cl. 148—1.5 **9 Claims**



1. A method of annealing buried ion implanted regions in a semiconductor body comprising;

ion implanting impurity ions into a crystalline semiconduc-

tor body to provide in the body a buried region having a high concentration of said impurity ions at a predetermined depth below the surface, and

annealing said buried region by exposure of the body to the emission of a continuous wave laser having an emission frequency which is substantially absorbed by the buried region and to which the remainder of the body is substantially transparent to cause electrical activation of the implanted ions in said buried region without substantial thermal diffusion of the implanted species.

4,379,728

CYANOUREA COMPOUNDS OR POLYMERS THEREOF AS EPOXY RESIN CURING AGENTS

Shiow C. Lin, Columbia, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed Feb. 4, 1982, Ser. No. 345,948

Int. Cl.[3] C08G *59/44*

U.S. Cl. 156—307.3 **18 Claims**

1. A heat curable composition comprising an epoxy resin and a cyanourea compound of the formula:

$$(\mathrm{NCNH}\overset{\displaystyle O}{\overset{\|}{C}}\mathrm{NH})_n\text{—}R$$

wherein R is the organic moiety of a mono- or polyisocyanate remaining after reaction of the isocyanate groups to form cyanourea groups and n is 1 or more, the equivalent ratio of epoxide:N-cyanourea being 1 to 30:2.

15. The process of adhering two substrates which comprises applying to at least one of said substrates a heat curable composition comprising an epoxy resin and a cyanourea compound of the formula:

$$(\mathrm{NCNH}\overset{\displaystyle O}{\overset{\|}{C}}\mathrm{NH})_n\text{—}R$$

wherein R is the organic moiety of a mono- or polyisocyanate remaining after reaction of the isocyanate groups to form cyanourea groups and n is 1 or more, the equivalent ratio of epoxide:N-cyanourea being 1 to 30:2 contacting the substrates with the composition therebetween and heating the thus contacted substrates at a temperature above 100° C.

4,379,729

METHOD AND APPARATUS FOR THE PRODUCTION OF COMPOSITE SHEET MATERIAL AND A SHEET MATERIAL PRODUCED THEREBY

Sydney H. Cross, Newport, England, assignor to Tarmac Industrial Holdings Limited, Wolverhampton, England

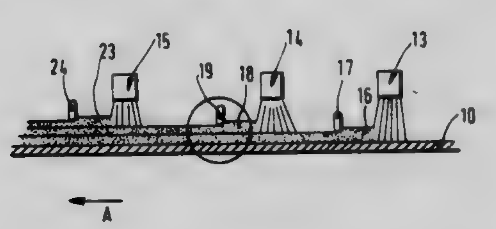
PCT No. PCT/GB80/00125, § 371 Date Apr. 3, 1981, § 102(e) Date Apr. 3, 1981, PCT Pub. No. WO81/00375, PCT Pub. Date Feb. 19, 1981

PCT Filed Aug. 7, 1980, Ser. No. 253,845

Claims priority, application United Kingdom, Aug. 9, 1979, 7927723; Aug. 9, 1979, 7927725

Int. Cl.[3] B28B *1/08;* B32B *31/16*

U.S. Cl. 156—73.6 **15 Claims**



1. A method of making a composite product including distinct layers of two different water-based curable compositions capable of bonding together on curing, the method comprising the steps of:

depositing a first layer of a first of said curable compositions onto a base member while said first composition is wet and uncured and in a viscous state having adequate strength to support a second layer but capable of flowing under the influence of vibration;

depositing directly and immediately onto said wet first layer a wet second layer of the second of said curable compositions without any prior treatment of the wet first layer other than levelling, the second composition being wet and uncured and in a viscous state but capable of flowing under the influence of vibration and the two layers meeting at an interface;

temporarily creating a localised zone of fluidization extending through said wet second layer to the interface between the wet first and second layers by the application of vibration to a small localised area of the surface of the wet second layer to promote intimacy and subsequent bonding of the first and second layers, the first and second compositions remaining viscous outside the said localised zone of fluidisation;

and allowing the first and second compositions to cure together to form the composite product.

4,379,730

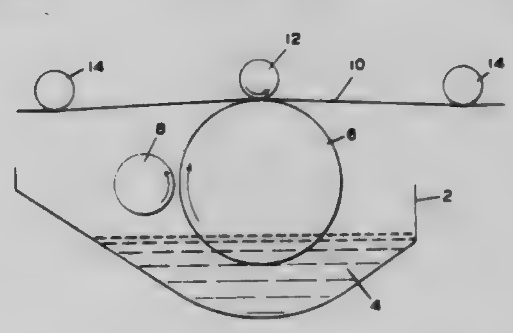
METHOD OF COATING AN OPEN WEAVE FABRIC

Larry C. Anderson, Wrightsville; Robert C. Lausch, Ephrata, and Peter J. Sydorko, Lancaster, all of Pa., assignors to Armstrong World Industries, Inc., Lancaster, Pa.

Filed Nov. 23, 1981, Ser. No. 323,942

Int. Cl.[3] B05D *1/28*

U.S. Cl. 156—324 **3 Claims**



1. A method of coating an open weave fabric wherein the coating apparatus has an applicator roll for applying the coating to the fabric, a metering roll for controlling the thickness of material on the applicator roll and a pressure roll for holding the fabric against the surface of the applicator roll and wherein the fabric being coated is woven with an open weave having approximately 10 by 10 strands per inch, the method comprising the steps of:

a. applying a coating to the applicator roll,

b. passing the applicator roll by the metering roll which controls the thickness of the coating on the applicator roll, moving the metering roll with a tangential speed which is 10% to 15% of the tangential speed of the applicator roll so as to provide a wiping action of the metering roll relative to the applicator roll, both said applicator roll and metering roll moving in the same direction at the nip between the two rolls,

c. moving the applicator roll into contact with the open weave fabric to be coated with the applicator roll and fabric moving at the same tangential speed,

d. pressing the fabric against the applicator roll with a pressure roll at a pressure of about 1-15 pounds per lineal inch to work the coating into the structure of the strands forming the open weave fabric but not sufficient to force the coating into and through the open area of the weave of the fabric whereby the fabric is provided with a coating over 90% of the strands of the fabric with very little coating being applied to the open area of the weave of the fabric

and no buildup of globs of coating material on the surface of the fabric.

4,379,731

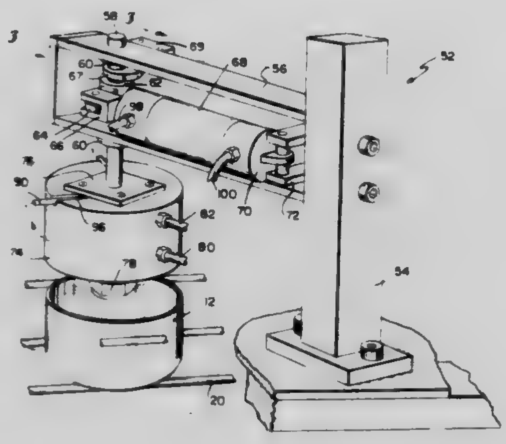
METHOD AND APPARATUS FOR APPLYING HOT MELT ADHESIVE TO BASE CUPS

Geoffrey A. D. Long, Dunwoody, and Brian C. McPike, Douglass, both of Ga., assignors to Sewell Plastics, Inc., Atlanta, Ga.

Filed Aug. 14, 1981, Ser. No. 292,835

Int. Cl.^{3} B05B *1/20*

U.S. Cl. 156—356 **10 Claims**



1. In an apparatus for assembling containers into cup-shaped bases, an applicator means for coating a contact surface of each base with a bonding agent preparatorily to placement of a corresponding container therein, the applicator means comprising:
(a) a support fixed to said apparatus adjacent the supply of cup-shaped bases,
(b) pivot means rotationally supported by the support in alignment with the open end of one of the cup-shaped bases,
(c) nozzle means fixed to said pivot means and rotatable therewith for ejecting a bonding agent into the cup-shaped bases,
(d) rotating means connected to the support and to the pivot means for rotating the nozzle with respect to the cup-shaped bases, and
(e) control means connected to the nozzle means and to the rotating means for causing the nozzle means to rotate and eject a bonding agent simultaneously, the control means comprising a cam fixed to rotate with the pivot means and a switch means operated by the said cam.

4,379,732

BONDING APPLICATOR FOR PRODUCING FLEXIBLE TUBING

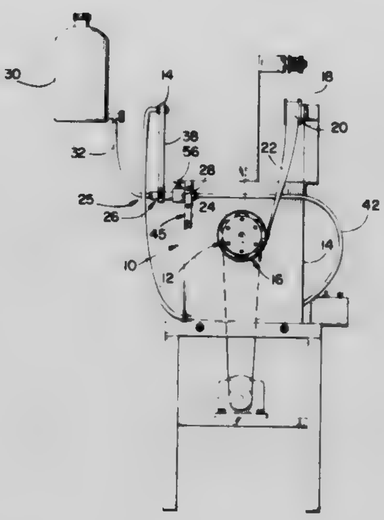
Wayne K. Fairchild, 3623 W. Warner, Santa Ana, Calif. 92704

Filed Aug. 24, 1981, Ser. No. 295,666

Int. Cl.^{3} B32B *31/00*

U.S. Cl. 156—428 **3 Claims**

1. A bonding-applicator device for producing flexible tubing from a continuous, substantially flat, plastic ribbon, the device comprising:
a first valve means;
a second valve means connected to said first valve means, wherein one of said valve means is an ON/OFF valve and said other valve means is a flow-control valve;
a reservoir having a solvent fluid stored therein;
means connecting said reservoir to one of said valves, wherein said connecting means comprises a hose interconnecting said reservoir with said ON/OFF valve means;
an applicator arm having one free end and an opposite end connected to said ON/OFF valve means to cause said ON/OFF valve means to operate between an "on" and an "off" position; and
means disposed in said free end of said applicator arm adapted to engage and apply solvent to the ribbon as the flexible tubing is being formed, said means to apply said solvent comprising:
(a) a bore formed in said free end of said applicator arm,
(b) a nipple secured in said bore,
(c) a hose connecting said nipple to said flow-control valve, and
(d) an applicator pad communicating with said bore to receive said solvent therethrough in an amount regulated by said flow-control valve;



said ON/OFF valve means including an extended valve stem secured in said applicator arm, whereby said ON/-OFF valve is placed in an "on" mode when said applicator arm is moved downwardly to allow said applicator pad to engage said ribbon, and is placed in an "off" mode when said applicator arm is arranged in a substantially vertical position;
said flow-control-valve means including means to regulate the flow of solvent being dispensed proportionately to the speed of the moving ribbon.

4,379,733

BICAMERAL MODE CRYSTAL GROWTH APPARATUS AND PROCESS

Antonio C. Pastor, Santa Monica; Ricardo C. Pastor, Manhattan Beach, and Kaneto Arita, Gardena, all of Calif., assignors to Hughes Aircraft Company, El Segundo, Calif.

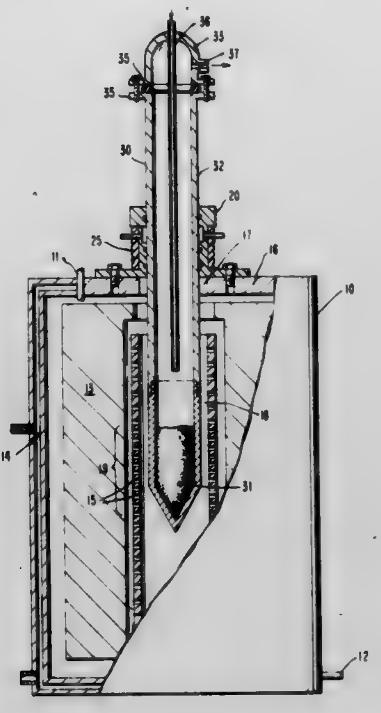
Filed Oct. 2, 1981, Ser. No. 307,986

Int. Cl.^{3} C30B *11/00*

U.S. Cl. 156—616 R **9 Claims**

7. An improvement in the process of forming alkaline earth halide, rare earth halide and alkali metal halide crystals from the melt of selected reactants under a dynamic reactive atmosphere where said improvement comprises the steps of forming said melt, soaking said melt and cooling said melt by a Bridgman-type movement under said reactive atmosphere in a capsule assembly that is positioned within a furnace chamber and isolated from ambient gases by (1) an inert atmosphere created within said chamber, said inert atmosphere being prevented from communicating with said reactive atmosphere and (2) a

radial seal which includes a gas trap means for entrapping and removing any oxygen-containing gaseous species that may be



absorbed on said capsule assembly, together with sealing means on each side of said gas trap means.

4,379,734

MULTISTAGE EVAPORATOR

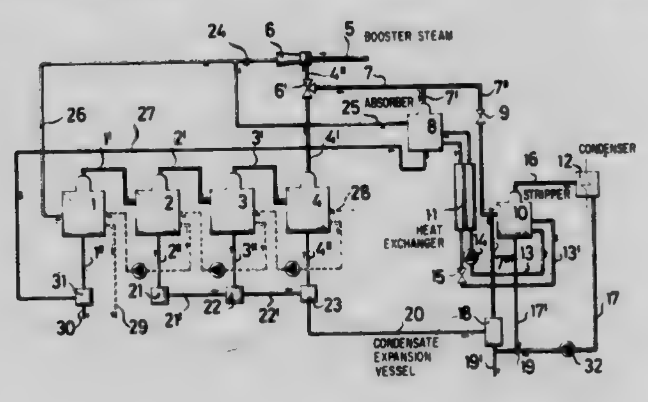
Paul Franzen, Koblenz, Fed. Rep. of Germany, assignor to FA. Maschinenfabrik Buckau R. Wolf AG, Grevenbroich, Fed. Rep. of Germany

Filed Apr. 8, 1981, Ser. No. 252,122

Claims priority, application Fed. Rep. of Germany, Apr. 29, 1980, 3016406

Int. Cl.^{3} B01D *1/26*

U.S. Cl. 159—17 R **30 Claims**



1. A multistage evaporator comprising
an evaporator section including a plurality of evaporating stages;
a vapor compressor connected to the evaporator section; and
a heat pump connected to the evaporator section.

4,379,735

THREE-LAYER FORMING FABRIC

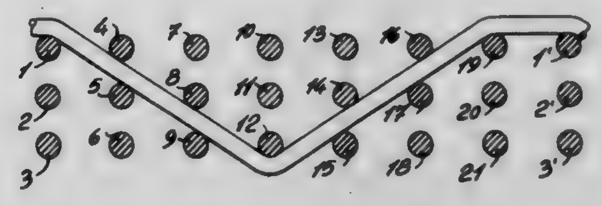
Donald G. MacBean, Ottawa, Canada, assignor to JWI Ltd., Kanata, Canada

Filed Aug. 6, 1981, Ser. No. 290,797

Int. Cl.^{3} D21F *1/10*

U.S. Cl. 162—348 **6 Claims**

1. A single-ply forming fabric comprising an endless belt having opposed side edges, said forming fabric having a lateral direction extending between the side edges thereof and a longitudinal direction extending perpendicular to said lateral direction, said forming fabric being a backing fabric for use in combination with a conveying fabric with which it converges on a twin-wire paper making machine wherein a flat jet-stream of pulp is injected between said conveying backing and conveying fabrics for applying opposed pressure to said pulp for removing water therefrom to form a sheet of paper, said single-ply forming fabric having a plurality of monofilament poly-



meric warp strands extending in the longitudinal direction and interwoven, with approximately 100% warp fill, with monofilament polymeric weft strands extending in the lateral direction, said weft strands disposed in vertically aligned groups of at least three to obtain greater stiffness in the lateral direction whereby to substantially re-distribute pulp laterally when it is sandwiched between said fabrics.

4,379,736

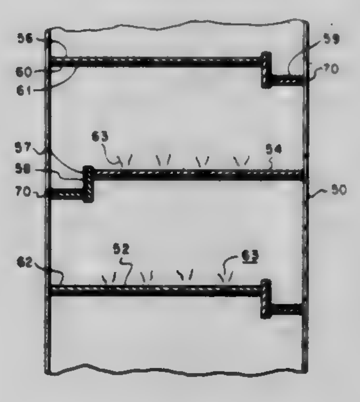
METHOD AND APPARATUS FOR INHIBITING THE FORMATION OF POLYMERIZED VINYLAROMATIC COMPOUNDS DURING DISTILLATIVE PURIFICATION OF VINYLAROMATIC MONOMER

Debra L. Kendall; James M. Watson, and Danny P. Wright, all of Big Spring, Tex., assignors to Cosden Technology, Inc., Dallas, Tex.

Filed Dec. 23, 1981, Ser. No. 333,604

Int. Cl.^{3} B01D *3/32*

U.S. Cl. 203—9 **15 Claims**



1. A method of inhibiting the formation of polymerized vinylaromatic compounds during distillative purification of vinylaromatic monomer from a crude feed comprising vinylaromatic monomer admixed with lower and higher boiling materials, said method comprising distilling said vinylaromatic monomer from said crude feed in a multitray distillation column equipped with vapor liquid contact trays provided with openings for upward passage of vapors therethrough and downcomers for downward passage of liquid from tray to tray wherein the downcomers and tray bottoms are coated with a fluorocarbon polymer.

4,379,737

METHOD TO MAKE A BUILT UP AREA ROTARY PRINTING SCREEN

Stephen G. Mearig, Mountville, Pa., assignor to Armstrong World Industries, Inc., Lancaster, Pa.

Filed Nov. 18, 1981, Ser. No. 322,456

Int. Cl.^{3} C25D *1/08*

U.S. Cl. 204—11 **1 Claim**

1. A method of forming a rotary printing screen wherein the screen is initially formed by coating a resist material on a conventional plating mandrel, placing a film over the resist

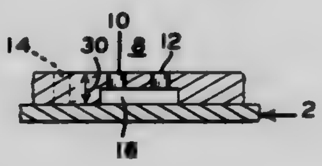
material and exposing the resist material through the film to form a mesh pattern in the resist material, then developing the exposed resist material to result in a mesh pattern of hardened resist material on the plating mandrel, then plating the mandrel in a conventional manner so that plating material is not deposited on the mandrel where a resist material exists, or overplated over the resist, but is deposited in the areas where no resist material exists, to form a plated surface with perforations therein, the improvement comprising:

(a) coating the outside surface of the newly plated surface with a second resist coating;

(b) placing a film over the second resist coating;

(c) exposing the film to collimated light to sensitize the second resist material in selected regions beneath the photographic film;

(d) developing the exposed resist to provide on the first plated surface a pattern of second resist material existing in some areas and no second resist material existing in other areas, the second resist material existing on the



plated surface only in those areas of the first plating that has perforations therethrough, said second resist covering plural perforations and said second resist material filling said perforations and covering the areas surrounding the perforations;

(e) plating the original plated surface with the second resist pattern thereon to form a second plated surface which becomes integral with the first plated surface in those areas where no resist material exists, but with no second plated surface being provided in those areas where the second resist coating exists, the outside surface of the second plated surface forming the exterior surface of the printing screen;

(f) washing and cleaning the plated surface and removing the plated surface from the plating mandrel to form a cylindrical rotary printing screen with different areas of perforations in a pattern defining a mesh pattern formed by the first resist with the areas of perforations (which is) spaced from the exterior surface of the screen by a single large open area formed by the second resist.

4,379,738

ELECTROPLATING ZINC

Paul A. Kohl, Chatham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Division of Ser. No. 108,964, Dec. 31, 1979, Pat. No. 4,310,392. This application Oct. 19, 1981, Ser. No. 312,708

Int. Cl.^{3} C25D *3/22*

U.S. Cl. 204—55 R **6 Claims**

1. A process for electroplating metallic substances consisting essentially of zinc comprising the step of passing current through an anode, aqueous plating solution and cathode characterized in that the plating bath comprises an heterocyclic additive consisting essentially of phenolphthalein.

4,379,739

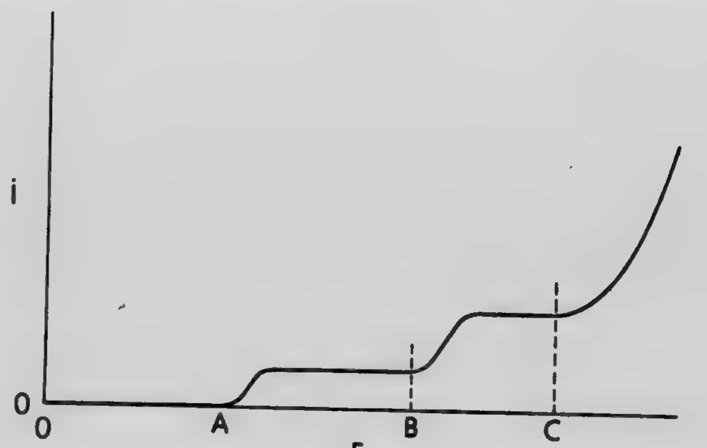
ELECTROLYTIC REDUCTION OF CEPHALOSPORIN P-NITROBENZYL ESTERS

David A. Hall, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

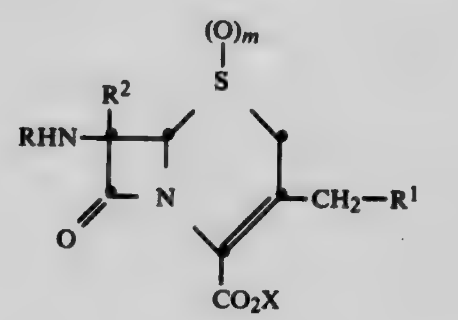
Continuation-in-part of Ser. No. 135,829, Mar. 31, 1980, abandoned. This application Apr. 30, 1981, Ser. No. 259,316

Int. Cl.^{3} C25B *3/00*

U.S. Cl. 204—72 **25 Claims**



1. A process for preparing a compound of the formula



wherein

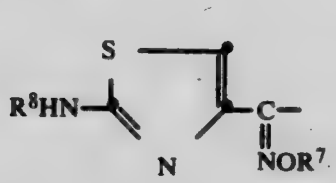
X is hydrogen;

m is 0 or 1;

R^2 is hydrogen or methoxy;

R is hydrogen or —COR^3;

R^3 is hydrogen, C_1—C_3 alkyl, halomethyl, benzyloxy, 2,2,2-trichloroethoxy, t-butoxy, R^4, R^4—$(O)_n$—CH_2—, R^4—CH(R^5)—, R^6—CH_2—, or



wherein R^7 is hydrogen or C_1-C_3 alkyl and R^8 is hydrogen or an amino-protecting group;

R^4 is cyclohexadienyl or phenyl, or cyclohexadienyl or phenyl substituted with one or two halo, hydroxy, protected hydroxy, aminomethyl, protected aminomethyl, C_1-C_4 alkyl or C_1-C_4 alkoxy groups;

n is 0 or 1;

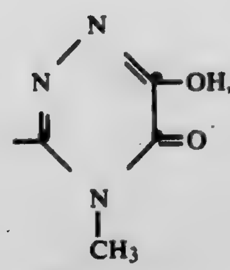
R^5 is hydroxy, protected hydroxy, amino, protected amino, carboxy or protected carboxy;

R^6 is 2-thienyl, 2-furyl, 5-tetrazolyl or 1-tetrazolyl;

R^1 is C_1-C_4 alkanoyloxy, benzoyloxy, fluoro, chloro, carbamoyloxy, C_1-C_4 alkylcarbamoyloxy, pyridinio, pyridinio substituted with C_1-C_4 alkyl, C_1-C_4 alkanoyl, carbamoyl, C_1-C_4 alkylcarbamoyl, chloro, fluoro, hydroxy or trifluoromethyl, or the corresponding pyridinio chlorides or bromides, or —S—R^9;

R^9 is —CH_2CO_2(C_1-C_4 alkyl), carbamoyl, phenyl, phenyl substituted with one or two chloro, fluoro, C_1-C_4 alkyl, hydroxy, C_1-C_4 alkylsulfonamido or trifluoromethyl

groups; triazol-3-yl unsubstituted or substituted with one or two groups independently selected from C_1-C_3 alkyl, —CO_2(C_1-C_4 alkyl), —$CONH_2$ and —CH_2NHOCO(benzyl or C_1-C_4 alkyl);



tetrazol-1-yl or tetrazol-5-yl substituted with one or two groups independently selected from C_1-C_4 alkyl and —CH_2CO_2(C_1-C_4 alkyl or hydrogen); 4-cyano-5-aminopyrimidin-2-yl, or 5-methyl-1,3,4-thiadiazol-2-yl;

provided that n is 0 when R^4 is cyclohexadienyl;

which process comprises electrolytically reducing a compound of the above formula wherein X is p-nitrobenzyl in an acidic liquid medium comprising from about 0 to about 50% water, an acid having a pK_a determined in water of 0 or below, the amount of said acid being at least four moles per mole of the compound to be reduced, and an organic solvent substantially inert to electrolytic reduction, at the working electrode of an electrolytic cell, said working electrode substantially comprising carbon, mercury, tin, aluminum, silver, copper, lead, chromium, zinc, nickel or cadmium, at a temperature from about 0° C. to about 75° C., at a potential in a range from about the potential of the initial onset of current flow of the first reduction to about the potential of the initial onset of current flow of the second reduction.

4,379,740

PHOTOASSISTED GENERATION OF HYDROGEN FROM WATER

Adel I. Nazzal, San Jose, and Ulrich T. Mueller-Westerhoff, Los Gatos, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 21, 1982, Ser. No. 390,085

Int. Cl.³ C25B *1/02, 11/04*

U.S. Cl. 204—129 **10 Claims**

1. A process for generating hydrogen from water containing an acid by passing an electric current through the water using a cathode which is a semiconductor exposed to light, said process characterized in that a transition metal metallocenophane compound is attached to the surface of the cathode by means of a polymer.

4,379,741

OXYGEN CONCENTRATION SENSOR

Hiromi Sano, Nagoya, and Masatoshi Suzuki, Anjo, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jul. 9, 1981, Ser. No. 281,855

Claims priority, application Japan, Jul. 11, 1980, 55-95250

Int. Cl.³ G01N *27/58*

U.S. Cl. 204—424 **5 Claims**

1. An oxygen concentration sensor comprising:

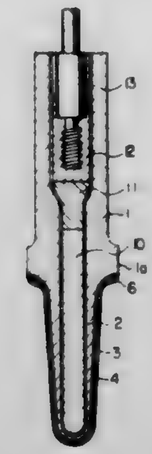
a generally cup-shaped sensing element of a solid electrolyte member having an open end and a closed end;

first and second electrodes provided on the inner and outer surfaces of said sensing element;

a solid rod made of solid reference material having a reference oxygen partial pressure characteristic and disposed on the closed end of said sensing element;

an electrically conductive sealing material element located at the upper portion of said sensing element adjacent to the open end of said sensing element, said sealing material element being a melted and solidified mixture of metal powder and glass powder; and

a metal terminal supported by and partially embedded into said sealing material element to electrically connect said



first electrode with said terminal through said sealing material element.

4,379,742

GAS-GENERATING METAL ELECTRODE FOR ELECTROCHEMICAL PROCESSES

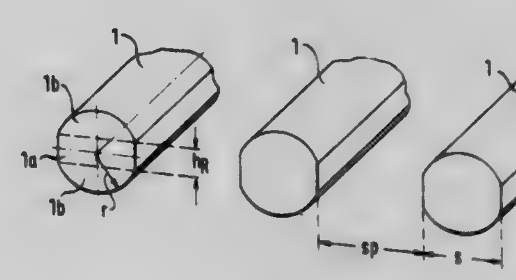
Hans-Carl Rathjen, and Konrad Koziol, both of Röthenbach, Fed. Rep. of Germany, assignors to Conradty GmbH Co. Metallelektroden KG, Rothenbach, Fed. Rep. of Germany

Filed Feb. 23, 1981, Ser. No. 237,279

Claims priority, application Fed. Rep. of Germany, Mar. 3, 1980, 3008116

Int. Cl.³ C25B *11/02, 11/04, 9/00*

U.S. Cl. 204—286 **10 Claims**



1. A gas-generating metal electrode for electrochemical processes, more particularly a coated titanium anode for amalgam cells, comprising spaced-apart parallel rods arranged in a horizontal plane, the surfaces of said rods having a cross section whose height normal to said plane is greater than the width parallel thereto, characterized in that the cross section of each of said rods is comprised of a rectangle whose height is normal to said plane and at least one chordal segment whose chord corresponds to and coincides with the width of said rectangle on one side thereof, said chord extending between and interconnecting two other and opposite sides of said rectangle.

4,379,743

SPUTTERING APPARATUS COMPRISING CONTROL MEANS FOR PREVENTING IMPURITY GASES FROM ENTERING A SPUTTERING CHAMBER

Masashi Nakatsukasa, and Nobuyuki Takahashi, both of Fuchu, Japan, assignors to Anelva Corporation, Tokyo, Japan

Filed Jul. 29, 1981, Ser. No. 287,925

Claims priority, application Japan, Jul. 30, 1980, 55/104531

Int. Cl.³ C23C *15/00*

U.S. Cl. 204—298 **4 Claims**

1. A sputtering apparatus comprising a main chamber defining a main hollow space, first means for holding a substrate in said main hollow space, second means for sputtering a predetermined material onto the substrate held by said first means to form a layer of said material, a preliminary chamber defining a

preliminary hollow space, third means for carrying out preliminary processing of a substrate in said preliminary hollow space, valve means for selectively isolating said main and said preliminary hollow spaces from each other and making said main and said preliminary hollow spaces communicate with each other for transfer of the substrate from said third means to said first means, first pressure controlling means coupled to said main hollow space for controlling a first pressure in said main hollow space, second pressure controlling means coupled to said preliminary hollow space for controlling a second pressure in said preliminary hollow space, wherein the improvement comprises:

control means coupled to said valve means and at least to a selected one of said first and said second pressure controlling means for controlling said selected pressure controlling means with reference to completion of said preliminary processing and for opening said valve means after said second pressure becomes less than said first pressure.

4,379,744

COAL LIQUEFACTION PROCESS

Joel W. Rosenthal, El Cerrito, and Arthur J. Dahlberg, Rodeo, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 194,730, Oct. 6, 1980, Pat. No. 4,330,393, which is a continuation-in-part of Ser. No. 12,185, Feb. 14, 1979, Pat. No. 4,330,390, which is a continuation-in-part of Ser. No. 754,198, Dec. 27, 1976, Pat. No. 4,330,389. This application Sep. 8, 1981, Ser. No. 299,917

Int. Cl.[3] **C10G** *1/06, 1/08, 1/00*

U.S. Cl. 208—10 **42 Claims**

1. A process for liquefying coal which comprises:

(a) heating a slurry comprising a solvent, particulate coal, and an externally supplied dispersed dissolution catalyst in the presence of hydrogen in a first reaction zone to substantially dissolve the coal and provide a first effluent slurry having a normally liquid portion comprising solvent and dissolved coal and containing undissolved solids and dissolution catalyst; and

(b) contacting at least a portion of said normally liquid portion containing undissolved solids and dissolution catalyst with hydrogen in a second reaction zone in the presence of a second externally supplied hydrogenation catalyst under hydrogenation conditions, including a temperature lower than the temperature to which said slurry is heated in step (a), to produce a second effluent slurry having a normally liquid portion.

4,379,745

CARBURIZATION RESISTANCE OF AUSTENITIC STAINLESS STEEL TUBES

Richard S. Polizzotti, Milford, and Richard C. Krutenat, New Providence, both of N.J., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Nov. 21, 1980, Ser. No. 208,986

Int. Cl.[3] **C22F** *1/00, 1/11*

U.S. Cl. 208—132 **7 Claims**

1. In the thermal cracking of hydrocarbons in contact with cast austenitic stainless steel pyrolysis tubes to form products including C_2–C_4 olefins and diolefins, wherein the composition of said tubes comprises about 17 to 40 wt. % chromium, 15 to 50 wt. % nickel, and 0.6 to 4 wt. % silicon, the improvement which comprises employing tubes which have been treated by a method comprising:

(a) cold-working the inner surface of said tubes to deform the surfaces to such a degree that upon the subsequent heat treatment of step (b) below, dissolution of the $M_{23}C_6$ carbides in the deformed regions will result while maintaining a refined recrystallized micrograin structure, in the deformed surface regions, to a uniform minimum depth of at least about 20 microns; and

(b) heating the cold-worked inner surfaces of said tubes, for an effective amount of time, at a temperature between their recrystallization temperature and their melting temperature, in an atmosphere which is at least oxidizing with respect to chromium.

4,379,746

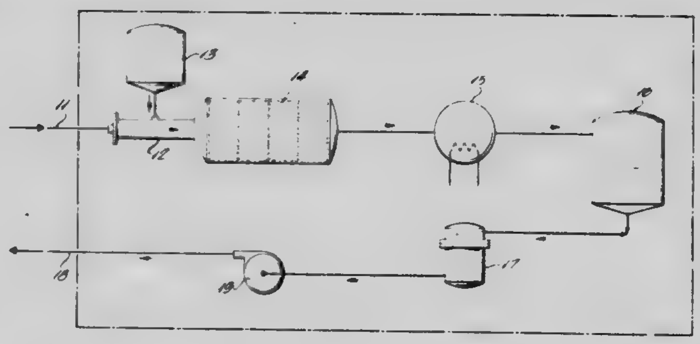
METHOD OF DESTRUCTION OF POLYCHLORINATED BIPHENYLS

Oscar L. Norman, Wilmington, Del., and Laurence H. Handler, Cherry Hill, N.J., assignors to Sun-Ohio, Inc., Canton, Ohio

Continuation of Ser. No. 179,345, Aug. 18, 1980, abandoned, which is a continuation of Ser. No. 99,341, Nov. 30, 1979, abandoned. This application Jun. 18, 1981, Ser. No. 274,928

Int. Cl.[3] **C10G** *29/04*

U.S. Cl. 208—262 **11 Claims**



1. A field method to remove at the point of use, halogenated aromatic hydrocarbons from hydrocarbon transformer oils contaminated with said halogenated aromatic hydrocarbons which comprises removing said contaminated oil from the transformer and circulating said oil through a decontamination system at a flow rate of from about 5 to about 25 gallons per minute to effect decontamination by mixing the contaminated oil with a hydrocarbon dispersion of sodium wherein said sodium has a particle size of from about one to about twenty microns, reacting the mixture of oil and sodium dispersion at a temperature above about 75° C. up to about 150° C., passing the treated oil through separating means to remove particulate and other contaminating material and returning the treated oil essentially free of halogenated aromatic hydrocarbons back to the transformer.

4,379,747

DEMETALATION OF HEAVY HYDROCARBON OILS

Tsoung Y. Yan, Philadelphia, Pa., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Sep. 8, 1981, Ser. No. 299,752

Int. Cl.[3] **C10G** *31/00, 45/00*

U.S. Cl. 208—251 H **17 Claims**

1. A process for heavy hydrocarbon oil demetalation which comprises (1) heating a heavy hydrocarbon oil in a first stage visbreaking zone at a temperature between about 800°-1000° F. for a residence time between about 0.1-2 hours; (2) admixing the first stage visbroken effluent with particulate coal and heating the admixture in a second stage visbreaking zone at a temperature between about 700°-850° F. for a residence time between about 0.1-2 hours; and (3) recovering the second stage visbroken effluent and fractionating it to provide liquid and solid products.

4,379,748

METHOD OF SEPARATING PAPER AND PLASTIC PIECES

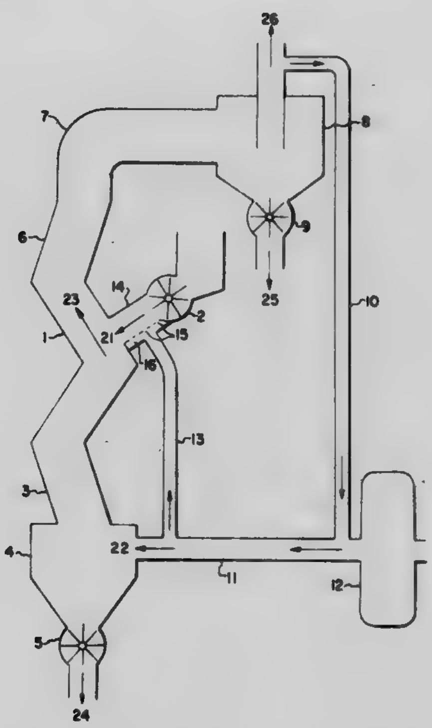
Arie Hoogendoorn, Nieuw-Vennep, Netherlands, assignor to Esmil International B.V., Amsterdam, Netherlands

Filed Feb. 9, 1981, Ser. No. 232,849

Claims priority, application Netherlands, Feb. 8, 1980, 8000791

Int. Cl.³ B07B *9/02, 11/06*

U.S. Cl. 209—11 12 Claims



1. In a method of separating paper and plastics, in a wetted mixture consisting substantially of paper and plastic sheeting pieces, by use of an upwardly moving stream of gas moving along a flow path into which said path said wetted mixture is passed, said path having an upward end and a downward end, the improvement comprising:

admitting a gas, for producing said upwardly moving stream of gas, into said path at an elevated temperature which is at least 60° C. but is not so high that the plastic sheeting deforms through the action of heat, and

employing said gas to effect at least partial drying of said plastic sheeting pieces such that separation will be improved, by a downward movement of said paper in said upwardly moving stream of gas and by upward movement of said plastic sheeting pieces in said upwardly moving stream of gas due to the enhanced differences in densities of said paper and said plastic sheeting.

4,379,749

WATER DEFLECTOR ASSEMBLY FOR SWIMMING POOL SKIMMERS

Daniel T. Roth, 17018 Aspen Way, Morgan Hill, Calif. 95037

Filed Jan. 13, 1981, Ser. No. 310,834

Int. Cl.³ E04H *3/16*

U.S. Cl. 210—169 5 Claims

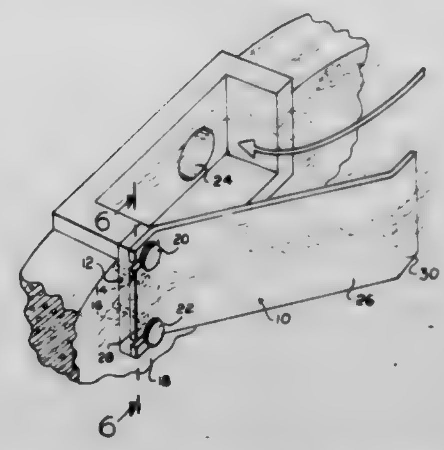
1. A water deflector assembly for deflecting water towards a skimmer provided in the wall of a swimming pool, the water deflector comprising:

(a) an adaptor block;

(b) means coupling said adaptor block proximate to said skimmer;

(c) an elongated water deflector having a substantially planar central portion, a first end portion angularly deflected from said central portion, and a second end portion angularly deflected from said central portion in a second direction substantially opposite said first direction, where said first end portion and said second end portion are substantially planar and parallel; and

(d) means attaching said first end portion to said adaptor block such that said second end portion is substantially parallel to said skimmer, and such that an upper surface of



said deflector protrudes above the surface of the water within said pool.

4,379,750

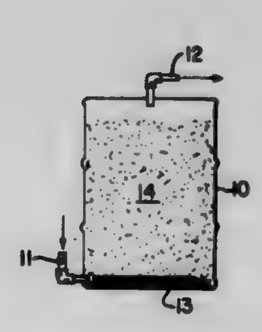
FLUID-SOLIDS CONTACT DEVICE AND IMPROVED FLUID DISTRIBUTOR

Donald D. Tiggelbeck, Pittsburgh, Pa., assignor to Tigg Corporation, Pittsburgh, Pa.

Filed Sep. 4, 1981, Ser. No. 299,641

Int. Cl.³ B01D *33/38*

U.S. Cl. 210—232 16 Claims



1. In a fluid-solids contact device comprising a tank containing particulate solids, a fluid inlet at the bottom of said tank and a fluid outlet at the top of said tank, the improvement comprising a fluid distributor device in the bottom of the said tank secured to the said inlet and comprising a tube-defining helix wire frame, secured at one end to said inlet, and a fabric sleeve surrounding and supported by the said tube-defining-frame whereby fluids entering the said tank pass from the said inlet through the fabric openings in the said sleeve.

4,379,751

METHOD FOR THE CHROMATOGRAPHIC SEPARATION OF SOLUBLE COMPONENTS IN FEED SOLUTION

Kenzaburo Yoritomi; Teruo Kezuka, and Mitsumasa Moriya, all of Chiba, Japan, assignors to Sanmatsu Kogyo Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 32,723, Apr. 23, 1979, Pat. No. 4,267,054, and a continuation-in-part of Ser. No. 908,455, May 22, 1978. This application Jan. 30, 1981, Ser. No. 229,930

Claims priority, application Japan, May 26, 1977, 52-62023

The portion of the term of this patent subsequent to May 12, 1998, has been disclaimed.

Int. Cl.³ B01N *15/08*

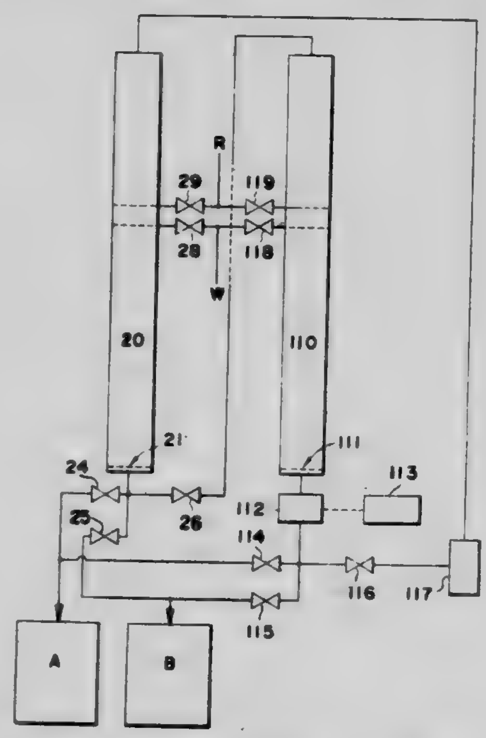
U.S. Cl. 210—659 4 Claims

1. A method for the chromatographic separation of each of the soluble components of a feed solution containing as major components (1) a component A which is relatively less adsorbed by a solid adsorbent having ion-exchanging or molecular sieve action and (2) a component B which is more selectively adsorbed by said solid adsorbent having ion-exchanging or molecular sieve action, said solid adsorbent having its ad-

sorbency restored by displacing the selectively adsorbed components, where the chromatographic separation is carried out in a circulating system comprised of at least one column packed with said solid adsorbent and wherein each column in said system has at least one outlet for withdrawal of both a major component A-rich fraction and a major component B-rich fraction, through said outlet fractions other than the major component fractions are recycled to said circulating system, which method comprises the steps of:

(A) establishing within said circulating system a component concentration distribution comprising, sequentially: a major component A-rich fraction, fraction (a); a first mixed fraction containing component A and component B, fraction (b); a major component B-rich fraction, fraction (c); and a second mixed fraction containing component A and component B, fraction (d), intermediate to fraction (c) and fraction (a),

(B) withdrawing each major component fraction through the outlet immediately dowstream in the circulating system from the position of that major component fraction in the component concentration distribution, and concurrently adding, while withdrawing each volume of said major component A-rich fraction and said major component B-rich fraction, at least one of the two liquids (1) solvent for component A and component B and (2) feed solution, said solvent being added at a position adjacent to fraction (d) and said feed solution being added at a position adjacent to fraction (b),



(C) directly recycling fractions (b) and (d) downstream in the circulating system along with added solvent and/or solution thereby re-establishing the component concentration distribution,

(D) repeating steps (B) and (C) in a cyclic manner with each major component fraction being withdrawn through an outlet downstream in the circulating system to the outlet through which that major component fraction was last withdrawn.

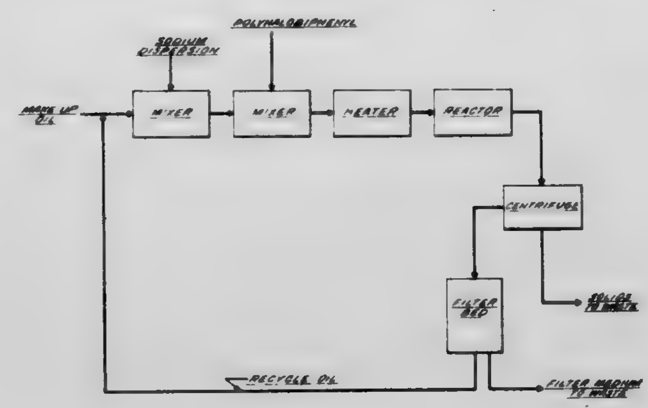
4,379,752
METHOD FOR DESTRUCTION OF POLYHALOGENATED BIPHENYLS

Oscar L. Norman, Wilmington, Del., assignor to Sun-Ohio, Inc., Canton, Ohio

Continuation-in-part of Ser. No. 180,752, Aug. 25, 1980, abandoned. This application Jul. 17, 1981, Ser. No. 284,047
Int. Cl.^{3} B01D *21/00*

U.S. Cl. 210—712 **3 Claims**

1. A continuous method for the destruction of polyhalogenated biphenyls which comprises injecting said biphenyls into a continuously circulating hydrocarbon oil to an initial concentration of from about 1% to about 3% by weight and effecting reaction in the oil circulating at about 5 to about 25 gallons per minute at a temperature above about 75° up to about 150° C. with a dispersion of sodium in a hydrocarbon oil wherein the particle size of the sodium particles is from about one to about ten microns, separating the particulate solids that are formed and recycling said hydrocarbon oil.



4,379,753
HAIR CARE COMPOSITIONS

Raymond E. Bolich, Jr., Maineville, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 119,347, Feb. 7, 1980, Pat. No. 4,345,080. This application May 28, 1981, Ser. No. 267,988
Int. Cl.^{3} C11D *3/48*

U.S. Cl. 252—106 **8 Claims**

1. Hair care compositions which contain from about 0.2% to about 4.0% of heavy metal, magnesium or aluminum pyridinethione salt crystals which are predominantly flat platelets having a mean sphericity less than about 0.65 and a median equivalent spherical diameter based on volume of at least about 2μ but less than about 15μ.

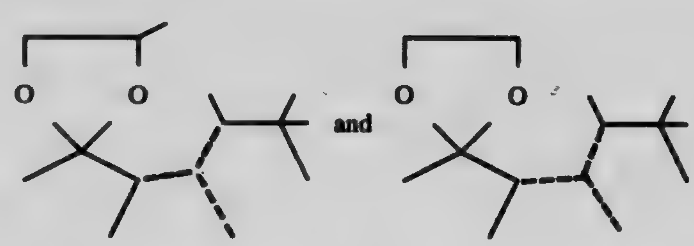
4,379,754
ALIPHATIC BRANCHED OLEFIN DIOXOLANES, DITHIOLANES, AND OXATHIOLANES AND USES THEREOF IN AUGMENTING OR ENHANCING THE AROMA AND/OR TASTE OF CONSUMABLE MATERIALS

Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

Continuation-in-part of Ser. No. 212,993, Dec. 4, 1980, Pat. No. 4,315,952. This application Nov. 19, 1981, Ser. No. 322,732
Int. Cl.^{3} C11D *3/50, 9/44*

U.S. Cl. 252—174.11 **5 Claims**

1. A process for augmenting or enhancing the aroma of a solid or liquid anionic, cationic, nonionic or zwitterionic detergent comprising the step of adding to a solid or liquid anionic, cationic, nonionic or zwitterionic detergent base, an aroma augmenting or enhancing quantity of at least one dioxolane compound defined according to the structure selected from the group consisting of:



wherein one of the dashed lines represents a carbon-carbon double bond and each of the other of the dashed lines represent carbon-carbon single bonds.

4,379,755

GELATINIZING AGENT COMPOSITION, AND GEL AND AQUEOUS EMULSION PREPARED THEREFROM

Mikio Yamada, and Yujin Tabata, both of Tokyo, Japan, assignors to Nihon Surfactant Industry Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 63,748, Aug. 6, 1979, abandoned. This application Oct. 31, 1980, Ser. No. 202,653

Claims priority, application Japan, Aug. 10, 1978, 53-97705

Int. Cl.[3] B01F *17/34, 17/39;* **B01J** *13/00*

U.S. Cl. 252—312 **47 Claims**

1. An oil-free gelatinizing agent composition for gelatinizing oil and comprising from 5 to 98 percent by weight of (a) hydrophilic sucrose fatty-acid ester and from 95 to 2 percent by weight of (b) hydrophilic liquid polyhydric alcohol.

8. A substantially water-free and homogeneous gel composition comprising oil incorporated in a gelatinizing composition according to claim 1.

37. An aqueous emulsion which is an admixture of water with a gel composition according to claim 8 or 9.

4,379,756

REACTIVATION OF SUPPORTED CATALYSTS WHICH CONTAIN PALLADIUM, COPPER AND TELLURIUM

Hans-Martin Weitz, Bad Durkheim, and Rolf Fischer, Heidelberg, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed May 6, 1981, Ser. No. 261,277

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1980, 3022043

Int. Cl.[3] B01J *37/00, 27/02*

U.S. Cl. 252—411 R **10 Claims**

1. In a process for reactivating a supported catalyst which contains palladium, copper and tellurium and which has been used for the acyloxylation of unsubstituted or substituted butadiene to give butenediol esters, the improvement which comprises:

heating the used catalyst at from 200° to 900° C. under an essentially inert gas atmosphere, free of a reducing agent, for a period of time sufficient at said temperature to reactivate the catalyst while free of contact with any reactive gas.

4,379,757

TERTIARY AMINE CATALYST MIXTURES USEFUL IN CELLULAR POLYURETHANE FORMATION

Feyyaz O. Baskent, Mahopac, and Michael R. Sandner, Chappaqua, both of N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Sep. 29, 1980, Ser. No. 191,991

Int. Cl.[3] B01J *31/02*

U.S. Cl. 252—426 **2 Claims**

1. A catalyst mixture which comprises: (1) from about 5 to about 10 percent by weight of 2-hydroxyethyl piperazine; (2) from about 5 to about 10 percent by weight of 1,4-di-(2-hydroxyethyl) piperazine; and (3) from about 80 to about 90 percent by weight of 1,4-diazobicyclo [2.2.2] octane.

2. A catalyst mixture which comprises: (1) from about 10 to about 20 percent by weight of 2-hydroxyethyl piperazine; (2) from about 10 to about 20 percent by weight of 1,4-di-(2-hydroxyethyl) piperazine; and (3) from about 65 to about 75 percent by weight of N-ethyl morpholine.

4,379,758

CATALYST COMPOSITION FOR POLYMERIZING ETHYLENE

Burkhard E. Wagner, Highland Park; George L. Goeke; Frederick J. Karol, both of Belle Mead, all of N.J., and Kathleen F. George, Crosslanes, W. Va., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Dec. 24, 1980, Ser. No. 219,877

Int. Cl.[3] C08F *4/64*

U.S. Cl. 252—429 B **22 Claims**

1. A precursor composition suitable as a component of a catalyst composition capable of producing high density ethylene homopolymers and copolymers under a pressure of less than 1000 psi with low accompanying ethylene hydrogenation, said precursor composition having the formula

$$Mg_mTi(OR)_nX_p[ED]_q$$

wherein

R is an aliphatic or aromatic hydrocarbon radical containing from 1 to 14 carbon atoms, or COR′ wherein R′ is an aliphatic or aromatic hydrocarbon radical containing from 1 to 14 carbon atoms,

X is selected from the group consisting of Cl, Br, I, and mixtures thereof,

ED is an organic electron donor compound selected from the group consisting of alkyl esters of aliphatic and aromatic acids, aliphatic ethers, cyclic ethers and aliphatic ketones,

m is 0.5 to 56,

n is 0, 1 or 2,

p is 2 to 116, and

q is 2 to 85,

said precursor composition being diluted with an inert carrier material and containing from 0.1 mol to 3.0 mols of boron halide compound per mol of electron donor in said precursor composition,

said boron halide compound having the formula

$$BR_cX'_{3-c}$$

wherein

R is an aliphatic or aromatic hydrocarbon radical containing from 1 to 14 carbon atoms or OR′, wherein R′ is an aliphatic or aromatic hydrocarbon radical containing from 1 to 14 carbon atoms,

X′ is selected from the group consisting of Cl, Br, and mixtures thereof, and

c is 0 or 1 when R is an aliphatic or aromatic hydrocarbon and 0, 1 or 2 when R is OR′.

4,379,759

IMPREGNATED POLYMERIZATION CATALYST, PROCESS FOR PREPARING, AND USE FOR ETHYLENE COPOLYMERIZATION

George L. Goeke, Belle Mead; Burkhard E. Wagner, Highland Park, and Frederick J. Karol, Belle Mead, all of N.J., assignors to Union Carbide Corporation, Danbury, Conn.

Division of Ser. No. 12,720, Feb. 16, 1979, Pat. No. 4,302,565, which is a continuation-in-part of Ser. No. 892,322, Mar. 31, 1978, abandoned. This application May 15, 1981, Ser. No. 264,091

Int. Cl.[3] C08F *4/64*

U.S. Cl. 252—429 B **11 Claims**

1. A catalyst composition comprising a precursor composition of the formula

$$Mg_mTi_1(OR)_nX_p[ED]_q$$

wherein

R is a C_1 to C_{14} aliphatic or aromatic hydrocarbon radical, or COR′ wherein R′ is a C_1 to C_{14} aliphatic or aromatic hydrocarbon radical,

X is selected from the group consisting of Cl, Br, I or mixtures thereof,

ED is an electron donor compound,

m is $\geqq 0.5$ to $\leqq 56$,

n is 0, 1 or 2,

p is $\geqq 2$ or $\leqq 116$, and

q is $\geqq 2$ to $\leqq 85$,

said precursor composition being impregnated in a porous support and being either unactivated, or

partially activated with >0 to $\leqq 10$ mols of activator com-

pound per mol of Ti in said precursor composition or completely activated with >10 to ≦400 mols of activator compound per mol of Ti in said precursor composition, said activator compound having the formula

$$Al(R'')_cX'_dH_e$$

wherein X' is Cl or OR''', R'' and R''' are the same or different, and are C_1 to C_{14} saturated hydrocarbon radicals, d is 0 to 1.5, e is 1 or 0 and c+d+e=3,

said electron donor compound being a liquid organic compound in which said precursor composition is soluble and which is selected from the group consisting of alkyl esters of aliphatic and aromatic carboxylic acids, aliphatic ethers, cyclic ethers and aliphatic ketones, and

said precursor composition being impregnated in said support in a weight ratio of 0.033:1 to 1:1.

4,379,760

HIGH EFFICIENCY CATALYST FOR POLYMERIZING OLEFINS

Randall S. Shipley, Alvin, Tex.; Kirby Lowery, Jr., Baton Rouge, La., and Ronald L. Gibbs, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 12, 1981, Ser. No. 320,650

Int. Cl.³ C08F *4/64*

U.S. Cl. 252—429 B **7 Claims**

1. In a catalytic reaction product of (A) a tetravalent titanium compound; (B) an organomagnesium component; and (C) a halide source, however if either component (B) or (C) does not contain sufficient quantities of aluminum, then (D) an organoaluminum compound is also present, said catalytic reaction product having atomic ratios of

Mg:Ti is from about 1:1 to about 200:1;

Al:Ti is from about 0.1:1 to about 1000:1;

excess X:Al is from about 0.0005:1 to about 5:1;

the improvement which comprises employing as the tetravalent titanium compound, a mixture of (a) a tetrahydrocarbyloxytitanium compound and (b) a dihydrocarbyloxytitanium oxide in a molar ratio of (a):(b) of from about 0.1:1 to about 10:1; and wherein excess X is the amount of excess halide above that which would be theoretically required to convert the magnesium compound to the dihalide.

4,379,761

CATALYST AND PROCESS FOR MAKING SAID CATALYST

David H. Olson, Pennington, and Paul G. Rodewald, Rocky Hill, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Jan. 9, 1981, Ser. No. 223,878

Int. Cl.³ B01J *27/14, 29/06*

U.S. Cl. 252—435 **25 Claims**

1. A catalyst composition comprising a porous crystalline zeolite, having silica deposited thereon as a result of contact with a silicone compound of a molecular size incapable of entering the pores of the zeolite and subsequent heating in an oxygen-containing atmosphere to a temperature in excess of 300° C. but below a temperature at which crystallinity of the zeolite is adversely affected at a rate such that the silicone compound does not volatilize prior to undergoing oxidation to silica, said zeolite being characterized by an activity, in terms of alpha value, of between about 2 and about 5000, a xylene sorption capacity greater than 1 gram/100 grams of zeolite and an ortho xylene sorption time for 30 percent of said capacity greater than 10 minutes, said sorption capacity and sorption time being measured at 120° C. and a pressure of 4.5±0.8 mm. of mercury and modified by the addition thereto of phosphorus.

4,379,762

METHOD OF PRODUCING PICTURE TUBE COATING COMPOSITIONS

Hironobu Chiyoda, Kokubunji; Hisayuki Yamazaki, Kashiwa, and Reiichiro Takabe, Kamagaya, all of Japan, assignors to Hitachi Powdered Metals Company, Ltd., Chiba, Japan

Filed Mar. 25, 1980, Ser. No. 133,952

Claims priority, application Japan, Sep. 14, 1979, 54-117381

Int. Cl.³ H01B *1/06*

U.S. Cl. 252—507 **3 Claims**

1. A method of producing a graphite-based coating composition to be applied to the interior wall of a picture tube, which comprises:

mixing graphite particles having a diameter of about 2 to 3 microns, titanium oxide with a particle diameter of about 0.5 to 1.0 micron and silicon oxide having a particle diameter of about 0.007 to 0.008 microns, in water to prepare an aqueous mixture of the electroconductive particles;

spray drying said aqueous mixture to form an electroconductive powder; and

mixing said electroconductive powder with an alkali metal silicate and a dispersant in water and thoroughly agitating the resulting mixture.

4,379,763

WASTE WATER TREATMENT BY CHELATION-GELATION

Lawrence M. Clemens, and Alton J. Gasper, both of Minneapolis, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 15, 1980, Ser. No. 197,130

Int. Cl.³ G21F *9/16*

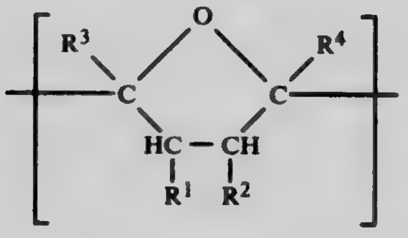
U.S. Cl. 252—628 **12 Claims**

1. A treatment method comprising:

(1) mixing waste water containing a contaminant chemical component with a chelating agent capable of forming a complex with said component, said chelating agent being selected from the group consisting of

(A) a polymer containing the β-hydroxyalkylene amine moiety characterized by having an equivalent weight of hydroxyalkylene amine of 87 to 10,000; and

(B) 2,5-oxolanylene polymer characterized by including recurring 2,5-oxylanylene (or oxolene) units of the formula



wherein at least 60% of the units are joined directly to one another so as to provide segments containing at least six units and wherein R^1, R^2, R^3 and R^4 are individually hydrogen or alkyl groups containing up to 8 carbon atoms

(2) mixing the resultant mixture with a water soluble polyurethane prepolymer having terminal isocyanate groups capable of being polymerized in the presence of water in a sufficient quantity to form a self-supporting transportable gelled mass.

4,379,764

PHENYLALANYLARGININE DERIVATIVES, PROCESS FOR PRODUCING SAME AND METHOD FOR MEASURING ACTIVITY OF ENZYMES USING SAME

Setsuro Fujii, Toyonaka; Mamoru Sugimito, Sakura, and Takashi Yaegashi, Funabashi, all of Japan, assignors to Torii & Co. Ltd., Tokyo, Japan

Filed Sep. 9, 1981, Ser. No. 300,416

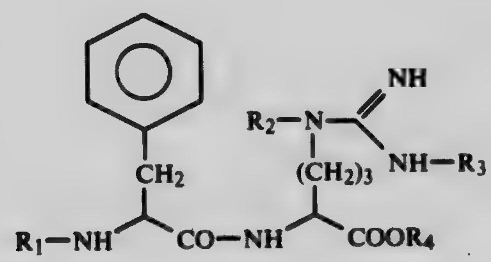
Claims priority, application Japan, Sep. 16, 1980, 55-128270

Int. Cl.[3] C07C *103/52*

U.S. Cl. 260—112.5 R **7 Claims**

1. A phenylalanylarginine derivative represented by the formula,

(I)



wherein R_1 represents hydrogen or an amino-protecting group; R_2 and R_3 represent hydrogen or guanidino-protecting groups; and R_4 represents naphthyl.

4,379,765

PYRAZOLOBENZAZEPINES

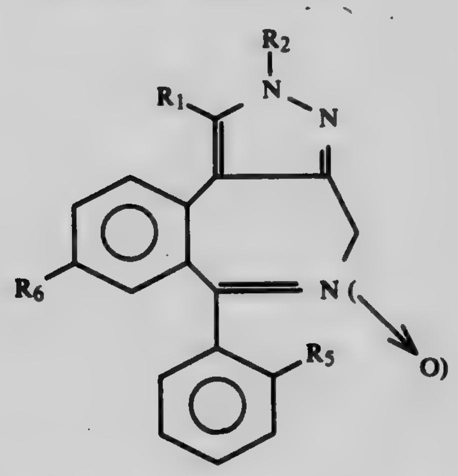
George F. Field, West Caldwell; Rodney I. Fryer, North Caldwell; Eugene J. Trybulski, Parsippany, and Armin Walser, West Caldwell, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation-in-part of Ser. No. 175,552, Aug. 5, 1980, abandoned. This application Jul. 23, 1981, Ser. No. 286,122

Int. Cl.[3] A61K *31/55;* C07D *487/04*

U.S. Cl. 260—245.6 **6 Claims**

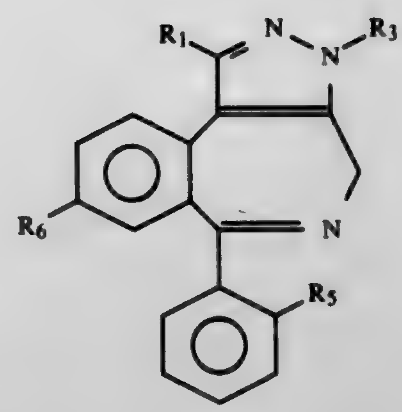
1. A compound of the formula



wherein R_1 is hydrogen or lower alkyl; R_2 is selected from the group consisting of hydrogen, lower alkyl, C_2 to C_7 carboxylic acids, hydroxy C_2 to C_7 alkyl, C_2 to C_7 carboxylic acid esters and amides and the group COR_{11} wherein R_{11} is alkoxy, amino or mono-lower alkyl amino; R_6 is nitro or halo and R_5 is hydrogen or halo

and the pharmaceutically acceptable salts thereof.

2. A compound of the formula



wherein R_1 is hydrogen or lower alkyl; R_3 is selected from the group consisting of hydrogen, lower alkyl, C_2 to C_7 carboxylic acids, hydroxy C_2 to C_7 alkyl, C_2 to C_7 carboxylic acid esters and amides and the group COR_{11} wherein R_{11} is alkoxy, amino or mono-lower alkyl amino; R_6 is nitro or halo and R_5 is hydrogen or halo

and the pharmaceutically acceptable salts thereof.

4,379,766

SILYL ESTERS OF CARBOXYLIC ACIDS BY PHASE TRANSFER CATALYSTS

Mark P. Mack, and Charles T. Berge, both of Ponca City, Okla., assignors to Conoco Inc., Ponca City, Okla.

Filed Jun. 1, 1982, Ser. No. 383,388

Int. Cl.[3] C07F *7/08*

U.S. Cl. 260—413 **9 Claims**

1. A method for the production of silyl esters of carboxylic acids, said ester having the general formula

$$R_1-\overset{\overset{\large O}{\|}}{C}-O-SiR_2R_3R_4$$

comprising reacting a carboxylic acid salt with a silicon halide in the presence of phase transfer catalysts selected from the group consisting of quaternary ammonium salts, crown ethers, and cryptates, wherein R_1, R_2, R_3 and R_4 are, independently, hydrogen, alkyl groups containing from 1 to 30 carbon atoms, cycloalkyl groups, aralkyl groups, alkaryl groups, aryl groups, and bicycloalkyl groups, all containing from 6 to 30 carbon atoms.

4,379,767

MANUFACTURE OF ISOCYANATES

Vazken A. Alexanian, Darien; Peter S. Forgione, Stamford, and Laurence W. Chang, Orange, all of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Mar. 8, 1982, Ser. No. 355,825

Int. Cl.[3] C07C *118/00, 125/03*

U.S. Cl. 260—453 P **11 Claims**

1. A process for the production of tertiary benzyl isocyanates which comprises reacting a vinyl aromatic compound of the formula:

$$\begin{array}{c} R_1 \\ \| \\ C-R_3 \\ | \\ R_2 \end{array}$$

in which:

R_1 is an alkylidene group having from 1 to 3 carbon atoms,

R_2 is an alkyl group having from 1 to 3 carbon atoms, and

R_3 is a phenyl, biphenyl or naphthyl group or a substituted phenyl, biphenyl or naphthyl group having substituents selected from halogen atoms, methyl and methoxy groups and substituents of the formula:

with a carbamoyl halide in a solvent for said aromatic compound, carbamoyl halide, isocyanic acid and reaction products thereof to produce the corresponding aromatic halide and reacting said aromatic halide in said solution with isocyanic acid in sufficient excess to form the corresponding aromatic isocyanate and carbamoyl halide.

4,379,768

PROCESS FOR PRODUCING PERFLUOROSUCCINYL FLUORIDE

Masaaki Yamabe, Machida; Seiji Munekata; Seisaku Kumai, both of Tokyo, and Isamu Kaneko, Yamato, all of Japan, assignors to Asahi Glass Company, Ltd., Yamato, Japan

Filed Aug. 26, 1981, Ser. No. 296,363

Claims priority, application Japan, Aug. 26, 1980, 55-116401

Int. Cl.[3] C07C *51/58*

U.S. Cl. 260—544 F **4 Claims**

1. A process for producing perfluorosuccinyl fluoride which comprises coupling accompanied by dehalogenation of a difluorohaloacetyl fluoride having the formula

XCF_2COF

wherein X represents I, Br or Cl by reacting with a trapping agent of a halogen at a temperature ranging from 100° to 500° C.

4,379,769

PROCESS FOR PREPARING ARYLSULFONYL ISOCYANATES BY PHOSGENATION OF ARYLSULFONAMIDES

George Levitt, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 45,244, Jun. 4, 1979, abandoned. This application Oct. 1, 1980, Ser. No. 192,707

Int. Cl.[3] C07C *143/79*

U.S. Cl. 260—545 R **14 Claims**

1. A process for preparing a 2-substituted aryl-1-sulfonyl isocyanate where the 2-substituent is an electron-withdrawing group in which an appropriately substituted arylsulfonamide is phosgenated in the presence of a catalytic quantity of a hydrocarbyl isocyanate, wherein the improvement comprises conducting the reaction in the presence of a catalytic quantity of a tertiary amine base.

4,379,770

CARBURETTORS FOR INTERNAL COMBUSTION ENGINES

Valerio Bianchi, Neuss; Anwar Abidin, Meerbusch, and Dieter Thönnessen, Viersen, all of Fed. Rep. of Germany, assignors to Bosch & Pierburg System ohG, Neuss, Fed. Rep. of Germany

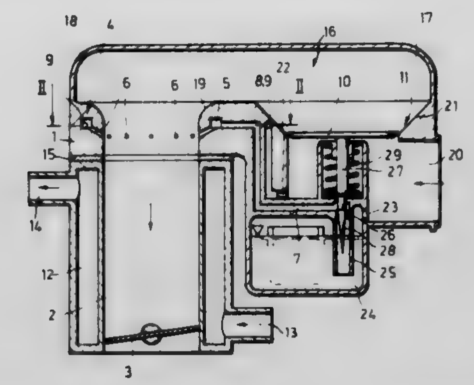
Filed Aug. 14, 1981, Ser. No. 292,736

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1981, 3113943

Int. Cl.[3] F02M *15/04*

U.S. Cl. 261—142 **18 Claims**

1. A constant pressure carburettor for an internal combustion engine, said carburettor comprising a tubular wall defining a main air flow path and a mixture chamber, fuel feeder means at the upstream end of said chamber for supplying fuel in a substantially uniform circumferential distribution onto said tubular wall, a main throttle valve downstream of said mixture chamber, means forming a heating wall in a part at least of said tubular wall between said fuel feeder means and said main throttle valve, a choke valve disposed upstream of said fuel feeder means, a metering element which regulates the rate of fuel flow from said fuel feeder means, means for opening said choke valve in dependence upon the magnitude of the air flow along said main air flow path and means operatively connecting said choke valve and said metering element to actuate said metering element in dependence upon the opening of said



choke valve, means defining an air flow stabilising conduit extending between said choke valve and said fuel feeder means, said stabilising conduit being operatively constructed to damp out or decrease vortices generated in said air flow by said choke valve before said air flow reaches said mixing chamber.

4,379,771

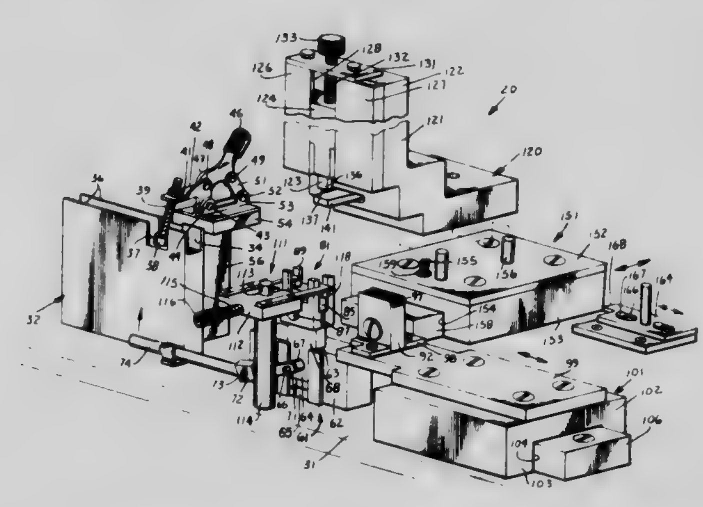
METHODS OF AND APPARATUS FOR TERMINATING A LIGHTGUIDE FIBER RIBBON

Donald Q. Snyder, Marietta, Ga., assignor to Western Electric Company, Inc., New York, N.Y.

Filed May 23, 1980, Ser. No. 153,104

Int. Cl.[3] B29C *6/00;* **B29D** *11/00;* **G02B** *5/14*

U.S. Cl. 264—1.5 **22 Claims**



1. A method of terminating a plurality of lightguide fibers which extend from a lightguide fiber ribbon, said method comprising the steps of:

supporting opposite end portions of a first substrate in a nest at an assembly station, the substrate having a plurality of spaced parallel fiber-receiving grooves formed in at least one side thereof with the grooves oriented upwardly;

spacing apart a plurality of lightguide fibers which extend from a lightguide ribbon beyond one end of the substrate with the ribbon extending beyond the opposite end of the substrate;

moving the ribbon in a direction along its longitudinal axis so that each of the individual fibers is pulled into and along one of the fiber-receiving grooves of the substrate;

positioning a second substrate having a plurality of fiber-receiving grooves in engagement with the fibers with the grooves of the second substrate facing and being aligned with the grooves of the first substrate to enclose each of

the fibers in a passageway formed between opposed aligned grooves in the first and second substrates;
applying compressive forces to the assembly of the first and second substrates and the plurality of lightguide fibers at end portions of the assembly above the supported end portions of the first substrate and substantially along a longitudinal center line of the substrates to hold together the assembly;
moving one jaw of a vise into juxtaposition with a lower surface of the first substrate and another jaw of the vise into juxtaposition with an upper surface of the second substrate;
securing together the assembly by causing the jaws to apply predetermined compressive forces to the assembly betweeen the end portions of the assembly;
discontinuing the application of the compressive forces to the end portions of the assembly;
disengaging the nest from supportive engagement of the assembly; and
causing an encapsulating material to fill interstices between the fibers and the substrates to hold together the assembly of the fibers and the substrates.

8. An apparatus for terminating a plurality of lightguide fibers which extend from a lightguide ribbon, said apparatus comprising:
a nest for supporting a first substrate at opposite end portions of the substrate, the substrate having a plurality of spaced parallel grooves with the grooves being oriented upwardly;
means disposed adjacent one end of said nest and aligned with said nest for receiving a longitudinal end portion of a lightguide ribbon with the individual lightguide fibers extending therefrom and past the other end of said nest;
means disposed adjacent the other end of said nest for separting the lightguide fibers by spacing apart said individual lightguide fibers to facilitate the receipt of the fibers extending past said nest in the grooves formed in the first substrate and in aligned grooves of a second substrate, the first substrate having been positioned in said nest prior to said fibers being extended through said nest, and the second substrate being positioned in engagement with the fibers to enclose each of the fibers in a passageway formed between opposed aligned grooves;
means for applying compressive forces to the assembly of said substrates and said lightguide fibers at opposite ends of the assembly and along a longitudinal centerline thereof above the supported end portions of the first substrate to hold the assembly securely in said nest;
a vise which includes a lower jaw for engaging a lower surface of the first substrate and an upper jaw for engaging an upper surface of the second substrate, said vise including means for causing relative motion between said jaws to controllably apply compressive forces to the assembly; and
means mounting said vise for movement along a path of travel transverse of the fibers to facilitate said lower jaw being moved beneath the first substrate between the supported end portions of the first substrate and said upper jaw being moved above the second substrate.

4,379,772

METHOD FOR FORMING AN ELECTRODE ACTIVE LAYER OR SHEET

Frank Solomon, Great Neck, N.Y., and Charles Grun, Matawan, N.J., assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Oct. 31, 1980, Ser. No. 202,576

Int. Cl.^{3} B29D *27/00;* **C25B** *14/04, 11/12*

U.S. Cl. 264—49 **10 Claims**

1. A process for forming active layer or sheet comprising adding a dilute aqueous dispersion of polytetrafluoroethylene particles to an aqueous suspension of larger active carbon particles to discontinuously coat said active carbon particles with smaller polytetrafluoroethylene particles; fibrillating said discontinuously coated particles by shear blending at between about 15° C. and 75° C. to form an intimate mix of carbon particles having attenuated adherent polytetrafluoroethylene particles; chopping said intimate mix to yield a granular mix to reduce any compression of the intimate mix during shear blending and nonsinteringly forming said granular mix into a sheet.

4,379,773

PROCESS FOR WET SPINNING NYLON 4

Mitchell Danzik, Pinole, Calif., and J. Ronald Carpenter, Millersville, Md., assignors to Chevron Research Company, San Francisco, Calif.

Filed Jun. 4, 1980, Ser. No. 156,437

Int. Cl.^{3} D01F *6/00*

U.S. Cl. 264—184 **18 Claims**

1. A wet spinning process, for wet spinning nylon 4 filaments, which comprises the steps of:
(a) extrusion wet spinning a spinnable solution of nylon 4 dissolved in a solvent containing about from 60 to 100 wt. % formic acid and about from 40 to 0 wt. % water into an acidic aqueous coagulation bath containing a nylon 4 coagulation effective amount of alkali metal formate selected from the group consisting of sodium formate, potassium formate, lithium formate and mixtures thereof, and about from 6 to 30 wt. %, formic acid, for a sufficient time to coagulate said spun nylon 4 solution into filaments and wherein said coagulation bath is maintained at temperatures in the range of about from 35° C. up to the boiling point of said coagulation bath; and
(b) collecting said filaments.

4,379,774

PROCESS FOR THE PRODUCTION OF BIAXIALLY STRETCHED AND EMBOSSED FILM COMPOSED OF VINYL CHLORIDE POLYMERS

Heinz-Erhardt Andersen, Burgkirchen, Fed. Rep. of Germany; Jack J. Brebels, Bocholt, Belgium; Klaus Matschke, and Franz Scheier, both of Burgkirchen, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 21, 1981, Ser. No. 303,775

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1980, 3036289

Int. Cl.^{3} B29C *17/02*

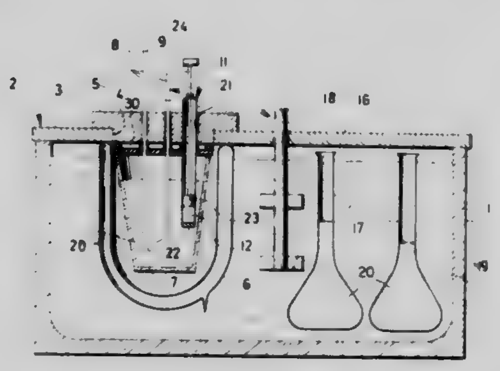
U.S. Cl. 264—284 **5 Claims**

1. A process for the production of biaxially stretched and embossed polyvinyl chloride film which comprises
(a) biaxially stretching a polyvinyl chloride film at a stretching temperature of 90° to 160° C. at a transverse stretching ratio of 1.2:1 to 2.2:1 and a longitudinal stretching ratio of 1.7:1 to 2.5:1, the product of the transverse and longitudinal stretching ratios not exceeding 3.8:1, and

(b) immediately after stretching, before the polyvinyl chloride film stretched according to step (a) has cooled appreciably from the stretching temperature range of 90° to 160° C. utilized in step (a), embossing the film by means of an embossing unit comprising an embossing roller back-up cylinder, the temperature of the film as it comes on to the embossing roller being substantially within said stretching temperature range and the embossing roller having a temperature of −10° to +60° C. and the embossing pattern of the embossing roller being embossed into the film to a depth of embossing of 0.02 to 0.25 mm.

4,379,775
APPARATUS FOR THERMOCHEMICAL QUANTITATIVE ANALYSIS

Jiri Brandstetr; Josef Huleja, both of Brno, and Josef Kupec, Kurim, all of Czechoslovakia, assignors to Vysoke udeni technicke, Brno, Czechoslovakia
Filed Oct. 15, 1980, Ser. No. 197,274
Int. Cl.³ G01K *17/00*; G01N *25/20*
U.S. Cl. 422—51 **4 Claims**



1. An apparatus for thermochemical quantitative analysis, comprising a heat-insulated receptacle with a thermostatically controlled liquid bath, a removable part and a hinged part, the receptacle containing a Dewar vessel in which there is an exchangable reaction vessel, the receptacle further containing at least one stock bottle and at least one volumetric flask which are disposed below the hinged part of the lid and contain a solution to be analyzed and a reagent solution, respectively, the removable part of the lid which has the air-filled insulating space being retained by gravity above said reaction vessel and being provided with apertures for at least one liquid reagent dose feeder and a dose feeder for a solid sample.

4,379,776
PROCESS FOR REDUCING ALUMINUM AND FLUORINE IN PHOSPHORIC ACIDS

Gary L. Beer, Huntington Beach, and Elie Chemtob, Claremont, both of Calif., assignors to Occidental Research Corporation, Irvine, Calif.
Filed Jul. 13, 1981, Ser. No. 282,465
Int. Cl.³ C01B *25/16*
U.S. Cl. 423—321 R **5 Claims**

1. A process for removing aluminum and fluorine from impure aqueous wet process phosphoric acid analyzing, in weight percent, no more than about 45% P_2O_5, in the range of about 2 to about 4% Al_2O_3 and about 1 to about 2% F, said process comprising:

(a) aging said impure aqueous phosphoric acid at an elevated temperature of between 60°–80° C. for sufficient time to permit the formation of solid precipitate comprising an aluminum fluorophosphate of $AlFHPO_4.2H_2O$; and,

(b) separating said solid precipitate from the aged phosphoric acid.

4,379,777
PURIFICATION OF METALLURGICAL GRADE SILICON

Maher I. Boulos, Sherbrooke, Canada, assignor to Universite de Sherbrooke, Quebec, Canada
Filed Oct. 13, 1981, Ser. No. 310,726
Claims priority, application Canada, Oct. 15, 1980, 362410
Int. Cl.³ C01B *33/02*
U.S. Cl. 423—348 **5 Claims**

1. Process for preparing ultra pure silicon which comprises:

(a) continuously passing powdered and acid-leached metallurgical grade silicon through an induction plasma to melt the silicon;

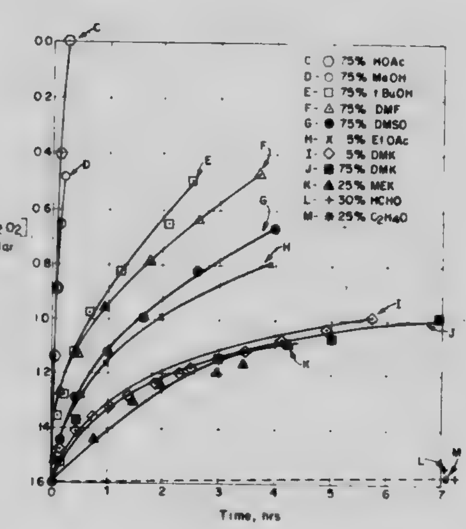
(b) quenching said molten silicon particles whereby upon solidification of the molten particles, a portion of the impurities therein migrates to the surface of the granules obtained;

(c) acid-leaching the surface impurities of the granules obtained in step (b); and

(d) after drying the granules obtained, repeating steps (a), (b), and (c) until a silicon of the desired purity is obtained.

4,379,778
HYDROGEN PEROXIDE SYNTHESIS

Augustine I. Dalton, Jr., and Ronald W. Skinner, both of Allentown, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.
Filed Oct. 10, 1980, Ser. No. 195,829
Int. Cl.³ C01B *15/02*
U.S. Cl. 423—584 **15 Claims**



1. In a process for producing hydrogen peroxide by contacting a mixture of hydrogen and oxygen with a previously-reduced palladium catalyst supported on a carbon base in the presence of an aqueous liquid, containing an acid and a non-acidic oxygen-containing organic compound, capable of inhibiting the decomposition of the thus-produced hydrogen peroxide, the improvement comprising pretreating the catalyst with a ketone or aldehyde before contacting the thus-pretreated catalyst with hydrogen and oxygen in the aqueous medium.

10. In a process for producing hydrogen peroxide with a mixture of gases comprising hydrogen and oxygen with a palladium catalyst supported on a carbon base in the presence of an aqueous liquid, containing an acid and a non-acidic oxygen-containing organic compound, capable of inhibiting the decomposition of thus-produced hydrogen peroxide, the improvement wherein the carbon base is non-graphitic and has a surface area greater than 400 m^2/g and wherein the palladium catalyst is prepared by impregnating the carbon base with a soluble palladium compound, drying the thus-impregnated carbon base and reducing the palladium compound with which the carbon base is impregnated to palladium with hydrogen at 40°–140° C.

14. In a process for producing hydrogen peroxide by contacting a mixture of gases comprising hydrogen and oxygen

with a previously-reduced palladium catalyst supported on a carbon base in the presence of an aqueous liquid, containing an acid and a non-acidic oxygen-containing organic compound, capable of inhibiting the decomposition of the thus-produced hydrogen peroxide, the improvement comprising pretreating the catalyst with a dilute solution of HCl before contacting the thus-pretreated catalyst with hydrogen and oxygen in the aqueous medium.

4,379,779

EQUILIN HAPTEN AND ASSAY METHOD

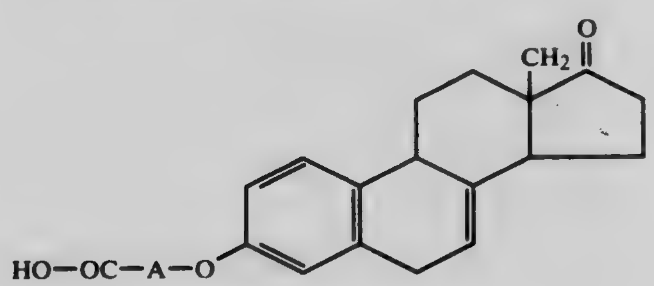
Pemmaraju N. Rao; Robert H. Purdy, and Perry H. Moore, Jr., all of San Antonio, Tex., assignors to American Home Products Corporation, New York, N.Y.

Filed Sep. 29, 1980, Ser. No. 191,805

Int. Cl.[3] G01N *33/54, 33/56;* **C07G** *7/00;* **C07J** *13/00*

U.S. Cl. 436—543 **10 Claims**

1. A compound of the formula



wherein A is an alkylene group of one to six carbon atoms.

4,379,780

17 α-DIHYDROEQUILIN HAPTEN AND ASSAY METHOD

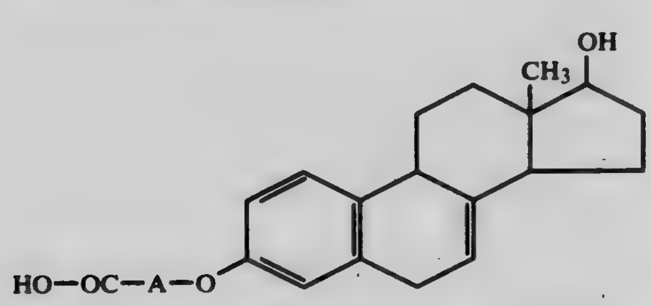
Pemmaraju N. Rao, San Antonio, Tex., assignor to American Home Products Corporation, New York, N.Y.

Filed Sep. 29, 1980, Ser. No. 191,807

Int. Cl.[3] G01N *33/54, 33/56;* **C07G** *7/00;* **C07J** *13/00*

U.S. Cl. 436—543 **10 Claims**

1. A compound of the formula



wherein A is an alkylene group of one to six carbon atoms.

3. An immunogen comprising the compound of claim 1 conjugated to an immunological carrier.

6. The antibody produced by injecting the immunogen of claim 3 into a host animal.

8. In a radioimmunossay procedure of 1,3,5(10),7-estratetraene-3,17α-diol in a sample employing radiolabeled 1,3,5(10),7-estratetraene-3,17α-diol and an antibody for binding 1,3,5(10),7-estratetraene-3,17α-diol and radiolabeled 1,3,5(10),7-estratetraene-3,17α-diol, the improvement which comprises employing the antibody of claim 6 or claim 7 in said radioimmunoassay procedure.

4,379,781

ANTIBIOTIC COMPOSITIONS

Robert N. Hull, Greenwood, and Robert S. Gordee, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 107,239, Dec. 26, 1979, abandoned. This application Mar. 9, 1981, Ser. No. 241,809

Int. Cl.[3] A61K *35/00*

U.S. Cl. 424—114 **3 Claims**

1. The synergistic antibiotic composition useful for inhibiting the growth of resistant mycoplasma in mammalian tissue cultures comprising the macrolide antibiotic tylosin or a pharmaceutically acceptable salt thereof and the aminoglycoside antibiotic tobramycin or a pharmaceutically acceptable salt thereof in a weight ratio of tylosin to tobramycin or the pharmaceutically acceptable salts thereof of about 12:1 to about 0.5:12.

4,379,782

LOW-CALORIE FOODS

Herbert W. Staub, Hightstown, N.J.; Larry M. Schanbacher, Yorktown Heights, N.Y.; Jack D. Zencheck, Croton-on-Hudson, N.Y., and Cynthia L. Young, Irvington, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Continuation-in-part of Ser. No. 135,597, Mar. 31, 1980, Pat. No. 4,304,768. This application Oct. 7, 1981, Ser. No. 309,536

The portion of the term of this patent subsequent to Dec. 8, 1998, has been disclaimed.

Int. Cl.[3] A61K *31/70, 31/725*

U.S. Cl. 424—180 **7 Claims**

1. A low-calorie foodstuff containing edible polysaccharides, polyols or combinations thereof in excess of 10% by weight of the foodstuff, dry basis, and an amount of a cellulose-containing dietary fiber composition effective to reduce diarrhea induced by said polysaccharide, polyol, or combinations thereof, said amount being from ¼ to 2 times the combined level of polysaccharides and polyols and said fiber composition being derived from the group consisting of pineapple core, sugar beet pulp and combinations thereof.

4,379,783

TRIALKYLSILICON-CONTAINING PHENYLCYCLOALKANE ANALGESICS

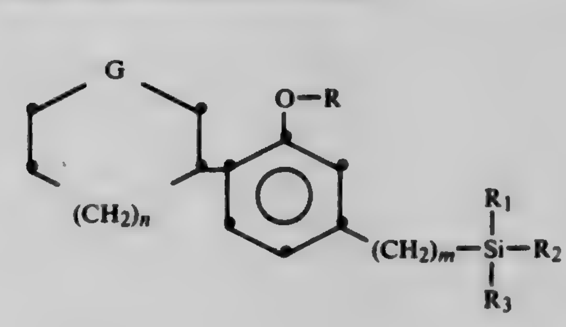
Lawrence S. Melvin, Jr., Ledyard, and Michael R. Johnson, Gales Ferry, both of Conn., assignors to Pfizer Inc., New York, N.Y.

Filed May 24, 1982, Ser. No. 381,591

Int. Cl.[3] A61K *31/695;* **C07F** *7/08*

U.S. Cl. 424—184 **11 Claims**

1. A compound having the formula



or a pharmaceutically acceptable salt thereof, wherein:

G is hydroxymethylene or carbonyl;

R is hydrogen or alkanoyl having from one to seven carbon atoms;

R_1 and R_2 are methyl or ethyl;

R_3 is an alkyl of from five to seven carbon atoms;

m is 0 or 1; and

n is 1, 2 or 3.

10. A pharmaceutical composition comprising a pharmaceutically acceptable carrier or diluent and an analgesic, tranquilizer, sedative, antianxiety, anticonvulsant, antidiarrheal or

antiemetic effective amount of a compound of claim 1 or claim 2.

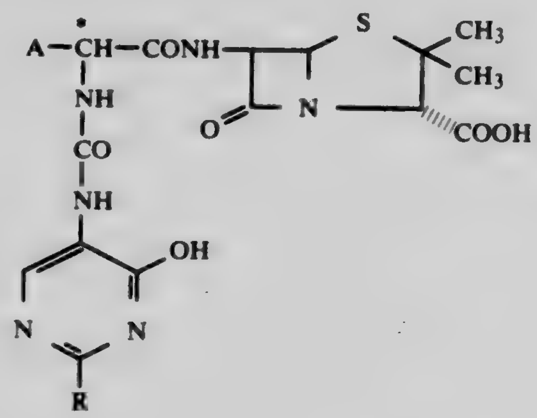
4,379,784

PYRIMIDINYL UREIDO PENICILLINS

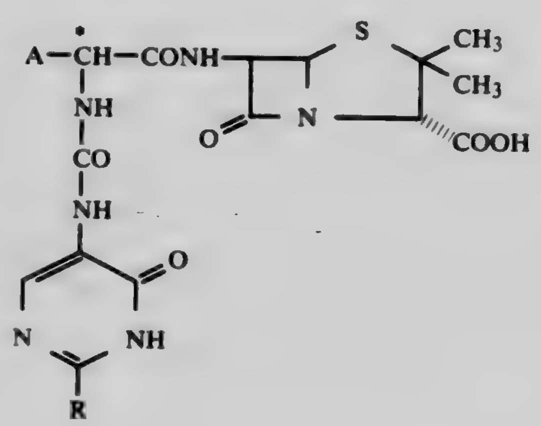
Roland Maier; Bernd Wetzel; Eberhard Woitun, all of Biberach; Wolfgang Reuter, Laupertshausen; Uwe Lechner, Ummendorf, and Hanns Goeth, Biberach, all of Fed. Rep. of Germany, assignors to Dr. Karl Thomae Gesellschaft mit beschränkter Haftung, Biberach an der Riss, Fed. Rep. of Germany

Filed Nov. 20, 1981, Ser. No. 323,383
Claims priority, application Fed. Rep. of Germany, Dec. 5, 1980, 3045908; Dec. 12, 1980, 3046839
Int. Cl.[3] A61K *31/505, 31/635;* **C07D** *499/70*
U.S. Cl. 424—229 **8 Claims**

1. A compound of the formula



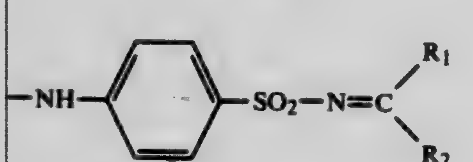
or

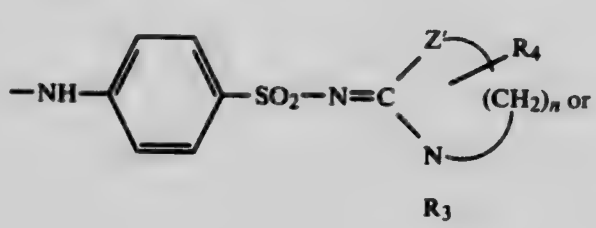


wherein

A is phenyl, 4-hydroxy-phenyl, 2-thienyl or 3,4-dihydroxy-phenyl; and

R is





where

R_1 and R_2 are each methylmercapto or amino;

Z' is oxygen, sulfur or $=NR_3$;

R_3 is hydrogen, alkyl of 1 to 3 carbon atoms or hydroxy-(alkyl of 1 to 3 carbon atoms);

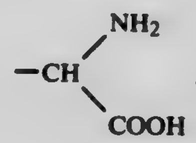
R_4 is hydrogen, hydroxyl, hydroxymethyl or methyl;

n is 2, 3 or 4;

Y is $-SO_2NH-$, $-SO-$ or $-SO_2-$;

Z is straight or branched alkylene of 1 to 3 carbon atoms;

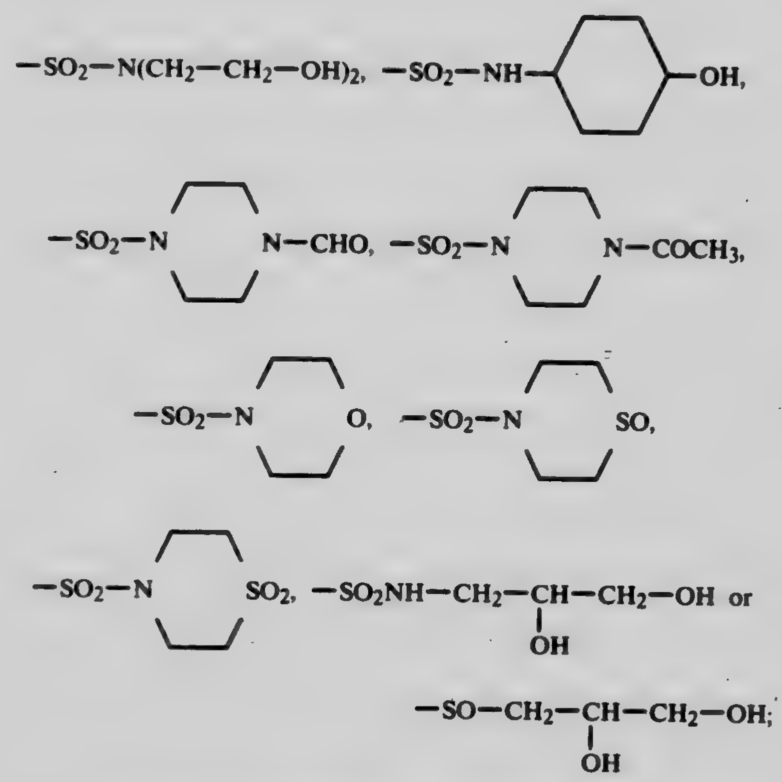
X is hydroxyl, aminocarbonyl, aminosulfonyl, formylamino, acetylamino, amino, methylsulfinyl, methylsulfonyl or



; or

or

—Y—Z—X is



or a non-toxic, pharmacologically acceptable salt thereof formed with an inorganic or organic base.

7. An antibacterial pharmaceutical composition consisting essentially of an inert pharmaceutical carrier and an effective antibiotic amount of a compound of claim 1.

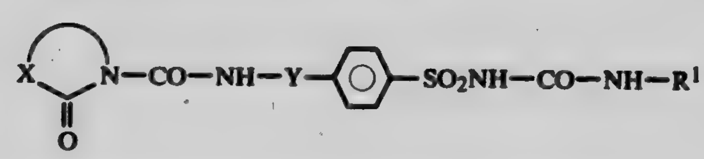
4,379,785

HETEROCYCLIC SUBSTITUTED SULFONYL UREAS, AND THEIR USE

Rudi Weyer, Kelkheim; Volker Hitzel, Hofheim am Taunus; Karl Geisen, Frankfurt am Main, and Günter Regitz, Bad Soden am Taunus, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Dec. 17, 1980, Ser. No. 217,524
Claims priority, application Fed. Rep. of Germany, Dec. 19, 1979, 2951135
Int. Cl.[3] A61K *31/40, 31/44;* **C07D** *207/38, 209/46*
U.S. Cl. 424—244 **6 Claims**

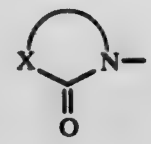
1. A sulfonyl urea of the formula



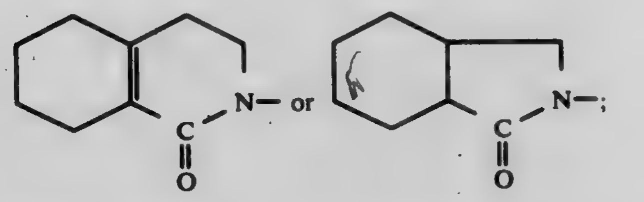
or a physiologically acceptable salt thereof, wherein

X is alkylene or alkenylene having from 3 to 6 carbon atoms, optionally substituted by up to 3 alkyl groups each having from 1 to 4 carbon atoms, or by phenyl;

or the group



is a bicyclic system of the formula



and

Y is alkylene having 2 or 3 carbon atoms;

R^1 is alkyl having from 4 to 6 carbon atoms, cycloalkyl, alkylcycloalkyl, dialkylcycloalkyl, cycloalkylalkyl, cycloalkenyl, or alkylcycloalkenyl in each case having 4 to 9 carbon atoms, or is methylcyclopentylmethyl, cyclohexenylmethyl, chlorocyclohexyl, methoxycyclohexyl, bicycloheptyl, bi-ycloheptenyl, bicycloheptylmethyl, bicycloheptenylmethyl, bicyclooctyl, nortricyclyl, adamantyl, or benzyl.

5. A pharmaceutical composition for lowering the blood sugar level, which comprises a hypoglycemically effective amount of a sulfonyl urea or salt thereof as in claim 1 in combination with a pharmaceutically acceptable carrier therefor.

4,379,786

N-ARYL-N-(4,5,6,7-TETRAHYDRO-1H-1,3, DIAZEPIN-2-YL)UREAS AS ANTIHYPERTENSIVES

Chris R. Rasmussen, Ambler, Pa., assignor to McNeilab, Inc., Fort Washington, Pa.

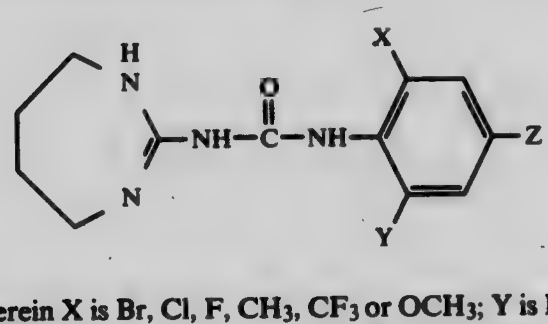
Division of Ser. No. 159,987, Jun. 16, 1980, abandoned. This application Sep. 28, 1981, Ser. No. 306,270

Int. Cl.[3] A61K *31/55*

U.S. Cl. 424—244 **6 Claims**

1. A method of reducing arterial pressure in a hypertensive animal which comprises administering to said hypertensive animal, a therapeutically-effective antihypertensive amount of a compound selected from the group consisting of

(a) an N-aryl-N'-(4,5,6,7-tetrahydro-1H-1,3,-diazepin-2-yl)urea having the formula:



wherein X is Br, Cl, F, CH_3, CF_3 or OCH_3; Y is H, Br, Cl, F, CH_3, CF_3 or OCH_3; and Z is H or F; and

(b) a pharmaceutically-acceptable salt thereof.

4,379,787

OXIMINO-SUBSTITUTED CEPHALOSPORIN COMPOUNDS

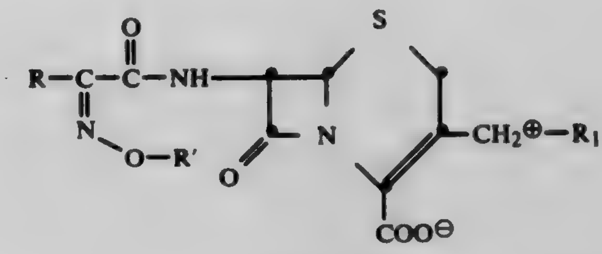
William H. W. Lunn, and William J. Wheeler, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Oct. 2, 1981, Ser. No. 307,985

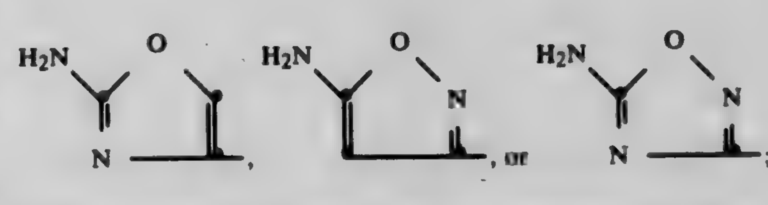
Int. Cl.[3] C07D *501/40;* **A61K** *31/545*

U.S. Cl. 424—246 **23 Claims**

1. A compound of the formula



wherein R is an amino-substituted heterocyclic of the formula



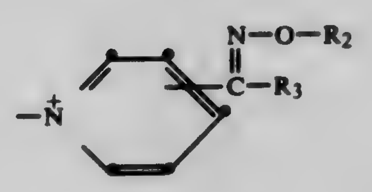
R' is hydrogen, C_1–C_4 alkyl, a carboxy-substituted alkyl or a carboxy-substituted cycloalkyl group of the formula

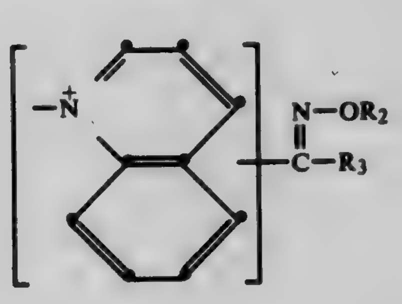
$$-\overset{a}{\underset{b}{\overset{|}{\underset{|}{C}}}}-(CH_2)_n-COR''$$

wherein a and b when taken separately are independently hydrogen or C_1–C_3 alkyl, and a and b when taken together with the carbon atom to which they are bonded form a C_3–C_7 carbocyclic ring; n is 0–3; and R'' is hydroxy, C_1–C_4 alkoxy, amino OR*, wherein R* is a carboxy-protecting group, R' is a carbamoyl group of the formula

$$-\overset{O}{\overset{\|}{C}}-NHR'''$$

wherein R''' is C_1–C_3 alkyl, phenyl, or C_1–C_3 alkyl substituted by phenyl; $\oplus R_1$ is an oximino-substituted pyridinium, quinolinium, or isoquinolinium group represented by the formulas





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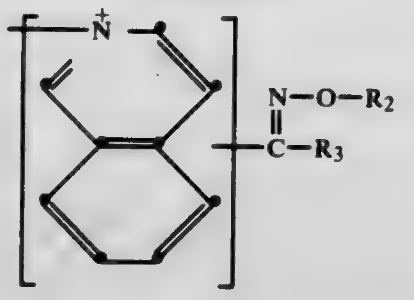


wherein R_2 and R_3 independently are hydrogen or C_1-C_3 alkyl; and the pharmaceutically acceptable non-toxic salts thereof.

4,379,788

2-PHENYL-PYRIMIDONES

Joachim Heider, Warthausen; Volkhard Austel, Biberach; Wolfgang Eberlein, Biberach; Rudolf Kadatz, Biberach, all of Fed. Rep. of Germany, and Christian Lillie, Vienna, Austria, assignors to Dr. Karl Thomae Gesellschaft mit beschränkter Haftung, Biberach an der Riss, Fed. Rep. of Germany

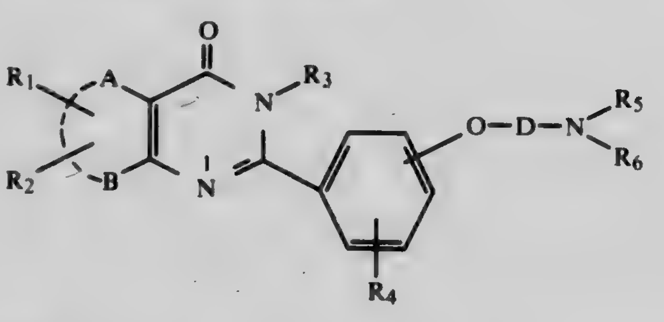
Filed Dec. 4, 1981, Ser. No. 327,348

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1980, 3046871; Apr. 16, 1981, 3115447

Int. Cl.[3] A61K *31/505;* C07D *239/91*

U.S. Cl. 424—251 9 Claims

1. A compound of the formula



wherein

A and B, together with each other and the respective carbon atoms to which they are attached, form a phenyl or pyridine ring;

R_1 is hydrogen, halogen, amino, nitro, alkyl or 1 to 3 carbon atoms or alkoxy of 1 to 3 carbon atoms;

R_2 is hydrogen or alkoxy of 1 to 3 carbon atoms;

D is alkylene of 3 to 4 carbon atoms or hydroxy(alkylene of 3 to 4 carbon atoms);

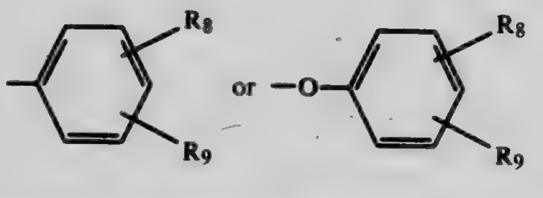
R_3 and R_5, which may be identical to or different from each other, are each hydrogen or alkyl of 1 to 3 carbon atoms;

R_4 is hydrogen or alkoxy of 1 to 3 carbon atoms; and

R_6 is straight or branched alkyl of 1 to 6 carbon atoms or —E—R_7;

where E is straight alkylene of 2 to 4 carbon atoms or hydroxy-substituted straight alkylene of 2 to 4 carbon atoms, and

R_7 is



where R_8 and R_9 are each hydrogen, alkyl of 1 to 3 carbon atoms or alkoxy of 1 to 3 carbon atoms,

or a non-toxic, pharmacologically acceptable acid addition salt thereof.

9. The method of lowering the blood pressure or alleviating cardiac arrhythmia in a warm-blooded animal in need thereof, which comprises perorally, parenterally or rectally administering to said animal an effective hypotensive or antiarrhythmic amount of a compound of claim 1.

4,379,789

ANALGESIC COMPOSITION

Robert J. Capetola, Doylestown, Pa., and John L. McGuire, Whitehouse Station, N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Continuation-in-part of Ser. No. 104,495, Dec. 17, 1979, Pat. No. 4,315,936. This application May 29, 1981, Ser. No. 265,297

The portion of the term of this patent subsequent to Feb. 16, 1999, has been disclaimed.

Int. Cl.[3] A61K *31/485*

U.S. Cl. 424—260 6 Claims

1. A method of controlling pain in mammals which comprises administering to a mammal an effective amount of a composition comprising from about 10 to 600 mg of a-methyl-4-[2-thienylcarbonyl)benzene acetic acid and from about 1 to 80 mg of a centrally-acting analgesic selected from codeine, and butorphanol.

4,379,790

(EROLINYL)-N,N-DIETHYLUREA DERIVATIVES, AND THEIR PREPARATION AND USE

Reinhard Horowski; Wolfgang Kehr; Gerhard Sauer; Ulrich Eder, and Hans P. Lorenz, all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin, Fed. Rep. of Germany

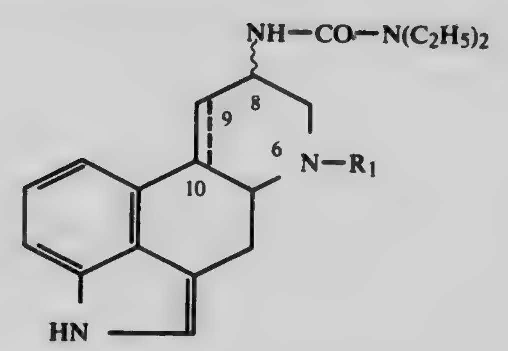
Continuation of Ser. No. 159,280, Jun. 13, 1980, abandoned. This application Jan. 6, 1982, Ser. No. 337,355

Claims priority, application Fed. Rep. of Germany, Jun. 13, 1979, 2924102; Apr. 28, 1980, 3016691

Int. Cl.[3] A61K *31/475;* C07D *457/12*

U.S. Cl. 424—261 39 Claims

1. An ergolinyl-N',N'-diethylurea of the formula

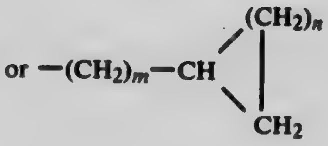


or a pharmaceutically acceptable salt thereof,

wherein

R_1 is alkyl of 2–6 carbon atoms, alkyl of 2–6 carbon atoms substituted by

$COOR_2$ or —CN, $—(CH_2)_n—CH{=}CH_2$, $—(CH_2)_n—C{\equiv}CH$,

$—CH_2—COOR_2$, $—CH_2—CN$ or 

n is 1, or 2,

m is 0 or 1,

R_2 is alkyl of 1–6 carbon atoms,

is a CC single bond or a CC double bond, and the 8-positioned urea residue can be in the α- or β-position.

38. A method of treating Parkinsonism in a patient which

comprises administering to the patient an amount of a compound of claim 1 effective to treat Parkinsonism.

39. A method of inhibiting lactation in a female patient which comprises administering to the patient an amount of a compound of claim 1 effective to inhibit lactation.

4,379,791
4-(SUBSTITUTED THIAZOLYL)-3-HYDROXY-3-PYRROLINE-2,5-DIONE INHIBITORS OF GLYCOLIC ACID OXIDASE

Edward J. Cragoe, Jr., Lansdale; Clarence S. Rooney, Worcester, both of Pa., and Haydn W. R. Williams, Ormeaux, Canada, assignors to Merck & Co., Inc., Rahway, N.J.

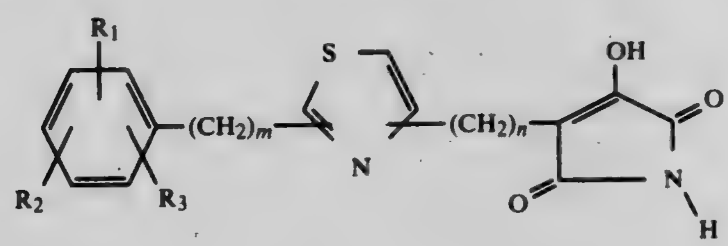
Division of Ser. No. 74,465, Sep. 11, 1979, Pat. No. 4,298,743. This application Jun. 1, 1981, Ser. No. 269,159

The portion of the term of this patent subsequent to Nov. 3, 1998, has been disclaimed.

Int. Cl.[3] **C07D** *417/04;* **A61K** *31/425*

U.S. Cl. 424—270 **2 Claims**

1. A pharmaceutical composition for treating persons afflicted with calcium oxalate renal lithiasis or preventing the formation of calcium oxalate kidney or bladder stones comprising a pharmaceutically acceptable carrier and an effective amount of a compound of the formula:



wherein
n is 0 to 2;
m is 0 to 3;
R_1, R_2 and R_3 are indeptendently hydrogen, halogen, loweralkyl containing 1 to 6 carbons, trifluoromethyl, and loweralkoxy containing 1 to 6 carbons or pharmaceutically acceptable salts thereof, with the proviso that the substituents on the thiazolyl ring are not adjacent.

4,379,792
ANTI-INFLAMMATORY COMPOSITION

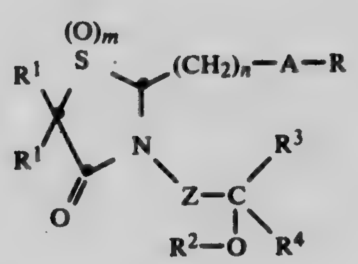
Edward H. Blaine, Chalfont, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 316,625, Oct. 30, 1980, abandoned. This application Dec. 21, 1981, Ser. No. 332,434

Int. Cl.[3] **A61K** *31/40, 31/425*

U.S. Cl. 424—270 **6 Claims**

1. A pharmaceutical composition useful for treating inflammation containing (i) a renal vasodilator compound of the formula



wherein
R is carboxy, a carboxy salt, a carboxy ester of the formula $COOR^5$ wherein R^5 is C_{1-10} alkyl,, or $CONHR^6$ wherein R^6 is amino or methylsulfonyl;
A is a p-phenylene or a m-phenylene or substituted phenylene derivative in which one or two of the phenylene hydrogens is replaced by a methyl or a halo substituent;
n is 3 or 4;
m is 0, 1, or 2;
R^1 is hydrogen, deuterium, or methyl;
Z is alkylene or unsaturated alkylene having from 2–3 carbon atoms;
R^2 is hydrogen or lower alkanoyl;
R^3 is hydrogen or straight chain C_{1-3} alkyl; and
R^4 is lower straight chain or branched alkyl having from 3–7 carbon atoms, an unsaturated alkyl having from 3–7 carbon atoms, or a substituted lower alkyl selected from polyfluoro alkyl of from 3–7 carbon atoms and lower alkoxy methylene; or
R^3 and R^4 taken together with the carbon atom connecting R^3 and R^4 is a cyclic substituent selected from a bridged or unbridged alicyclic ring of from 5–9 carbon atoms or a heterocyclic ring containing sulfur or oxygen and from 5–7 ring-forming carbon atoms. and (ii) inclomethacin wherein the weight ratio i:ii ranges from 1.7:1 to 1:26.

4,379,793
PROCESS FOR SYNTHESIS OF ESTERS OF N-(4'-HYDROXYPHENYL)ACETAMIDE WITH DFRIVATIVES OF 5-BENZOIL-1-METHYL PYRROLE-2-ACETIC ACIDS

Jose-Maria Calzada Badia; Antonio Boleda Vila; Jose Sabater Sanmartin, and Maria J. Villazon Meneses, all of Barcelona, Spain, assignors to Calzada y Cia, S.R.C., Barcelona, Spain

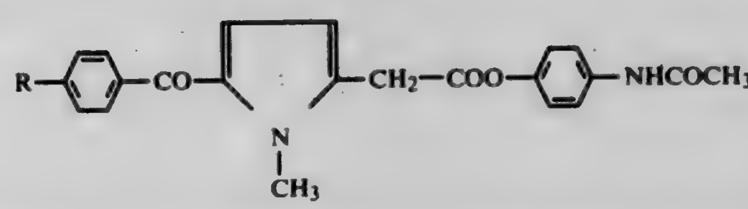
Filed Jul. 20, 1981, Ser. No. 285,341

Claims priority, application Spain, Nov. 11, 1980, 497.136

Int. Cl.[3] **A61K** *31/40;* **C07D** *207/09*

U.S. Cl. 424—274 **3 Claims**

1. A compound of the formula:



wherein R is a C_1–C_4 alkyl group or a halogen atom and the pharmaceutically acceptable salts thereof.

4,379,794
PROCESS FOR PREPARING COOKED BACON HAVING REDUCED LEVELS OF N-NITROSAMINES

Richard F. Theiler, Scottsdale, Ariz., assignor to Armour and Company, Phoenix, Ariz.

Continuation-in-part of Ser. No. 196,816, Oct. 14, 1980, Pat. No. 4,315,015. This application Dec. 28, 1981, Ser. No. 335,040

The portion of the term of this patent subsequent to Feb. 9, 1999, has been disclaimed.

Int. Cl.[3] **A23B** *4/02*

U.S. Cl. 426—266 **10 Claims**

1. A process for preparing cured bacon which, when cooked for consumption, contains substantially reduced levels of N-nitrosamines, said process comprising the steps of nitrite-curing, heat processing and slicing bacon bellies and then applying to the resulting slices, before cooking, (a) a liquid smoke in concentration to provide 5 to 400 ppm phenols and 10 to 2000 ppm carbonyl compounds based upon the weight of the sliced bacon, and (b) from 150 to 10,000 ppm of reducing sugar, based upon the weight of the sliced bacon.

4,379,795

METHOD FOR COATING A FOOD PRODUCT ON A STICK

Glenn E. Walser, Lubbock, Tex., assignor to Automated Food Systems, Inc., Lubbock, Tex.

Filed Apr. 3, 1978, Ser. No. 893,011

Int. Cl.[3] A23L *1/00;* **A47J** *37/12;* **A23G** *3/24*

U.S. Cl. 426—304 **21 Claims**

1. In the method of preparing and cooking coated food articles impaled upon a stick which includes the steps of:

dipping the food articles in batter, in order to coat said food articles, thereafter immersing said coated food articles within hot grease in a fry tank in order to fry said coating and said food articles, thereafter removing the food articles from the fry tank;

the improvement comprising the steps of:

clasping a plurality of the sticks on which the food articles are impaled with clamps, thereby suspending a plurality of food articles impaled upon sticks from clamp means, then performing said dipping step, thereafter revolving said clamp means about its axis in order to

(i) remove the food articles from the location of said coating substance,

(ii) distribute the coating on said food articles, and

(iii) place said food articles within the fry tank in order to perform said immersing step, then again revolving said clamp means about its axis in order to

(i) perform said removal of said food articles from a fry tank, and

(ii) place said sticks and said food articles in a position wherein said food articles and sticks are conveniently disposed for unclasping, and finally

unclasping said sticks from said clamp means.

4,379,796

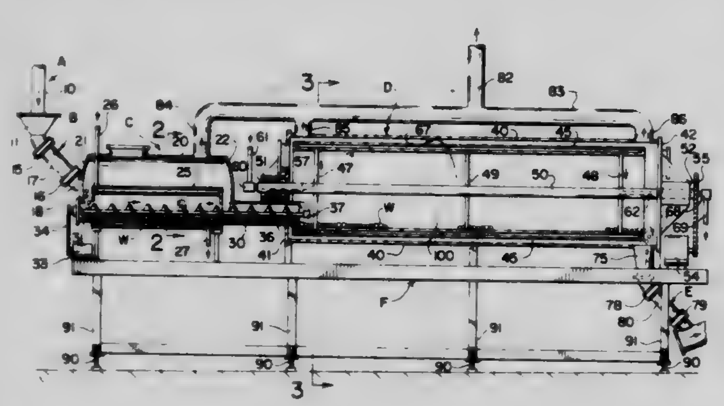
METHOD OF CONCENTRATING FRESH FRUITS

David R. Gross, Orrville, Ohio, assignor to The J. M. Smucker Company, Orrville, Ohio

Filed May 22, 1981, Ser. No. 266,203

Int. Cl.[3] A23N *1/00;* **A23L** *1/212*

U.S. Cl. 426—486 **6 Claims**



1. A method of concentrating fresh fruit comprising the steps of:

(A) subjecting a mass of fruit to a vacuum pressure sufficiently below atmospheric to cause air and liquid in the cells of the fruit to pass through the walls of the cells with the rate of change from atmospheric to the vacuum pressure being sufficiently low that the differential pressures between the inside and outside of the cells are insufficient to create forces to rupture the cell walls while maintaining the temperature of the fruit below the boiling point of water at the vacuum pressure maintained until a major portion of the free air in the cells or dissolved in the cell liquid has evolved through the walls of the cells as indicated by a substantial reduction in foaming of the evolving liquids due to the evolution of the air;

(B) then moving said deaerated fruit longitudinally through a smooth-surfaced, rotating, heated cylinder at a vacuum pressure sufficiently below atmospheric as to cause liquid in the cells of the fruit to continuously migrate to and coat the surfaces of the fruit and the inner walls of the cylinder as the cylinder rotates and sufficiently above zero pressure that the differential pressures between the inside and outside of the cells are insufficient to rupture the cell walls:

(a) the temperature of the cylinder walls being above the boiling temperature of water at said vacuum pressure whereby as the cylinder rotates, the water in the liquid coating on the walls of the cylinder rapidly evaporates;

(b) the rate of rotation being low enough that the fruit is not appreciably tumbled but slides in contact with the walls of the cylinder but fast enough in relation to the temperature of the cylinder walls that at least a major portion of the walls of the cylinder are continuously wetted by the liquid coating; and,

(C) continuing the last step until the desired amount of water has been removed from the fruit.

4,379,797

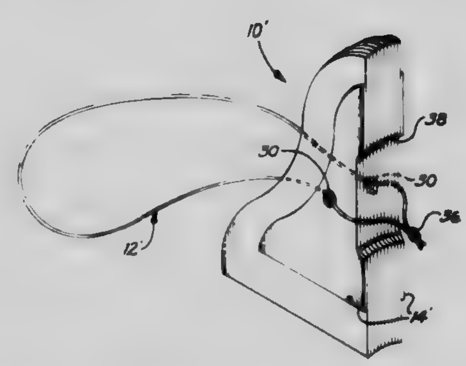
AUTOMATICALLY EXPANDING POP-UP DECORATION

Bernard M. Cole, 7 Park Dr. East, Old Westbury, N.Y. 11568

Continuation-in-part of Ser. No. 285,033, Jul. 20, 1981, Pat. No. 4,374,877. This application Aug. 28, 1981, Ser. No. 297,207

Int. Cl.[3] G09F *1/00*

U.S. Cl. 428—9 **10 Claims**



1. An automatically expanding pop-up decoration for use in gift-wrapping a package comprising:

(A) an ornament having a pair of opposed end members and an expansible structure pivotally joining said end members together, said end members being capable of pivoting between a substantially face-to-face relationship and a substantially edge-to-edge relationship, said ornament being substantially flat when said end members are in a substantially face-to-face relationship and having a substantially upstanding portion when said end members are in a substantially edge-to-edge relationship; and,

(B) an elasticized cord in the form of a continuous loop operatively engaging said ornament end members so that application of said cord about a package so as to tension said cord automatically causes said ornament end members to pivot into the substantially edge-to-edge relationship.

4,379,798

INTEGRAL WOVEN REINFORCEMENT FOR STRUCTURAL COMPONENTS

Raymond J. Palmer, Newport Beach, Calif., and Dominique Micheaux, Villette d'Anthon, France, assignors to McDonnell Douglas Corporation, Long Beach, Calif. and Brochier & Fils, Villeurbanne, France

Filed Jan. 8, 1982, Ser. No. 338,095

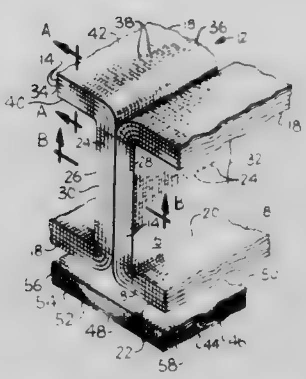
Claims priority, application France, Jan. 12, 1981, 81 00498

Int. Cl.[3] B32B *7/00*

U.S. Cl. 428—113 **21 Claims**

1. In a three-dimensional multilayer woven reinforcement member for structural components having a thicker area and a

divided thinner area, in which the fibers are distributed in the fabric in three different directions generally perpendicular to each other and in which the layers of warp and fill fibers in two directions form a layered assembly, the fibers of which layers do not cross the plane of adjacent layers, the upper layer and the lower layer of the assembly being composed of fill fibers, at least one tie yarn passing in a third direction through the above noted assembly of layers of warp and fill fibers, the tie yarns



passing back and forth over the fill fibers of the outside layers so as to form therewith a fabric containing inner layers of warp and fill fibers; the improvement comprising providing one area of the assembly in which the layers of warp and fill fibers are tied together throughout their entire thickness, and other areas in which the above noted layers are separated into two individual groups, each group being tied in the manner set forth above by said tie yarns.

4,379,799

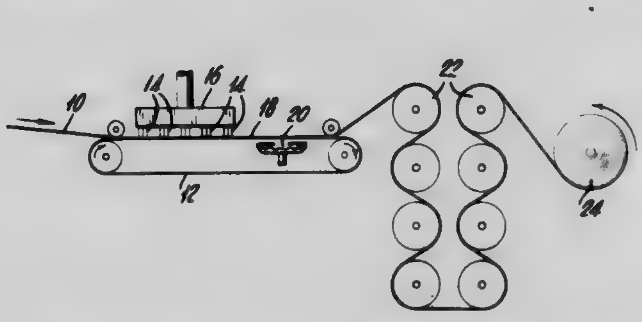
NONWOVEN FABRIC HAVING THE APPEARANCE OF APERTURED, RIBBED TERRY CLOTH

Rory A. Holmes, Kendall Park, and Donald V. Skistimas, Milltown, both of N.J., assignors to Chicopee, New Brunswick, N.J.

Filed Feb. 20, 1981, Ser. No. 236,401

Int. Cl.³ D04H *3/08;* D06C *1/06*

U.S. Cl. 428—131 **3 Claims**



1. A nonwoven fabric composed of staple fibers, and having the appearance of apertured, ribbed terry cloth, said fabric being characterized by a repeating pattern of spaced, parallel, raised ribs of entangled staple fibers, which ribs extend in one fabric direction, with the ribs being interconnected by spaced bundles of straight unentangled, substantially parallel staple fiber segments, wherein said bundles are substantially parallel to one another and substantially perpendicular to said ribs, wherein adjacent bundles and the ribs which they interconnect define apertures, and wherein said ribs are substantially wholly entangled throughout and appear uniform and substantially nonpatterned.

4,379,800

CLEANING TAPE FOR MAGNETIC RECORDING APPARATUS

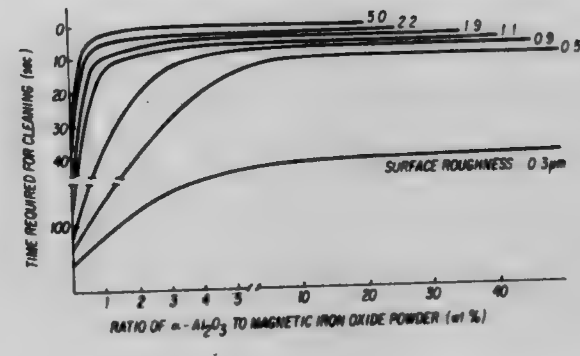
Nobuhiro Sato, Tokyo, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 274,740, Jun. 18, 1981, abandoned. This application May 3, 1982, Ser. No. 374,098

Claims priority, application Japan, Jun. 20, 1980, 55-83660

Int. Cl.³ B05D *5/12;* D06N *7/04*

U.S. Cl. 428—148 **5 Claims**



1. A cleaning tape for a magnetic recording apparatus which comprises a substrate coated with a cleaning layer comprising magnetic iron oxide powder as a main component and non-magnetic abrasive powder having Moh's scale of hardness of at least 6 and a binder wherein said cleaning layer has a surface roughness of 0.5 to 5 μm and a ratio of said non-magnetic abrasive powder to said magnetic iron oxide powder of 0.3 to 40 wt.% and especially 3 to 40 wt.% in the case of said surface roughness of 0.5 to 1 μm; 0.5 to 20 wt.% in the case of said surface roughness of 1 to 2 μm; 0.3 to 10 wt.% in the case of said surface roughness of 2 to 5 μm.

4,379,801

STAMPABLE REINFORCED THERMOPLASTIC POLYESTER SHEETS

James C. Weaver, and Robert W. Seymour, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 21, 1982, Ser. No. 370,318

Int. Cl.³ B32B *15/00, 17/00*

U.S. Cl. 428—220 **12 Claims**

1. A stampable sheet of reinforced thermoplastic material having on at least one surface of the sheet a smooth surface suitable for use as exterior automotive panels and the like, said sheet comprising:

a plurality of layers of polymeric material and a plurality of layers of fibrous reinforcing material alternating with said layers of polymeric material, all of said layers being integrally formed together and the outer layers of said sheet being of a crystallizable material selected from poly(ethylene terephthalate), copolymers of poly(ethylene terephthalate) and blends thereof, poly(1,4-cyclohexanedimethylene terephthalate), copolymers of poly(1,4-cyclohexanedimethylene terephthalate) and blends thereof having a minimum crystallization half-time upon heating of one minute or less, the minimum crystallization half-time being that as measured with respect to each individual layer of said outer layers;

a layer of surfacing mat of fine stranded glass of continuous filaments randomly patterned, having a weight of about 0.1 to about 0.4 oz./sq. ft., and positioned contiguously with respect to one of said outer layers of said sheet; and

a layer of polymeric material positioned contiguously with the side of said surfacing layer opposite from said one of said outer layers of said sheet; having a shrinkage of less than about 2%, as determined in accordance with ASTM Method D-955, and a minimum crystallization half-time of one minute or less, and being selected from

a. copolymers of poly(1,4-cyclohexylenedimethylene 1,4-

cyclohexanedicarboxylate) with about 10 to about 30 mole percent dimer acid;

b. a polyetherester comprised of
   1. a dicarboxylic acid component comprised of
      A. 100 to 60 mole percent terephthalic acid, and
      0 to 40 mole percent of an aliphatic or aromatic dicarboxylic acid having a molecular weight of less than 300, and
   2. a diol component comprised of
      A. a glycol comprised of 100 to 60 mole percent tetramethylene glycol and 0 to 40 mole percent of an aliphatic or aromatic glycol having a molecular weight of less than 300, and
      B. 10 to 60 weight percent, based on the weight of the polyetherester, of a poly(alkylene oxide) glycol having 2, 3 or 4 carbon atoms in the repeating unit and having a molecular weight in the range of 400 to 5000,

   wherein the sum of the total mole percent amount of aliphatic or aromatic dicarboxylic acid having a molecular weight of less than 300 in item b.1.B, the mole percent amount of aliphatic or aromatic glycol having a molecular weight of less than 300 in item b.2.A., and the weight percent, based on the weight of the polyetherester, of the poly(alkylene oxide) glycol in item b.2.B. equals at least 25 but does not exceed 80;

c. a polyetherester comprised of
   1. a dicarboxylic acid component comprised of
      A. 100 to 98 mole percent terephthalic acid, and
      B. 0 to 2 mole percent of a trifunctional carboxylic acid of molecular weight less than 300;
   2. a diol component comprised of
      A. a glycol comprised of 90 to 60 mole percent 1,4-cyclohexanedimethanol and 10 to 40 mole percent ethylene glycol or tetramethylene glycol, and
      B. 10 to 50 weight percent, based on the weight of the polyetherester, of a poly(alkylene oxide) glycol having 2 to 4 carbon atoms in the repeating unit and having a molecular weight in the range of 400 to 2000;

d. a polyetherester comprised of
   1. a dicarboxylic acid component comprised of
      A. 100 to 98 mole percent 1,4-cyclohexanedicarboxylic acid and
      B. 0 to 2 mole percent of a trifunctional carboxylic acid of molecular weight less than 300;
   2. a diol component comprised of
      A. 1,4-cyclohexanedimethanol and
      B. 10 to 60 weight percent, based on the weight of the polyetherester, of a poly(alkylene oxide) glycol having 2 to 4 carbon atoms and a molecular weight in the range of 400 to 2000.

4,379,802
STAMPABLE REINFORCED THERMOPLASTIC POLYESTER SHEET WITH IMPROVED SURFACE FINISH

James C. Weaver, and Robert W. Seymour, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 21, 1982, Ser. No. 370,319
Int. Cl.[3] B32B *15/00, 17/00*
U.S. Cl. 428—220 **14 Claims**

1. A stampable sheet of reinforced thermoplastic material having on at least one surface of the sheet a smooth surface suitable for use as exterior automotive panels and the like, said sheet comprising:

a plurality of layers of polymeric material and a plurality of layers of fibrous reinforcing material alternating with said layers of polymeric material, all of said layers being integrally formed together and the outer layers of said sheet being of a crystallizable material selected from poly(ethylene terephthalate), copolymers of poly(ethylene terephthalate) and blends thereof, poly(1,4-cyclohexanedimethylene terephthalate), copolymers of poly(1,4-cyclohexanedimethylene terephthalate) and blends thereof having a minimum crystallization half-time upon heating of one minute or less, the minimum crystallization half-time being that as measured with respect to each individual layer of said outer layers, wherein one of said outer layers is designated as a first layer;

a second layer of surfacing mat of fine stranded glass having a weight of about 0.1 to about 0.4 oz./sq. ft., and positioned contiguously with respect to said first layer;

a third layer of polymeric material positioned contiguously with the side of said second or surfacing layer opposite from said first layer and selected from

a. poly(ethylene terephthalate);

b. copolymers of poly(ethylene terephthalate) and blends thereof;

c. poly(1,4-cyclohexanedimethylene terephthalate);

d. copolymers of poly(1,4-cyclohexanedimethylene terephthalate) and blends thereof;

e. a polyetherester comprised of
   1. a dicarboxylic acid component comprised of
      A. 100 to 60 mole percent terephthalic acid, and
      B. 0 to 40 mole percent of an aliphatic or aromatic dicarboxylic acid having a molecular weight of less than 300, and
   2. a diol component comprised of
      A. a glycol comprised of 100 to 60 mole percent tetramethylene glycol and 0 to 40 mole percent of an aliphatic or aromatic glycol having a molecular weight of less than 300, and
      B. 10 to 60 weight percent, based on the weight of the polyetherester, of a poly(alkylene oxide) glycol having 2, 3 or 4 carbon atoms in the repeating unit and having a molecular weight in the range of 400 to 5000,

   wherein the sum of the total mole percent amount of aliphatic or aromatic dicarboxylic acid having a molecular weight of less than 300 in item e.1.B, the mole percent amount of aliphatic or aromatic glycol having a molecular weight of less than 300 in item e.2.A., and the weight percent, based on the weight of the polyetherester, of the poly(alkylene oxide) glycol in item e.2.B. equals at least 25 but does not exceed 80;

f. a polyetherester comprised of
   1. a dicarboxylic acid component comprised of
      A. 100 to 98 mole percent terephthalic acid, and
      B. 0 to 2 mole percent of a trifunctional carboxylic acid of molecular weight less than 300;
   2. a diol component comprised of
      A. a glycol comprised of 90 to 60 mole percent 1,4-cyclohexanedimethanol and 10 to 40 mole percent ethylene glycol or tetramethylene glycol, and
      B. 10 to 50 weight percent, based on the weight of the polyetherester, of a poly(alkylene oxide) glycol having 2 to 4 carbon atoms in the repeating unit and having a molecular weight in the range of 400 to 2000;

g. a polyetherester comprised of
   1. a dicarboxylic acid component comprised of
      A. 100 to 98 mole percent 1,4-cyclohexanedicarboxylic acid and
      B. 0 to 2 mole percent of a trifunctional carboxylic acid of molecular weight less than 300;
   2. a diol component comprised of
      A. 1,4-cyclohexanedimethanol and
      B. 10 to 60 weight percent, based on the weight of the polyetherester, of a poly(alkylene oxide) glycol having 2 to 4 carbon atoms and a molecular weight in the range of 400 to 2000,

said items (a) through (g) having a minimum crystallization half-time of one minute or less, the minimum crystallization half-time being that as measured with respect to each individual layer;

said first and third layers each having about 5 to about 50

weight percent fillers selected from chopped strands of fiber glass of lengths less than about 1.4 inch, milled glass, glass spheres, novacite, talc, mica, calcium carbonate, barium sulfate and kaolin;

a fourth layer comprising one of said layers of fibrous reinforcing material being positioned contiguously with the side of third layer opposite from said second layer; and

a fifth layer of polymeric material positioned contiguously with the side of said fourth layer opposite from said third layer and being selected from

h. copolymers of poly(1,4-cyclohexylenedimethylene 1,4-cyclohexanedicarboxylate) with about 10 to about 30 mole percent dimer acid;

i. a polyetherester comprised of

1. a dicarboxylic acid component comprised of

A. 100 to 60 mole percent terephthalic acid, and

B. 0 to 40 mole percent of an aliphatic or aromatic dicarboxylic acid having a molecular weight of less than 300, and

2. a diol component comprised of

A. a glycol comprised of 100 to 60 mole percent tetramethylene glycol and 0 to 40 mole percent of an aliphatic or aromatic glycol having a molecular weight of less than 300, and

B. 10 to 60 weight percent, based on the weight of the polyetherester, of a poly(alkylene oxide) glycol having 2, 3 or 4 carbon atoms in the repeating unit and having a molecular weight in the range of 400 to 5000,

wherein the sum of the total mole percent amount of aliphatic or aromatic dicarboxylic acid having a molecular weight of less than 300 in item i.1.B., the mole percent amount of aliphatic or aromatic glycol having a molecular weight of less than 300 in item i.2.A., and the weight percent, based on the weight of the polyetherester, of the poly(alkylene oxide) glycol in item i.2.B equals at least 25 but does not exceed 80;

j. a polyetherester comprised of

1. a dicarboxylic acid component comprised of

A. 100 to 98 mole percent terephthalic acid, and

B. 0 to 2 mole percent of a trifunctional carboxylic acid of molecular weight less than 300;

2. a diol component comprised of

A. a glycol comprised of 90 to 60 mole percent 1,4-cyclohexanedimethanol and 10 to 40 mole percent ethylene glycol or tetramethylene glycol, and

B. 10 to 50 weight percent, based on the weight of the polyetherester, of a poly(alkylene oxide) glycol having 2 to 4 carbon atoms in the repeating unit and having a molecular weight in the range of 400 to 2000;

k. a polyetherester comprised of

1. a dicarboxylic acid component comprised of

A. 100 to 98 mole percent 1,4-cyclohexanedicarboxylic acid and

B. 0 to 2 mole percent of a trifunctional carboxylic acid of molecular weight less than 300;

2. a diol component comprised of

A. 1,4-cyclohexanedimethanol and

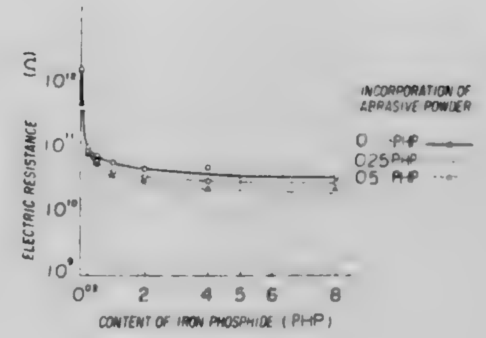
B. 10 to 60 weight percent, based on the weight of the polyetherester, of a poly(alkylene oxide) glycol having 2 to 4 carbon atoms and a molecular weight in the range of 400 to 2000,

said items (h) through (k) having a shrinkage of less than 2% as determined in accordance with ASTM Method D-955, and a minimum crystallization half-time of one minute or less.

4,379,803
MAGNETIC RECORDING MEDIUM

Kiminori Tamai, and Masashi Hayama, both of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Sep. 29, 1981, Ser. No. 306,664
Claims priority, application Japan, Oct. 7, 1980, 55/140192
Int. Cl.[3] **G11B** *5/70*
U.S. Cl. 428—328 **6 Claims**



1. A magnetic recording medium, comprising:

a substrate coated with a magnetic layer, said magnetic layer comprising a synthetic binder, a magnetic powder and at least one Group VIII metal phosphide with the amount of said metal phosphide in said magnetic layer ranging from 0.2 to 5.0 wt. % based on said magnetic powder.

4,379,804
LIQUID SORBENT MATERIALS

John F. Eisele, Lake Elmo, and Elizabeth A. Mercer, Woodbury, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 28,347, Apr. 9, 1979, Pat. No. 4,225,652. This application Sep. 17, 1980, Ser. No. 188,048
The portion of the term of this patent subsequent to Sep. 30, 1997, has been disclaimed.
Int. Cl.[3] **B32B** *23/08, 27/08, 27/10, 27/36*
U.S. Cl. 428—332 **16 Claims**

1. A composite medium for sorbing liquids comprising, in combination, a liquid-sorbent underlayer and, overlying said underlayer, a liquid-permeable surface layer capable of retaining its integrity in contact with said liquid and liquid applying means, the liquid sorptivity of said underlayer being greater than the liquid sorptivity of said surface layer whereby the composite medium has a sorption time less than the sorption time of said surface layer.

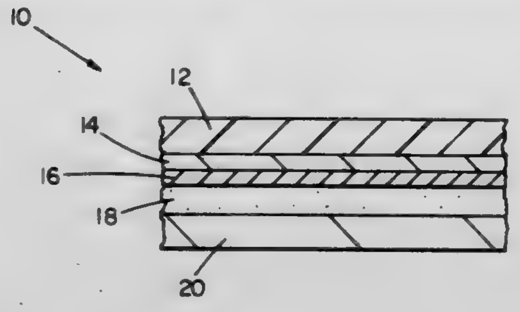
4,379,805
GRAPHICS-BEARING ELEMENT AND FLUID LINE MARKING TAPE

Gerald T. Downing, Port Washington, and Michael D. Savagian, Milwaukee, both of Wis., assignors to W. H. Brady Co., Milwaukee, Wis.

Filed Mar. 16, 1981, Ser. No. 243,788
Int. Cl.[3] **C09J** *7/02;* **B32B** *3/14*
U.S. Cl. 428—346 **10 Claims**

1. A graphics-bearing marking element comprising an ink

graphics layer comprising a polyvinyl formal resin present in



an amount by weight in the range of 21% to 71% and having an exposed portion and providing marking indicia.

4,379,806

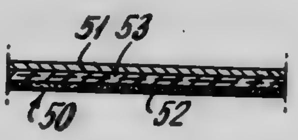
PRESSURE-SENSITIVE ADHESIVE TAPE AND PROCESS

Ralf Korpman, Somerset County, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.

Continuation of Ser. No. 54,539, Jul. 5, 1979, abandoned. This application Mar. 1, 1982, Ser. No. 353,676

Int. Cl.³ C09J *7/02;* **B28B** *3/20*

U.S. Cl. 428—354 **9 Claims**



1. A pressure-sensitive adhesive tape comprising
(a) an adhesive layer of a normally tacky thermoplastic pressure-sensitive rubber-resin and
(b) a backing layer of a normally non-tacky thermoplastic film,
wherein said adhesive layer is joined substantially coextensively to said backing layer through an intermediate interlocking layer containing both components in a laminar relationship formed by coextruding an adhesive composition and a thermoplastic film-forming composition, each having a torque value of between about 100 meter grams and 1000 meter grams when worked at 75 r.p.m. at 420° F. in a Brabender torque dynamometer,
wherein said adhesive composition comprises (i) an elastomeric component and (ii) a tackifier resin component in which the tackifier resin component is present in an amount of from about 20 to 300 parts for each 100 parts by weight of the elastomeric component, and
wherein the elastomeric component of the adhesive composition comprises a block copolymer selected from the group consisting of A—B—A block copolymer, A—B block copolymer and mixtures thereof.

4,379,807

MAGNET WIRE FOR HERMETIC MOTORS

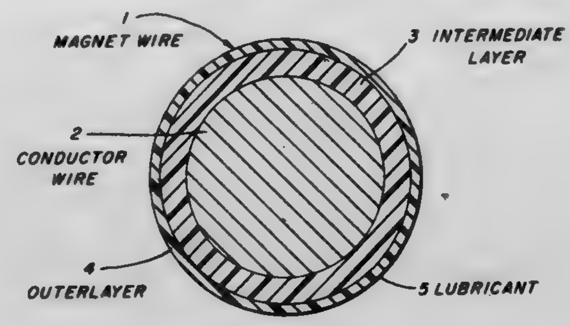
Harold R. Otis, and Charles E. Blake, both of Fort Wayne, Ind., assignors to Rea Magnet Wire Co., Inc., Fort Wayne, Ind.

Filed Mar. 13, 1981, Ser. No. 243,587

Int. Cl.³ B32B *27/00*

U.S. Cl. 428—383 **7 Claims**

1. A magnet wire suitable for use in an hermetic motor environment comprising
a conductor wire;
an insulating intermediate layer adjacent and exterior to said conductor wire;
a polyamide outer layer adjacent and exterior to said intermediate layer, said polyamide being selected from the group consisting of polyundecaneamide, polydodecaneamide, and mixtures and copolymers thereof; and
an organic polymeric lubricant adjacent and exterior to said outer layer, said lubricant comprising a saturated C_2–C_4 ether of ethylene oxide and 1,2-propylene oxide copolymers, the ratio of ethylene oxide to propylene oxide being



about 1:1 to 3:1; said lubricant having a pour point below about 15° F., a viscosity at 100° F. of about 100 to 400 SUS, and a molecular weight of about 200 to 800; said lubricant wetting the outer layer, and being soluble in monochlorodifluoromethane and dichlorodifluoromethane.

4,379,808

SHEET TYPE FORMING BOARD AND FORMED BOARD PRODUCTS

John N. Cole, Maineville, and David A. Hettel, Cincinnati, both of Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Jun. 30, 1980, Ser. No. 164,454

Int. Cl.³ B32B *23/00, 29/02*

U.S. Cl. 428—438 **12 Claims**

1. A forming board sheet for use in a heat forming process, comprising at least a first layer consisting essentially of (a) cellulose fibers, (b) a solid particulate polyolefin, and (c) an inorganic filler and having a moisture content of between approximately 4–12% by weight, whereby said forming board is easily formable in a conventional hot press without the requirement of pre-soaking and/or pre-steaming.

4,379,809

MAGNETIC RECORDING MEDIUM

Akihiro Matsufuji; Tadashi Ishiguro, and Nobuo Tsuji, all of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 30, 1981, Ser. No. 307,691

Claims priority, application Japan, Sep. 30, 1980, 55-136133

Int. Cl.³ B32B *9/00*

U.S. Cl. 428—470 **6 Claims**

1. A magnetic recording medium which comprises a non-magnetic support having thereon a magnetic recording layer comprising ferromagnetic particles dispersed in a binder, with the surface of said ferromagnetic particles being treated with an aluminum alcoholate of the formula (I):

$$Al(OR)_3 \qquad (I)$$

wherein each R, which may be the same or different, represents a straight or branched chain alkyl group having 1 to 10 carbon atoms.

4,379,810

WATER SOLUBLE PENTACHLOROPHENOL AND TETRACHLOROPHENOL WOOD TREATING SYSTEMS CONTAINING FATTY ACID AMINE OXIDES

Joseph Amundsen, Federal Way; Robert J. Goodwin, Puyallup, and William H. Wetzel, Federal Way, all of Wash., assignors to Reichhold Chemicals, Incorporated, White Plains, N.Y.

Division of Ser. No. 297,162, Aug. 28, 1981, Pat. No. 4,357,163, which is a continuation-in-part of Ser. No. 176,795, Aug. 11, 1980, Pat. No. 4,288,249, which is a continuation of Ser. No. 14,955, Feb. 26, 1979, abandoned, which is a continuation of Ser. No. 875,035, Dec. 2, 1977, abandoned. This application Aug. 18, 1982, Ser. No. 409,151

Int. Cl.[3] B05D *1/18;* **B27K** *3/00;* **C09D** *5/16*

U.S. Cl. 428—541 **16 Claims**

1. A treated and preserved wooden object having a deposit within the wood fibers of an essentially non-leachable chlorophenol formed therein by

I. forming a wood treating and preserving solution by blending (A) from about 0.1% to about 50% by weight of a chlorophenol selected from a group consisting of pentachlorophenol and tetrachlorophenol and mixtures thereof, (B) from about 1% to about 97% by weight of an aliphatic alcohol having from one to six carbon atoms and mixtures thereof, (C) from about 0.2% to about 35% by weight of a fatty acid amine oxide having from about 10 to about 32 carbon atoms, (D) from about 1% to about 97% by weight water, and (E) from about 0.2% to about 35% by weight of an amine selected from the group consisting of ammonium hydroxide, triethylamine, trimethylamine, methyl amine and methyldiethanol amine and mixtures thereof;

II. impregnating under heat and pressure the wooden object;

III. separating said wooden object from said solution; and

IV. drying said treated wooden object.

4,379,811

TUBULAR FILLER WIRE FOR FUSION WELDING

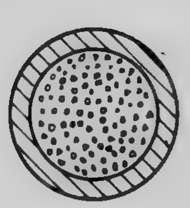
Manfred Puschner, Solingen, and Herbert Gerdau, Haan, both of Fed. Rep. of Germany, assignors to ESAB Aktiebolag, Sweden

Filed Apr. 27, 1978, Ser. No. 900,578

Claims priority, application Fed. Rep. of Germany, Apr. 30, 1977, 2719357

Int. Cl.[3] B23K *35/02, 35/04*

U.S. Cl. 428—555 **6 Claims**



1. A composite filler rod or filler wire for fusion welding comprising a core of particulate material, a tubular metal sheath formed about said core from a strip of said metal so as to include a seam therein, and a seamless metal tube enclosing and firmly engaging said tubular sheath.

4,379,812

STRESS RELIEVED METAL/CERAMIC ABRADABLE SEALS AND DEFORMABLE METAL SUBSTRATE THEREFOR

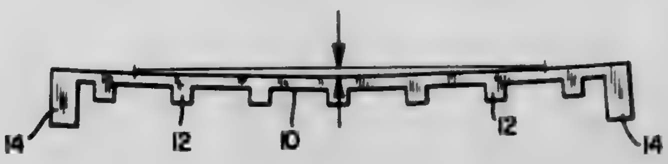
Raymond V. Sara, North Olmstead, Ohio, assignor to Union Carbide Corporation, Danbury, Conn.

Division of Ser. No. 973,553, Dec. 27, 1978, Pat. No. 4,243,169. This application Jul. 24, 1980, Ser. No. 171,830

Int. Cl.[3] B21H *3/00;* **F03B** *11/00;* **F04D** *29/08*

U.S. Cl. 428—577 **3 Claims**

1. A deformable metal substrate plate adapted for bonding to a multi-layer metal/ceramic abradable composite which comprises a metal plate curved in one plane to a predetermined radius such that the thermal stresses of bonding said metal/ceramic composite to said substrate plate will cause said sub-



strate plate to assume a desired radius after said bonding, said substrate plate having at least two integral axial ribs.

4,379,813

PROPELLERS AND WINDMILLS

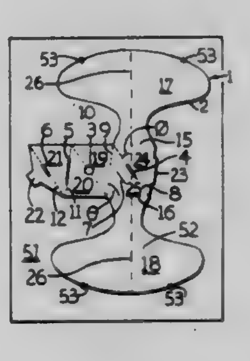
John H. Newnham, 20 Village Ave., Doncaster, 3108 Victoria, Australia

Filed Jun. 3, 1980, Ser. No. 155,936

Claims priority, application Australia, Jun. 6, 1979, PD 9079

Int. Cl.[3] B64C *11/20*

U.S. Cl. 428—587 **22 Claims**



1. A propeller or windmill blank comprising a planar sheet of material having markings defining a central region and two blades extending in opposite directions along imaginary lines; and wherein the blank has a marking or a line of preferential folding or bending inclined to the imaginary lines which, when the blank is folded or bent therealong, will result in pitch being applied to the blades; a portion having a marking or line of preferential folding or bending on each side of which marking or line the portion is of generally triangular shape, and means for stabilizing a fold or bend on the first said marking or line which will result in pitch being applied, a fold or bend on the second said marking or line and for securing said portion to said central region such that said portion and said central region when so secured together define a hub region of generally tetrahedral shape from edges of which said blades project.

11. A propeller or windmill formed from a blank comprising a planar sheet of material having markings defining a central region and two blades extending in opposite directions along imaginary lines; and wherein the blank has a marking or line of preferential folding or bending inclined to the imaginary lines which, when the blank is folded or bent therealong, will result in pitch being applied to the blades; a portion having a marking or line of preferential folding or bending on each side of which marking line the portion is of generally triangular shape, and means for stabilizing a fold or bend on the first said marking or line.

4,379,814

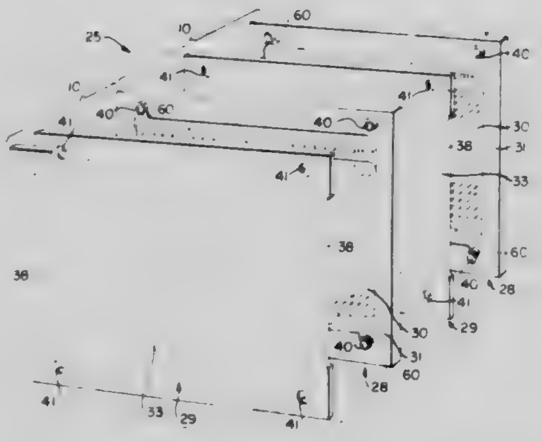
SHEET ELECTRODE FOR ELECTROCHEMICAL SYSTEMS

Hsue C. Tsien, Chatham Township, Morris County; Kenneth R. Newby, Berkeley Heights; Patrick G. Grimes, and Richard J. Bellows, both of Westfield, all of N.J., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Jun. 1, 1981, Ser. No. 268,674

Int. Cl.[3] H01M *4/96*

U.S. Cl. 429—42 **25 Claims**



1. An extruded sheet electrode for use in an electrochemical cell comprising a sheet composite of coextruded electrically conductive and non-conductive plastic materials, said conductive plastic material comprising a mid-portion of said sheet, and said non-conductive plastic material comprising coextruded side portions of said sheet.

4,379,815

CELL HAVING MIXED SOLID CATHODE MATERIALS FOR CONTROLLING CELL EXPANSION ON DISCHARGE

Gerald F. Bubnick, Avon Lake, Ohio, assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jun. 29, 1981, Ser. No. 278,903

Int. Cl.[3] H01M *4/52, 4/58*

U.S. Cl. 429—66 **7 Claims**

1. A cell comprising a consumable anode, a cathode that expands during cell discharge, and an electrolyte, the improvement wherein the cathode comprises a physical mixture of at least two solid active cathode materials in which a first solid active cathode material volumetrically expands more than the volumetric contraction of the anode during cell discharge and a second solid cathode material that volumetrically expands less than the volumetric expansion of the first solid active cathode material during cell discharge and wherein said solid active cathode materials are selected such that the volumetric expansion of the mixture of the solid active cathode materials is substantially equal to the volumetric contraction of the anode during cell discharge thereby providing a substantially constant volume for the cathode/anode assembly during discharge of the cell.

4,379,816

INDICATOR OF FULL CHARGE FOR SECONDARY CELL OR BATTERY THEREOF

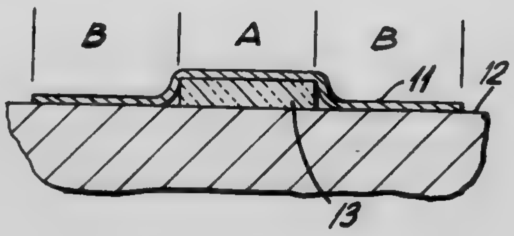
Ferdinand H. Mullersman, Gainesville, Fla., and Charles R. Blake, North Redondo Beach, Calif., assignors to General Electric Company, Gainesville, Fla.

Continuation of Ser. No. 189,337, Sep. 22, 1980. This application Oct. 20, 1981, Ser. No. 313,312

Int. Cl.[3] H01M *10/48*

U.S. Cl. 429—91 **6 Claims**

1. A full charge indicator for secondary sealed cells and the like, or battery thereof, for indicating attainment of full charge during a charging operation, comprising heat sensitive means adapted to display a change in some perceivable characteristic when subjected to heat, a first element of said heat sensitive means being thermally coupled to the battery or cell so that said element is maintained at substantially the same temperature as the battery or cell, and a second element of said heat sensitive means being thermally isolated from the battery or cell so that it remains substantially at ambient temperature, such that once the battery or cell has reached essentially full



charge, further charging causes said first element to undergo a change in said perceivable characteristic as a result of the change in temperature of the battery or cell, while the second element substantially does not undergo a change in said characterisitic, the relative difference in the perceivable characteristic of the two elements being observable.

4,379,817

ORGANIC SOLVENT-TREATED MANGANESE DIOXIDE-CONTAINING CATHODES

Akiya Kozawa, Middleburg Heights, Ohio, assignor to Union Carbide Corporation, Danbury, Conn.

Continuation of Ser. No. 135,776, Mar. 31, 1980, abandoned. This application Dec. 29, 1981, Ser. No. 335,441

Int. Cl.[3] H01M *4/02*

U.S. Cl. 429—224 **8 Claims**

1. A manganese dioxide for use as a cathode of a non-aqueous cell wherein at least the walls of the pores of the manganese dioxide exposed on the cathode surface are substantially coated with a vapor deposited organic solvent so as to reduce the affinity of the manganese dioxide for absorbing moisture.

4,379,818

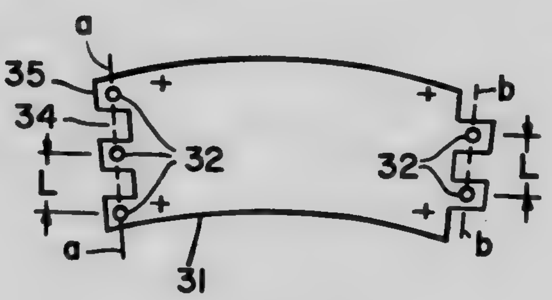
ARTWORK ALIGNMENT FOR DECORATING MACHINE

William E. Lock, Horseheads, and Edward A. Snyder, Lindley, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Dec. 21, 1981, Ser. No. 332,725

Int. Cl.[3] G03F *9/00;* **B44C** *1/22;* **C03C** *15/00, 25/06*

U.S. Cl. 430—5 **5 Claims**



1. In a process for engraving the surface of a conical roll with registerable color separated etched portions of a design by photographic activation of surface portions of said roll through a photomask, a method for producing said photomask comprising the steps of: exposing a photomask forming film to the color separated portion of the design to produce an image on the photomask having relatively negative and positive regions therein corresponding to said color separated portion of the design; graphically representing a planar development of the conical roll to be engraved into an outline having axial and lateral margins; superimposing the image on the film and de-

velopment outline into a selected planar orientation to produce a composite film; shearing the composite film at least along the lateral margins of the development outline; fabricating a fixture for aligning the axial margins of the outline; the fixture formed of a surface support member having a shape corresponding to that of the conical roll along at least one of the lateral margins of the development outline; forming at least one aperture in the surface support member of the fixture at a selected location and forming a removable pin securable in said aperture; forming at least one aperture in the film in a position corresponding to the selected location of the apertures in the fixture; wrapping the film over the fixture; aligning at least the axial margins of the film while wrapped on said fixture; aligning the respective apertures in the film and fixture one over the other; inserting the pin through the aligned aperture to secure the film and fixture in alignment; and securing the lateral margins together in butting relation to form a conical shell corresponding to and removably sleevable over the conical surface to be etched so as to produce a photomask therefor.

4,379,819

COLOR-PHOTOGRAPHIC RECORDING MATERIAL FOR THE SILVER DYE BLEACH PROCESS

John Lenoir; Gerald Jan, both of Fribourg, and Mario Fryberg, Praroman-le-Mouret, all of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

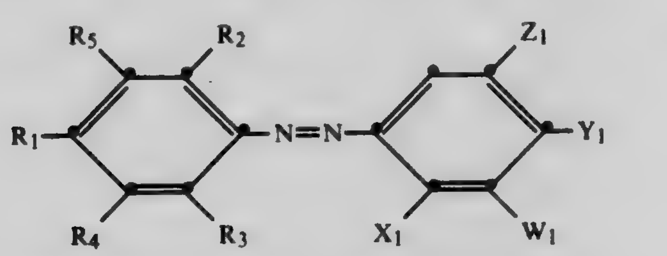
Filed Apr. 28, 1981, Ser. No. 258,263

Claims priority, application Switzerland, Apr. 30, 1980, 3342/80

Int. Cl.^{3} G03C *1/10*

U.S. Cl. 430—17 **17 Claims**

1. A colour-photographic recording material for the silver dye bleach process which contains at least one diffusion-resistant, bleachable and oil-soluble monoazo dye dissolved in a high-boiling organic solvent in at least one silver halide emulsion layer or in a colloid layer adjoining the silver halide emulsion layer, and wherein the dye has the formula



(1)

in which R_1 is hydrogen, substituted or unsubstituted alkyl having 1 to 18 carbon atoms, substituted or unsubstituted alkoxy having 1 to 16 carbon atoms, substituted or unsubstituted alkenyl having 2 to 4 carbon atoms, substituted or unsubstituted aliphatic acyl having 2 to 5 carbon atoms, substituted or unsubstituted benzoyl, substituted or unsubstituted carbalkoxy having 2 to 20 carbon atoms or $—NV_1COU_1$, in which V_1 is hydrogen or alkyl having 1 to 4 carbon atoms and U_1 is substituted or unsubstituted alkyl having 1 to 12 carbon atoms or substituted or unsubstituted alkenyl having 2 to 4 carbon atoms, or R_1 is N-alkyl-substituted or N,N-dialkyl-substituted carboxamido or sulfonamido, in which each alkyl moiety has 1 to 12 carbon atoms and can be substituted further, or R_1 is substituted or unsubstituted alkylsulfone having 1 to 12 carbon atoms, substituted or unsubstituted arylsulfone, substituted or unsubstituted aryloxy or substituted or unsubstituted arylsulfonic acid ester, or is hydroxyl, cyano, nitro or halogen, R_2 is hydrogen, substituted or unsubstituted alkyl having 1 to 12 carbon atoms, substituted or unsubstituted alkoxy having 1 to 6 carbon atoms, substituted or unsubstituted carbalkoxy having 2 to 5 carbon atoms or N-alkyl-substituted or N,N-dialkyl-substituted sulfonamido or carboxamido, in which each alkyl moiety has 1 to 8 carbon atoms and can be substituted, or R_2 is substituted or unsubstituted alkylsulfone having 1 to 6 carbon atoms, substituted or unsubstituted arylsulfone or substituted or unsubstituted aryloxy, or is cyano, nitro or halogen, R_3 is hydrogen, substituted or unsubstituted alkyl or alkoxy having 1 to 4 carbon atoms, substituted or unsubstituted phenoxy, or N-alkyl-substituted or N,N-dialkyl-substituted sulfonamido or carboxamido, in which each alkyl moiety has 1 to 6 carbon atoms and can be substituted, or R_3 is substituted or unsubstituted alkylsulfone having 1 to 4 carbon atoms, substituted or unsubstituted phenylsulfonic acid ester, cyano, nitro, halogen, substituted or unsubstituted carbalkoxy having 1 to 16 carbon atoms, or $—P(O)(OT^1)_2$, in which T^1 is alkyl having 1 to 4 carbon atoms, R_4 is hydrogen, substituted or unsubstituted alkyl having 1 to 4 carbon atoms, substituted or unsubstituted alkoxy having 1 to 6 carbon atoms, substituted or unsubstituted carbalkoxy having 2 to 16 carbon atoms or N-alkyl-substituted or N,N-dialkyl-substituted sulfonamido or carboxamido, in which each alkyl moiety has 1 to 12 carbon atoms and can be substituted, or R_4 is $—NQ_1COT_1$, in which Q_1 is hydrogen or alkyl having 1 or 2 carbon atoms and T_1 is substituted or unsubstituted alkyl having 1 to 4 carbon atoms, or R_4 is substituted or unsubstituted alkylsulfone having 1 to 12 carbon atoms, substituted or unsubstituted arylsulfone hydroxyl, cyano, nitro or halogen, R_5 is hydrogen, substituted or unsubstituted alkyl having 1 to 4 carbon atoms or substituted or unsubstituted carbalkoxy having 2 to 13 carbon atoms, X_1 is hydrogen, substituted or unsubstituted alkyl or alkoxy having 1 to 6 carbon atoms or $—NL_1CO—M_1$, in which L_1 is hydrogen or substituted or unsubstituted alkyl having 1 to 4 carbon atoms and M_1 is substituted or unsubstituted alkyl or alkoxy having 1 to 24 carbon atoms, or X_1 is substituted or unsubstituted alkylsulfonylamino having 1 to 25 carbon atoms or hydroxyl, Y_1 is hydrogen, substituted or unsubstituted alkyl having 1 to 6 carbon atoms, substituted or unsubstituted alkoxy having 1 to 12 carbon atoms, substituted or unsubstituted carbalkoxy having 2 to 5 carbon atoms or N-alkyl-substituted or N,N-dialkyl-substituted amino, in which each alkyl moiety has 1 to 6 carbon atoms and can be substituted, or Y_1 is substituted or unsubstituted arylsulfonylamino or $—NE_1COG_1$, in which E_1 is hydrogen or substituted or unsubstituted alkyl having 1 to 8 carbon atoms and G_1 is substituted or unsubstituted alkyl having 1 to 12 carbon atoms or substituted or unsubstituted alkoxy having 1 to 4 carbon atoms, or Y_1 is $—NE_1P(O)(OG^1)_2$, in which E_1 is as defined above and G^1 is alkyl having 1 to 12 carbon atoms, or Y_1 is halogen or hydroxyl, Z_1 is hydrogen, substituted or unsubstituted alkyl having 1 to 12 carbon atoms, substituted or unsubstituted alkoxy having 1 to 6 carbon atoms or $—NA_1.COD_1$, in which A_1 is hydrogen or substituted or unsubstituted alkyl having 1 to 8 carbon atoms and D_1 is substituted or unsubstituted alkyl having 1 to 18 carbon atoms, or Z_1 is substituted or unsubstituted acyl having 2 to 9 carbon atoms, substituted or unsubstituted carbalkoxy having 2 to 19 carbon atoms, substituted or unsubstituted alkylsulfonylamino having 1 to 6 carbon atoms, halogen or the atoms which together with Y_1 form a substituted or unsubstituted 5-membered or 6-membered, saturated or unsaturated ring which can contain 1 or 2 hetero-atoms, and W_1 is hydrogen, substituted or unsubstituted alkyl or alkoxy, each having 1 to 4 carbon atoms, or halogen.

4,379,820

ELECTROPHOTOGRAPHIC PHOTOCONDUCTOR OF HALOGEN-DOPED SE-TE ALLOY LAYERS

Hitoshi Nakamura; Hideyo Nishizima; Hideaki Ema; Makoto Harigaya, and Satoshi Otomura, all of Numazu, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Apr. 17, 1981, Ser. No. 255,168

Claims priority, application Japan, Apr. 22, 1980, 55-52381

Int. Cl.^{3} G03G *5/082*

U.S. Cl. 430—58 **4 Claims**

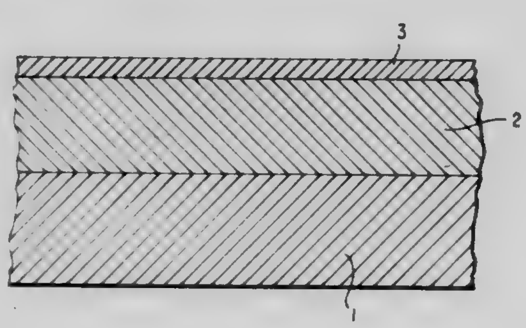
1. A layered electrophotographic photoconductor comprising:

an electrically conductive base;

a charge transporting layer, with a thickness ranging from 45 μm to 55 μm, formed on said electrically conductive base, which charge transporting layer comprises a selenium-tellurium alloy, the concentration of tellurium ranging from 1 to 10 weight percent of the total of the selenium-tel-

lurium, doped with halogen with a concentration equal to 10 to 500 ppm of the total of selenium and tellurium; and a charge generating layer, with a thickness ranging from 3 to 10 μm, formed on said charge transporting layer, which charge generating layer comprises a selenium-tellurium-arsenic alloy, doped with halogen, the concentration of tellurium ranging from 6 to 10 weight percent of the total of selenium and tellurium, the concentration of arsenic ranging 0.5 to 10 weight percent with respect to the total of selenium and tellurium, and the concentration of halogen ranging from 10 ppm to 500 ppm with respect to the total of selenium and tellurium.

4,379,821
ELECTROPHOTOGRAPHIC RECORDING MATERIAL WITH $AS_2SE_{3-x}TE_x$ CHARGE GENERATING LAYER
Manfred Lutz, and Bernd Reimer, both of Warstein, Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Fed. Rep. of Germany
Filed Jun. 3, 1981, Ser. No. 269,941
Claims priority, application Fed. Rep. of Germany, Jun. 3, 1980, 3020939
Int. Cl.³ G03G *5/04*
U.S. Cl. 430—58 **8 Claims**



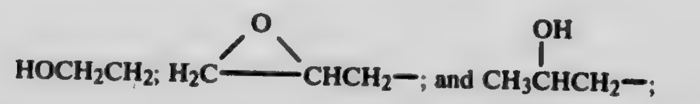
1. In an electrophotographic recording material including a dual photoconductive layer containing selenium applied to an electrically conductive substrate, the improvement wherein the recording material contains only the substrate and the dual photoconductive layer, and the dual photoconductive layer consists of a layer of amorphous arsenic selenide as a charge transporting layer disposed on said substrate, and a layer of a compound of arsenic, selenium, and tellurium of the formula $As_2Se_{3-x}Te_x$, where $0<X<3$, as a charge generating layer, superposed on said layer of arsenic selenide.

4,379,822
CONDUCTIVE BARRIER COAT FOR ELECTROSTATIC MASTERS
Michael J. Shaw, Paw Paw, Mich., assignor to Allied Paper, Incorporated, Kalamazoo, Mich.
Filed Feb. 18, 1981, Ser. No. 235,602
Int. Cl.³ G03G *5/14, 5/04*
U.S. Cl. 430—62 **8 Claims**

1. A printing master comprising
(a) a base;
(b) a water resistant barrier coat applied to said base;
(c) a photoconductive layer comprising a photoconductive material and a binder applied to said barrier coat;
(d) said barrier coat comprising on a dry weight basis, in a film-forming amount, about 50-95% of an organic hydrophobic and thermoplastic film-forming resin having labile hydrogen-containing functional groups, and about 5-15% of a conductive agent; said coat having a resistivity less than about 10^{11} ohms per square in said barrier coat, said resin being applied to the base as either a latex or colloidal dispersion;
(e) said conductive agent being a quaternary ammonium salt having the formula;

$$[R^1-N-R^{II\oplus}]X^{\ominus}$$
A (4-A)

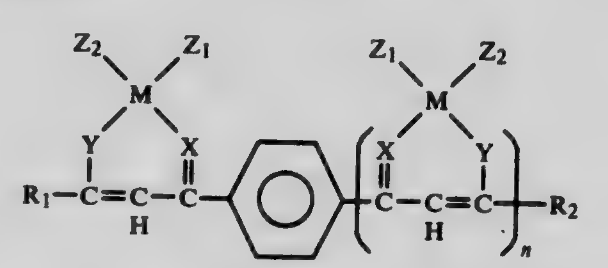
where
R^1 is a radical selected from the group consisting of



R^{II} is lower alkyl having from one to three carbon atoms;
A is 1, 2, or 3; and
X is an anion selected from the group consisting of chloride, fluoride, bromide, sulfate, phosphate or acetate;
said barrier coat being substantially free of materials which adversely affect water resistance.

4,379,823
COMPOSITION FOR FORMING PHOTOCONDUCTIVE COATING CONTAINING A PHOTOCONDUCTIVE DONOR AND AN ACCEPTOR-SENSITIZER
James M. Halm, Lombard, Ill., assignor to A. B. Dick Company, Niles, Ill.
Continuation-in-part of Ser. No. 131,150, Mar. 17, 1980, abandoned, which is a continuation of Ser. No. 897,719, Apr. 19, 1978, abandoned, which is a continuation-in-part of Ser. No. 738,147, Oct. 29, 1976, abandoned. This application May 27, 1980, Ser. No. 153,881
Int. Cl.³ G03G *5/09, 5/04*
U.S. Cl. 430—83 **23 Claims**

1. A composition for the preparation of photoconductive layers comprising the combination of an organic photoconductive donor and an acceptor-sensitizer compound having the general formula



in which M is a metal or metalloid selected from the group consisting of aluminum, gallium, indium, thalium and boron, X and Y are groups selected from the group consisting of sulphur, nitrogen, phosphorus, antimony, selenium and oxygen, Z_1 and Z_2 are selected from the group consisting of a halogen and substituted and unsubstituted alkyl, alkaryl and heterocyclic groups selected from the groups consisting of furyl, pyrryl, idoyl, pyrimidyl, pyridyl and furfuryl, R_1 and R_2 are groups selected from the group consisting of substituted and unsubstituted aryl, alkaryl, alkyl and alicyclic groups, n is a number of 1 or 2, in which the composition used to form the layer contains the component in an amount within the range of 1-10% by weight, when in solution and 2-25% by weight, when in suspension.

4,379,824
DEVELOPER COMPOSITIONS HAVING LAYER OF A PIGMENT ON THE SURFACE THEREOF
Stanley B. Collins, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Apr. 17, 1981, Ser. No. 255,294
Int. Cl.³ G03G *9/14, 13/09*
U.S. Cl. 430—106.6 **16 Claims**

1. A dry composition capable of being attracted to electrostatic image areas on a dielectric surface, said composition having a static electrical conductivity of at least 10^{-6} ohm⁻⁻

[1]centimeter^{-1} wherein said composition comprises a plurality of discrete spheroids each having an essentially smooth surface and each comprising a thermoplastic organic resin with a magnetically responsive material distributed therein, and from about 1 to 12 μg per square centimeter of surface area of said spheroids of a coating of a first pigment on said smooth surface wherein said first pigment comprises particles each having an arithmetic mean particle size of at least 0.02 micron, a dibutyl phthalate absorption value of at least 150 cubic centimeters per 100 grams of said pigment, and a static electrical conductivity of at least 10^{-8} ohm^{-1}centimeter^{-1}.

4,379,825

POROUS ELECTROPHOTOGRAPHIC TONER AND PREPARATION PROCESS OF MAKING

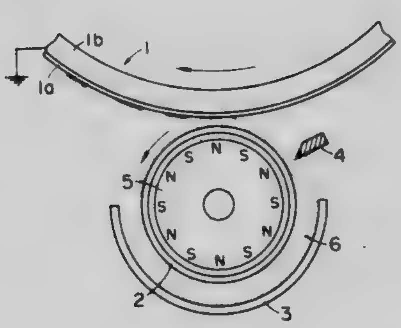
Yasuo Mitushashi, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 10, 1981, Ser. No. 233,288

Claims priority, application Japan, Feb. 14, 1980, 55-16998; Dec. 23, 1980, 55-183134; Dec. 23, 1980, 55-183135

Int. Cl.[3] G03G *9/16*

U.S. Cl. 430—111 **12 Claims**



1. Porous toner which comprises a coloring matter and a binder, said toner being formed by obtaining a powder through a step of mixing and kneading under heat a toner preparing material including a coloring matter, a binder and an elimination compound having a particle size from 0.01–20 microns which neither softens nor melts at a temperature at which said binder softens or melts, and by treating said powder with a solvent to remove said elimination compound to thereby form irregular shaped particles having voids or pores from 0.01 to 20 microns in diameter in the surface and interior thereof.

11. A process for preparing a porous toner which comprises mixing and kneading under heat a toner preparing material including a coloring matter, a binder and an elimination compound which neither softens nor melts at a temperature at which said binder softens or melts, then finely dividing the mixture to form powder, and thereafter applying heat treatment to the powder, followed by treating the powder with a solvent to remove said elimination compound.

4,379,826

POSITIVE ELECTRON BEAM RESISTS OF ORTHO CHLORO SUBSTITUTED PHENOL OR CRESOL CONDENSED WITH FORMALDEHYDE

James Economy; Roy J. Gritter, both of San Jose, and Hiroyuki Hiraoka, Saratoga, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 31, 1981, Ser. No. 298,138

Int. Cl.[3] G03C *1/58, 5/22, 5/34, 5/00*

U.S. Cl. 430—141 **3 Claims**

1. In a process for forming a positive electron beam resist by the steps of imagewise exposing a resin sensitized by a naphthoquinone diazide to electron beam irradiation, and selectively removing the exposed portion of the resin by treating it with a solvent, the improvement characterized in that the resin is a condensation product of formaldehyde with a phenol or a cresol having a chloro substituent ortho to the hydroxyl group on its aromatic ring.

4,379,827

IMAGING STRUCTURE WITH TELLURIUM METAL FILM AND ENERGY SENSITIVE MATERIAL THEREON

Robert W. Hallman, Orchard Lake, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.

Continuation-in-part of Ser. No. 205,860, Dec. 8, 1971, abandoned. This application Apr. 12, 1973, Ser. No. 350,372

The portion of the term of this patent subsequent to Sep. 12, 1996, has been disclaimed.

Int. Cl.[3] G03C *1/54, 1/72, 1/94*

U.S. Cl. 430—166 **3 Claims**

1. A structure for producing images comprising a substrate, a thin film of a metallic or metallic-like image forming material comprising tellurium or a tellurium containing composition on a surface of the substrate, said image forming material being characterized in that it is opaque and is easily soluble in a solvent consisting essentially of a dilute aqueous solution of an alkali metal hypochlorite, and a thin film of an energy sensitive material on the film of image forming material, said energy sensitive material being characterized in that it is capable upon the application of energy of changing between two states, one of which is a state in which the energy sensitive material is substantially soluble or permeable with respect to the aforementioned solvent in which the image forming material is easily soluble and the other being a state in which the energy sensitive material is substantially insoluble or impermeable with respect to said solvent, the film of energy sensitive material and the film of image forming material and the thinnesses thereof being such that the change in the state of the energy sensitive material upon the application of energy thereto and the essentially simultaneous dissolution in said solvent of both the energy sensitive material in those areas where it is in a substantially soluble or permeable state and the image forming material underlying said areas, can together, take place in substantially less than one minute to provide an imaged product.

4,379,828

IMAGE RECEPTOR ELEMENT FOR THE DYE DIFFUSION TRANSFER PROCESS

Werner Liebe; Karl Lohmer, both of Leverkusen, and Willibald Pelz, Cologne, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 14, 1981, Ser. No. 263,584

Claims priority, application Fed. Rep. of Germany, May 16, 1980, 3018644

Int. Cl.[3] G03C *7/00, 5/54, 5/48*

U.S. Cl. 430—212 **4 Claims**

1. An image receptor element for dye diffusion transfer process with diffusible dye anions comprising

a support and

at least one image receiving layer containing as a mordant for said dye anions, means for providing in the image receiving layer a dye absorption capacity which is variable normal to the plane of the layer in the direction of diffusion of the dye anions into the image receiving layer during processing from a light sensitive element which is in alkali permeable contact with the image receiving layer,

said means comprising cationic groups reactable with the diffusible dye anions and distributed in the image receiving layer so as to provide an increase in the dye absorption capacity extending through the image receiving layer normal to the plane of the layer and with increasing distance from the contact.

4,379,829

PHOTOGRAPHIC MATERIAL CONTAINING A TEMPORARY BARRIER LAYER APPLIED FROM AN ORGANIC SOLUTION

Werner Krafft, Leverkusen; Günter Helling, Cologne; Güunther Matschke, Leverkusen, and Immo Boie, Langenfeld, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 2, 1981, Ser. No. 222,087

Claims priority, application Fed. Rep. of Germany, Jan. 4, 1980, 3000193

Int. Cl.³ G03C *1/40, 5/54, 7/00*

U.S. Cl. 430—215 **5 Claims**

1. In a color photographic material for a dye diffusion transfer process, which contains color providing compounds having at least one temporary barrier layer arranged between two layers which are permeable to alkali, said barrier layer consisting of a mixture of 40 to 95% by weight of a first polymer and 5 to 60% by weight of a second polymer applied from organic solution of said mixture, said first polmer being a copolymer of from 40 to 80% by weight of at least one comonomer I selected from the group consisting of vinylidene chloride, dimethyl butadiene and dichlorobutadiene; from 18 to 50% by weight of at least one comonomer II selected from the group consisting of (meth) acrylonitrile and alkyl (meth)-acrylate and from 2 to 10% by weight of at least one comonomer III selected from the group consisting of olefinically unsaturated copolymerisable mono or dicarboxylic acids, sulfonic acids and phosphonic acid, and wherein the improvement comprises the second polymer in a homopolymer selected from the group consisting of poly-(alkyl acrylate) poly-(hydroxy alkyl acrylate), polycarbonate, poly-(N-alkyl acrylamide), poly-(vinyl acetate) and cellulose acetate, or of a copolymer of from 80 to 90% by weight of alkyl acrylate or hydroxyalkyl acrylate and from 1 to 20% by weight of an olefinically unsaturated, copolymerisable mono or dicarboxylic acid, sulfonic acid or phosphonic acid, the temporary barrier layer being incorporated in a neutralization system in proximity to the reception layer of the dye diffusion materials.

4,379,830

DEVELOPER FOR POSITIVE PHOTOLITHOGRAPHIC ARTICLES

Albert S. Deutsch, Hartsdale; Christopher F. Lyons, Wappingers Falls, and Robert Piller, White Plains, all of N.Y., assignors to Polychrome Corporation, Yonkers, N.Y.

Filed Oct. 6, 1981, Ser. No. 308,960

Int. Cl.³ G03C *5/30;* **C11D** *3/04, 7/06*

U.S. Cl. 430—309 **3 Claims**

1. An improved alkaline developer for photolithographic articles comprising from 0.5 to 30% wt. sodium metasilicate, wherein the improvement comprises addition of from 2 to 5% wt. of sodium chloride, based on total weight of the developer.

4,379,831

PROCESS FOR TRANSFERRING A PATTERN ONTO A SEMICONDUCTOR DISK

Ernst Löbach, Eschen, Liechtenstein, assignor to Censor Patent- und Versuchs-Anstalt, Vaduz, Liechtenstein

PCT No. PCT/EP80/00101, § 371 Date May 21, 1981, § 102(e) Date May 7, 1981, PCT Pub. No. WO81/00923, PCT Pub. Date Apr. 2, 1981

PCT Filed Sep. 19, 1980, Ser. No. 261,164

Claims priority, application European Pat. Off., Sep. 21, 1979, 79103567.8

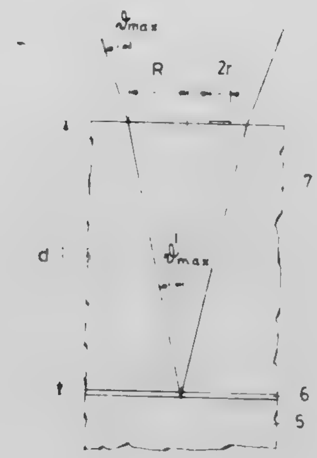
Int. Cl.³ G03C *5/04, 5/00;* **G03B** *27/32, 27/52*

U.S. Cl. 430—311 **6 Claims**

1. In a process for photolithographically transferring a pattern from a mask onto a semiconductor wafer by covering a semiconductor substrate thereof with a photoresist layer, imaging said pattern on said photoresist layer by means of a projection objective of predetermined numerical aperture NA=sin θ_{max} where θ_{max} is half the apex angle of an elemental beam converging from said objective onto said photoresist layer, and thereafter removing exposed portions of said photoresist layer,

a method of suppressing the effects of minute dust particles upon the projected image, comprising the steps of

(a) depositing on said photoresist layer a planar, solid and light-transmitting coating of refractive index n corresponding at least approximately to that of said photoresist



layer, said coating having a thickness d of at least several microns substantially exceeding that of said layer and sufficient to let an elemental beam strike the outer surface of said coating on an area substantially greater than that of a dust particle having a radius of one micron, said thickness d lying in a range in which the resulting spherical aberration given by

$$d\left(\frac{1}{n} - \frac{\cos\theta_{max}}{\sqrt{n^2 - \sin^2\theta_{max}}}\right)$$

is less than the Rayleigh depth, and

(b) removing said coating not later than with the removal of said exposed portions.

4,379,832

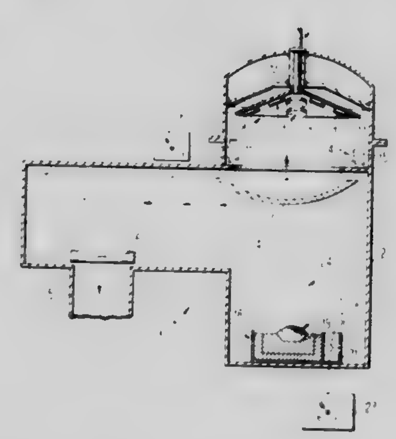
METHOD FOR MAKING LOW BARRIER SCHOTTKY DEVICES OF THE ELECTRON BEAM EVAPORATION OF REACTIVE METALS

Hormazdyar M. Dalal, and John J. Lowney, both of Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 31, 1981, Ser. No. 297,642

Int. Cl.³ G03C *5/00;* **B05D** *3/06, 5/12, 1/32*

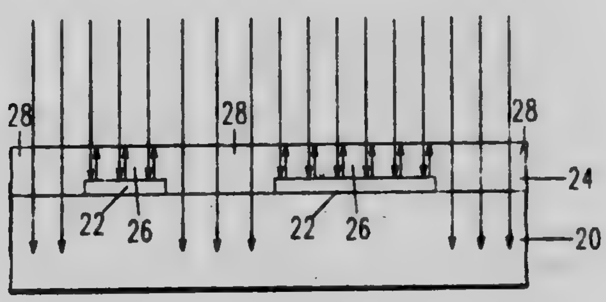
U.S. Cl. 430—315 **10 Claims**



1. An improved lift-off mask method for applying a reactive metal layer to a major surface of a semiconductor substrate, the method including forming a compound layer of photoresist materials at the semiconductor surface; selectively exposing the photoresist layer to radiation which the photoresist is

reactive to; removing portions of the photoresist layer to expose select regions of the substrate surface; depositing at least a first layer of reactive metal at the selectively exposed substrate surface and the photoresist by electron beam evaporation of the reactive metal; and removing the photoresist and reactive metal layer on the photoresist layer; the improvement comprising irradiating the photoresist layer with x-rays generated by heating a charge of reactive metal from which the metal to be deposited is supplied to a temperature below the evaporation temperature of the metal while under vacuum with an electron beam for a predetermined time before depositing the reactive metal.

4,379,833
SELF-ALIGNED PHOTORESIST PROCESS
Benjamin J. Canavello, Lillian, Ala., and Michael Hatzakis, Chappaqua, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 31, 1981, Ser. No. 336,467
Int. Cl.^{3} H05K *3/06, 3/46*
U.S. Cl. 430—325 **8 Claims**



1. A self-aligned photoresist process, comprising the steps of:
depositing a layer of photoresist over a substrate surface, said surface having a pattern of areas with substantially higher reflectivity than surrounding areas in a wavelength region in which said photoresist is sensitive:
flooding the deposited photoresist layer with light in said wavelength region, the greater reflection of light at the pattern areas of higher reflectivity causing greater exposure of the photoresist layer in regions overlying said pattern areas of higher reflectivity; and
developing the flooded photoresist layer thereby producing a resist pattern corresponding with the pattern areas of higher reflectivity and aligned therewith.

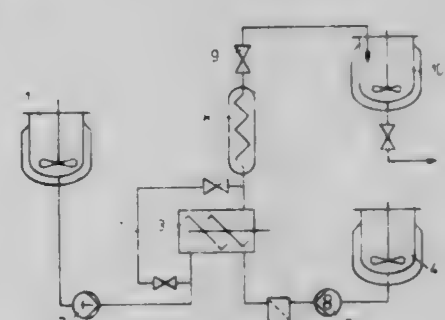
4,379,834
PROCESS FOR CLEANING COPPER-CONTAINING METAL SURFACES
Walter Herwig, Bad Soden; Kurt Klüpfel, Wiesbaden; Helga Sikora, Wiesbaden, and Heide Sprengel, Wiesbaden, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany
Continuation of Ser. No. 270,052, Jun. 3, 1981, abandoned, which is a division of Ser. No. 93,114, Nov. 13, 1979, abandoned.
This application Jun. 23, 1982, Ser. No. 391,084
Claims priority, application Fed. Rep. of Germany, Nov. 17, 1978, 2849894
Int. Cl.^{3} G03C *5/24*
U.S. Cl. 430—329 **9 Claims**

1. In the process for the production of a photoresist image, in which a photopolymerizable photoresist layer is applied to a support of copper or a copper alloy, is exposed imagewise and is washed out of the unexposed areas by means of an aqueous-alkaline developer solution,
the improvement which comprises treating the surface of the support, after the development as a separate cleaning step, with a solution which contains a water-soluble aliphatic sulfonic acid, or a water-soluble salt of such a sulfonic acid, having 8 to 30 carbon atoms, the photoresist stencil remaining unattacked during this cleaning step.

4,379,835
BLACK IMAGE FROM A THERMOGRAPHIC IMAGING SYSTEM
Robert D. Lowrey, Saint Paul, Minn.; Howard D. Nelson, River Falls, Wis., and George Van Dyke Tiers, Saint Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.
Filed Dec. 22, 1980, Ser. No. 218,559
Int. Cl.^{3} G03C *1/72;* **B41M** *5/18, 5/26*
U.S. Cl. 430—338 **19 Claims**

1. An article with a single imageable layer carried on a substrate, said layer comprising a polymeric binder, a combination of at least two leuco dyes, an acidic material, and nitrate salt, said leuco dyes being colorless compounds which when subjected to an oxidation reaction form colored products, said acidic material being present in said layer in a molar concentration of at least 0.2 times that of the nitrate ion in said nitrate salt, said nitrate salt having a cation which is nonreactive with said leuco dyes and said nitrate salt capable of liberating an oxidizing amount of HNO_3 or oxides of nitrogen when heated to a temperature of no more than 200° C. for 60 seconds, said layer being capable of providing an at least dark, stable image upon imagewise oxidation.

4,379,836
PROCESS FOR THE PRODUCTION OF DISPERSIONS AND PHOTOGRAPHIC MATERIALS
Hildegard Schnöring, Wuppertal; Karl-Wilhelm Schranz, and Günther Koepke, both of Odenthal, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Aug. 24, 1981, Ser. No. 295,641
Claims priority, application Fed. Rep. of Germany, Sep. 2, 1980, 3033000
Int. Cl.^{3} G03C *1/40*
U.S. Cl. 430—377 **11 Claims**



1. In the process for the production of a dispersion of at least one liquid organic phase containing a hydrophobic, photographically-active substance,
and at least one aqueous phase containing a binder,
by combining the phases in a dispersion by introducing said organic phase and said aqueous phase separately and simultaneously into a dispersion unit,
and combining said phases in said unit at a temperature maintained at 100° C. or higher and under a pressure maintained at least 1 bar so as to disperse the phases in the dispersion unit.

4,379,837

PROCESS FOR THE PREPARATION OF SILVER HALIDE EMULSIONS, PHOTOGRAPHIC MATERIALS, AND A PROCESS FOR THE PRODUCTION OF PHOTOGRAPHIC IMAGES

Otto Lapp; Harald von Rintelen; Franz Moll, all of Leverkusen-Bayerwerk, and Lothar Endres, Bergisch Gladbach, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 20, 1981, Ser. No. 265,535

Claims priority, application Fed. Rep. of Germany, May 23, 1980, 3019733

Int. Cl.³ G03C *1/02*

U.S. Cl. 430—434 **10 Claims**

1. A process for the preparation of a silver halide emulsion in which a fine-grained silver halide emulsion I is blended in the presence of at least one silver halide solvent with a silver halide emulsion II which is less soluble than said emulsion I and in which the blend is held for a sufficient time to effect redissolving of emulsion I and precipitation on emulsion II wherein emulsion I has been prepared by reaction of a soluble silver salt and a soluble halide in the presence of at least one compound inhibiting grain growth.

4,379,838

PHOTOSENSITIVE PHOTOGRAPHIC RECORDING MATERIAL COMPRISING A DYED LAYER

Günter Helling, Cologne; Hans Öhlschläger, Bergisch-Gladbach; Wolfgang Himmelmann, Leverkusen, and Manfred Beck, Odenthal, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 196,933, Oct. 14, 1980, abandoned. This application Oct. 5, 1981, Ser. No. 308,521

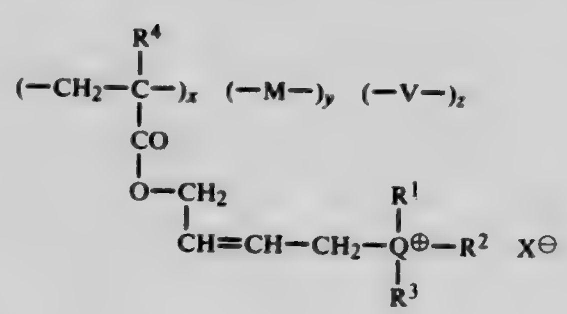
Claims priority, application Fed. Rep. of Germany, Oct. 16, 1979, 2941819

Int. Cl.³ G03C *1/84*

U.S. Cl. 430—518 **5 Claims**

1. In a photographic recording element, comprising a layer support, at least one layer comprised of photosensitive silver halide emulsion supported on said layer support, and at least one other supported layer as a dyed layer containing uniformly distributed therein a polymeric mordant for acid dyes and at least one acid dye,

the improvement according to which the mordant in said dyed layer consists essentially of a polymer obtained by addition polymerization and corresponding to the following formula



in which

Q is a nitrogen or phosphorus atom;

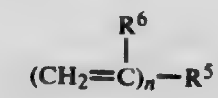
R^1, R^2 and R^3 are the same or different and represent alkyl radicals of 1 to 12 carbon atoms or carbocyclic radicals selected from the group consisting of cycloalkyl, aralkyl and aryl radicals containing from 5 to 12 carbon atoms, which may be substituted with halogen, nitro, cyano, alkyl, alkoxy, alkylthio or alkoxy carbonyl in which the alkyl contains from 1 to 4 carbon atoms,

or two of the substituents R^1, R^2 and R^3 together represent a group necessary for completing a 5- or 6-membered heterocyclic ring selected from the group consisting of pyrrolidine, piperidine or morpholine rings;

R^4 represents hydrogen or methyl,

$X^{\ominus}$ represents a photographically inert anion,

V represents the residue of a polymerized monomer polymerizable by addition polymerization containing at least two polymerizable ethylenically unsaturated groups; and corresponds to the following formula



in which

n is an integer greater than 1,

R^5 represents an organic radical with two or more bonds which is made up of alkylene, arylene, aralkylene, cycloalkylene groups, ester, sulphonyl ester, amide, sulphonamide groups, etheroxygen and thioethersulphur atoms and also combinations of the above-mentioned groups and atoms,

R^6 is a hydrogen atom or a methyl radical,

M represents the residue of a polymerized monomer containing one polymerizable ethylenically unsaturated group;

x, y and z represent the figures indicating the proportions of the monomer in the polymer, such that

x stands for 10 to 99 mole %,

y stands for 0 to 90 mole %,

z stands for 0 to 5 mole %.

4,379,839

METHOD FOR DETECTING CANCER

Sol Spiegelman, New York, N.Y., assignor to The Trustees of Columbia University in the City of New York, New York, N.Y.

Continuation of Ser. No. 872,855, Jan. 27, 1978, abandoned, which is a continuation-in-part of Ser. No. 799,810, May 23, 1977, abandoned. This application Feb. 29, 1980, Ser. No. 126,166

Int. Cl.³ C12Q *1/70;* **G01N** *33/54, 33/56, 33/60*

U.S. Cl. 435—5 **14 Claims**

1. A method for the detection of breast cancer in a human subject, which method comprises immunologically assaying a sample from said subject for breast cancer specific viral related protein, the assay utilizing the cross-reactivity of the protein with antibodies to Mason-Pfizer Monkey Virus or murine mammary tumor virus.

4,379,840

QUANTITATIVE ANALYSIS OF URIC ACID

Günther Gorka, Wiesbaden-Auringen, and Klaus Stinshoff, Munich, both of Fed. Rep. of Germany, assignors to C. H. Boehringer Sohn, Ingelheim am Rhein, Fed. Rep. of Germany

Filed Jun. 29, 1981, Ser. No. 278,677

Claims priority, application Fed. Rep. of Germany, Jul. 3, 1980, 3025170

Int. Cl.³ C12N *9/04, 9/96;* **C12Q** *1/30, 1/32*

U.S. Cl. 435—10 **6 Claims**

1. In a process for determining the uric acid content of biological material by contacting the biological material with a reagent composition containing uricase, catalase, aldehyde dehydrogenase, a lower alkanol, and nicotinamide adenine dinucleotide or nicotinamide adenine dinucleotide phosphate,

the improvement which comprises contacting the biological material with a reagent composition comprising:

(a) from about 25 to 500 IU/liter of uricase;

(b) from about 300 to 1000 kIU/liter of catalase;

(c) from about 100 to 500 IU/liter of aldehyde dehydrogenase;

(d) from about 0.5 to 2 mol/liter of ethanol;

(e) from about 0.2 to 1.5 mmol/liter of NAD^+ or $NADP^+$;

(f) from about 20 to 100 mmol/liter of buffer; and

(g) from about 0.0001 to 0.1 mol/liter of 2-mercaptosuccinic acid.

4,379,841

ASSIMILATION TEST FOR IDENTIFYING YEASTS

Billy H. Cooper, Dallas, Tex., assignor to Abbott Laboratories

Continuation-in-part of Ser. No. 184,877, Sep. 8, 1980, abandoned. This application Oct. 2, 1981, Ser. No. 308,210

Int. Cl.³ C12Q *1/04;* **C12N** *1/16;* **C12R** *1/645, 1/72*

U.S. Cl. 435—34 **12 Claims**

1. A method for identifying a clinically significant yeast isolate which comprises inoculating culture media containing as a sole carbon source 4-hydroxybenzoic acid, 3,4-dihydroxybenzoic acid or a mixture of 4-hydroxybenzoic acid and 3,4-dihydroxybenzoic acid, with a yeast colony obtained from a human specimen; and then observing the ability of the yeast colony to assimilate the carbon source as an indication of a specific yeast isolate.

4,379,842

PROCESS FOR THE MANUFACTURE OF 1α-HYDROXYDEHYDROEPIANDROSTERONE

Akiko Fujiwara, Kamakura; Chikara Miyamoto, Yokohama, and Toru Okuda, Yakuoji, all of Japan, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation of Ser. No. 121,120, Feb. 13, 1980. This application Aug. 24, 1981, Ser. No. 295,281

Int. Cl.³ C12P *33/06;* **C12R** *1/80, 1/66*

U.S. Cl. 435—58 **9 Claims**

1. A process for producing 1-α-hydroxydehydroepiandrosterone comprising adding dehydroepiandrosterone or 3-acyldehydroepiandrosterone as a substrate to microorganisms of the species Penicillium oxalicum or Aspergillus terreus fermenting in a culture medium, the addition of substrate being made at a time when the microoganisms are in a stationary phase of growth and for a time sufficient for conversion of the substrate.

4,379,843

IMMOBILIZATION OF POLYNUCLEOTIDES AND POLYPEPTIDES WITH TRITYLATED POLYSACCHARIDES

Peter Cashion, 821 Hanson St., Fredericton, New Brunswick, Canada (E3B 4A6)

Filed Jan. 26, 1981, Ser. No. 228,258

Int. Cl.³ C12N *11/10;* **C12P** *19/34;* **C12N** *11/12, 11/06*

U.S. Cl. 435—178 **40 Claims**

1. A composition of matter, comprising a polynucleotide or polypeptide attracted to a substantially hydrated polysaccharide through a triphenylmethyl ether group bonded to said polysaccharide.

4,379,844

BIOCONVERSION OF INDUSTRIAL CELLULOSIC PULP MATERIALS TO PROTEIN ENRICHED PRODUCT

Murray M. Young, Waterloo, Canada, assignor to University of Waterloo, Waterloo, Canada

Continuation-in-part of Ser. No. 3,998, Jan. 17, 1979, abandoned. This application Mar. 4, 1981, Ser. No. 240,329

Int. Cl.³ C12N *1/24, 1/22*

U.S. Cl. 435—251 **5 Claims**

1. A process for the formation of proteinaceous material, which consists of:

(a) aerobically fermenting a sterile mixture of a cellulosic wood product in divided form selected from the group consisting of wood pulp and paper stock and a solution of non-carbon nutrient supplement in a culture of the fungus, *Chaetomium cellulolyticum,* at a pH of about 5 to about 7 and at a temperature of about 30° to about 45° C. for a time sufficient to grow the fungus and provide a solid mass consisting of about 20 to about 80% DM of the fungus and the balance of unfermented cellulosic material, and

(b) separating the resulting solid mass from the fermentation medium.

4,379,845

YEAST PROCESS AND PRODUCT

Michael S. Ripka, Huntington, Conn., assignor to Nabisco Brands, Inc., Parsippany, N.J.

Filed Jul. 23, 1981, Ser. No. 286,111

Int. Cl.³ C12N *1/16, 1/18*

U.S. Cl. 435—255 **9 Claims**

1. An improved process for culturing yeast which comprises: purifying molasses by passing the molasses through an ultrafiltration device effective to reject solids having molecular weights greater than about 30,000 daltons to produce a first permeate, and passing the first permeate through at least one additional filtration device having an average pore diameter of from about 0.2 to about 1.2 microns to produce a yeast culture medium, wherein the filtration devices are effective in combination to reduce the microorganism count to a level effective to produce yeast suitable for food use; innoculating the yeast culture medium with yeast; and subjecting the yeast and yeast culture medium to conditions effective to propagate the yeast.

4,379,846

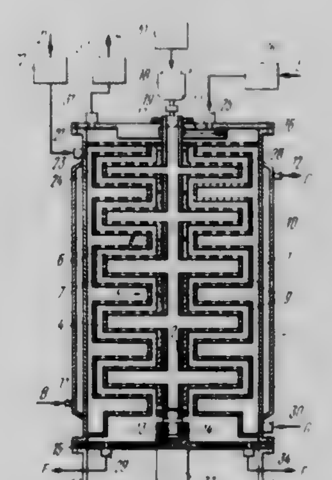
FERMENTATION APPARATUS

Alexandr N. Shkidchenko, Puschino, mikroraion "G", 30, kv. 51; Boris F. Nesterov, Puschino, mikroraion "V", 24, kv. 62; Vyacheslav G. Sharov, Puschino, mikroraion "V", 22, kv. 45, and Boris I. Smolin, Puschino, 25, kv. 5, all of Moskovskaya oblast, U.S.S.R.

Filed Apr. 27, 1981, Ser. No. 257,598

Int. Cl.³ C12M *1/02, 1/06, 1/14*

U.S. Cl. 435—316 **7 Claims**



1. A fermentation apparatus for use with liquid substrates comprising:

a temperature-controlled jacket;

a housing defined by walls having an inner surface, the housing being disposed inside said temperature-controlled jacket and adapted to be filled with said liquid substrate;

an agitation means having a shaft with stirrers accommodated in the interior of said housing, the shaft of the agitating means and the walls of said housing being made hollow and being made from a capillary-porous material;

a first group of elements intended for the cultivation of a layer of microorganisms thereon disposed inside said housing and acting to expand the useful interior surface of the apparatus;

a second group of elements intended for the cultivation of a layer of microorganisms thereon disposed inside said housing and acting to expand the useful interior surface of the apparatus;

a gap formed between said groups of elements; and

at least one said group of elements arranged to be capable of

movement relative to another said group of elements such that during the movement the elements of this group act to control the thickness of said layer of microorganisms being cultivated in said gap.

4,379,847
SUSPENDING MEDIUM FOR IMMUNOLOGIC REACTIONS
Mitchell J. Fruitstone, Miami, Fla.; Michele M. Tilly, Calgary, Canada, and Betty G. Pixton, Miami, Fla., assignors to American Hospital Supply Corporation, Evanston, Ill.
Continuation-in-part of Ser. No. 76,716, Sep. 19, 1979, Pat. No. 4,259,207. This application Jan. 14, 1981, Ser. No. 225,098
The portion of the term of this patent subsequent to Mar. 31, 1998, has been disclaimed.
Int. Cl.³ G01N *33/54, 31/02;* **C09K** *3/00;* **G01N** *33/50*
U.S. Cl. 436—8 **28 Claims**

1. A suspending medium for an immunologic reaction comprising gelatin, having a Bloom rating from about 75 to about 300 at a concentration such that the Bloom rating times concentration in weight percent is from about 40 to about 150; albumin, at a concentration of from about 3.0 wt. % to about 7.0 wt. %; sufficient organic solute to provide an osmolality of from about 150 mOsm/kg. H_2O to about 450 mOsm/kg. H_2O; sufficient salt of an alkali or alkaline earth metal to provide an ionic strength equivalent to about a 0.01 molar to about a 0.10 molar solution of sodium chloride; and a pH from about 6.0 to about 8.0.

4,379,848
METHOD OF ANALYZING AN AQUEOUS LIQUID FOR HEXACYANOFERRATES
David C. Yeaw, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Sep. 28, 1981, Ser. No. 306,621
Int. Cl.³ G01N *31/22*
U.S. Cl. 436—84 **16 Claims**

1. A method for detecting hexacyanoferrates in an aqueous liquid, the method comprising the steps of:
(a) forming an alkaline reaction system comprising the aqueous liquid and a cobaltic complex of tris-1,10-phenanthroline or tris-2,2′-bipyridyl;
(b) acidifying the reaction system to effect a detectable change in the spectral density thereof indicative of the presence of hexacyanoferrates in the aqueous liquid; and
(c) observing the detectable change indicative of the presence of hexacyanoferrates.

4,379,849
METHOD AND MEANS FOR THE EXAMINATION OF UNCOAGULATED BLOOD
Ken Heimreid, Brananveien 44 B, 3940 Heistad, Norway
Filed Sep. 26, 1980, Ser. No. 191,818
Claims priority, application Norway, Oct. 4, 1979, 793190
Int. Cl.³ B01D *21/26;* **G01N** *33/16*
U.S. Cl. 436—177 **5 Claims**

1. A method for facilitating the examination of uncoagulated blood comprising (1) filling the blood into a plastic test tube, (2) placing in the upper layer of the blood one or more bodies of glass or another suitable material with a surface whose characteristics correspond to glass, (3) placing above said one or more bodies an overlying layer of small beads or other suitable particles whose specific gravity is such that the small beads or other suitable particles become embedded as reinforcement in the fibrin layer following centrifugation and (4) centrifuging the blood while said body or bodies is in friction contact with the interior surface of the tube and pressing said body or bodies through the blood during said centrifugation.

4,379,850
HEMOLYTIC METHOD FOR THE KINETIC DETERMINATION OF ANTISTREPTOLYSIN O ANTIBODIES IN BLOOD OR SERUM SAMPLES, USING OXIDIZED STREPTOLYSIN O
Antonio Ricci, Monteriggioni, Italy, assignor to Diesse Diagnostica Senese S.r.l., Milan, Italy
Filed Jun. 22, 1981, Ser. No. 276,442
Claims priority, application Italy, Jul. 3, 1980, 23215 A/80
Int. Cl.³ G01N *33/54*
U.S. Cl. 436—517 **16 Claims**

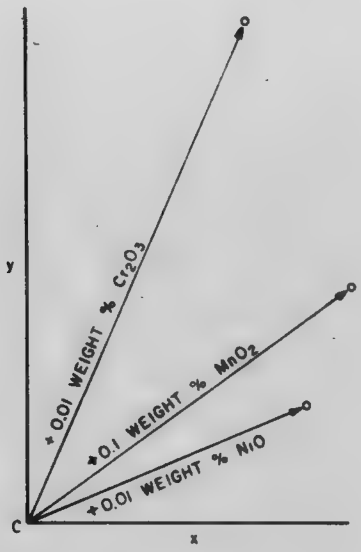
1. A hemolytic method for the kinetic determination of antistreptolysin O antibodies (ASO) in a whole blood sample, consisting of:
reacting a first reagent containing a single dose of oxidized streptolysin O (SO) with the specific antibodies which may be present in the blood sample under examination;
allowing the necessary time to pass for the reaction between the oxidized SO and said antibodies to take place;
returning the oxidized SO to its reduced state by adding a second reagent;
measuring the rate of hemolysis; and
comparing said rate of hemolysis with the rate of hemolysis shown graphically for samples of known ASO titre, thus obtaining the kinetic determination of the ASO titre of the blood sample under examination.

4,379,851
TINTED BOROSILICATE GLASSES
Paul S. Danielson, Corning; Ronald P. Mattison, Big Flats, and Albert J. Werner, Horseheads, all of N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed Jun. 28, 1982, Ser. No. 393,059
Int. Cl.³ C03C *3/08*
U.S. Cl. 501—66 **2 Claims**

1. A transparent glass which, after thermal tempering, exhibits a light gray-brown color and demonstrates such chromaticity (x, y) and luminous transmittance (Y) values that x ranges

between about 0.3440–0.3500, y ranges between about 0.3400–0.3525, and Y ranges between about 37–52, consists essentially, expressed in terms of weight percent on the oxide basis, of

SiO_2—80–82
B_2O_3—11.25–12



FOR C.I.E. ILLUMINANT C

Na_2O—5.25–6
Al_2O_3—1.9–2.1
MnO_2—0.05–0.5
NiO—0.01–0.07
Cr_2O_3—0.005–0.03.

4,379,852

BORIDE-BASED REFRACTORY MATERIALS

Tadahiko Watanabe, Saga, and Shinichi Kono, Ikoma, both of Japan, assignors to Director-General of the Agency of Industrial Science and Technology, Tokyo, Japan

Filed Mar. 6, 1981, Ser. No. 241,235

Claims priority, application Japan, Aug. 26, 1980, 55-117362

Int. Cl.³ C04B *35/58*

U.S. Cl. 501—87 **6 Claims**

1. A refractory sintered body composed essentially of
(a) at least 30% by weight of at least one metal boride selected from the group consisting of MB_2 type diborides of titanium, vanadium, niobium, tantalum, chromium, molybdenum, manganese, zirconium, hafnium, and aluminum and M_2B_5 type borides of molybdenum and tungsten,
(b) from 0.01 to 50% by weight of at least one binder ingredient selected from the group consisting of the borides of nickel, iron, cobalt, manganese and titanium other than the MB_2 type diborides and alloys of nickel and phosphorus, and
(c) from 0.1 to 50% by weight of at least one additive ingredient selected from the group consisting of WC, TiC, TaC, NbC, VC, ZrO_2, TiN, ZrN, TaN, and VN, the balance being substantially the metal boride of the component (a), or
(d) the metal boride of the component (a) and up to 40% by weight, based on the sintered body, of at least one MB type boride of a metal selected from the group consisting of tantalum, niobium, tungsten, zirconium, hafnium, molybdenum, and vanadium.

4,379,853

MAGNETIC DEVICE HAVING A MONOCRYSTALLINE GARNET SUBSTRATE BEARING A MAGNETIC LAYER

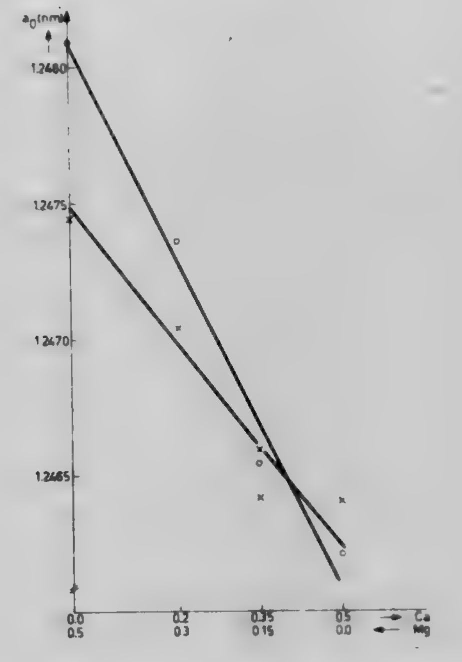
Dieter Mateika, Ellerbek, and Rolf Laurien, Pinneberg, both of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 14, 1980, Ser. No. 168,227

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1979, 2928176; Mar. 7, 1980, 3008706

Int. Cl.³ C04B *35/50*

U.S. Cl. 501—135 **4 Claims**



1. A single crystal on the basis of rare earth metal gallium garnet, characterized by the composition

$$A^{3+}_{3-x}B^{2+}_{x}Ga^{3+}_{5-x-2y}C^{2+}_{y}D^{4+}_{x+y}O_{12},$$

wherein
A = gadolinium and/or samarium and/or neodym and/or yttrium
B = calcium and/or strontium
C = magnesium
D = zirconium and/or tin
and $0 < x \leqq 0.7$; $0 < y \leqq 0.7$ and $x + y \leqq 0.8$.

4,379,854

LOW TEMPERATURE FIRING (1800°-2100° F.) OF BARIUM TITANATE WITH FLUX (LEAD TITANATE-BISMUTH TITANATE-ZINC OXIDE AND BORON OXIDE)

Jakob C. K. Soong, State College, Pa., assignor to Erie Technological Products, Inc., Erie, Pa.

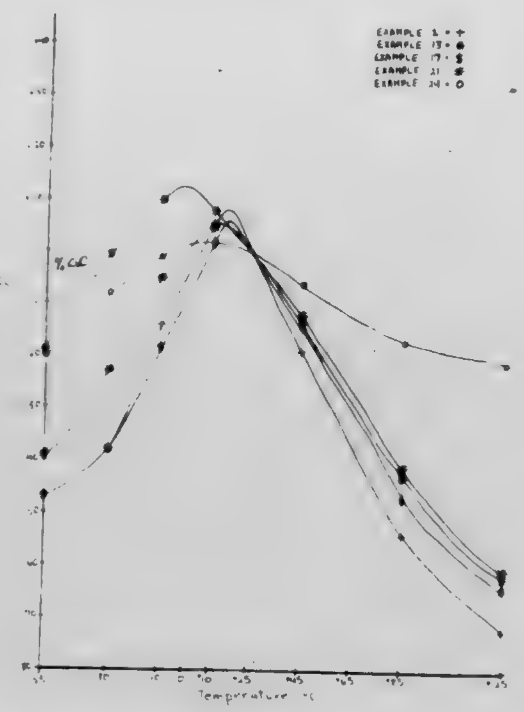
Filed Feb. 6, 1981, Ser. No. 232,143

Int. Cl.³ C04B *35/46*

U.S. Cl. 501—138 **1 Claim**

1. A method for making a dense ceramic dielectric body possessing very high dielectric constant at 25° C. which consists essentially of firing at between 1800° and 2100° F. a body of mixed powders of ceramic and flux, said ceramic powders consisting essentially of powders of barium titanate and powders of $SrZrO_3$ as cubic point shifter, and said flux powders consisting essentially of 10 parts by weight/100 of the aforesaid ceramic powders and said flux powders consisting essentially of powders of lead titanate, powders of bismuth titanate, powders of metal oxide flux selected from the group consisting of

powders of ZnO and powders of B_2O_3, the weight of the bismuth titanate and lead titanate powders being substantially



twice the weight of the powders of ZnO and B_2O_3, and ZnO being 24 to 40% and B_2O_3 0 to 12% by weight of the flux.

4,379,855

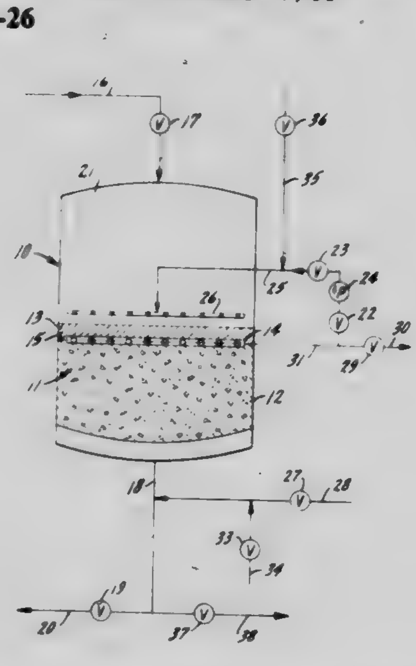
METHOD OF ION EXCHANGE REGENERATION

Peter E. Down, Summit, and Walter J. Tomlinson, Jr., Harrington Park, both of N.J., assignors to Ecodyne Corporation, Chicago, Ill.

Filed Jul. 1, 1981, Ser. No. 279,525

Int. Cl.³ B01J *49/00*

U.S. Cl. 521—26 **11 Claims**



1. A method of upflow regeneration of a spent stratified bed of ion exchange resin particles in which one part of said bed is a body of particles of a first resin occupying the lower part of a vessel and another part of said bed is a body of particles of a second resin deposited on top of said body of first resin particles, said method comprising the steps of:

A. passing a regenerant solution upwardly through said body of first resin particles;
B. withdrawing from said vessel the regenerant solution that has passed through said first resin particles essentially at the interface between said first and second resins before such regenerant solution can pass upwardly through said second resin particles;
C. recycling at least some of such withdrawn regenerant solution to said vessel above said second resin particles;
D. passing such recycled regenerant solution downwardly through said second resin particles with sufficient force to prevent upward expansion of said bed; and
E. withdrawing said recycled regenerant solution from said vessel essentially at said interface before it can pass into said body of first resin particles.

4,379,856

POLYURETHANE FOAM MOLDING WITH ZONES OF DIFFERENT INDENTATION HARDNESS AND A PROCESS FOR ITS PRODUCTION

Reinhard Samaritter; Winfried Schoberth, and Robert Volland, all of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 15, 1982, Ser. No. 339,595

Claims priority, application Fed. Rep. of Germany, Jan. 23, 1981, 3102140

Int. Cl.³ C08G *18/14*

U.S. Cl. 521—51 **11 Claims**

1. A polyurethane molding having zones of different hardness in which the polyurethane foam molding is a reaction product of:

a a polyether polyol component containing at least two hydroxyl groups and having a molecular weight of from 400 to 10,000 in which at least 10 wt. % of the hydroxyl groups are primary hydroxyl groups; and
b a polyisocyanate component which is a mixture of diphenyl methane diisocyanates and oligomeric polyphenyl polymethylene polyisocyanates which mixture contains from 60–90 wt. % 4,4'-diphenyl methane diisocyanate and from 3 to 30 wt. % 2,4'-diphenyl methane dissocyanate,

said reaction product having (i) zones of different hardness as indicated by a difference between the indices of the reaction mixture for those zones and (ii) transition zones between said zones (i) which transition zones are free from any hardening.

4,379,857

INSULATION COMPOSITION

Douglas E. Hansen, Kansas City, Mo.; Steven D. Johnson, Prairie Village, Kans., and Richard L. Motko, Kansas City, Mo., assignors to Cook Paint and Varnish Company, Kansas City, Mo.

Filed Oct. 28, 1981, Ser. No. 316,041

Int. Cl.³ C08J *9/22*

U.S. Cl. 521—54 **14 Claims**

1. An insulating composition comprising in combination a liquid binder, a heat expanded polystyrene material in bead or granular form and a reinforcing pigment, said liquid binder comprising a 95:5 to 50:50 mixture, by weight of an acrylic or vinyl polymer emulsion and an alkali metal silicate, said expanded polystyrene being present in an amount ranging from 5 to 25 percent by weight of said composition.

4,379,858

FOAMED PLASTICS

Hirosuke Suzuki, 4-21-8 Kotesashi-cho, Tokorozawa, Japan

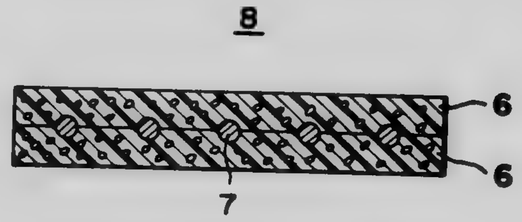
Filed Aug. 23, 1982, Ser. No. 410,325

Claims priority, application Japan, Aug. 28, 1981, 56-134934

Int. Cl.³ C08J *9/24*

U.S. Cl. 521—54 **1 Claim**

8



1. A melt molded foamed plastic composition comprising a tetrafluoroethylene-perfluoroalkyl vinyl ether copolymer

resin matrix and stretched porous resin fragments selected from the group consisting of polytetrafluoroethylene, polyethylene and polypropylene wherein said porous fragments have a porosity of 40 to 90%.

4,379,859
PRE-FOAMED PARTICLES OF POLYPROPYLENE RESIN AND PROCESS FOR PRODUCTION THEREOF
Kuninori Hirosawa, Isehara, and Sumio Shimada, Hiratsuka, both of Japan, assignors to Japan Styrene Paper Corporation, Tokyo, Japan
Filed Nov. 19, 1981, Ser. No. 322,917
Claims priority, application Japan, Nov. 22, 1980, 55-164786
Int. Cl.³ C08J *9/18*
U.S. Cl. 521—59 **9 Claims**

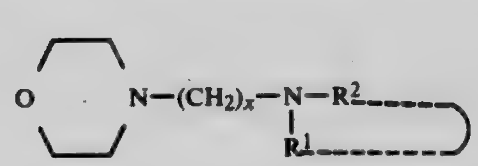
1. Substantially non-crosslinked pre-foamed particles of a a propylene copolymer resin selected from the group consisting of an ethylene/propylene random copolymer or a mixture of an ethylene/propylene random copolymer with low density polyethylene and/or an ethylene/vinyl acetate copolymer as a base resin, provided that the ethylene/propylene random copolymer has an ethylene contents of 1 to 20% by weight.

4,379,860
POROUS, POWDERY POLYPROPYLENE
Walter Fickel, Erlenbach, and Gerhard Ries, Obernburg, both of Fed. Rep. of Germany, assignors to Akzo NV, Arnhem, Netherlands
Filed Jun. 30, 1981, Ser. No. 279,045
Claims priority, application Fed. Rep. of Germany, Jul. 15, 1980, 3026762
Int. Cl.³ C08J *9/26*
U.S. Cl. 521—61 **11 Claims**

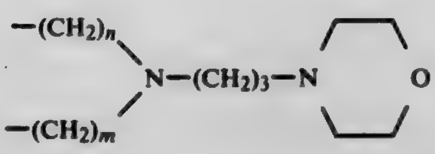
1. Process for the production of porous, powdery polypropylene, comprising slowly cooling down to approximate room temperature, hot solutions of polypropylene in pentaerythrol ester, thereby forming a solidified mass, and extracting the solidified mass with an extractant in which pentaerythrol is soluble.

4,379,861
PROCESS FOR THE PRODUCTION OF POLYURETHANES USING MORPHOLINE COMPOUNDS AS CATALYSTS
Peter Haas, Haan, and Hans-Albrecht Freitag, Bergisch-Gladbach, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Nov. 27, 1981, Ser. No. 325,539
Claims priority, application Fed. Rep. of Germany, Dec. 12, 1980, 3046905
Int. Cl.³ C08G *18/14*
U.S. Cl. 521—115 **5 Claims**

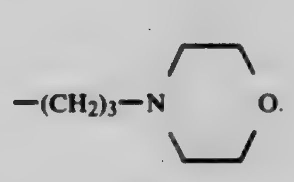
1. A process for the production of polyurethanes by the reaction of compounds with a molecular weight of 400 to 10000 having at least two isocyanate reactive hydrogen atoms with polyisocyanates in the presence of catalysts having tertiary amino groups and optionally in the presence of chain lengthening agents of molecular weight 32 to 400, foam stabilizers, water and/or organic blowing agents and other auxiliary agents and additives, the improvement whereby the catalysts used are morpholine derivatives of the general formula



wherein
X denotes an integer from 3 to 6, and
R^1 and R^2 are identical or different and
(a) represent a C_1–C_6-alkyl or C_6–C_{10}-cycloalkyl group or
(b) form a heterocyclic ring containing 4–7 C-atoms, which heterocyclic ring may contain hetero groups in addition to the N-atom and wherein the additional hetero groups may be substituted by a C_1–C_3 alkyl, or
(c) together represent a group of the formula



in which n and m represent identical or different integers from 2 to 4, preferably 2, or
(d) represent



4,379,862
PROCESS FOR THE PREPARATION OF POLYURETHANE RESINS USING LOW MOLECULAR WEIGHT POLYHYDROXYL COMPOUNDS PREPARED BY THE CONDENSATION OF FORMALDEHYDE
Kuno Wagner, Leverkusen, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Division of Ser. No. 122,931, Feb. 20, 1980, Pat. No. 4,301,310, which is a division of Ser. No. 829,173, Aug. 30, 1977, Pat. No. 4,219,508. This application Jul. 10, 1981, Ser. No. 282,219
Claims priority, application Fed. Rep. of Germany, May 11, 1977, 2721186
Int. Cl.³ C08G *18/14*
U.S. Cl. 521—158 **1 Claim**

1. In a process for the preparation of cellular or non-cellular polyurethane resins by the reaction of
(a) polyisocyanates with
(b) compounds with a molecular weight of between 32 and 400 having at least two active hydrogen atoms, and optionally
(c) compounds with a molecular weight of between 400 and 10,000 having at least two active hydrogen atoms, and optionally
(d) blowing agents, catalysts and other known additives,
the improvement which comprises using as component (b) products prepared by the condensation of formaldehyde in an aqueous reaction medium in the presence of metal compounds as catalysts and of compounds capable of enediol formation as cocatalysts, by introducing synthesis gases containing formaldehyde continuously or discontinuously at temperatures of between 10° and 150° C. into an absorption liquid comprising
(a) 5 to 99% by weight of water,
(b) 0.1 to 90% by weight of compounds capable of enediol formation as cocatalysts,
(c) 0 to 20% by weight of soluble or insoluble metal compounds as catalysts optionally bound to high molecular weight carriers, and
(d) 0 to 60% by weight of one or more monohydric or higher hydric low molecular weight alcohols and/or higher molecular weight polyhydroxyl compounds
and having a pH of 3 to 10, and the formaldehyde being condensed at the same time or, if the absorption solution contains no catalyst, the formaldehyde being condensed by the addition of catalyst, stopping the condensation of formaldehyde with itself by cooling and/or by inactivation of the catalyst with acids in known manner when the reaction mixture has a residual formaldehyde content of from 0 to 10% by weight; removing the catalyst in known manner; and reducing the aldehyde and keto groups present in the reaction product to hydroxyl groups.

4,379,863
COPOLYMER COMPOSITION AND DELIVERY SYSTEM FOR PROVIDING A PROTECTIVE BARRIER FILM FOR THE SKIN
Martin Snyder, North Plainfield, N.J., assignor to C. R. Bard, Inc., Murray Hill, N.J.
Filed Jan. 13, 1981, Ser. No. 224,700
Int. Cl.³ C08J *7/02*
U.S. Cl. 523—105 **19 Claims**

1. A film-former composition for application to the skin for providing a generally water insoluble, breathable skin barrier film for shielding peristomal skin, perineal skin and the like which comprises on the basis of weight from about 5% to about 12.5% of an acrylic resin selected from the group comprising butyl methacrylate, n-butyl/iso-butyl methacrylate copolymer dissolved in a physiologically acceptable relatively volatile solvent selected from C_3–C_{10} alkanols and including a and minor proportion of a physiologically acceptable plasticizer.

4,379,864
POLYMERIC COMPOSITIONS AND HYDROGELS FORMED THEREFROM
Paul M. Gallop, Chestnut Hill, and Donald R. Korb, Boston, both of Mass., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.
Division of Ser. No. 10,992, Feb. 9, 1979, Pat. No. 4,267,295. This application Mar. 5, 1981, Ser. No. 240,739
Int. Cl.³ C08F *220/20*
U.S. Cl. 523—106 **33 Claims**

1. A hydrogel comprising of hydrophilic polymer comprising the polymerization product of:
a first monomer comprising a dihydroxyalkyl acrylate or dihydroxyalkyl methacrylate,
a second monomer comprising a substantially water insoluble alkyl acrylate or alkyl methacrylate, the mole ratio of said first monomer to said second monomer varying within the range from about 1:3 to about 20:1;
a third monomer comprising a compound selected from the group consisting of:

$$CH_2{=}\overset{\displaystyle H}{\overset{|}{C}}{-}(CH_2)_n{-}R^3 \qquad (a)$$

where R^3 is hydroxyl, alkoxy having 1 to 6 carbon atoms, a sulfonic acid moiety,

$$-\overset{\displaystyle O}{\overset{\|}{C}}NR^4R^5 \text{ or } -\underset{\displaystyle R^4}{\underset{|}{N}}-\overset{\displaystyle O}{\overset{\|}{C}}-R^5,$$

wherein R^4 and R^5 are independently selected from the group consisting of hydrogen and an unsubstituted or substituted alkyl group having from 1 to about 3 carbon atoms, or R^4 and R^5 may be combined to form a cyclic group, and n is an integer from 0 to about 4, except that n must be at least 1 when R^3 is hydroxyl;

$$CH_2{=}\overset{\displaystyle CH_3}{\overset{|}{C}}{-}\overset{\displaystyle O}{\overset{\|}{C}}{-}R^6 \qquad (b)$$

where R^6 is hydroxyalkoxy having 1 to 6 carbon atoms or $-NR^7R^8$ where R^7 and R^8 are independently selected from hydrogen and lower alkyl groups having 1 to 4 carbon atoms;

$$CH_2{=}\overset{\displaystyle H}{\overset{|}{C}}{-}\overset{\displaystyle O}{\overset{\|}{C}}{-}R^9 \qquad (c)$$

where R^9 is hydroxyalkoxy having from 1 to about 6 carbon atoms or vinyl acetate; and
(d) mixtures thereof: the total of the molar quantities of said first and second monomers to the molar quantity of said third monomer being in the range of 1:1 to 1:0.2,
which is substantially hydrated with water.

4,379,865
BINDER FOR CASTING SAND AND RESIN-COATED GRAINS OF SAND
Kazuyuki Nishikawa, Toyohashi, and Katsumi Hirao, Akashi, both of Japan, assignors to Daicel Chemical Industries, Ltd., Osaka and Shinto Kogio, Ltd., Nagoya, both of, Japan
Filed Jan. 23, 1981, Ser. No. 227,875
Claims priority, application Japan, Feb. 1, 1980, 55-11322
Int. Cl.³ B22C *1/00, 11/22;* **C08G** *12/00, 12/12*
U.S. Cl. 523—139 **7 Claims**

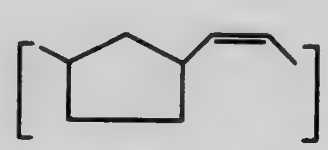
1. A composition consisting essentially of a mixture of approximately 43 to 60 wt. % of cellulose acetate which is soluble in acetone, has an acetylation degree of from 48 to 57% and has a limiting viscosity number of from 0.15 to 2.2 measured in an acetone solution thereof at 25° C., from 17 to 20 wt. % of a plasticizer for said cellulose acetate, and from 20 to 40 wt. % of a thermosetting resin precondensate selected from the group consisting of acetone-soluble alkylated methylolmelamines, acetone-soluble alkylated methylolureas and mixtures thereof.

4,379,866
PLUGGING REFRACTORY MATERIAL HAVING RESIN BINDER SYSTEM
Francis W. Henry, Jr., and Subrata Banerjee, both of Glen Burnie, Md., assignors to General Refractories Company, Bala Cynwyd, Pa.
Filed Sep. 14, 1981, Ser. No. 301,760
Int. Cl.³ C08G *8/28*
U.S. Cl. 523—140 **28 Claims**

1. A plugging refractory comprising a refractory material and a resin binder system, said resin binder system comprising a phenol-formaldehyde or resorcinol polymer resin and a formaldehyde-source, cross-linking agent, the formaldehyde-source, cross-linking agent being tris (hydroxymethyl) nitromethane.

4,379,867
WRITING MEDIUM FOR BALL POINT WRITING INSTRUMENT
Tsunoda Noriaki, No. 38, Shinmachi, Tanogun, Gunma-ken, Japan
Filed Aug. 6, 1981, Ser. No. 290,438
Int. Cl.³ C08K *5/10*
U.S. Cl. 523—161 **12 Claims**

1. A writing medium for a ball point writing instrument comprising:
a pigment at least as a colorant,
a polynorbornane represented by the following formula in a repetition unit, and



a solvent solution for dissolving said polynorbornane and containing a low boiling point organic solvent having a boiling point of less than 180° C. and a high boiling point organic solvent having a boiling point of higher than 300° C.

4,379,868
METHOD FOR PRODUCING HYDROPHILIC FILLERS FOR PLASTICS AND RUBBERS
Frantisek Juracka, Pardubice, and Slavko Hudecek, Prague, both of Czechoslovakia, assignors to Ceskoslovenska akademie ved, Prague, Czechoslovakia
Continuation of Ser. No. 912,202, Jun. 6, 1978, abandoned, which is a continuation-in-part of Ser. No. 691,705, Jun. 1, 1976, abandoned. This application Jul. 25, 1980, Ser. No. 172,426
Int. Cl.[3] C08L *47/00*
U.S. Cl. 523—201 **5 Claims**

1. A procedure for preparation of hydrophilic fillers for plastics and rubbers based on high-molecular weight compounds, insoluble in water, obtained by the copolymerization of unsaturated monomers insoluble in water and monomers soluble in water, especially suitable for the manufacturing of hygienic synthetic leathers, wherein a charge consisting of a monomer or a mixture of monomers insoluble in water selected from the group consisting of divinylbenzene, ethyleneglycol dimethacrylate and ethyleneglycol diacrylate is first subjected to emulsion polymerization until the conversion of the double bonds thereof is 40 to 70% complete, after which an addition consisting of a monomer or a mixture of monomers, soluble in water, selected from the group consisting of acrylic acid, methacrylic acid, and aminoesters and monoesters of polyhydric alcohols and amides thereof or their aqueous solution is added to the polymerizing dispersion, wherein the mass ratio of monomers insoluble and monomers soluble in water varies from 2:1 to 1:3 whereafter on completion of the polymerization the carboxylic groups, if desired, are neutralized in the latex-dispersion thus obtained.

4,379,869
CATIONIC LATICES AND THEIR ELECTRODEPOSITION
Bahram Siadat, and Joseph W. Raksis, both of Columbia, Md., assignors to W. R. Grace & Co., New York, N.Y.
Filed Jan. 15, 1981, Ser. No. 225,337
Int. Cl.[3] C08K *9/00*
U.S. Cl. 523—206 **15 Claims**

5. Method according to claim 1 in which the latex is made by copolymerizing diethyl amino ethyl methacrylate, butyl acrylate, methyl methacrylate, and ethyl acrylate.

4,379,870
REINFORCING MATERIAL FOR HYDRAULIC SUBSTANCES AND METHOD FOR THE PRODUCTION THEREOF
Hisashi Matsumoto, Iwakuni, Japan, assignor to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan
Continuation of Ser. No. 51,387, Jun. 25, 1979, Pat. No. 4,297,414. This application Jun. 30, 1981, Ser. No. 279,235
Claims priority, application Japan, Jul. 7, 1978, 53-81917; Jul. 17, 1978, 53-86182; Dec. 20, 1978, 53-160804
Int. Cl.[3] C08K *3/34;* **D02G** *3/00*
U.S. Cl. 523—221 **8 Claims**

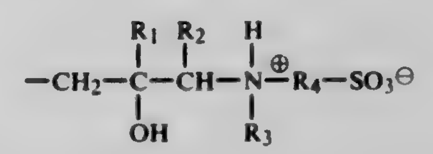
1. A formed product comprising a hydraulic substance containing therein a reinforcing material consisting essentially of an elongated, stretched product of a synthetic resin having a thickness of 100 to 50,000 denier, having a length of 5 to 100 mm and having discontinuous protrusions over its entire length, the height of the protrusions being not less than 0.1 mm.

4,379,871
PROCESS FOR THE PRODUCTION OF CARBON BLACK CONTAINING PIGMENT-SYNTHETIC RESIN CONCENTRATES
Peter Werle, Arnsberg; Hans Gräf, Rodenbach, and Erwin Walter, Hörstein, all of Fed. Rep. of Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt Vormals Roessler, Frankfurt am Main, Fed. Rep. of Germany
Continuation of Ser. No. 641,604, Dec. 17, 1975, abandoned. This application Dec. 30, 1977, Ser. No. 865,968
Claims priority, application Fed. Rep. of Germany, Jan. 9, 1975, 2500664
Int. Cl.[3] C08J *3/20*
U.S. Cl. 523—331 **40 Claims**

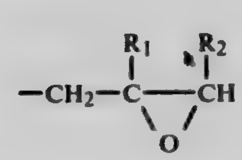
1. In a process for the production of a pigment-synthetic resin concentrate containing an organic solvent soluble polymer and carbon black having rapid distributability in organic solvent media, the improvement consisting essentially of continuously homogenizing in a mixer (1) a carbon black containing pigment powder and (2) an organic solvent soluble synthetic resin with (3) an organic solvent for said synthetic resin as the sole solvent and in an amount sufficient to dissolve the synthetic resin, dispersing the pigment in the mixture, removing the solvent from the dispersion by drying and comminuting the resulting pigment-synthetic resin concentrate.

4,379,872
AMPHOTERIC AMINO SULFONATE DERIVATIVES OF EPOXY RESINS
Shin-Ichi Ishikura, Kyoto; Kazunori Kanda, Yao, and Ryuzo Mizuguchi, Yawata, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan
Filed Aug. 17, 1981, Ser. No. 293,077
Claims priority, application Japan, Aug. 22, 1980, 55-116292; Aug. 22, 1980, 55-116293
Int. Cl.[3] C08G *59/14;* **C08L** *63/00*
U.S. Cl. 523—406 **11 Claims**

1. A water-dispersible modified epoxy resin composition having at least one terminal amphoteric amino sulfonate group of the formula:



wherein R_1 and R_2 are hydrogen or methyl, R_3 is hydrogen or C_1–C_{20} alkyl optionally substituted with higher alkylsulfinyl or higher alkanoyloxy, and R_4 is C_1–C_6 alkylene optionally substituted with 2-hydroxyethyl, said composition being a reaction product of an epoxy resin having a plurality of terminal groups of the formula:



wherein R_1 and R_2 are as defined, with an amino sulfonate of the formula:

R_3—NH—R_4—SO_3M

wherein R_3 and R_4 are as defined, and M is a cation, with removal of said cation.

4,379,873

PROCESS FOR SETTING A LATEX OF A FILM FORMING POLYMER

Douglas Wilson, Weybridge, England, assignor to The British Petroleum Company Limited, London, England

Filed Jul. 23, 1981, Ser. No. 286,189

Claims priority, application United Kingdom, Aug. 1, 1980, 8025260

Int. Cl.³ C08K *3/34*

U.S. Cl. 524—7 **1 Claim**

1. A process for the delayed action setting of a composition comprising an anionic latex of polychloroprene or a styrene-butadiene rubber by the addition of a delayed action setting agent characterized in that the setting agent is a mixture of (1) a compound containing a multivalent metal cation, which metal cation compound has a solubility in the range of 0.1 g to 150 g per 100 C of water at 20° C. and which has a dissolution time greater than one minute selected from the group consisting of aluminum acetate, barium nitrate, cupric sulfate, lead acetate, calcium sulphate, calcium sulfate dihydrate, calcium sulfate hemihydrate, ferrous sulfate, cupric acetate, magnesium acetate, and magnesium carbonate, and (2) and alkali metal silico fluoride.

4,379,874

POLYMER COMPOSITION COMPRISING POLYACRYLONITRILE POLYMER AND MULTI-BLOCK COPOLYMER

Vladimir A. Stoy, 92 Clover La., Princeton, N.J. 08540

Filed Jul. 7, 1980, Ser. No. 166,032

Int. Cl.³ C08L *53/00, 33/20*

U.S. Cl. 524—27 **10 Claims**

1. A novel polymer composition comprised of polyacrylonitrile polymer and a multiblock copolymer with acrylonitrile and non-crystalline polymer sequences with an average number of said sequences per multiblock copolymer being equal and at least 2, said acrylonitrile sequence having a mean molecular weight of at least 500, said non-crystalline polymer sequence being comprised of at least about 10 units and constituting one or more highly polar units selected from the group consisting of acrylamide, N-substituted acrylamide, acrylic acid, esters of acrylic acid, salts of acrylic acid, hydrazides of acrylic acid and glutarimide.

4,379,875

COALESCING AID FOR HIGH NITRILE COPOLYMER LATEX COATINGS

Kenneth E. Samuels, Twin Lakes, and Wayne T. Wiggins, Aurora, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Dec. 31, 1980, Ser. No. 221,751

Int. Cl.³ C08K *5/34*

U.S. Cl. 524—104 **11 Claims**

1. A coating composition comprising a blend of (1) a latex produced by the polymerization of a major proportion of a monounsaturated nitrile and a minor proportion of at least one monovinyl monomer component copolymerizable therewith optionally in the presence of a preformed diene rubber, and (2) a coalescing agent which is (a) a solvent for (1), (b) has a boiling point between 100° and 300° C., and (c) does not azeotrope with water.

4,379,876

METHYL METHACRYLATE-BUTADIENE-STYRENE IMPACT MODIFIER POLYMERS, POLYVINYL CHLORIDE, COMPOSITIONS AND METHODS

Richard R. Clikeman, Newtown, Pa.; Donald H. Jones, Vincentown, N.J.; Thomas J. Shortridge, Levittown, and Edward J. Troy, Bristol, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Jul. 11, 1980, Ser. No. 167,510

Int. Cl.³ C08K *5/05, 5/13;* **C08F** *220/14*

U.S. Cl. 524—109 **7 Claims**

1. Impact modifier composition comprising a methyl methacrylate-butadiene-styrene polymer prepared in two or more stages and containing about 50 to 90 parts polybutadiene or compolymer of polybutadiene and about 0.01 to 5 percent by weight of 1,1,3-tris (2-methyl-4-hydroxy-5-tert-butyl phenyl) butane.

4,379,877

FIRE RETARDANT THERMOPLASTIC MOLDING COMPOSITIONS

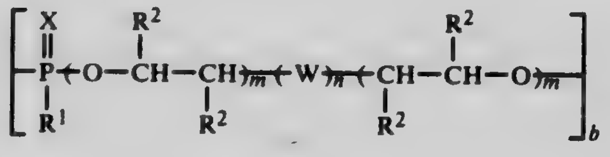
Usama E. Younes, West Chester, Pa., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Oct. 26, 1981, Ser. No. 314,648

Int. Cl.³ C08K *5/52, 5/53;* **C08L** *85/02*

U.S. Cl. 524—123 **3 Claims**

1. A thermoplastic molding composition comprising a homogeneous mixture of a copolymer of a monovinyl aromatic monomer and an alpha, beta-unsaturated cyclic anhydride and an alternating copolymer having the formula:



wherein R^1 represents a halogen, a (C_1 to C_{10}) alkyl or halogenated (C_1 to C_{10}) alkyl group, hydroxy, a (C_1 to C_{10}) alkoxy or halogenated (C_1 to C_{10}) alkoxy group, an aryl or halogenated aryl group, and an aryloxy or halogenated aryloxy group; X may or may not be present and represents oxygen or sulfur; W represents at least one monomer selected from the group consisting of dienes, styrenes, vinylidene chloride, vinyl esters, acrylic and methacrylic esters, and acrylonitrile; each R^2 separately represents hydrogen, a (C_1 to C_4) alkyl group, or an aryl group; n represents an integer equal to or greater than 2; each m separately represents an integer from 1 to 20, and b represents an integer from 2 to 1000.

4,379,878

FOOD-GRADE VINYL HALIDE POLYMER COMPOSITIONS STABILIZED WITH MONOALKYLTIN COMPOUNDS

William A. Larkin, Morristown, N.J., assignor to M&T Chemicals Inc., Woodbridge, N.J.

Continuation-in-part of Ser. No. 913,795, Jun. 8, 1978, abandoned, which is a continuation-in-part of Ser. No. 707,702, Jul. 22, 1976, abandoned, which is a continuation of Ser. No. 343,648, Mar. 22, 1973, abandoned. This application Oct. 13, 1981, Ser. No. 310,954

Int. Cl.³ C08K *5/58*

U.S. Cl. 524—181 **25 Claims**

1. A stabilized vinyl halide polymer composition suitable for contact with food containing more than 0.15 parts per 100 parts of polymer of monoalkyltin compounds of formula:

$$n\text{—}C_8H_{17}Sn(SCH_2COOR)_3$$

where R is a linear or branched alkyl group of 8 carbon atoms.

4,379,879

HEAT RESISTANT RESIN COMPOSITION AND INSULATING WIRE USING THE SAME WHICH IS A COMPOSITION OF AN ACTIVE HYDROGEN COMPOUND AND THE REACTION PRODUCT OF A POLYVALENT ISOCYANATE AND A POLYVALENT CARBOXYLIC ACID ANHYDRIDE IN AN ORGANIC SOLVENT

Yasunori Okada, and Shozo Kasai, both of Hitachi, Japan, assignors to Hitachi Chemical Co., Ltd., Tokyo, Japan

Filed Sep. 3, 1981, Ser. No. 299,110

Claims priority, application Japan, Jul. 2, 1980, 55-91180

Int. Cl.³ C08L *79/08*

U.S. Cl. 524—186 **18 Claims**

1. A heat resistant resin composition comprising:

(A) a reaction product obtained by reacting

(a) a polyvalent isocyanate having two or more isocyanate groups in the molecule,

(b) a polyvalent carboxylic acid having one or more acid anhydride groups in the molecule or a functional derivative thereof, and, if necessary,

(c) A polyvalent carboxylic acid having two or more carboxyl groups in the molecule or a functional derivative thereof,

in an organic solvent, and

(B) a compound having one or more active hydrogens in the molecule except for a phenolic compound,

said composition being able to be heated or not heated; and

from 0.1 to 10% by weight of said compound (B), based on the weight of the reaction product (A) being added to reaction product (A) to form said composition.

4,379,880

VINYL HALIDE POLYMER OF ENHANCED PLASTICIZER UPTAKE

William L. Schall, Grand Island, N.Y., assignor to Occidental Chemical Corporation, Niagara Falls, N.Y.

Continuation-in-part of Ser. No. 193,560, Oct. 3, 1980, Pat. No. 4,342,845. This application Aug. 5, 1981, Ser. No. 290,127

Int. Cl.³ C08F *2/02, 114/06;* **C08K** *5/11*

U.S. Cl. 524—297 **16 Claims**

1. A process for preparing a vinyl chloride polymer which comprises (a) polymerizing a reaction charge in bulk liquid phase in the presence of a polymerization initiator and an inert diluent consisting essentially of isobutane in an amount from about 0.1 to less than 50 weight percent of the reaction charge, said charge comprising vinyl chloride as the sole polymerizable monomer and (b) reducing the pressure on the resultant polymerized reaction charge to separate polymer product from diluent and unreacted monomer.

11. The polymer product of the process of claim 1.

12. The product of claim 11 containing a liquid organic plasticizer for vinyl halide polymer.

4,379,881

ADHESIVE SUITABLE FOR APPLICATION TO SKIN

Roger F. Peck, Stansted Mountfitchet, England, assignor to Smith and Nephew Associated Companies Limited, England

Filed Mar. 5, 1981, Ser. No. 240,987

Claims priority, application United Kingdom, Mar. 5, 1980, 8007410

Int. Cl.³ C08K *5/10*

U.S. Cl. 524—315 **9 Claims**

1. An adhesive linear polyacrylate which has a K value of 90 to 110 and consists of 34% to 62% of n-butyl acrylate residues 62% to 34% of 2-ethylhexyl acrylate residues and 4% to 8% of acrylic acid residues.

4,379,882

HALOGEN-CONTAINING POLYOLEFIN COMPOSITION, AND METHOD FOR INACTIVATING HALOGENS THEREIN

Shigeo Miyata, Takamatsu, Japan, assignor to Kyowa Chemical Industry Co., Ltd., Tokyo, Japan

Filed Nov. 10, 1981, Ser. No. 320,116

Claims priority, application Japan, Nov. 12, 1980, 55-158152

Int. Cl.³ C08K *3/20;* **C08F** *6/00*

U.S. Cl. 524—436 **6 Claims**

1. A polyolefin composition consisting essentially of

(a) 100 parts by weight of a polyolefin containing halogens derived from a polymerization catalyst and/or attributed to the after-halogenation of the polymer, and

(b) about 0.001 to about 10 parts by weight of an aluminum-magnesium hydroxide represented by the following formula

$$Mg_{1-x}Al_x(OH)_{2+x}\cdot mH_2O \qquad (1)$$

wherein x is a positive number represented by $0<x\leqq0.5$ and m is a positive number represented by $0\leqq m<2$, and having a BET specific surface area of no more than about 40 m^2/g.

4,379,883

CHEMICALLY-INITIATED INVERSE EMULSION POLYMERIZATION WITH Na, Li/Cl, Br SALT

David C. Zecher, Frederick, Md., assignor to Hercules Incorporated, Wilmington, Del.

Continuation of Ser. No. 106,214, Dec. 21, 1979, abandoned. This application Aug. 4, 1981, Ser. No. 289,847

Int. Cl.³ C08F *2/32*

U.S. Cl. 524—801 **10 Claims**

1. In a chemically initiated water-in-oil emulsion polymerization process for making water-soluble anionic copolymers from at least two water-soluble, ethylenically unsaturated, addition polymerizable monomers, at least one of which is anionic, the improvement comprising: adding a salt selected from the group consisting of NaCl, NaBr, LiCl and LiBr to the aqueous phase of the water-in-oil emulsion prior to polymerization, and dispersing the aqueous phase and oil phase whereby the droplet size of the aqueous phase in the resulting emulsion is about 5 microns or less.

4,379,884

COPOLYMER BLEND OF IMPROVED IMPACT RESISTANCE

Fay W. Bailey, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 30, 1981, Ser. No. 335,771

Int. Cl.³ C08L *53/02*

U.S. Cl. 525—96 **13 Claims**

1. A composition comprising:

(a) resinous, non-elastomeric block copolymer of conjugated diene and vinylarene and (b) copolymer of monovinylarene and olefinically unsaturated nitrile having the structure

$$\begin{array}{c} CH_2{=}\underset{\displaystyle R}{\underset{|}{C}}{-}CN \end{array}$$

wherein R is a member of the group consisting of hydrogen, an alkyl group having from 1–6 carbon atoms and a halogen; and wherein the amount of (b) in said composition ranges up to about 30 weight percent based upon the total weight of (a) and (b).

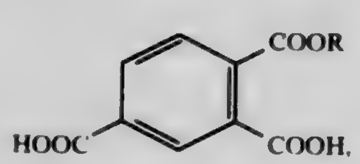
4,379,885
FLUOROCARBON COATING COMPOSITIONS
John D. Miller, Springdale, Pa., and Valentine J. Grunewalder, Bayville, N.J., assignors to PPG Industries, Inc., Pittsburgh, Pa.
Filed Dec. 29, 1980, Ser. No. 220,679
Int. Cl.³ C08L *63/00*
U.S. Cl. 525—108 **6 Claims**

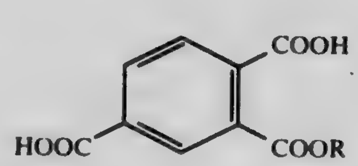
1. A coating composition having a resin solids content of from about 15% to about 35% and being especially useful as a primer for substrates consisting essentially of, on a resins solids basis:

(a) from about 10% to about 15% of a polyepoxide resin;
(b) from about 30% to about 45% of a thermoplastic acrylic resin; and
(c) from about 40% to about 55% of a fluorocarbon resin.

4,379,886
LIQUID COATING COMPOSITION HAVING A REACTIVE CATALYST
Joseph E. McLaughlin, and George A. Strickland, both of Philadelphia, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Division of Ser. No. 144,299, Apr. 28, 1980. This application Jul. 2, 1981, Ser. No. 280,132
Int. Cl.³ C08L *61/28, 61/24*
U.S. Cl. 525—162 **5 Claims**

1. A thermosetting coating composition comprising a binder of a film forming acrylic polymer or polyester polymer having reactive hydroxyl groups, carboxyl groups or methylol groups and a crosslinking agent selected from the group consisting of melamine formaldehyde resin, alkylated melamine formaldehyde resin, urea formaldehyde resin or benzoguanamine formaldehyde resin and about 0.1-10% by weight, based on the weight of the coating composition, of reactive catalyst which is a solid at 30° C. and comprises a structure selected from the group of





and mixtures thereof;
wherein R is the residue of neodecanol or 2-ethyl 1,3-hexanediol.

4,379,887
ADHESIVE COMPOSITION
Noel M. M. Overbergh, Bertem, Belgium, assignor to Raychem Corporation, Menlo Park, Calif.
Continuation of Ser. No. 262,873, May 12, 1981, abandoned. This application Mar. 31, 1982, Ser. No. 364,087
Claims priority, application United Kingdom, May 12, 1980, 8015576
Int. Cl.³ C08L *77/07*
U.S. Cl. 525—184 **31 Claims**

1. An adhesive composition produced by mixing a thermoplastic polyamide having reactive amine groups attached to the polyamide molecule with a vinyl-terminated rubber.

4,379,888
COMPOSITION FOR DRAWN FILM, COLD DRAWN FILM MADE OF SAID COMPOSITION AND PROCESS FOR MANUFACTURE OF SAID FILM
Isao Yoshimura, Fujisawa; Hideo Hata, and Takashi Kaneko, both of Yokohama, all of Japan, assignors to Asahi-Dow Limited, Tokyo, Japan
Division of Ser. No. 949,253, Oct. 6, 1978, Pat. No. 4,277,578. This application Dec. 5, 1980, Ser. No. 213,459
Claims priority, application Japan, Oct. 11, 1977, 52/120917; Nov. 22, 1977, 52/139431; May 30, 1978, 53/63870; May 30, 1978, 53/63872
Int. Cl.³ C08L *23/06, 23/08, 23/12, 23/16, 23/20*
U.S. Cl. 525—211 **37 Claims**

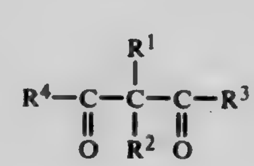
1. A cold drawn film having a tensile strength of not less than 5.0 kg/mm^2 and a haze of not more than 4.0%, which film comprises a homogeneous blend of the specific combination of components, namely the combination of (A)+(B)+(C), wherein

(A) is at least one selected from the group consisting of low-density polyethylene, and low-density polyethylene admixed with copolymers of ethylene with vinyl ester monomers, unsaturated aliphatic monocarboxylic acids and alkyl esters of said monocarboxylic acids which are all copolymerizable with ethylene,
(B) is an elastomer having a density of not more than 0.91 g/cm^3 and made of an ethylene-α-olefin copolymer, and
(C) is at least one selected from the group consisting of crystalline polypropylene, high-density polyethylene and crystalline polybutene-1, wherein the components of the composition are in amounts such as to satisfy $0.90 \geqq B/(A+B) \geqq 0.05$ and $0.05 \geqq C/(A+B) \geqq 2.0$ in terms in weight ratio.

4,379,889
PROCESS FOR PRODUCING POLYBUTADIENE RUBBER WITH ENHANCED MECHANICAL STRENGTH
Hidetomo Ashitaka; Kyohei Oizumi, both of Ichihara; Kazuya Jinda, Kisarazu, and Kazutoshi Inaishi, Ichihara, all of Japan, assignors to Ube Industries, Ltd., Chiba, Japan
Filed Dec. 16, 1980, Ser. No. 216,869
Claims priority, application Japan, Dec. 20, 1979, 54-164773
Int. Cl.³ C08F *4/12, 136/06*
U.S. Cl. 525—247 **17 Claims**

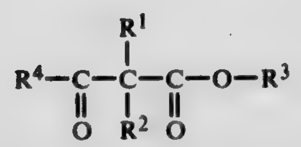
1. A process for producing a polybutadiene rubber with enhanced mechanical strength, comprising the two successive steps of:

(A) polymerizing a first polymerization mixture comprising 1,3-butadiene and a polymerization medium in the presence of a cis-1,4-polymerization catalyst which comprises:
(1) a cobalt compound selected from the group consisting of cobalt complexes with beta-diketones of the formula (II):



(II)

wherein R^1 and R^2 represent an aliphatic hydrocarbon radical having 1 to 3 carbon atoms, respectively, and R^3 and R^4 represent at least one member selected from the group consisting of a hydrogen atom and an aliphatic hydrocarbon radical having 1 to 3 carbon atoms, respectively; a cobalt complex with β-keto acid esters of formula (III):



(III)

wherein R^1, R^2, R^3 and R^4 are as defined above; cobalt salts of an organic carboxylic acid having 6 or more carbon atoms; and a cobalt halide complex of the formula (IV):

$$CoXnYm \qquad (IV)$$

wherein X represents a halogen atom, n represents an integer of 2 or 3, Y represents an organic ligand capable of forming a complex in coordination with the cobalt halide and m represents an integer of from 1 to 4, and

(2) a dialkyl aluminum halide of the formula (I):

$$AlR_2X \qquad (I)$$

wherein R represents an alkyl radical having 2 to 8 carbon atoms and X represents a halogen atom, to convert at least a portion of the amount of said 1,3-butadiene to a cis-1,4-polybutadiene; and

(B) polymerizing a second polymerization mixture comprising the resultant cis-1,4-polybutadiene from Step (A), unreacted 1,3-butadiene and a polymerization medium in the presence of a 1,2-polymerization catalyst which comprises:

1. said cobalt compound;
2. said dialkyl aluminum halide;
3. carbon disulfide; and
4. an electron donor organic compound selected

from the group consisting of an aliphatic polyether, an aliphatic carboxylic ester, an aliphatic ketone, an aliphatic acetal, an aliphatic N,N-dialkyl amide, an aliphatic dialkyl sulfoxide and a trialkyl phosphate, to convert said cis-1,4-polybutadiene and said 1,3-butadiene to a polybutadiene rubber, whereby the resultant polybutadiene rubber comprises 70% to 95% by weight of a boiling n-hexane-soluble fraction thereof having an intrinsic viscosity of from 1 to 5 determined in toluene at a temperature of 30° C. and containing 95% or more of a cis-1,4-structure, and 5% to 30% by weight of a boiling n-hexane-insoluble fraction having a reduced viscosity of from 0.5 to 5, determined in tetrahydronaphthalene at a temperature of 135° C., and a melting point of 180° C. or more, and containing 85% or more of a 1,2-structure.

4,379,890

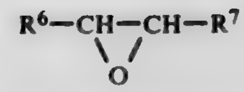
WATER-SOLUBLE POLYMERS CARRYING QUATERNARY AMMONIUM GROUPS, THEIR PREPARATION AND USE

Alfred Konietzny, and Wilfried Bartz, both of Marl, Fed. Rep. of Germany, assignors to Chemische Werke Huels, Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Jul. 9, 1981, Ser. No. 281,796
Claims priority, application Fed. Rep. of Germany, Jul. 11, 1980, 3026300
Int. Cl.³ C08F *8/32*
U.S. Cl. 525—332.8 **12 Claims**

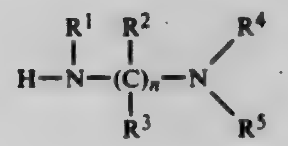
1. A water-soluble polymer having quaternary ammonium groups, prepared by reacting
(a) a low molecular weight alkylating agent with
(b) a corresponding polymer carrying tertiary, quaternizable amino groups,

wherein
(a) is a low molecular weight oxirane of the formula

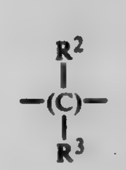


wherein R^6 and R^7 each independently is hydrogen or alkyl of 1 or 2 carbon atoms optionally substituted by hydroxy or chloride or R^6 or R^7 together represent a 1,3-propylene or 1,4-butylene chain forming a five- or six-membered ring with the carbon atoms of the oxirane;
(b) is a polymer which is prepared by epoxidizing up to a content of titratable epoxy oxygen of 2–10 weight %, a polymer of 1,3 butadiene monomer having a molecular weight (M_n) of 500–6,000, and prepared from at least 70 mole % of 1,3-butadiene and up to 30 mole % of another copolymerizable 1,3-diolefin or an α-unsaturated monoolefin,

aminating the resultant epoxidation product with a primary-tertiary or secondary-tertiary diamine of the formula



wherein,
R^1 is hydrogen and
n is an integer of 2 to 6,
R^2 and R^3 each independently is hydrogen of alkyl of 1–4 carbon atoms,



represents the same or different chain members, and
R^4 and R^5 each independently is straight chain alkyl of 1–4 carbon atoms optionally substituted by hydroxy or alkoxy of 1–4 carbon atoms, excluding the α-position of the alkyl residue as a point of substitution, or R^4 and R^5 together can form a five- or six-membered ring together with the tertiary nitrogen atom; or
R^1 is alkyl of 1 or 2 carbon atoms, optionally substituted by hydroxy or alkoxy of 1 or 2 carbon atoms, excluding the α-position of the alkyl residue,
n and R^2 through R^5 are as defined above, and
when n is 2 and R^2 and R^3 each is hydrogen, then R^1 and R^4 together with the two nitrogen atoms can also form a six-membered ring,
up to a content of tertiary, quaternizable amino groups of 0.05–0.5 mole/100 g of the amination product, said groups being located in the side chain and linked to a carbon atom stemming either from the primary chain or from a vinyl group of the polymer via 3–7 chain atoms, and
in the quaternization reaction, 0.05–0.5 mole of the tertiary amino groups/100 g of the amination product are quaternized.

4,379,891

MULTIFUNCTIONAL COUPLING AGENT

George R. Haynes, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Jun. 15, 1981, Ser. No. 274,111
Int. Cl.³ C08F *36/06*
U.S. Cl. 525—342 **10 Claims**

1. A process for the production of a polymer comprising reacting a living lithium-terminated polymer having the formula P-Li wherein P is selected from the group consisting of polymer chains of one or more alkadienes having 4–12 carbon atoms and copolymer chains of one or more alkadienes having

4–12 carbon atoms and one or more monoalkenyl arenes of 8–18 carbon atoms, having the alkenyl radical attached to an arene ring carbon atom, with a coupling agent of the general formula

$$(R_1\text{—}O)_3\text{—Si—}R_2\text{—O—}R_2\text{—Si}(\text{O—}R_1)_3$$

wherein R_1 is an alkyl group of 1 to 4 carbon atoms and R_2 is an alkylene group of 2 to 10 carbon atoms.

4,379,892

METHOD FOR PREVENTION OF LOSS OF TRANSPARENCY OF POLYARYLENE ESTER BLENDS

Katsuzi Ueno, Hirakata; Takashi Maruyama, Toyonaka; Haruo Suzuki, Ibaraki, and Teruo Saito, Takatsuki, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Continuation of Ser. No. 46,672, Jun. 8, 1979, abandoned, which is a continuation of Ser. No. 847,911, Nov. 2, 1977, abandoned. This application Apr. 6, 1981, Ser. No. 251,071

Claims priority, application Japan, Nov. 2, 1976, 51-132041

Int. Cl.³ C08L *67/00, 69/00*

U.S. Cl. 525—439 **6 Claims**

1. A polyarylene ester blend consisting essentially of: (a) a polyarylene ester prepared by an interfacial polymerization process comprising mixing an aqueous solution of a bisphenol and an effective catalytic amount of sodium hydroxide with a solution of an aromatic dicarboxylic acid chloride in an organic solvent and vigorously agitating the mixture and (b) a thermoplastic polyester resin, said blend having present a sodium content of less than 70 ppm and being capable of forming a transparent shaped article which can be treated under conditions of high temperature and high moisture without loss of transparency.

4,379,893

SURFACE-TREATED SOFT CONTACT LENSES

Mary A. O'Malley, Cleveland Heights, and Nancy J. Drake, Painesville, both of Ohio, assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Aug. 26, 1981, Ser. No. 296,379

Int. Cl.³ C08L *39/06*

U.S. Cl. 525—386 **10 Claims**

1. A process for producing a soft contact lens resistant to the diffusion and accumulation therein of substances which promote its clouding and discoloration in use, which process comprises employing a hydrophilic polymer lens shape which is selected from the group consisting of hydroxyethyl methacrylate-N-vinyl pyrrolidone copolymers, hydroxyethyl methacrylate-N-vinyl pyrrolidone-methyl methacrylate terpolymers, and polymerized mixtures of hydroxyethyl methacrylate, amyl methacrylate, vinyl acetate and vinyl propionate, and treating said hydrophilic polymer lens shape with a modifying compound which is a lower alkyl ester of an alkylene dicarboxylic acid having the structural formula:

$$RO\text{—}\overset{\overset{\displaystyle O}{\|}}{C}\text{—}(CH_2)_m\text{—}\overset{\overset{\displaystyle O}{\|}}{C}\text{—}OR$$

wherein R can be CH_3 or C_2H_5; and m is an integer of 1–6, inclusive, the treatment being conducted for a sufficient period of time to structurally modify a portion of polymer molecules in the outer surfaces of said hydrophilic polymer lens shape by incorporating therein the modifying compound through its functional groups.

4,379,894

AQUEOUS PROCESS FOR THE QUANTITATIVE CONVERSION OF POLYEPICHLOROHYDRIN TO GLYCIDYL AZIDE POLYMER

Milton B. Frankel, Tarzana; Edward F. Witucki, Van Nuys, and Dean O. Woolery, II, Reseda, all of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Dec. 14, 1981, Ser. No. 330,405

Int. Cl.³ C08G *65/24, 65/32*

U.S. Cl. 525—403 **21 Claims**

1. An aqueous process for the quantitative conversion of polyepichlorohydrin (PECH) to glycidyl azide polymer (GAP), comprises the steps of:

combining said PECH and an ionic azide in a mixture of water and a phase transfer catalyst capable of the quantitative conversion of PECH to GAP;

reacting said PECH and said ionic azide in said aqueous mixture while agitating said mixture at a temperature between about 25° C. and about 100° C., and wherein said aqueous mixture is maintained under a nitrogen purged environment; and

recovering said GAP from said aqueous mixture by separating the aqueous layer from the product layer;

water-washing said product layer to remove any inorganic salts remaining in the product layer;

alcohol-washing said water-washed product layer so as to remove said phase transfer catalyst;

dissolving said alcohol-washed product layer in a low-boiling, non-polar solvent;

purifying said dissolved product layer by passing it through adsorbents capable of removing impurities; and

concentrating said purified product layer so as to remove said low-boiling non-polar solvent.

4,379,895

ACID-CAPPED POLYESTER RESINS

Harlan W. Frerking, Jr., Alliance, and Mellis M. Kelley, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jan. 28, 1982, Ser. No. 343,619

Int. Cl.³ C08F *283/00;* **C08G** *63/76*

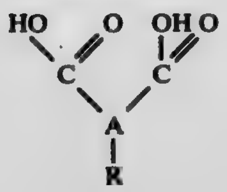
U.S. Cl. 525—437 **18 Claims**

1. A process for preparing an acid capped polyester resin, suitable for use in powdered polyester resins, comprising the steps of:

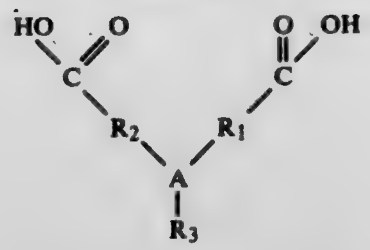
reacting a diester with a diol, said diester selected from the group consisting of an alkyl diester having from 4 to 50 carbon atoms, an alkyl substituted aryl diester having from 10 to 24 carbon atoms, and combinations thereof, said diester optionally containing from about 0.01 percent to about 30 mole percent of a diacid selected from the group consisting of an alkyl dicarboxylic acid having from 2 to 16 carbon atoms, an aryl dicarboxylic acid having from 8 to 16 carbon atoms, an alkyl substituted aryl dicarboxylic acid having from 9 to 16 carbon atoms, a dimer acid having from 34 to 40 carbon atoms, and combinations thereof; said diol having from 2 to 50 carbon atoms; the mole ratio of said diol to said diester and diacid ranging from about 1.20 to about 2.5, and forming the polyester resin having hydroxyl groups thereon;

adding from about 0.01 to 1 mole of an acid for each hydroxyl equivalent in said polyester resin, said acid selected from the group consisting of an alkyl dicarboxylic acid having from 2 to 20 carbon atoms; a dimer acid having from 34 to 40 carbon atoms, an acid of Formula No. 1; an acid of Formula No. 2; and combinations thereof;

FORMULA 1



FORMULA 2



where A is an aromatic compound having from 6 to 18 carbon atoms, where R is an alkyl having from 1 to 18 carbon atoms, or a carboxylic acid group, or hydrogen, where R_1 and R_2 are an alkyl having from 1 to 18 carbon atoms, and where R_3 is an alkyl having from 1 to 18 carbon atoms, or an alkyl carboxylic acid group having from 1 to 18 carbon atoms, or hydrogen, and wherein R_1 and R_2 can be the same or different;

heating and reacting said acid with said polyester resin at a temperature of from about 180° C. to about 280° C. to acid cap said polyester; and

carrying out said reaction until said polyester resin acid number is from about 1 to about 100 and the amount of remaining free acid is less than 20 percent of the added amount.

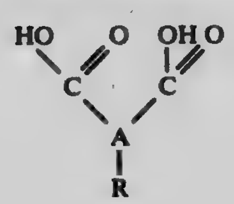
10. An acid capped polyester resin suitable for use as a powdered polyester resin, comprising:

an acid capped polyester resin, said acid capped polyester resin having an acid number of from about 1 to about 100;

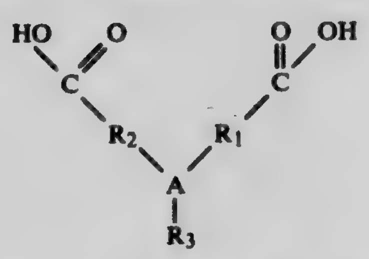
said acid capped polyester resin made by reacting an acid with a polyester having hydroxyl groups thereon;

said acid capped polyester made by adding from about 0.01 to 1 mole of an acid for each hydroxyl equivalent in said polyester resin, said acid selected from the group consisting of an alkyl dicarboxylic acid having from 2 to 20 carbon atoms, a dimer acid having from 34 to 40 carbon atoms, an acid of Formula No. 1, or an acid of Formula No. 2

FORMULA 1



FORMULA 2



where A is an aromatic compound having from 6 to 18 carbon atoms, where R is an alkyl having from 1 to 18 carbon atoms, or a carboxylic acid group, or hydrogen, wherein R_1 and R_2 are an alkyl having from 1 to 18 carbon atoms, and where R_3 is an alkyl having from 1 to 18 carbon atoms, or an alkyl carboxylic acid group having from 1 to 18 carbon atoms, or hydrogen, wherein R_1 and R_2 can be the same or different;

said reaction of said capping acid with said polyester having hydroxyl groups being carried out at a temperature of from about 180° C. to about 280° C. and to an extent such that the amount of remaining free acid is less than 20 percent of the added amount;

said polyester resin made by reacting a diester with a diol, said diester selected from the group consisting of an alkyl diester having from 4 to 50 carbon atoms, an alkyl substituted aryl diester having from 10 to 24 carbon atoms, and combinations thereof, said diester optionally containing from about 0.01 percent to about 30 mole percent of a diacid selected from the group consisting of an alkyl dicarboxylic acid having from 2 to 16 carbon atoms, an aryl dicarboxylic acid having from 8 to 16 carbon atoms, an alkyl substituted aryl dicarboxylic acid having from 9 to 16 carbon atoms, a dimer acid having from about 34 to about 40 carbon atoms, and combinations thereof, said diol having from 2 to 50 carbon atoms; the mole ratio of said diol to said diester and diacid ranging from about 1.20 to about 2.5, and forming a polyester having hydroxyl groups thereon.

4,379,896

KETO/POLYCARBOXY CONTAINING RESIN

Joseph G. Robinson, Winchcombe; David I. Barnes, Cheltenham, and Angela M. Carswell, Longhope, all of England, assignors to Coal Industry (Patents) Limited, England

Division of Ser. No. 174,152, Jul. 31, 1980, Pat. No. 4,346,212. This application Dec. 23, 1981, Ser. No. 333,886

Claims priority, application United Kingdom, Sep. 21, 1979, 7932778

Int. Cl.³ C08G *2/30*

U.S. Cl. 525—472 **1 Claim**

1. A keto/polycarboxyl containing resin comprising an acid-catalysed phenanthrene-formaldehyde reaction product which has been oxidised to produce keto groups bridging the phenanthrene moieties and carboxyl groups.

4,379,897

COLOR-DEVELOPER FOR PRESSURE-SENSITIVE SHEETS

Makoto Asano; Yoshimitu Tanabe, and Hisamichi Murakami, all of Yokohama, Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed Mar. 17, 1981, Ser. No. 244,717

Claims priority, application Japan, Mar. 28, 1980, 55-39098; Mar. 31, 1980, 55-40395

Int. Cl.³ C08G *8/18, 8/24, 8/28*

U.S. Cl. 525—506 **14 Claims**

1. A color-developer for pressure-sensitive recording sheets, said color-developer comprising a polyvalent metal salt of a co-condensate obtained by co-condensing a reaction intermediate of at least one p-substituted phenol with at least one trifunctional or higher phenol selected from phenol, 4,4'-isopropylidene-bisphenol, 4,4'-cyclohexylidene-biphenol and 4,4'-biphenol-sulfon under neutral or acidic conditions, said reaction intermediate being obtained by reacting said p-substituted phenol under alkaline conditions with formaldehyde or a substance capable of generating formaldehyde.

4,379,898

POLYMERIZATION CATALYSTS

Charles M. Selman, and Lawrence M. Fodor, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 55,426, Jul. 6, 1979, Pat. No. 4,276,192. This application Feb. 10, 1981, Ser. No. 233,267

Int. Cl.³ C08F *4/02, 10/00*

U.S. Cl. 526—124 **11 Claims**

1. A process comprising contacting at least one mono-1-olefin having 2 to 8 carbon atoms per molecule under polymerization conditions with a catalyst formed by contacting

(a) magnesium metal,

(b) an organic halide of the formula R'X or $R''X_2$ where X represents a halogen, R' is selected from alkynyl, alkenyl, alkyl, aryl, cycloalkenyl or cycloalkyl radicals and combinations thereof containing from 1 to 12 carbon atoms per molecule and R" is a saturated divalent aliphatic hydrocarbyl radical having from 2 to about 10 carbon atoms and

(c) a titanium tetrahalide and subjecting same to intensive milling in the presence of

(d) a triaryl phosphite

(e) an anhydrous aluminum trihalide and

(f) magnesium oxide but in the absence of a complexing or extraneous diluent

thereafter activating the thus produced titanium catalyst component by contacting same with

(g) an activator comprising a trialkylaluminum compound, a dialkylaluminum chloride, and a polar organic adjuvant which is an electron donor, said adjuvant further being characterized as a 1 to 4 carbon atom alkyl ester of a substituted or unsubstituted benzoic acid.

4,379,899
PROCESS FOR PRODUCING POLYISOBUTENES
Christopher R. Marsh, Grangemouth, England, assignor to BP Chemicals Limited, London, England
Continuation-in-part of Ser. No. 941,779, Sep. 13, 1978, abandoned. This application Oct. 20, 1981, Ser. No. 312,953
Claims priority, application United Kingdom, Sep. 14, 1977, 38266/77
Int. Cl.[3] C08F *4/64, 10/10*
U.S. Cl. 526—144 **1 Claim**

1. A homogeneous polymerization process for producing high molecular weight polyisobutenes of SSU viscosity above 1,000,000 at 210° F. by polymerizing a C_4 feedstock comprising isobutene at a temperature of from $-5°$ to $-25°$ C. in the presence of a catalyst system comprising (i) an alkyl aluminum dichloride or dibromide, (ii) tertiary butyl chloride or bromide, and (iii) a metal halide selected from the group consisting of $SnCl_4$, $SnBr_4$, $TiCl_4$, and $TiBr_4$, and said catalyst concentration based on said alkyl aluminum dichloride or dibromide content thereof is from 20 to 2000 ppm based on the weight of said C_4 feedstock and said catalyst components are present in equimolar proportions.

4,379,900
RAW POLYMER POWDER OF A MODIFIED TETRAFLUOROETHYLENE POLYMER HAVING A HIGH BULK DENSITY AND A GOOD POWDER FLOW INDEX AND ALSO A PROCESS FOR THE MANUFACTURE AND USE THEREOF
Reinhard A. Sulzbach, Burghausen/Salzach, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany
Filed Jun. 4, 1981, Ser. No. 270,489
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1980, 3021369; Mar. 17, 1981, 3110193
Int. Cl.[3] C08F *14/18*
U.S. Cl. 526—247 **18 Claims**

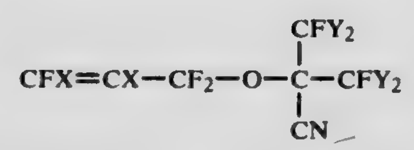
1. In a granular, free-flowing, non-melt-fabricable, non-presintered raw polymer powder of a tetrafluoroethylene polymer, consisting essentially of from 0.004 to 0.075 mole percent polymerized units of a perfluoroalkyl vinyl ether of the formula

$$CF_2{=}CF{-}O{-}R_f$$

wherein R_f is C_2F_5, n-C_3F_7, or n-C_4F_9, and of polymerized tetrafluoroethylene units having a specific surface of from 0.5 to 4.5 m^2/g, the improvement residing in the fact that said powder has an average particle diameter d_{50} of from 450 to 1400 μm, a bulk density of at least 570 g/l, a powder flow index not higher than 5 seconds per 50 grams, and a grain stability not higher than 5.5 seconds per 50 grams.

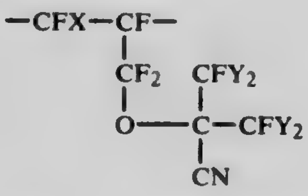
4,379,901
POLYFLUOROALLYL ETHERS AND THEIR PRODUCTION AND USE
Yoshio Amimoto, Takatsuki, and Masayoshi Tatemoto, Ibaraki, both of Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan
Filed Sep. 28, 1981, Ser. No. 306,352
Claims priority, application Japan, Sep. 30, 1980, 55-136932
Int. Cl.[3] C07C *121/34;* **C08F** *16/24*
U.S. Cl. 526—247 **21 Claims**

1. A polyfluoroallyl ether of the formula:



wherein each X, which is the same or different, is a chlorine atom or a fluorine atom and wherein each Y, which is the same or different, is a hydrogen atom, a chlorine atom or a fluorine atom.

9. A polymer of a polyfluoroallyl ether comprising units of the formula:



wherein each X, which is the same or different, is a chlorine atom or a fluorine atom and each Y, which is the same or different, is a hydrogen atom, a chlorine atom or a fluorine atom.

4,379,902
PROCESS FOR PRODUCING A LOW VISCOSITY SILICONE RESIN
Duane F. Merrill, Ballston Spa, N.Y., assignor to General Electric, Waterford, N.Y.
Continuation of Ser. No. 126,062, Feb. 29, 1980, which is a continuation of Ser. No. 750,993, Dec. 15, 1976, abandoned, which is a continuation of Ser. No. 630,848, Nov. 10, 1975, Pat. No. 4,026,868. This application Aug. 31, 1981, Ser. No. 298,226
Int. Cl.[3] C08G *77/06*
U.S. Cl. 528—18 **12 Claims**

1. A process for providing a molding composition having a low coefficient of thermal expansion during cure, comprising the steps of:

I. first providing a silicone resin having a viscosity which does not exceed 100 centipoise at 140° by
  A. adding with continuous agitation a mixture of acetone and organohalosilanes over a period of at least 40 minutes to a heterogeneous hydrolysis mixture having a water phase and an organic phase wherein said organic phase is composed of water, acetone and a water-immiscible solvent where in the final heterogeneous hydrolysis mixture, per part by weight of organohalosilanes there is present:
    1. from at least 1.7 parts to about 10 parts of water;
    2. from about 0.2 to about 5 parts of acetone;
    3. from about 0.3 to about 5 parts of a water-immiscible organic solvent, and
    4. from 0 to about one mole of an aliphatic monohydric alcohol having from 1 to 8 carbon atoms per mole of halogen attached to the silicone atom of said organohalosilane;
  B. maintaining the temperature of said heterogeneous hydrolysis mixture below 45° C. during Step (A);
  C. removing the water from said heterogeneous hydrolysis mixture and reducing the acid content of the organic phase containing a formed silicone resin to below 5 parts per million; and
  D. stripping off the solvent at a temperature not to exceed about 120° C. to yield a polyorganosiloxane having an average ratio from about 1 to 1.8 organo radicals per silicon atom;

said organohalosilanes in Step (A) are selected from the class consisting of
  a. a mixture of organotrihalosilane and diorganodihalosilane,
  b. a reaction product of an aliphatic monohydric alco-

hol having from 1 to 8 carbon atoms and a mixture of organotrihalosilane and diorganodihalosilane which reaction product may have up to one alkoxy radical substituted for each halogen radical in said organotrihalosilane and diorganodihalosilane; and

c. a mixture of the reaction product of (b) and an organohalosilane selected from organotrihalosilane and diorganodihalosilane, and where the organo radicals of said organohalosilanes are selected from the class consisting of monovalent hydrocarbon radicals and halogenated monovalent hydrocarbon radicals;

II. mixing said silicone resin with a filler and a catalyst effective for providing a curable silicone molding composition having a low coefficient of thermal expansion during such cure, wherein said silicone resin comprises 15 to 20 percent by weight of the total molding composition.

4,379,903

PROPELLANT BINDERS CURE CATALYST

Russell Reed, Jr., and May L. Chan, both of Ridgecrest, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 1, 1982, Ser. No. 353,773

Int. Cl.³ C08G *18/38*

U.S. Cl. 528—55 **14 Claims**

1. A process for the curing of a glycidyl-azide polymer (GAP)/isocyanate binder system which comprises:

(a) adding a non-gassing catalyst to a mixture comprising glycidyl-azide polymer and isocyanate curative to form said binder system; and

(b) curing said binder system to form a substantially void free grain.

4,379,904

NOVEL POLYURETHANE PRODUCT

Benjamin S. Ehrlich, Cheshire, and Richard W. Oertel, III, Guilford, both of Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

Continuation-in-part of Ser. No. 348,324, Feb. 12, 1982, abandoned, which is a continuation of Ser. No. 209,862, Nov. 24, 1980, abandoned. This application Apr. 26, 1982, Ser. No. 371,534

Int. Cl.³ C08G *18/48*

U.S. Cl. 528—65 **20 Claims**

1. In a thermoplastic polyurethane elastomer which is the product of reaction of 4,4'-methylenebis(phenyl isocyanate), difunctional extender and a polymeric diol selected from the class consisting of (a) polyoxypropylene-polyoxyethylene copolymers having a molecular weight of from about 1000 to about 3000, and having a minimum content of ethylene oxide (E.O.) residues by weight for any given molecular weight (MW) corresponding to:

$$\% \text{ E.O.} = \left[\left(\frac{MW - 900}{4}\right) \times 3\right] \times \left[\frac{100}{MW}\right],$$

(b) polyester diols having a molecular weight of from about 1000 to about 4000, and mixtures of (a) and (b), the equivalent proportions of polymeric diol to extender being within the range of about 1:2 to about 1:20 and the ratio of equivalents of said isocyanate to total hydroxyl equivalents being within the range of about 0.99:1 to 1.06:1, the improvement which comprises replacing at least about 15 percent by weight of said polymeric diol by a replacement polyol selected from the class consisting of:

(i) polyoxypropylene-polyoxyethylene glycols having a molecular weight of about 3500 to about 4500 and an ethylene oxide content of about 10 to about 60 percent by weight;

(ii) polyoxypropylene-polyoxyethylene triols having a molecular weight from about 5000 to about 7000 and an ethylene oxide content of about 10 to about 40 percent by weight; and

(iii) mixtures of (i) and (ii).

4,379,905

PROCESS FOR THE PREPARATION OF POLYISOCYANATES CONTAINING ISOCYANURATE GROUPS AND THEIR USE IN THE PRODUCTION OF POLYURETHANES

Ingo Stemmler; Hanns P. Müller, both of Odenthal, and Kuno Wagner, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 6, 1982, Ser. No. 337,344

Claims priority, application Fed. Rep. of Germany, Jan. 8, 1981, 3100263

Int. Cl.³ C08G *18/77*

U.S. Cl. 528—73 **12 Claims**

1. A process for the preparation of polyisocyanates containing isocyanurate groups which comprises trimerizing a proportion of the isocyanate groups of organic polyisocyanates or mixtures of polyisocyanates and monoisocyanates in the presence of basic alkali metal compounds as catalysts and stopping the trimerization reaction by the addition of a catalyst poison, characterized in that the trimerization catalyst is a complex of

(i) a basic alkali metal compound and

(ii) an acyclic organic compound which

(a) has at least 6 alkylene oxide units of the formula —R—O, wherein R represents C_1-C_4 alkylene, in the form of one or more polyether chains with only those chains having at least 3 alkylene oxide units being counted to reach the total of at least 6 alkylene oxide units

(b) contains a total of at least about 40% by weight of alkylene oxide units, the alkylene oxide units of any chains containing less than three of these units not being counted as alkylene oxide units, and

(c) has a molecular weight of at least 282.

4,379,906

HIGH SOLIDS URETHANE COATINGS PREPARED FROM A POLYLISOCYANATE AND A POLYHYDROXY OLIGMER

Mohinder S. Chattha, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 28, 1981, Ser. No. 334,802

Int. Cl.³ C08G *18/42*

U.S. Cl. 528—75 **39 Claims**

1. A thermosetting coating composition adapted for low temperature bake applications comprising:

(A) a polyhydroxy oligomer having a number average (M_n) molecular weight of between about 300–2000 and comprising the reaction product of:

(i) an acid ester made by reacting:

(a) a C_3–C_{10} aliphatic branched diol, and

(b) an alkyl hexahydrophthalic anhydride,

wherein (a) and (b) are combined in the reaction mixture in amounts sufficient to result in reaction in a molar ratio of greater than 1:1 up to 1:2; and

(ii) a monoepoxide C_2–C_{10} monomer, wherein said monomer is included in an amount sufficient to provide reaction of about 1.0 epoxide group for each acid group of said acid ester;

(B) a polyisocyanate crosslinking agent; and

(C) 0–50 weight percent based on the total weight of (A), (B) and (C) of a hydroxy functional additive having a number average molecular weight (Mn) of between about 150–6000, said polyisocyanate crosslinking agent having two or more reactive isocyanate groups per molecular weight and being included in said composition in an amount sufficient to provide between about 0.50 and about 1.6 reactive isocyanate groups per hydroxyl group present in said

composition either on said polyhydroxy oligomer or as a hydroxyl group of said hydroxy functional additive.

4,379,907

Patent Not Issued For This Number

4,379,908

RAPID CURING EPOXY-UNSATURATED MONOMER COMPOSITIONS

Thomas F. Brownscombe, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Mar. 5, 1982, Ser. No. 355,082

Int. Cl.³ C08G *59/68, 59/40, 65/02*

U.S. Cl. 528—91 **8 Claims**

1. A curable composition comprising (1) at least one epoxy compound containing at least one vicinal epoxy group, (2) a miscible amount of at least one ethylenically unsaturated monomer and (3) a curing amount of at least one metal salt selected from the group consisting of lithium and Group II metal salts of a non-nucleophilic acid.

4,379,909

COATING COMPOSITIONS

Hans R. Falkenburg, Haan; Siegfried Krause, Mettmann, and Robert C. McGuiness, Erkrath, all of Fed. Rep. of Germany, assignors to Hermann Wiederhold GmbH Corp., Hilden, Fed. Rep. of Germany and Imperial Chemical Industries PLC, London, England

Filed Oct. 26, 1981, Ser. No. 315,266

Claims priority, application United Kingdom, Oct. 27, 1980, 8034533

Int. Cl.³ C08G *59/68, 59/42*

U.S. Cl. 528—94 **6 Claims**

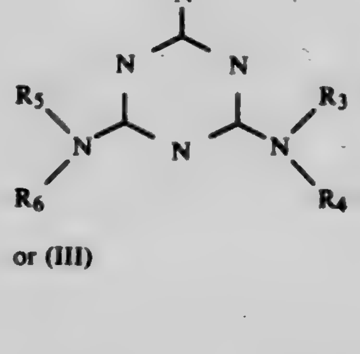
1. A coating lacquer, which on heating (and with savings in energy) yields a non-toxic cured coating on a metal substrate, comprising the components:

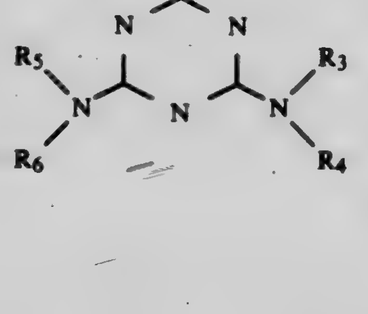
(i) an epoxide resin

(ii) a curing agent selected from polycarboxylic acids or polycarboxylic acid anhydrides

(iii) an organic solvent, and

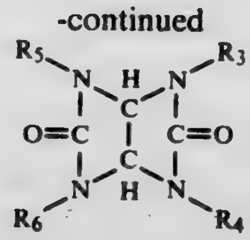
(iv) an accelerator for the curing reaction between the epoxide resin and the curing agent characterised in that the accelerator is selected from materials of chemical structures, or has moieties derived from chemical structures:





or (III)

-continued



wherein

R_1, R_2, R_3, R_4, R_5, R_6 are H, C_{1-8} alkyl or substituted alkyl, the same or different, and A = H, C_{1-8} alkyl, aryl or substituted alkyl/aryl; and further characterised in that there is present not more than 10% by weight of the accelerator based on the total weight of reactant solids.

4,379,910

FLAME RETARDANT AROMATIC POLYCARBONATE COMPOSITIONS MADE FROM FLUORINATED DIPHENOLS

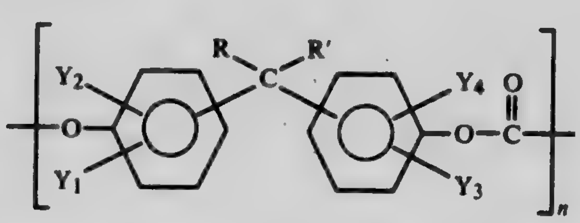
Victor Mark, Evansville, and Charles V. Hedges, Mount Vernon, both of Ind., assignors to General Electric Co., Mt. Vernon, Ind.

Filed Dec. 31, 1980, Ser. No. 221,460

Int. Cl.³ C08G *63/62*

U.S. Cl. 528—202 **28 Claims**

1. A high-molecular weight aromatic polycarbonate having improved flame-retardance, said polycarbonate having the general formula:



wherein n is an integer from 5 to 1,000; R is a radical selected from the group consisting of a fluorinated alkyl radical having from three to about twenty-two carbon atoms and a fluorinated aryl radical; R′ is selected from the group consisting of fluorinated alkyl radical, fluorinated aryl radical, alkyl radical and hydrogen; and Y_1, Y_2, Y_3 and Y_4 are each independently selected from the group consisting of hydrogen, alkyl radical, chlorine and bromine.

4,379,911

CROSS-LINKING AGENTS FOR CATIONIC POLYMERS

Girish G. Parekh, Fairfield; Werner J. Blank, Wilton, and Peter J. Schirmann, Fairfield, all of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Continuation of Ser. No. 232,454, Feb. 9, 1981, abandoned, which is a continuation of Ser. No. 128,612, Mar. 10, 1980, abandoned, which is a division of Ser. No. 32,982, Apr. 25, 1979, abandoned, which is a continuation-in-part of Ser. No. 926,762, Jul. 21, 1978, abandoned. This application Jul. 29, 1982, Ser. No. 403,202

Int. Cl.³ C08G *12/32*

U.S. Cl. 528—245 **2 Claims**

1. A cross-linking agent for compounds containing an average of at least two primary or secondary amine groups per molecule, comprising a melamine compound, the amine groups of which contain as substituents an average of at least two glyoxylic acid ester groups per molecule.

4,379,912

METHOD OF MAKING POLYESTER PREPOLYMERS

Chen-i Lu, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 12, 1982, Ser. No. 407,401

Int. Cl.³ C08G *63/22*

U.S. Cl. 528—274 **19 Claims**

1. In a method for preparing a prepolymer composed of constituents of a dicarboxylic acid and a glycol, which method comprises:

(a) reacting said dicarboxylic acid and said glycol in the presence of a transesterification catalyst at a reaction temperature and pressure effective to form a reaction mixture containing condensation oligomers, reaction by-products and residual dicarboxylic acid, glycol and catalyst; and

(b) subjecting said reaction mixture to a temperature and pressure effective to polycondense substantially all of said oligomers to form a molten prepolymer,

the improvement which comprises purifying said reaction mixture prior to said polycondensation step (b) to remove substantially all of said reaction by-products and said residual dicarboxylic acid, glycol and catalyst and to crystallize said condensation oligomers, whereby said prepolymer has increased reactivity when subjected to polymerization.

4,379,913

COMPOSITIONS USEFUL AS INTERNAL ANTISTATIC ADDITIVES FOR POLYMERIC STRUCTURES

Calvin J. Waitkus, Bridgewater, N.J., assignor to Diamond Shamrock Corporation, Dallas, Tex.

Filed May 4, 1982, Ser. No. 374,670

Int. Cl.³ C08G *63/66*

U.S. Cl. 528—300 **12 Claims**

1. An internal antistatic additive composition for polymeric structures which is a branched configuration polyol first alkoxylated with a mixture of ethylene oxide and propylene oxide and then reacted with a difunctional reactant to produce a chain extended random alkoxylated polyol.

9. A polymeric structure containing an effective amount of the composition of claim 1 sufficient to improve antistatic properties of the structure.

12. The polymeric structure of claim 9 wherein the structure is a polyester.

4,379,914

POLYCAPROLACTONE POLYMERS

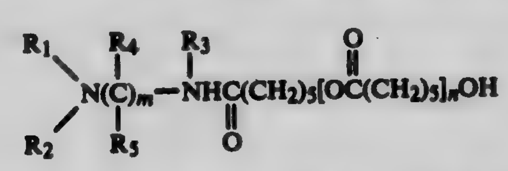
Robert D. Lundberg, Bridgewater, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Dec. 21, 1981, Ser. No. 332,813

Int. Cl.³ C08G *63/08, 63/10*

U.S. Cl. 528—354 **6 Claims**

1. A polycaprolactone polymer having the formula:



wherein R_1 or R_2 is an alkyl, cycloalkyl or aryl group, R_3, R_4 and R_5 is a hydrogen or alkyl, cycloalkyl, or aryl group, and m equals 1 to 20 and n equals 1 to about 500.

4,379,915

LACTONE POLYMER

Shoji Watanabe; Takuya Miho, and Tatsumi Fujii, all of Ohtake, Japan, assignors to Daicel Chemical Industries, Ltd., Sakai, Japan

Filed Feb. 23, 1982, Ser. No. 352,607

Claims priority, application Japan, Feb. 27, 1981, 56-28182

Int. Cl.³ C08G *63/10*

U.S. Cl. 528—357 **2 Claims**

1. A lactone polymer having a narrow molecular weight distribution, which is characterized in that the ratio of the weight average molecular weight to the number average molecular weight is in the range of from 1.1 to 2.0 and the molecular weight is 500 to 5,000.

2. A process for the preparation of lactone polymers, which is characterized in that lactone is subjected to ring-opening polymerization in the presence of 0.1 to 50 ppm of a stannous halide such as stannous chloride, stannous bromide or stannous iodide to form a lactone polymer in which the ratio of the weight average molecular weight to the number average molecular weight is in the range of from 1.1 to 2.0 and the molecular weight is 500 to 5,000.

4,379,916

METHOD FOR COPRECIPITATING WIRE COATING ENAMEL COMPOSITION

Ralph G. Flowers, Pittsfield, Mass., assignor to General Electric Company

Filed Jun. 1, 1981, Ser. No. 269,338

Int. Cl.³ C08L *61/04*; B32B *15/02*; C08L *61/00*

U.S. Cl. 528—494 **12 Claims**

1. Method for preparing a wire coating enamel consisting of a homogeneous mixture of phenolaldehyde, polyvinyl acetal and epoxy resins, said method comprising the steps of:

dissolving the resin mixture in a water soluble, organic solvent to form a solution;

mixing said solution in a volume of water greater than the volume of the solution to precipitate out said resins as a homogeneous mixture; and

separating said precipitated resin mixture from said water and solvent mixture.

4,379,917

6"-(SUBSTITUTED)-APRAMYCIN ANTIBIOTIC DERIVATIVES AND INTERMEDIATES AND STARTING MATERIALS THEREFOR

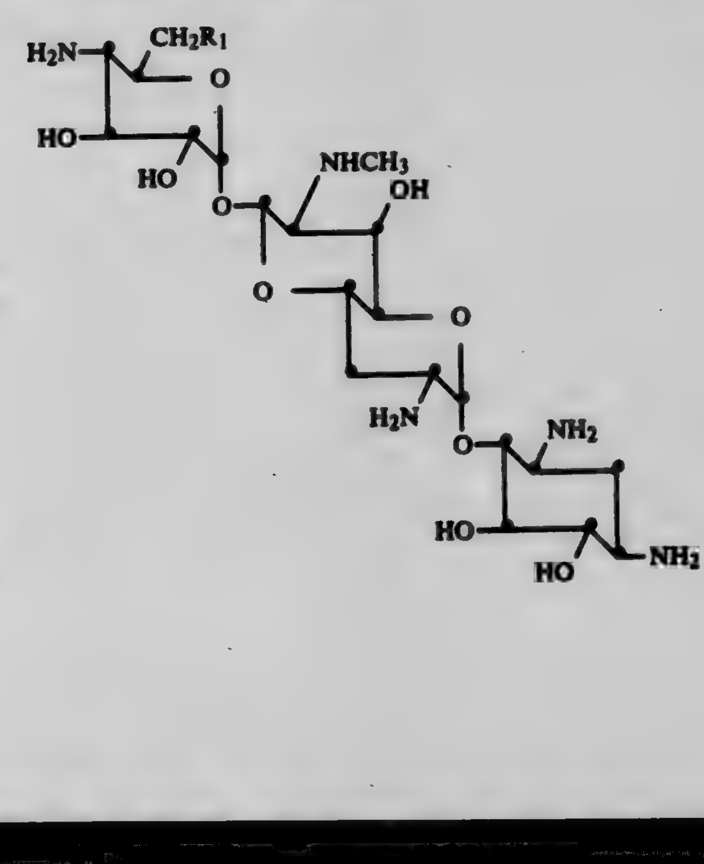
Herbert A. Kirst, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Dec. 24, 1981, Ser. No. 334,409

Int. Cl.³ C07H *15/22*

U.S. Cl. 536—16.8 **39 Claims**

1. A compound of the formula



wherein R_1 is hydrogen, C_1 to C_3-alkylsulfonyloxy, phenylsulfonyloxy, substituted phenylsulfonyloxy, tert-butyldimethylsilyloxy, fluoro, chloro, bromo, iodo, azido, amino, C_1 to C_3-alkylthio, phenylthio, cyano or aminomethyl;

and the pharmaceutically acceptable acid addition salts thereof.

4,379,918

PROCESS FOR PREPARING WATER-SOLUBLE PHOSPHONOMETHYL ETHERS OF CELLULOSE

Lothar Brandt, and Arno Holst, both of Wiesbaden, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 20, 1981, Ser. No. 313,350

Claims priority, application Fed. Rep. of Germany, Oct. 23, 1980, 3039978

Int. Cl.³ C08B *11/00;* **C08L** *1/26*

U.S. Cl. 536—62 **17 Claims**

1. A process for preparing water-soluble phosphonomethyl ethers of cellulose, comprising the steps of:

reacting cellulose or a cellulose derivative wiith halogenomethane phosphonic acid or a salt thereof or an acid derivative thereof which provides halogenomethane phosphonate ions, said reaction being carried out in an aqueous alkaline medium containing hydroxide ions, wherein

from about 2.1 to 15 moles of hydroxide ions, and

from about 0.4 to 3 moles of halogenomethane phosphonate ions per mole of cellulose are reacted in about 3 to 50 parts by weight, per part by weight of the cellulose, of a mixture comprising an inert organic solvent and from about 2 to 60 percent by weight of water; and continuing the reaction until the phosphonomethyl cellulose has a DS of at least about 0.13.

4,379,919

STARCH SULFOMALEATE HALF-ESTERS, A METHOD FOR THEIR PREPARATION AND THEIR USE TO PREPARE STARCH DISULFOSUCCINATE HALF-ESTERS

Martin M. Tessler, Edison; Otto B. Wurzburg, Whitehouse Station, and Teresa A. Dirscherl, Netcong, all of N.J., assignors to National Starch and Chemical Corporation, Bridgewater, N.J.

Filed Apr. 1, 1982, Ser. No. 364,376

Int. Cl.³ C08B *31/04, 31/16*

U.S. Cl. 536—108 **14 Claims**

1. A starch derivative, comprising a starch sulfomaleate of the general structure:

$$\mathrm{St{-}O{-}\overset{\overset{\displaystyle O}{\|}}{C}{-}CH{=}C(SO_3^-)(COO^-)}\ 2\left(\frac{M}{n}\right)^{n+}; \qquad \text{(i)}$$

$$\mathrm{St{-}O{-}\overset{\overset{\displaystyle O}{\|}}{C}{-}C(SO_3^-){=}CH(COO^-)}\ 2\left(\frac{M}{n}\right)^{n+}, \qquad \text{(ii)}$$

or mixtures of (i) and (ii); wherein St—O— represents a starch molecule or a modified starch molecule, M is a cation, and n is the valence number of M.

4,379,920

CEPHALOSPORINS

David Brown, Hayes; Anthony F. Giles, Maidenhead; Howard W. Cramer, Berkhamsted; H. Mary Noble, Burnham; Louis J. Nisbet, Bourne End; Michael E. Bushell, Farnham; Glenis Weare, Tylers Green, and Ian Y. Caldwell, Uxbridge, all of England, assignors to Glaxo Group Limited, England

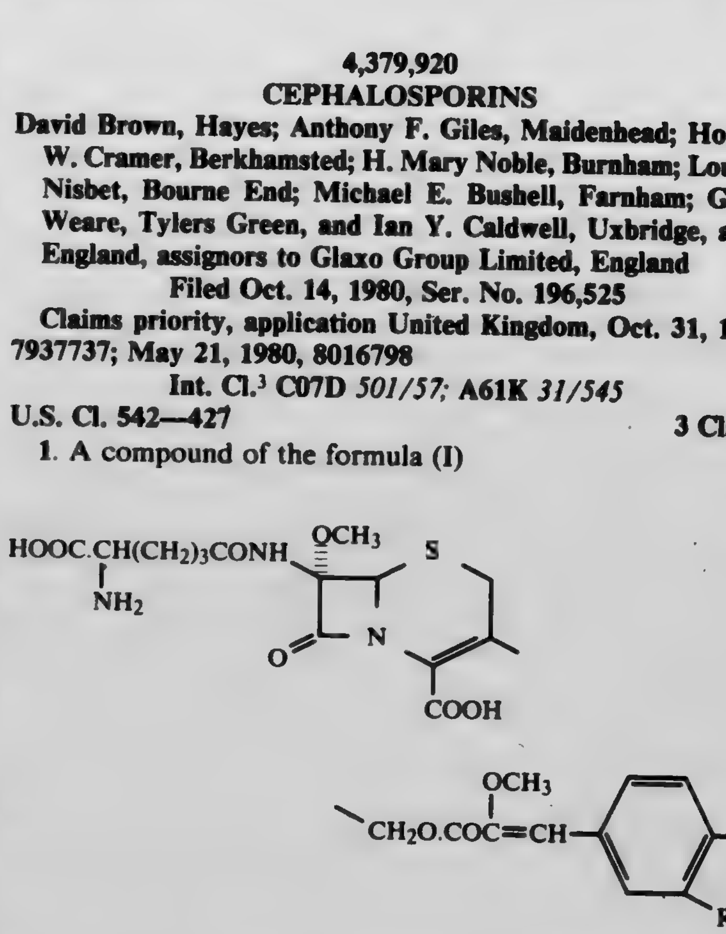
Filed Oct. 14, 1980, Ser. No. 196,525

Claims priority, application United Kingdom, Oct. 31, 1979, 7937737; May 21, 1980, 8016798

Int. Cl.³ C07D *501/57;* **A61K** *31/545*

U.S. Cl. 542—427 **3 Claims**

1. A compound of the formula (I)



(I)

wherein R^1 represents a hydroxyl or sulphooxy group R^2 represents a sulphooxy group, or a salt, ester, N-protected derivative or solvate thereof.

4,379,921

PRODUCTION OF TRIAZOLYLVINYL KETONES

Yuji Funaki, Toyonaka; Shizuya Tanaka, Minoo, and Noritada Matsuo, Itami, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

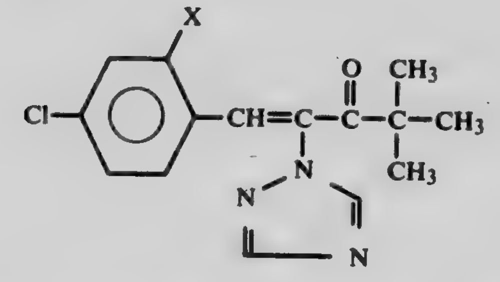
Filed Aug. 13, 1981, Ser. No. 292,631

Claims priority, application Japan, Aug. 21, 1980, 55-115682; Aug. 21, 1980, 55-115683; Aug. 22, 1980, 55-116176; Aug. 25, 1980, 55-117184; Aug. 25, 1980, 55-117186

Int. Cl.³ C07D *249/08*

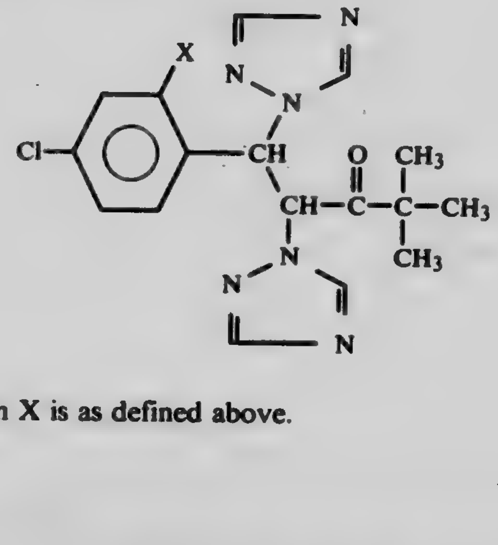
U.S. Cl. 542—458 **21 Claims**

1. A process for producing a compound of the formula:



(I)

wherein X is a hydrogen or chlorine atom, which comprises heating a compound of the formula:

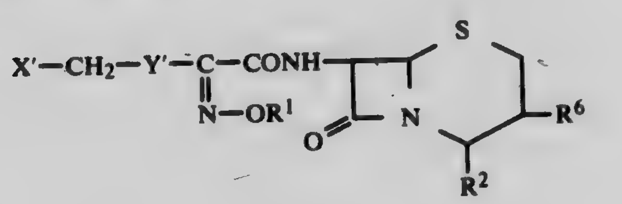


(II)

wherein X is as defined above.

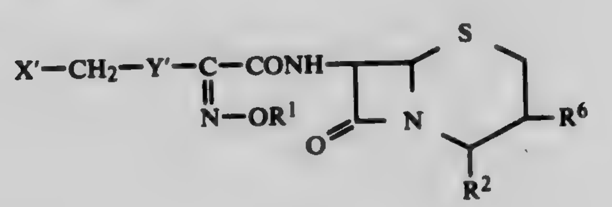
4,379,922
CEPHAM COMPOUNDS
Ikuo Ueda, Toyonaka; Takao Takaya, Kawanishi; Masakazu Kobayashi, Ikeda; Takashi Masugi, Kitamachi; Hisashi Takasugi, Kohamanishi; Hiromu Kochi, Sakai, and Tadashi Kitaguchi, Kukuchinishimachi, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan
Division of Ser. No. 101,527, Dec. 10, 1979, Pat. No. 4,298,529, which is a continuation-in-part of Ser. No. 73,565, Sep. 7, 1979, abandoned. This application Dec. 5, 1980, Ser. No. 213,217
Claims priority, application Japan, Sep. 12, 1978, 53-112555; United Kingdom, Sep. 12, 1978, 36564/78; Japan, Jan. 12, 1979, 54-3106; United Kingdom, Feb. 19, 1979, 7905791; European Pat. Off, Sep. 11, 1979, 79103389.7; Japan, Sep. 11, 1979, 54-117166
Int. Cl.³ C07D *501/14*
U.S. Cl. 544—16 **4 Claims**

1. A new compound of the formula:



wherein
R^1 is an aliphatic hydrocarbon group which may have suitable substituents,
R^2 is carboxy or a protected carboxy group,
R^6 is hydroxy, lower alkanoyloxy, lower alkoxycarbonyloxy, lower alkanesulfonyloxy, arenesulfonyloxy, aroyloxy, ar(lower)alkanoyloxy, ar(lower)alkoxycarbonyloxy, or methylene,
X' is hydrogen or halogen, and
Y' is carbonyl or a protected carbonyl group,
or its salt.

2. A new compound of the formula:



wherein
R^1 is lower alkyl,
R^2 is carboxy,
R^6 is hydroxy, lower alkanoyloxy or methylene,
X' is hydrogen or halogen, and
Y' is carbonyl, lower alkylenedioxymethylene, di(lower)alkoxymethylene or lower alkoxycarbonylhydrazonomethylene,
or its salt.

4,379,923
PREPARATION OF 7-ACYLAMINO-3-(THIO-SUBSTITUTED)-METHYL 3-CEPHEM-4-CARBOXYLIC ACID-1-OXIDE DERIVATIVES
Cornelis A. Bruynes, Koudekerk, and Theodorus K. Jurriens, Delft, both of Netherlands, assignors to Gist-Brocades N.V., Delft, Netherlands
Filed Aug. 28, 1981, Ser. No. 297,214
Claims priority, application Netherlands, Sep. 5, 1980, 8005041
Int. Cl.³ C07D *501/04*
U.S. Cl. 544—26 **6 Claims**

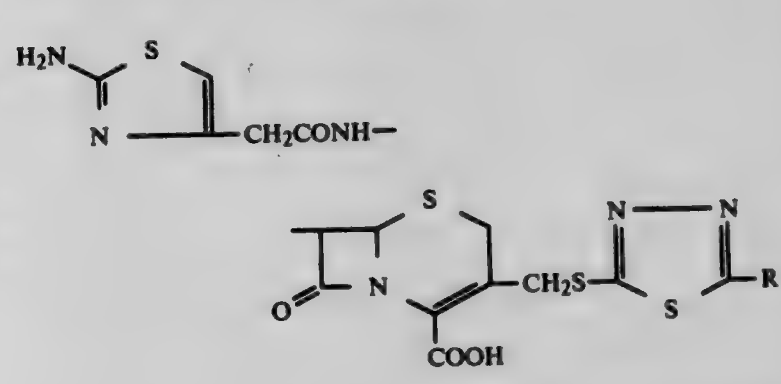
1. A process for the preparation of 7-acylamino-3-(thiosubstituted)-methyl-3-cephem-4-carboxylic acid-1-oxide derivatives comprising reacting a 7-acylamino-3-bromomethyl-3-cephem-4-carboxylic acid-1-oxide derivative with a silylated thiol of the formula

$$R—S—Si(CH_3)_3$$

wherein R is a 5- or 6-membered heterocyclic group having at least one nitrogen or sulfur atom as the heteroatoms to obtain the corresponding 7-acylamino-3-(R-thiomethyl)-3-cephem-4-carboxylic acid-1-oxide derivative.

4,379,924
CEPHALOSPORIN DERIVATIVES
Mitsuo Numata, Takatsuki; Isao Mimamida, Kyoto; Masayoshi Yamaoka, Osaka; Mitsuru Shiraishi, Suita, and Toshio Miyawaki, Nishinomiya, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan
Division of Ser. No. 534,782, Dec. 20, 1974, Pat. No. 4,080,498. This application Dec. 23, 1977, Ser. No. 863,719
Claims priority, application Japan, Dec. 25, 1973, 48-1521; Feb. 20, 1974, 49-20752; Apr. 15, 1974, 49-42574; Jul. 17, 1974, 49-82623; Nov. 13, 1974, 49-131381
Int. Cl.³ C07D *501/36;* **A61K** *31/545*
U.S. Cl. 544—27 **20 Claims**

1. A compound of the formula:



wherein R represents hydrogen, a C_{1-12} alkyl, trifluoromethyl, amino, mercapto, carboxymethyl, carbamoylmethyl, N-C_{1-12} alkylcarbamoylmethyl, C_{1-12} alkoxycarbonylmethyl, methylthiomethyl, methylsulfonylmethyl, N-C_{1-12} alkylamino-C_{1-12} alkyl, morpholinomethyl, sulfo-C_{1-12} alkylamine, hydroxy-C_{1-12} alkylamino, C_{1-12} alkylamino-C_{1-12} alkylamino, C_{1-12} alkoxycarbonylamino, 2-hydroxyethylthio, 2-C_{1-12} acyloxyethylthio, carboxymethylthio, C_{1-12} alkoxycarbonylmethylthio, carbamoylmethylthio, N-C_{1-12} alkylcarbamoylmethylthio, acetylmethylthio, N-C_{1-12} alkylamino-C_{1-12}-alkylthio, morpholinocarbonylmethylthio or 2-sulfoethylthio, or a pharmaceutically acceptable salt thereof.

4,379,925
LIQUID PHASE AMMOXIDATION OF CYCLOHEXANONE AND/OR CYCLOHEXANOL
Robert K. Grasselli, Chagrin Falls; Dev D. Suresh, Macedonia, both of Ohio, and David R. Bridgeman, Wilmington, Del., assignors to The Standard Oil Co., Cleveland, Ohio
Continuation of Ser. No. 918,975, Jun. 26, 1978, abandoned. This application Oct. 6, 1980, Ser. No. 194,638
Int. Cl.³ C07D *265/38, 241/46, 319/24*
U.S. Cl. 544—102 **2 Claims**

1. A liquid phase ammoxidation process comprising contacting a reactant comprising a mononuclear cycloaliphatic ketone or alcohol, the cycloaliphatic moiety of said ketone or alcohol having the formula C_nH_{2n} wherein n is 5 or 6, said cycloaliphatic ketone or alcohol being unsubstituted or substituted with at least one member selected from the group consisting of alkyl having 1 to 4 carbon atoms, phenyl, benzyl, tolyl, xylyl, said reactant containing 5 to 18 carbon atoms, in the liquid phase with molecular oxygen, ammonia and a molybdate catalyst of the following general formula:

$$A_aB_bC_cBi_d[E]P_eF_fMo_gO_x$$

wherein

A is alkali metal, Tl, Sm or mixtures thereof;

B is Ni, Co, Mn, Mg, other alkaline earths and Group IIB elements:

C is Fe, Cr, Ce or mixtures thereof;

F is Ge, Sn, Al, Ag, Au, Pb, Group VIII elements other than Ni, Co and Fe, V, Tl, In, Ta, rare earth metals or mixtures thereof; and

wherein

a is 0–4;

b is 0–20;

c is 0–20;

d is greater than 0–20;

e is greater than 0–5;

f is 0–10;

g is 6 to 18; and

x is a number determined by the valence requirements of the other elements present.

4,379,926

1,4,5,6-TETRAHYDROPYRIMIDINE DERIVATIVES

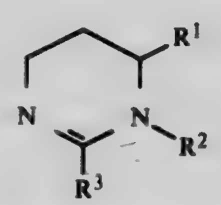
Jean A. Gauthier, and Ivo Jirkovsky, both of Montreal, Canada, assignors to Ayerst, McKenna & Harrison Ltd., Montreal, Canada

Filed May 8, 1978, Ser. No. 904,124

Int. Cl.[3] C07D *413/06, 239/06;* **A61K** *31/505, 31/535*

U.S. Cl. 544—122 **12 Claims**

1. A compound of formula I



(I)

in which R^1 and R^2 are phenyl and R^3 is lower alkyl, phenyl, 2-furyl, 3-pyridinyl, 2-thienyl, di(lower alkyl)amino or a radical of formula R^4—A wherein A is lower alkylene and R^4 is 1-piperidinyl or 4-morpholinyl; or a therapeutically acceptable acid addition salt thereof.

4,379,927

PROCESS FOR THE PREPARATION OF IMIDAZOLEACETIC ACID DERIVATIVES

Helmut Vorbrüggen, and Norbert Schwarz, both of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

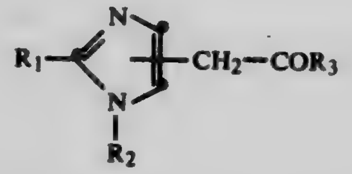
Filed Feb. 16, 1982, Ser. No. 349,416

Claims priority, application Fed. Rep. of Germany, Feb. 13, 1981, 3106150

Int. Cl.[3] C07D *413/06, 233/64*

U.S. Cl. 544—139 **5 Claims**

1. A process for preparing an imidazoleacetic acid derivative of the formula



wherein

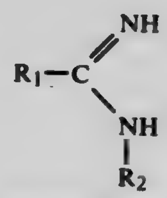
R_1 is hydrogen; C_{1-24}-alkyl; C_{5-7}-cycloalkyl; C_{7-14}-aralkyl; C_{6-14}-aryl; a C_{6-10}-aromatic, mono- or bi-cyclic heterocycle of 5–10 total ring atoms, 1–3 being O, N or S atoms, the remainder being C-atoms; substituted C_{6-14}-aryl or said aromatic heterocycle each substituted by 1–3 halogen atoms, up to three C_{1-4}-alkyl groups, a nitro group, up to three C_{1-4}-alkoxy groups, a C_{1-4}-alkoxycarbonyl group or CF_3; amino; or amino substituted by C_{1-24}-alkyl, C_{5-7} cycloalkyl, C_{7-14}-aralkyl or C_{6-14} aryl;

R_2, independently, is hydrogen, alkyl, cycloalkyl, aralkyl, aryl, or a heterocyclic group, all as defined above for R_1; or

R_1 and R_2 together are C_{4-7} alkylene forming a ring with their connecting C–N bond; and

R_3 is C_{1-10}-alkoxy, C_{7-14}-aralkoxy, amino, mono or di-C_{1-4}-alkylamino, pyrrolidino, piperidino, morpholino, arylamino, heteroarylamino, or substituted arylamino or substituted heteroarylamino, each of which is substituted in the aryl portion as recited above for R_1;

comprising reacting a corresponding amidine or guanidine of the formula



or a reaction compatible acid addition salt thereof

wherein

R_1 and R_2 are as defined above with an acetoacetic acid derivative of the formula

$$X-CH_2-\overset{\displaystyle OR_4}{\overset{|}{C}}=CH-COR_3$$

wherein

R_3 is as defined above and

X is fluorine, chlorine, bromine, or iodine, and

R_4 is tri-C_{1-4}-alkyl or tri-C_{7-10}-aralkylsilyl, C_{1-4}-alkyl, or C_{7-10}-aralkyl

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4,379,928

SYNTHESIS OF AMIDES

Spyros Theodoropulos, Yorktown Heights, N.Y., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Mar. 4, 1981, Ser. No. 240,327

Int. Cl.[3] C07C *102/00, 102/04, 102/06*

U.S. Cl. 544—176 **19 Claims**

1. Method of preparing dialkyl amides which comprises contacting an organic compound containing at least one carboxyl, carboxylic acid ester or carboxylic acid anhydride functionality with an amide carbamic acid salt having the formula:

$$R_1R_2N-\overset{\displaystyle O}{\overset{\|}{C}}-\overset{\ominus}{O}-\underset{H_2}{\overset{\oplus}{N}}-R_1R_2$$

wherein each of R_1 and R_2 is a monovalent radical selected from the group consisting of —H, alkyl having 1 to about 20 carbon atoms including linear, branched and cyclic alkyls, aralkyl groups having the formula:

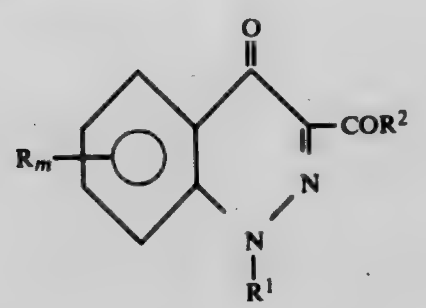
$$Ar\text{-}(CH_2)_n$$

wherein n is an integer having values of 1 to about 5 inclusive, Ar is an aromatic radical having up to about 15 carbons and optionally 1 hetero atom and the grouping —NR_1R_2 is a monovalent radical selected from the class consisting of piperazine, piperidine, morpholine, or pyrrole radicals, at a temperature of about 25°–250° C. until an amide is formed.

19. Method claimed in claim 1 wherein the amine carbamic acid salt is formed in situ by reacting carbon dioxide with primary or secondary amine.

4,379,929
4(1H)-OXOCINNOLINE-3-CARBOXYLIC ACID DERIVATIVES
Robert A. Conrad, Indianapolis, and William A. White, Fountaintown, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
Filed Mar. 19, 1981, Ser. No. 245,564
Int. Cl.³ C07D *237/28, 491/04, 9/65;* **A61K** *31/495*
U.S. Cl. 544—234 **12 Claims**

1. Compound of the formula



wherein
R represents methylenedioxy, or nitro;
m = 1;
R^1 represents C_1–C_3 alkyl, n-butyl, or allyl;
R^2 represents hydroxy C_2–C_4 alkoxy, $NHCH_2CH_2OH$, $NHCH_2CH_2SH$, $NHCH_2COOH$, $NHCH_2CH_2NH_2$,

$$NHCH_2\overset{O}{\overset{\|}{P}}(OH)_2,\ \text{or}\ NH\underset{CH_3}{\underset{|}{C}}H\overset{O}{\overset{\|}{P}}(OH)_2,$$

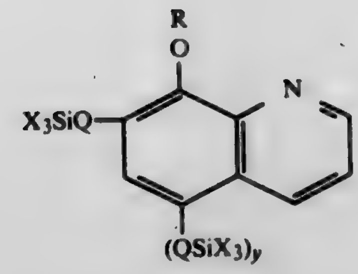
subject to the limitation that when R represents nitro, R^2 represents $NHCH_2CH_2SH$;
and wherein the position of R on the cinnoline ring is as follows:
1. when R represents methylenedioxy, R is at the 6,7-position of the cinnoline ring, or
2. when R represents nitro, R is at the 7-position of the cinnoline ring.

4,379,930
PREPARATION OF 2-T-BUTYL-5-HYDROXYPYRIMIDINE
Richard G. Pews, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Filed Sep. 14, 1981, Ser. No. 301,686
Int. Cl.³ C07D *239/36*
U.S. Cl. 544—298 **4 Claims**

1. A method of making 2-t-butyl-5-hydroxypyrimidine which comprises hydrolyzing a 2-t-butyl-5-halopyrimidine in the presence of an alkali metal methoxide and a catalyst comprising 2-picoline-n-oxide, di-n-butyldisulfide or elemental sulfur.

4,379,931
METAL EXTRACTION FROM SOLUTION AND NOVEL COMPOUNDS USED THEREFOR
Edwin P. Plueddemann, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.
Filed Jul. 1, 1981, Ser. No. 279,388
Int. Cl.³ C07D *215/12;* **C07F** *7/10*
U.S. Cl. 546—14 **13 Claims**

1. A compound of the formula



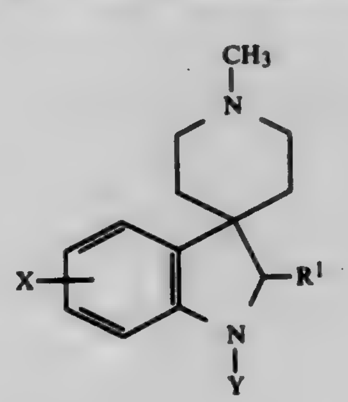
wherein
X is an alkoxy radical containing 1–4 carbon atoms;
Q is a

$$-(CH_2)_3-\quad \text{or} \quad -CH_2\underset{CH_3}{\underset{|}{C}}HCH_2-$$

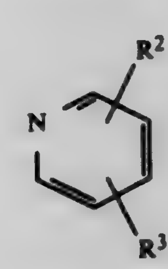
radical;
y has a value of 0 or 1;
R is hydrogen or an R'_3Si— radical wherein R' is CH_3— or CH_3CH_2—.

4,379,932
PROCESS FOR PREPARING SPIRO[INDOLINE-3,4'-PIPERIDINE]S
Helen H. Ong, Whippany, N.J., and James A. Profitt, Goshen, Ind., assignors to American Hoechst Corporation, Bridgewater, N.J.
Division of Ser. No. 121,824, Feb. 15, 1980, Pat. No. 4,307,235, which is a continuation-in-part of Ser. No. 936,185, Aug. 23, 1978, Pat. No. 4,209,625, which is a continuation-in-part of Ser. No. 789,723, Apr. 21, 1977, abandoned. This application Dec. 18, 1981, Ser. No. 332,174
Int. Cl.³ C07D *471/10*
U.S. Cl. 546—17 **3 Claims**

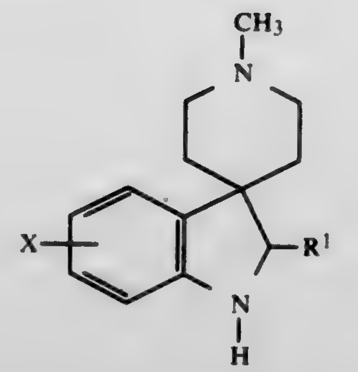
1. A method for preparing a compound of the formula



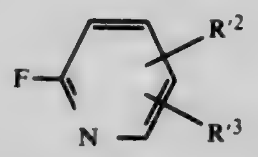
or a physiologically acceptable salt thereof in which
Y is



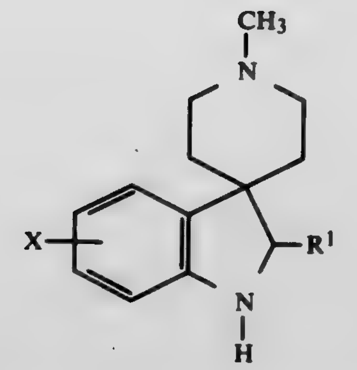
R^1 is hydrogen or loweralkyl; R^2 and R^3 are the same or different and each can be hydrogen, halogen, trifluoromethyl, loweralkyl, loweralkoxy, hydroxy, nitro, amino, loweralkylamino, formamido, acetamido or loweralkoxycarbonylamino; X is hydrogen, halogen, loweralkyl, loweralkoxy or hydroxy, which comprises treating a 1'-methylspiro[indoline-3,4'-piperidine] of the formula



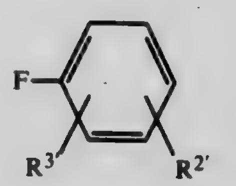
in which X and R^1 are as defined above with a fluoropyridine of the formula



in which $R^{2'}$ and $R^{3'}$ are the same or different and each can be hydrogen, halogen, trifluoromethyl, loweralkyl, loweralkoxy or nitro in the presence of a solvent and a base.



in which X and R^1 are as defined above with a fluorophenyl of the formula



in which $R^{2'}$ and $R^{3'}$ are the same or different and each can be hydrogen, halogen, trifluoromethyl, loweralkyl, loweralkoxy or nitro in the presence of a solvent and a base.

4,379,933

PROCESS FOR PREPARING SPIRO[INDOLINE-3,4'-PIPERIDINE]S

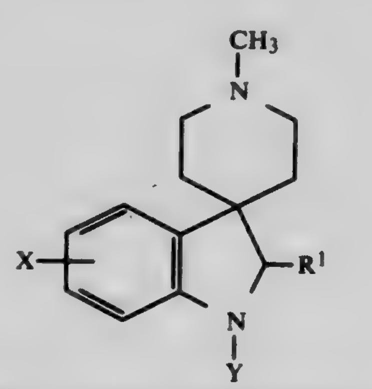
Helen H. Ong, Whippany, N.J., and James A. Profitt, Goshen, Ind., assignors to American Hoechst Corporation, Bridgewater, N.J.

Division of Ser. No. 121,824, Feb. 15, 1980, Pat. No. 4,307,235, which is a continuation-in-part of Ser. No. 936,185, Aug. 23, 1978, Pat. No. 4,209,625, which is a continuation-in-part of Ser. No. 789,723, Apr. 21, 1977, abandoned. This application Dec. 18, 1981, Ser. No. 332,175

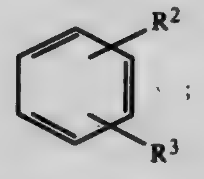
Int. Cl.^{3} **C07D** *471/10*

U.S. Cl. 546—17 **3 Claims**

1. A method for preparing a compound of the formula



or a physiologically acceptable salt thereof in which Y is

 ;

R^1 is hydrogen or loweralkyl; R^2 and R^3 are the same or different and each can be hydrogen, halogen, trifluoromethyl, loweralkyl, loweralkoxy, hydroxy, nitro, amino, formamido or acetamido; X is hydrogen, halogen, loweralkyl, loweralkoxy or hydroxy, which comprises treating a 1'-methylspiro[indoline-3,4'-piperidine] of the formula

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4,379,934

PROCESS FOR TWO-DIMENSIONALLY CONCENTRATING LIGHT, AND NOVEL PERYLENE-3,4,9,10-TETRACARBOXYLIC ACID DIIMIDES

Fritz Graser, and Guenther Seybold, both of Ludwigshafen, Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

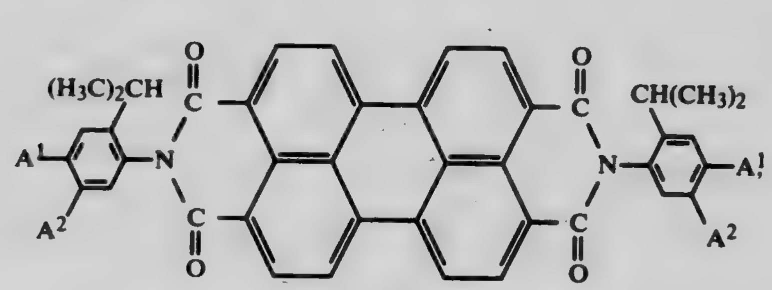
Filed Dec. 8, 1980, Ser. No. 214,228

Claims priority, application Fed. Rep. of Germany, Jan. 19, 1980, 3001857; Jan. 19, 1980, 3001858

Int. Cl.^{3} **C07D** *471/06;* **C09B** *3/14*

U.S. Cl. 546—37 **3 Claims**

1. A perylene-3,4,9,10-tetracarboxylic acid diimide dye of the formula



where A^1 and A^2 are hydrogen or A^1 is isopropyl and A^2 is hydrogen or A^2 is isopropyl and A^1 is hydrogen.

4,379,935

PROCESS FOR THE SYNTHESIS OF VINCAMINE AND RELATED INDOLE ALKALOIDS

Silvano Paracchini, Codogno Milano, Italy, and Paolo C. Mora, Via Scalabrini 49, Piacenza, Italy, assignors to Paolo Corvi Mora, Piacenza, Italy

Filed Jul. 30, 1981, Ser. No. 288,419

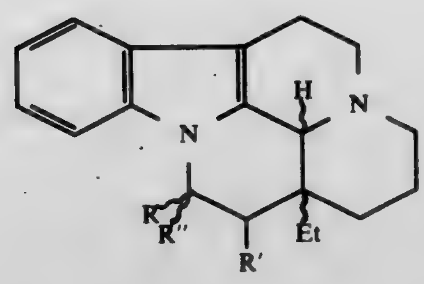
Claims priority, application Italy, Aug. 4, 1980, 23904 A/80

Int. Cl.^{3} **C07D** *461/00, 455/00*

U.S. Cl. 546—51 **6 Claims**

1. A process for the preparation of vincamine and related indole alkoloids of the formula (I)

(I)



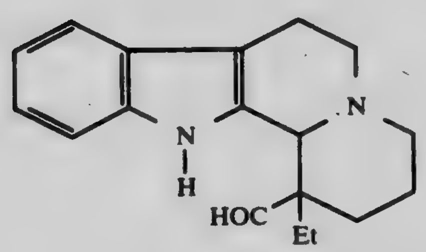
wherein:

(a) R is —OH, R' is H, and R'' is COOY wherein Y is selected from the group consisting of $-CH_3$ and $-CH_2CH_3$;

(b) R is —OH, and both R' and R'' are H; or

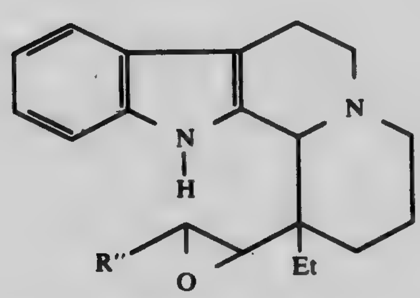
(c) R'' is COOY, and R and R' together form a double bond, said process comprising reacting a compound of the formula (II)

(II)



with an alpha-halo-ester of the formula CH_2X-R'' wherein X is selected from the group consisting of Cl, Br, and I and R'' is COOY, in the presence of a base containing at least one member selected from the group comprising alkaline alcoholates and metal amides where the metal is selected from the group consisting of Na, K, or Li, according to the Darzens reaction conditions, to give the corresponding glycidic esters of the formula (III)

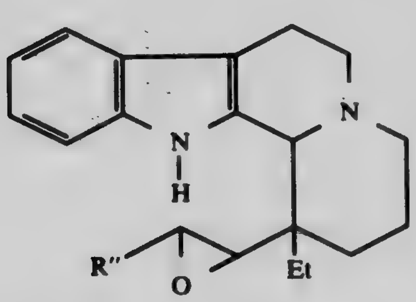
(III)



and thereafter treating the glycidic ester with a Lewis acid in an inert solvent and/or with a mineral acid in alcoholic solution to produce a compound of formula (I).

6. Glycidic esters represented by the formula (III):

(III)



wherein R'' is $-COOCH_3$ or $-COOCH_2CH_3$.

4,379,936

NORTROPANE DERIVATIVES

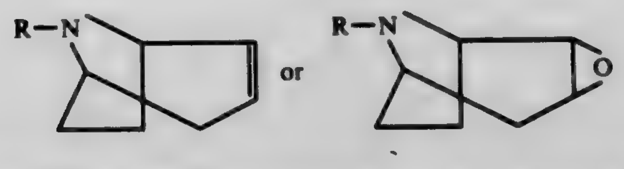
Robert L. G. Clarke, Bethlehem, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

Division of Ser. No. 240,179, Mar. 3, 1981, Pat. No. 4,341,895. This application Apr. 19, 1982, Ser. No. 369,545

Int. Cl.[3] **C07D** *451/02*

U.S. Cl. 546—91 **3 Claims**

1. A compound of the formula



wherein R is alkanoyl having from two to four carbon atoms.

4,379,937

SELECTIVE ACYLATION OF HYDROXY-AMINO-ARYLSULFONIC ACIDS

Anthony J. Corso, Coventry; Kathleen M. Colavito, Warwick, and Thomas S. Phillips, East Greenwich, all of R.I., assignors to American Hoechst Corporation, Somerville, N.J.

Filed Sep. 23, 1981, Ser. No. 304,748

Int. Cl.[3] **C07D** *215/16;* **C07C** *143/42*

U.S. Cl. 546—155 **15 Claims**

1. In a method for making an N-acylated hydroxy-amino-arylsulfonic acid which comprises dissolving said hydroxy-amino-arylsulfonic acid in aqueous solution and reacting it with an acylating agent, the improvement which comprises forming a lithium salt of said sulfonic acid in aqueous solution and conducting the acylation reaction at a pH of about 3 to 6.

4,379,938

PROCESS FOR PRODUCING 2,3,5-TRICHLOROPYRIDINE

Hansjakob Fäh, Ettingen, and Alfred Grieder, Böckten, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

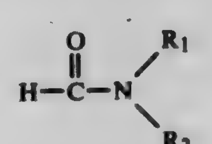
Division of Ser. No. 148,849, May 12, 1980, Pat. No. 4,287,347. This application May 22, 1981, Ser. No. 266,263

The portion of the term of this patent subsequent to Sep. 1, 1998, has been disclaimed.

Int. Cl.[3] **C07D** *213/02*

U.S. Cl. 546—345 **10 Claims**

1. A process for producing 2,3,5-trichloropyridine which comprises allowing 3,5-dichloro-2-pyridone in an inert organic solvent substantially free of water to react with at least about a molar equivalent amount of phosgene at from about 30° to about 50° C. in the presence of at least about 0.01 molar equivalent amount of an N,N-disubstituted formamide of the formula



in which each of R_1 and R_2 is the same or different alkyl group of 1 to 4 carbon atoms or R_1 and R_2 taken together, together with the nitrogen atom to which they are attached, are pyrrolidino, piperidino or morpholino, and neutralizing with base any excess phosgene in the mixture at the completion of the reaction.

4,379,939

PREPARATION OF NITROGEN FERTILIZERS FROM OXALATE ESTERS PREPARED BY THE OXIDATIVE CARBONYLATION OF ALCOHOLS OVER NOBLE METAL CATALYSTS UTILIZING REGENERABLE 2,5-CYCLOHEXADIENE-1,4-DIONE OXIDANTS

Robert J. Radel, and Jack M. Sullivan, both of Florence, Ala., assignors to Tennessee Valley Authority, Muscle Shoals, Ala.

Continuation of Ser. No. 137,204, Apr. 4, 1980, now Defensive Publication No. T100,903. This application Jun. 30, 1980, Ser. No. 164,418

Int. Cl.[3] **C07C** *69/36, 67/36*

U.S. Cl. 560—193 **20 Claims**

1. A process for the oxidative carbonylation of substituted or unsubstituted alcohols having between 1 and 10 carbon atoms to produce product oxalate esters eminently suitable for use as fertilizer intermediates and byproduct hydroquinone, which process comprises reacting in a reaction vessel under essentially anhydrous conditions, at pressures in the range between about 1000 psi and about 5000 psi and at temperatures in the range between about 80° C. and about 200° C., a mixture of an alcohol and carbon monoxide or a mixture of an alcohol, carbon monoxide and a co-solvent, said alcohol being either an aromatic alcohol, a monohydric saturated aliphatic alcohol, or a saturated alicyclic alcohol, and said co-solvent being nonreactive to said carbon monoxide under said reaction conditions; said reacting mixture in contact with a platinum group metal salt catalyst, or a complex thereof, and a substituted or unsubstituted quinone, wherein the molar ratio of said quinone:-platinum group metal salt ranges between about 3160:1 and about 100:1; subsequently filtering and recycling said catalyst; distilling the resulting reaction product to separate the remaining alcohol or alcohol and co-solvent from said esters; recovering said esters as product; recycling said alcohol or alcohol and solvent to said reaction vessel; and recovering hydroquinone as byproduct.

4,379,940

VINYL ACETATE PURIFICATION PROCESS

Richard C. Dickerson, Virginia Beach, Va., assignor to Ecolochem, Inc., Norfolk, Va.

Filed Oct. 27, 1980, Ser. No. 201,373

Int. Cl.[3] **C07C** *67/00, 67/56*

U.S. Cl. 560—248 **13 Claims**

1. A process for removing acetic acid contaminant from liquid vinyl acetate monomer comprising the following steps:

(a) providing a bed of a dehydrated anion exchange resin; and

(b) passing said vinyl acetate monomer containing acetic acid through said anion exchange resin bed whereby said acetic acid contaminant is removed from said vinyl acetate monomer.

4,379,941

RESOLUTION OF RACEMIC AMINO ACIDS

David W. House, Arlington Heights, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Jan. 8, 1982, Ser. No. 338,199

Int. Cl.[3] **C07B** *19/00*

U.S. Cl. 562—401 **6 Claims**

1. A method of preparing optically active amino acids comprising contacting a solution containing the diastereomeric esters from a racemic amino acid and an optically active 2-isopropyl-5-methylcyclohexanol with a chromatographic support selected from the group consisting of silica, alumina, modified silicas, and the zeolites, eluting said support with a solvent under chromatographic conditions, collecting at least one effluent fraction containing a purified diastereomer, hydrolyzing the purified diastereomer to liberate an optically active amino acid, and recovering said optically active acid.

4,379,942

PROCESS FOR MANUFACTURING METHYL KETONES BY OXIDATION OF TERMINAL OLEFINS

Hubert Mimoun, Rueil Malmaison; Robert Charpentier, Villeneuve les Sablons, and Michel Roussel, Colombes, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Continuation-in-part of Ser. No. 104,941, Dec. 18, 1979, Pat. No. 4,310,704. This application May 20, 1981, Ser. No. 265,488

Claims priority, application France, Dec. 18, 1978, 78 35740; Jan. 11, 1979, 79 00828; Nov. 13, 1979, 79 28154

Int. Cl.[3] **C07C** *45/28*

U.S. Cl. 568—385 **19 Claims**

1. A process for producing a methyl ketone of the formula

$$CH_3-\overset{\displaystyle O}{\overset{\|}{C}}-R$$

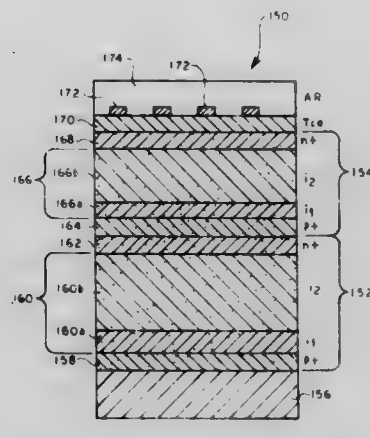
from an olefin of the formula $RCH{=}CH_2$, wherein R is C_{1-20} hydrocarbyl, said process comprising the step consisting essentially of contacting said olefin in the liquid phase with a palladium catalyst and a peroxide oxidizing agent:

wherein said palladium catalyst has the formula PdAA', wherein A is fluoborate, acetate or trifluoroacetate; and A' is OOR_1, wherein R_1 is C_{3-20} hydrocarbyl; and

wherein said oxidizing agent is hydrogen peroxide or an organic hydroperoxide of the formula R_2OOH, wherein R_2 is C_{4-20} tertiary alkyl, aralkyl or alkylaryl.

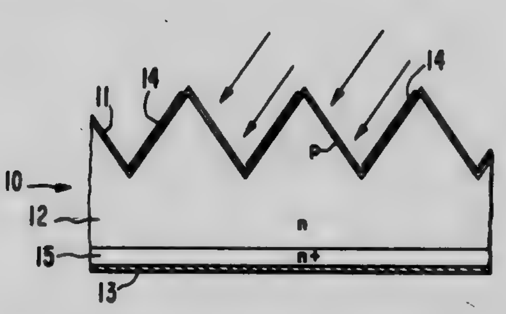
ELECTRICAL

4,379,943
CURRENT ENHANCED PHOTOVOLTAIC DEVICE
Chi C. Yang, Troy; Arun Madan, Birmingham; Stanford R. Ovshinsky, Bloomfield Hills, all of Mich., and David Adler, Lexington, Mass., assignors to Energy Conversion Devices, Inc., Troy, Mich.
Filed Dec. 14, 1981, Ser. No. 330,571
Int. Cl.[3] H01L *31/06, 31/18*
U.S. Cl. 136—249 **116 Claims**



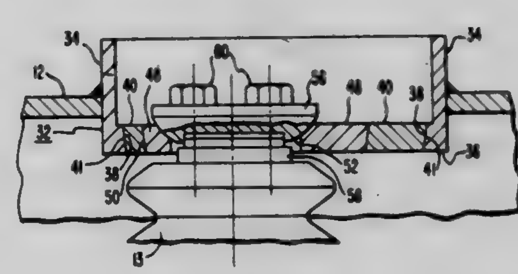
98. A multiple cell photovoltaic device formed from multiple layers of amorphous silicon alloys deposited on a substrate which provides improved current generating capability, said device comprising:
a plurality of single cell units arranged in series relation, each said single cell unit comprising a first doped amorphous silicon alloy layer deposited on said substrate by the glow discharge decomposition of at least silane gas (SiH_4) and diborane; a first intrinsic amorphous silicon alloy layer deposited on said first doped layer by the glow discharge decomposition of at least silane gas (SiH_4); a second intrinsic amorphous silicon alloy layer deposited on said first intrinsic layer by the glow discharge decomposition of at least silicon tetrafluoride (SiF_4) and hydrogen and/or silane gas (SiH_4); and a further doped amorphous silicon alloy layer deposited on said second intrinsic layer by the glow discharge decomposition of at least silicon tetrafluoride (SiF_4), phosphine PH_3, and hydrogen and/or silane gas (SiH_4).

4,379,944
GROOVED SOLAR CELL FOR DEPLOYMENT AT SET ANGLE
Peter G. Borden, Menlo Park; Ronald L. Bell, Woodside, and Syed B. Hyder, Los Altos Hills, all of Calif., assignors to Varian Associates, Inc., Palo Alto, Calif.
Filed Feb. 5, 1981, Ser. No. 232,062
Int. Cl.[3] H01L *31/06*
U.S. Cl. 136—259 **8 Claims**



1. A solar cell for deployment at a set angle with respect to incoming radiation comprising:
a wafer of a semiconductor material having a series of grooves formed on the front surface thereof, said grooves forming first and second sets of sidewalls, all of the sidewalls of each set being oriented in generally the same direction;
a network of metal contact lines formed on at least some of the sidewalls of said first set, whereby the body of said cell may be tilted to receive incoming radiation in a manner such that substantial amounts of said incident radiation impinges on said sidewalls of said second set and said network of metal contact lines is substantially shadowed;
a pn junction formed in at least a portion of said sidewalls of said grooves;
contact metallization formed on the back surface of said wafer; and
apparatus for receiving and maintaining said solar cell at a set angle with respect to incoming radiation.

4,379,945
ADJUSTABLE INSULATOR ATTACHMENT FOR ISOLATED PHASE BUS SWITCH
Alexander Zwillich, Pittsburgh, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Jun. 25, 1981, Ser. No. 277,462
Int. Cl.[3] H02G *5/06*
U.S. Cl. 174—99 B **7 Claims**



1. Apparatus for attaching an insulator to an electrical conductor comprising:
a base member attached to the electrical conductor, said base member including a mounting portion substantially tangential to the surface of the conductor and means defining a first circular aperture through said mounting portion;
a first circular positioning plate comprising means for supporting said first positioning plate within said first aperture and means defining a second circular aperture through said first positioning plate and nonconcentric therewith;
a second circular positioning plate comprising means for supporting said second positioning plate within said second aperture; an insulator attachment member; and means for eccentrically supporting said attachment member upon said second positioning plate;
means for fixedly attaching said attachment member to an insulator; and
means operable between disengaged and engaged conditions for permitting rotation of said first and said second positioning plates when in the disengaged condition, and for fixedly locating said first positioning plate, said second positioning plate, and said attachment member relative to the electrical conductor when in the engaged condition;
whereby rotation of said first and second positioning plates is operable to adjust the position of an insulator relative to the electrical conductor within planes tangential to the surface of the electrical conductor.

4,379,946

SIGNALLING SYSTEM AND SIGNAL CONTROL EQUIPMENT FOR MULTI-ADDRESS CALLING

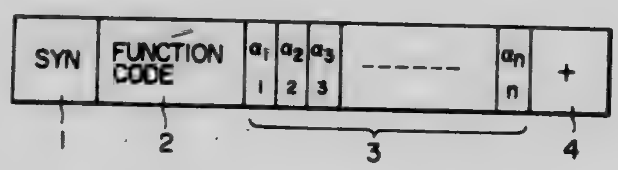
Toshiro Mizuno, and Kazuo Imai, both of Iruma, Japan, assignors to Nippon Telegraph & Telephone Public Corporation, Tokyo, Japan

Filed May 20, 1981, Ser. No. 265,484

Claims priority, application Japan, Jun. 5, 1980, 55-74930; Feb. 27, 1981, 56-27930; Mar. 9, 1981, 56-34080

Int. Cl.^{3} H04L *11/15*

U.S. Cl. 178—3 **9 Claims**



1. A signalling system for multi-address calling for transmitting the same information from an originating terminal to a plurality of destination terminals, in which a control signal related to the plurality of destination terminals, which is transmitted and received between the originating terminal and an exchange, is composed of:

a synchronize signal for detecting the beginning of the control signal;

a function determination field for indicating that the control signal is any one of at least a selection signal, a call accepting state indication signal, and a data receiving state indication signal; and

a terminal appointing field in which respective one bit time slots are assigned to each of the destination terminals in a predetermined order so that the signal set in the function determination field is allotted as a result of one bit appearing in said respective time slot.

4,379,947

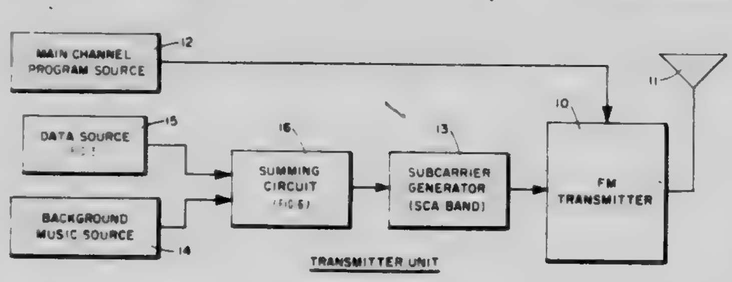
SYSTEM FOR TRANSMITTING DATA SIMULTANEOUSLY WITH AUDIO

Paul Warner, Port Washington, N.Y., assignor to Teleprompter Corporation, New York, N.Y.

Filed Feb. 2, 1979, Ser. No. 9,187

Int. Cl.^{3} H04H *5/00;* H04J *1/14*

U.S. Cl. 179—1 GD **23 Claims**



11. In a broadcasting system for transmitting a main program on a channel carrier and an auxiliary audio program such as background music on subcarriers of the channel carrier, data transmission means for transmitting a data signal simultaneously with the auxiliary audio program on the same subcarriers of the channel carrier without interruption of the transmission of either the data signal or the auxiliary audio program.

4,379,948

METHOD OF AND ARRANGEMENT FOR DERIVING CHARACTERISTIC VALUES FROM A SOUND SIGNAL

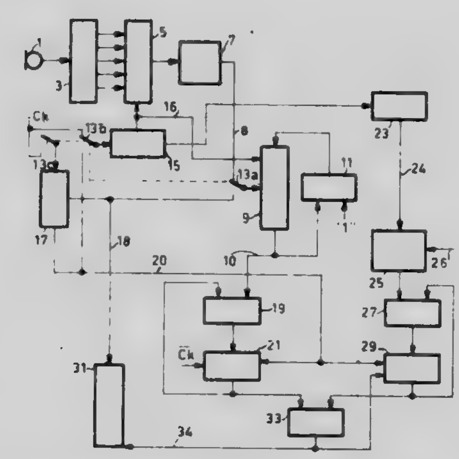
Hermann Ney, and Michael H. Kuhn, both of Hamburg, Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 29, 1980, Ser. No. 192,156

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1979, 2939077

Int. Cl.^{3} G10L *1/00*

U.S. Cl. 179—1 SC **2 Claims**



1. An arrangement for deriving characteristic values from a sound signal having a transducer circuit, which circuit receives the electrical signal derived from the sound signal and on whose output short-time-spectrum signal values are available, which values represent the energy of the electrical signal in consecutive equal time intervals for each of a plurality of adjacent frequency ranges, comprising:

a memory (9) having an address input;

a clock supplying a clock signal;

multiple parallel switch means (13) to connect said address input of said memory to the output (8) of said transducer circuit (3, 5, 7) under the control of said clock signal; said multiple parallel switching means being a series of switches connected in parallel, one of which connects said memory address input to said transducer circuit output when a sound signal is present on said output to receive said short-time-spectrum signal values and the number of the associated frequency ranges as addresses;

an address circuit (15, 17) which consecutively addresses the memory location (19, 21) of said memory under the control of said clock signal via said switching means;

a data output (10) for said memory;

a data output of said memory (10) connected to said address circuit;

said address circuit forming some of the contents of said addressed memory locations of each frequency range;

an adder (11) connected to said data output of said memory such that said adder increments the content of each addressed memory location by one unit and stores the result at said location, thus storing the number of times that the corresponding signal has appeared on said transducer output;

a result memory (31);

a comparator circuit (33, 35) to compare the sum of the contents of said addressed memory locations with multiples of a quantile value which is derived from the total number of short-time-spectrum signal values of each frequency range and, when a multiple is exceeded to store the instantaneous address of the address circit (15, 17) in said result memory connected thereto;

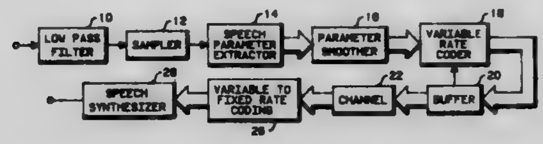
said result memory containing the signal values representing the desired characteristic values after all memory locations of said memory (9) have been addressed by the address circuit.

4,379,949

METHOD OF AND MEANS FOR VARIABLE-RATE CODING OF LPC PARAMETERS

Yeunung Chen, Richardson, Tex., and Michael J. McLaughlin, Hoffman Estates, Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 10, 1981, Ser. No. 291,648
Int. Cl.³ G10L *1/00*
U.S. Cl. 179—15.55 R **17 Claims**



1. A method of minimizing an amount of digital information sent to characterize a signal that has been divided into frames of equal times and for which parameters of linear predictive coding have been determined for each of a plurality of the frames, the method comprising:

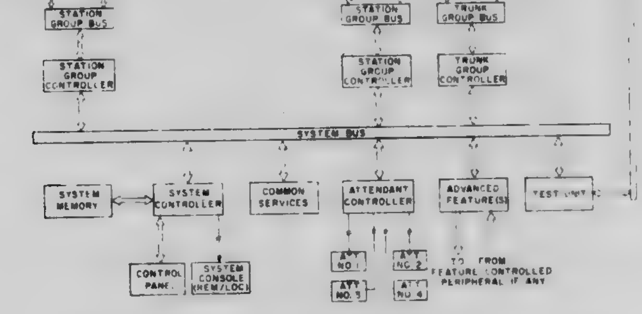
(a) storing parameter values of a predetermined number of frames;
(b) determining interpolated values resulting from linear interpolation between parameter values of a first frame and a parameter value of a frame of the predetermined number;
(c) comparing the interpolated values with the parameter values at frames between the first frame and the frame of the predetermined number to obtain compared values;
(d) testing the compared values against a predetermined threshold; and
(e) transmitting the parameter value of the frame of the predetermined number when no compared value exceeds the threshold.

4,379,950

DISTRIBUTED CONTROL MEMORY NETWORK

Fahim Ahmed, Guelph, Canada, assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Mar. 31, 1980, Ser. No. 135,464
Claims priority, application Canada, Jul. 23, 1979, 332385
Int. Cl.³ H04M *3/00*
U.S. Cl. 179—18 ES **3 Claims**



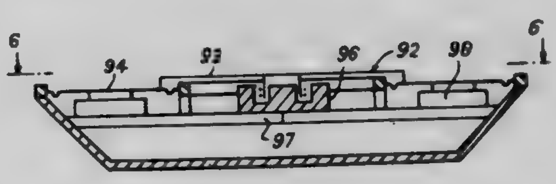
1. A distributed communications system including a common system controller including system processor and associated memory, said system controller operative to control a plurality of groups of stations, with each group of stations including a group controller comprised of a group processor and associated memory, a system bus interacting between said system controller and said group controllers for the transfer of data in pulse code modulation from said system controller to selected ones of said group controllers and from said group controllers individually to said system controller, a common random access memory in each group controller for providing temporary storage for channeling control data bidirectionally between the system processor and the group processor of the respective group, first address control means in a group controller for accessing said last-mentioned memory in the group of that controller from said system bus for transfer of data from said bus to said memory, second address control means in said group controller for accessing said last-mentioned memory for the transfer of data to said last-mentioned memory from said group and means responsive to first receipt of a signal indicative of means accessing said last-mentioned memory for applying a wait signal to any other accessing means attempting to access said memory and in which each group controller includes a direct path to its group processor by passing said temporary storage memory whereby to reset the group processor on a signal from the system processor over said direct path.

4,379,951

ELECTRO-ACOUSTIC TRANSDUCER MEANS

Saad Z. M. Gabr, 81 Old Dover Rd., Canterbury, Kent, England

Division of Ser. No. 901,147, Apr. 28, 1978, Pat. No. 4,176,253. This application Nov. 14, 1979, Ser. No. 94,082
Claims priority, application United Kingdom, Apr. 20, 1977, 16500/77; Apr. 25, 1977, 17215/77; May 20, 1977, 21383/77; Jun. 1, 1977, 23208/77; Jan. 23, 1978, 2629/78
Int. Cl.³ H04R *7/02, 9/02*
U.S. Cl. 179—101 **2 Claims**



1. An electro-acoustic transducer means comprising:

diaphragm means, said diaphragm means having an outer periphery and an internal aperture bounded by an inner periphery,
rigid chassis means, said chassis means having a first portion extending around said diaphragm means outer periphery and a second portion disposed within said diaphragm means internal aperture and around which said diaphragm means inner periphery extends,
first diaphragm suspension means, said first diaphragm suspension means extending between said diaphragm means outer periphery and said first portion of said chassis means,
second diaphragm suspension means, said second diaphragm suspension means extending inwardly from said diaphragm means inner periphery to said second portion of said chassis means,
electro-mechanical transducer means acting between said diaphragm means and said chassis means,
means mounting said electro-mechanical transducer means within said chassis means second portion, and
connecting means extending outwardly from said electromechanical transducer means to drivingly engage said diaphragm means.

4,379,952

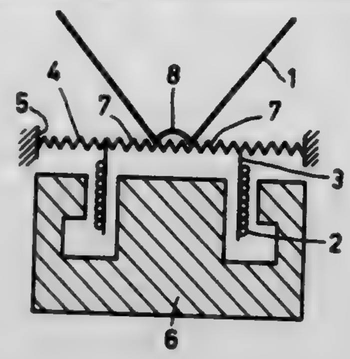
MECHANICAL FILTER FOR AN ELECTRODYNAMIC TRANSDUCER

Adrianus J. M. Kaizer, and Wiert Kopinga, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 24, 1980, Ser. No. 209,772
Claims priority, application Netherlands, Dec. 11, 1979, 7908896
Int. Cl.³ H04R *7/00*
U.S. Cl. 179—115.5 PC **7 Claims**

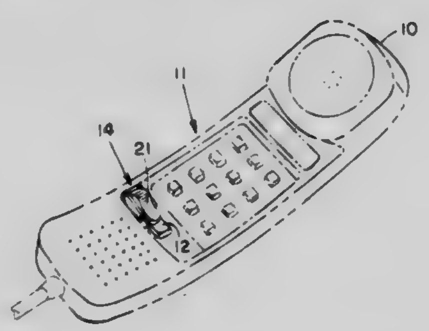
1. An electrodynamic transducer comprising a vibratory cone, a voice coil former on which a voice coil is arranged, and a coupling element between the voice coil former and the cone comprising a centering diaphragm which extends across the

voice coil former with the cone secured to a portion of the centering diaphragm which is situated within the periphery of the voice coil former and the portion of the centering dia-



phragm which constitutes the coupling element between the voice coil former and the cone being operative to function as a mechanical filter.

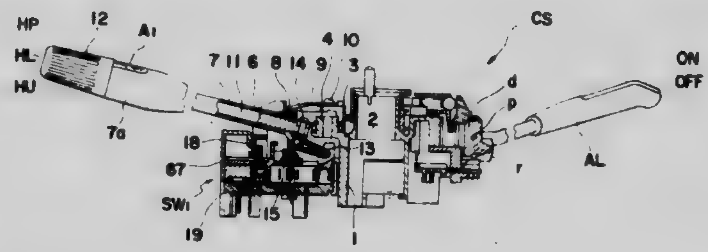
4,379,953
TELEPHONE SWITCH RETAINING APPARATUS
Leslie G. Huff, 11512 Tincup #208, Austin, Tex. 78750
Filed Aug. 10, 1981, Ser. No. 291,558
Int. Cl.³ H01H *9/22*
U.S. Cl. 179—178 **9 Claims**



1. A telephone switch retaining apparatus comprising:
a first means including a generally flat surface with securing means for securing the first means to a telephone apparatus having a receiver, transmitter and a switch button;
a second means included with the first means for longitudinal sliding movement and being positioned relative to the first means such that longitudinal sliding movement of the second means will selectively engage and depress the switch button of said telephone apparatus as a result of the sliding engagement and maintain the switch button depressed.

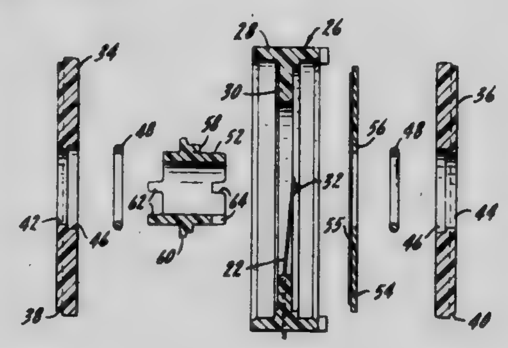
4,379,954
LEVER OPERATED PLURAL SWITCH ASSEMBLY
Masayosi Iwata, Hashima; Harumi Douke, Komaki; Yoshikazu Hayashi, Gifu; Tadashi Yokoyama, Kuwana, and Yukio Mizuta, Nishi, all of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan
Filed Oct. 21, 1980, Ser. No. 199,214
Claims priority, application Japan, Oct. 24, 1979, 54-147425[U]
Int. Cl.³ H01H *9/00, 3/16*
U.S. Cl. 200—4 **8 Claims**

1. A combination switching arrangement for use in a motor vehicle and the like and comprising:
a support frame;
a lever support member pivotally mounted to said support frame;
a control level member pivotally mounted to said lever support member;
said control level member having a control shaft extending axially therethrough and said control shaft being rotatable about the longitudinal axis of said control level member;
said control shaft carrying a first actuating member;
said control level member carrying a second actuating member and being pivotally movable relative to said lever support member about a second axis;
said lever support member carrying a third actuating member and being pivotally movable relative to said support frame about a first axis;
a switching unit mounted on said support frame and having a switch base having at a first surface thereof said control lever member, said control shaft and said first, second and third actuating members and carrying on said first surface a plurality of switching elements to be selectively opened and closed by operation of said first, second and third actuating members;



first, second and third actuating pieces mounted on said first surface of said switch base and operable by said first, second and third actuating members, respectively, to open and close respective of said switching elements;
an additional switching element mounted on a second surface of said switch base, opposite to said first surface thereof;
a fourth actuating piece having a bridging contact mounted thereon and disposed on said second surface of said switch base; and
said fourth actuating piece and one of said first, second and third actuating pieces having portions mechanically coupled through an aperture formed in said switch base, such that motion of said one actuating piece in use is transmitted to said fourth actuating piece to selectively open or close said additional switching element.

4,379,955
SEALED ROTARY SWITCH
John Comerford, Glendale Heights, Ill., assignor to Oak Industries, Inc., Rancho Bernardo, Calif.
Filed Mar. 1, 1982, Ser. No. 353,831
Int. Cl.³ H01H *19/64*
U.S. Cl. 200—11 DA **8 Claims**



1. A sealed rotary switch, comprising:
a stator having side walls with generally open ends;
first and second covers having aligned openings, one cover being located near each end of the stator and in contact with the side walls, the joints between the covers and the side walls including a notch filled with adhesive sealant;
a rotor including a hub and a printed circuit board connected to the hub, the rotor being mounted for rotation in the cover openings with the printed circuit board located between the covers, the covers each having a seat formed around the opening, resilient seal members being disposed in the seats to seal against the rotor hub; and

electrical leads insert-molded in the stator and extending into contact with the printed circuit board in the sealed interior of the stator.

4,379,956

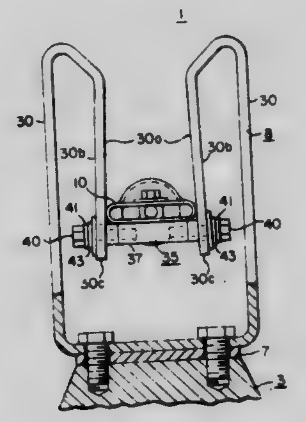
BREAK-JAW CONSTRUCTION FOR A DISCONNECTING SWITCH STRUCTURE

Charles M. Cleaveland, North Huntingdon, and Peter M. Kowalik, Trafford, both of Pa., assignors to Cleaveland/Price Enterprises, Inc., Trafford, Pa.

Filed Dec. 15, 1980, Ser. No. 216,686

Int. Cl.³ H01H *31/30, 1/42*

U.S. Cl. 200—48 A **4 Claims**



1. A high-voltage disconnecting switch comprising a swinging movable disconnecting switchblade (10) making separable opening and closing contacting engagement with a stationary switch contact assembly (8), means pivotally mounting said swinging movable disconnecting switchblade (10) about a stationary pivot, said stationary switch contact assembly (8) comprising a confronting pair of inwardly turned contact fingers (30*a*) turned inwardly from their relatively stationary outer contact supporting strap portions (30), said inwardly turned contact fingers (30*a*) having apertures provided ajacent their lower free ends (30*c*), a floating tie-bolt assembly (35) extending through the two aforesaid apertures and constituting an end limiting stop for the completely closed circuit position of the swinging movable disconnecting switchblade when it is fully closed, whereby lateral movement of the switchblade (10) during the existence of heavy fault currents pushing one contact finger (30*a*) will cause the floating tie-bolt assembly (35) to carry the other opposed contact finger (30*a*) along therewith for good contacting movement with the switchblade, said floating tie-bolt assembly (35) including a metallic tube (37) having its outer ends interiorly threaded to accommodate mounting bolts (40), spring means (43) interposed between the head (40*a*) of each mounting bolt (40) and the outer face surface (30*b*) of each contact finger (30*b*), and an insulating bushing (41) encircling each mounting bolt (40) and passing through the respective aperture in the contact finger (30*a*) to prevent current flow from the switchblade into the spring means (43).

4,379,957

MODULAR "Y"-TYPE ENCLOSURE ELEMENTS FOR GAS INSULATED SUBSTATIONS

Ben J. Calvino, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jan. 14, 1981, Ser. No. 224,872

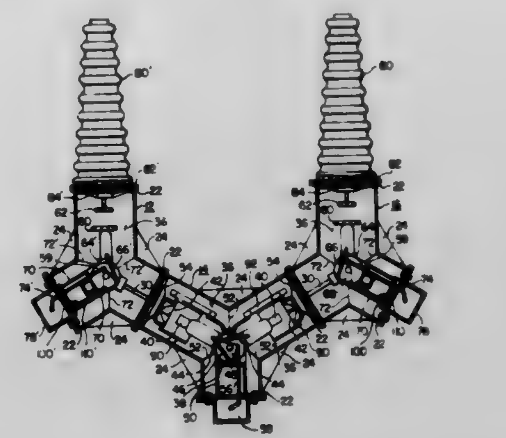
Int. Cl.³ H01N *33/14*

U.S. Cl. 200—145 **11 Claims**

1. A compressed gas modular circuit control system, comprising:

a first generally "Y"-shaped enclosure element having a circuit control means disposed therein for controlling the flow of current therethrough and a flanged opening means attached to a leg of said enclosure element for electrically and mechanically connecting said enclosure element to another enclosure element; and

a second generally "Y"-shaped enclosure element having a circuit breaker control means disposed therein for controlling the flow of current therethrough and a flanged opening means attached to a leg of said second enclosure element for electrically and mechanically attaching said second enclosure element to first said enclosure element.



4,379,958

GAS-BLAST SWITCH

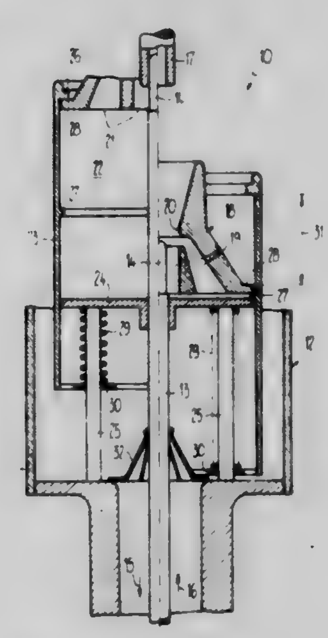
Johann Blatter, Schönenwerd, and Walter Schaad, Oberentfelden, both of Switzerland, assignors to Sprecher & Schuh AG, Aarau, Switzerland

Filed Sep. 2, 1980, Ser. No. 183,430

Claims priority, application Switzerland, Nov. 22, 1979, 10413/79

Int. Cl.³ H01N *33/88*

U.S. Cl. 200—148 A **6 Claims**



1. A gas-blast switch comprising:

a thrust rod;

a movable contact element secured to one end of said thrust rod;

a stationary contact element;

said movable contact element being capable of being brought into and out of engagement with said stationary contact element;

said movable contact element having a free end;

a blast nozzle secured to said thrust rod and surrounding said free end of said movable contact element;

said blast nozzle having inlet means;

a cylinder containing a pump chamber surrounded by said cylinder;

said pump chamber containing an extinguishing gas;

said inlet means of said blast nozzle being in flow communication with said pump chamber;
said pump chamber during the course of a cut-off stroke of said gas-blast switch being pressurized;
a first stationarily supported piston upon which there is displaceably guided said cylinder;
a second piston situated opposite said first piston;
said blast nozzle being constructed to constitute floor means of said second piston;
said second piston being displaceable relative to said cylinder between two end positions;
means for moving the cylinder during a cut-off stroke of the gas-blast switch in the same direction as the movable contact element but through a smaller displacement path than the path of movement of said movable contact element;
said means for moving the cylinder comprising two stop members arranged within said cylinder;
said stop members cooperating with said second piston for defining the end positions of said cylinder with respect to said second piston and forming with the latter a drag connection between said thrust rod and said cylinder; and
at least one spring member for loading said cylinder in the direction of the cut-off stroke of the gas-blast switch.

4,379,959

METHOD OF AND APPARATUS FOR WIRE-CUTTING A WORKPIECE BY ELECTROEROSION

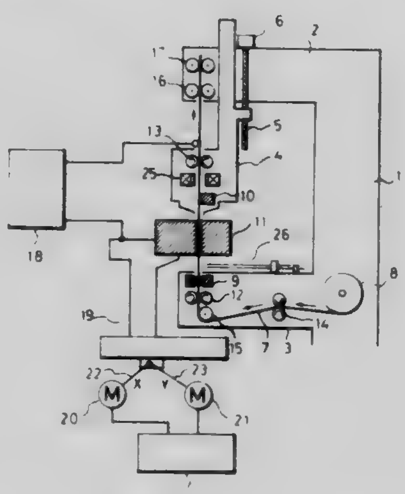
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Filed Oct. 3, 1980, Ser. No. 193,668

Claims priority, application Japan, Oct. 4, 1979, 54-128621; Nov. 21, 1979, 54-151274

Int. Cl.³ B23P *1/12*

U.S. Cl. 219—69 M **17 Claims**



1. In a method of wire-cutting a workpiece by electroerosion wherein a continuous wire electrode is axially transported from a supply means to a collection means along a predetermined wire guiding path to traverse the workpiece linearly between a pair of wire guide members disposed at opposite sides of the workpiece in the path and adapted to position the wire electrode therebetween in a machining relationship with the workpiece; and an electrical machining current is passed between the wire electrode and the workpiece across a machining gap flooded with a machining medium to electroerosively remove material from the workpiece while the workpiece is displaced transversely and relative to the wire elec-

element constituting a slender guide element and being straight at least along the length of said through-hole;
(c) securely holding said detached wire element on said workpiece while leaving it inserted in said through-hole against dropping out;
(d) positioning a wire electrode having a broken, free end portion extending continuously from the supply means through a first of said wire guide members disposed at an inlet side of said workpiece to locate said broken, free end portion ahead of said workpiece;
(e) positioning said workpiece to locate said broken, free end portion projecting from said first wire guide member, ahead of and coaxially with said through-hole;
(f) connecting an end of said detached wire element projecting from said through-hole at said inlet side with said broken, free end portion of the wire electrode;
(g) withdrawing said detached wire element from said through-hole through a second of said wire guide members disposed at an outlet side of said workpiece and continuingly displacing said element to advance said wire electrode through said second wire guide member onto said collection means; and subsequently
(h) proceeding to the wire-cutting of said workpiece by electroerosion.

4,379,960

ELECTRICAL DISCHARGE MACHINING METHOD AND APPARATUS USING ULTRASONIC WAVES AND MAGNETIC ENERGY APPLIED CONCURRENTLY TO THE MACHINING GAP

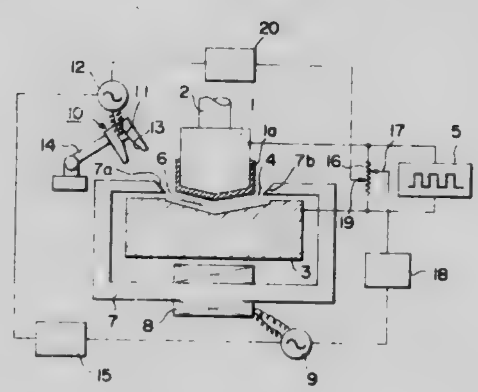
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Continuation-in-part of Ser. No. 150,355, May 16, 1980, Pat. No. 4,366,358. This application Jan. 19, 1981, Ser. No. 226,417

Claims priority, application Japan, Jan. 22, 1980, 55-6632

Int. Cl.³ B23P *1/08*

U.S. Cl. 219—69 M **29 Claims**



1. A method of electroerosively machining a workpiece, comprising the steps of:
positioning a tool electrode in a spaced juxtaposition with said workpiece to define a machining gap therewith in a machining liquid received in a worktank;
applying a succession of electrical machining pulses between said tool electrode and said workpiece to produce electrical discharges across said machining gap flooded with said machining liquid, thereby removing material from said workpiece and forming a recess therein;
relatively displacing said tool electrode and said workpiece so that the successive removal of material progressively advances the formation of said recess in said workpiece;

4,379,961

METHOD OF MAKING AN APPARATUS CONTAINING A DIAPHRAGM

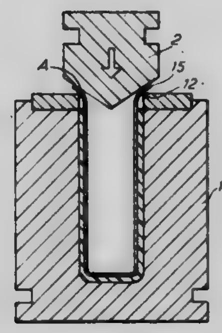
Jorn M. Schmidt, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Continuation of Ser. No. 48,845, Jun. 15, 1979, abandoned, which is a continuation of Ser. No. 898,092, Apr. 20, 1978, abandoned. This application Oct. 16, 1980, Ser. No. 197,517

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1777, 2718609

Int. Cl.³ B23K *11/16*

U.S. Cl. 219—78.01 **1 Claim**



1. A method of making apparatus having a thin walled diaphragm unit, comprising the steps of, initially forming a thin tube element of a ferrous compound and with a cylindrical shape, providing a ring element of a ferrous compound having an inside diameter larger than the diameter of said tube element, forming an oblique rim on said tube element, applying a layer of from 4 to 8 microns of an alloy of phosphorous and nickel having a melting point of about 900° C. only on the ring element, said alloy having a substantially higher electrical resistance than said ferrous compounds, placing said ring element in surrounding relation to said tube element in juxtaposition to said rim, said layer being between said ring element and said rim, and pressing said rim into contact with said ring element while passing an electric current through said rim and said ring element to provide heat for joining said elements together, said heat being concentrated in said layer of said alloy which attains a substantially higher temperature than said tube and ring elements by reason of said substantially higher electrical resistance thereof.

4,379,962

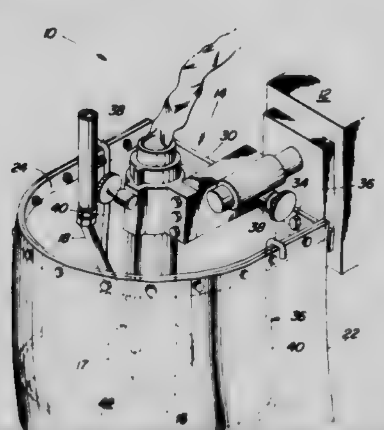
SUPPORT STRUCTURE FOR PLASMA ARC CUTTING TORCH SHIELD

Richard W. Hirst, Hazel Green, Wis., assignor to Deere & Company, Moline, Ill.

Filed Apr. 30, 1981, Ser. No. 259,128

Int. Cl.³ B23K *9/00*

U.S. Cl. 219—121 P **10 Claims**



ture, comprising: a pair of upwardly opening receptacles mounted on the frame in spaced relationship to each other at respective locations elevated above and equidistant from the torch nozzle; an elongate shield holder having downwardly extending projections at its opposite ends; said projections being respectively releasably received in the pair of upwardly opening receptacles; said shield holder being located approximately at the level of the receptacles and having an arcuate portion extending at least 180° about the torch nozzle; and a plasma arc shield secured to the shield holder in depending relationship thereto and having a lower edge located no higher than the bottom of the nozzle.

4,379,963

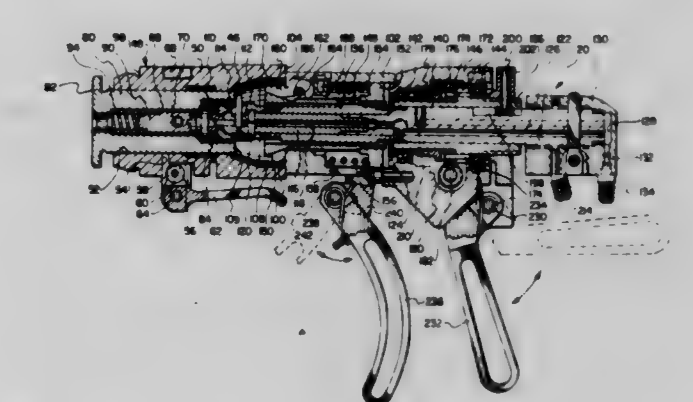
WELDING APPARATUS DESIGNED PARTICULARLY FOR USE WITHIN A CONFINED AREA

Gasparas Kazlauskas, 10219 Briarwood Dr., Los Angeles, Calif. 90024

Filed Jan. 5, 1981, Ser. No. 222,704

Int. Cl.³ B23K *9/225*

U.S. Cl. 219—136 **21 Claims**



1. A welding apparatus for producing a weld on a workpiece, said welding apparatus comprising:

a main housing having a longitudinal center axis, said main housing being tubular having an elongagted opening;

a shaft mounted within said elongated opening, said shaft being longitudinally movable along said longitudinal center axis and rotatable about said longitudinal center axis, a welding electrode connected to one end of said shaft, said welding electrode being spaced from said main housing, said welding electrode being rotated by rotation of said shaft;

securing means for longitudinally fixing said shaft relative to said main housing at a particular established position, said securing means being releasable permitting longitudinal movement of said shaft relative to said main housing; and

said inlet means of said blast nozzle being in flow communication with said pump chamber;
said pump chamber during the course of a cut-off stroke of said gas-blast switch being pressurized;
a first stationarily supported piston upon which there is displaceably guided said cylinder;
a second piston situated opposite said first piston;
said blast nozzle being constructed to constitute floor means of said second piston;
said second piston being displaceable relative to said cylinder between two end positions;
means for moving the cylinder during a cut-off stroke of the gas-blast switch in the same direction as the movable contact element but through a smaller displacement path than the path of movement of said movable contact element;
said means for moving the cylinder comprising two stop members arranged within said cylinder;
said stop members cooperating with said second piston for defining the end positions of said cylinder with respect to said second piston and forming with the latter a drag connection between said thrust rod and said cylinder; and
at least one spring member for loading said cylinder in the direction of the cut-off stroke of the gas-blast switch.

4,379,959

METHOD OF AND APPARATUS FOR WIRE-CUTTING A WORKPIECE BY ELECTROEROSION

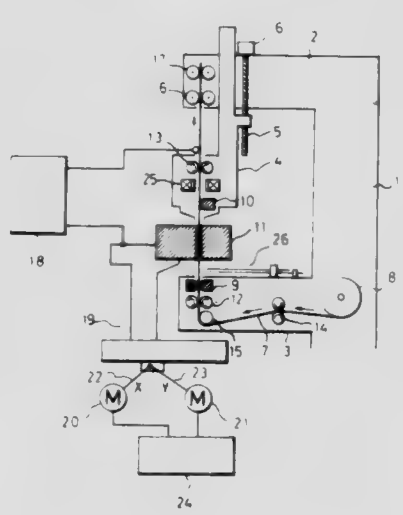
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Filed Oct. 3, 1980, Ser. No. 193,668

Claims priority, application Japan, Oct. 4, 1979, 54-128621; Nov. 21, 1979, 54-151274

Int. Cl.^{3} B23P *1/12*

U.S. Cl. 219—69 M **17 Claims**



1. In a method of wire-cutting a workpiece by electroerosion wherein a continuous wire electrode is axially transported from a supply means to a collection means along a predetermined wire guiding path to traverse the workpiece linearly between a pair of wire guide members disposed at opposite sides of the workpiece in the path and adapted to position the wire electrode therebetween in a machining relationship with the workpiece; and an electrical machining current is passed between the wire electrode and the workpiece across a machining gap flooded with a machining medium to electroerosively remove material from the workpiece while the workpiece is displaced transversely and relative to the wire electrode along a prescribed feed path to form a desired cut in the workpiece, the improvement which comprises the preliminary steps of:
(a) forming a straight through-hole in the workpiece at a preselected location thereof representing a start point of said prescribed feed path;
(b) inserting through said through-hole a detached wire element constituting a slender guide element and being straight at least along the length of said through-hole;
(c) securely holding said detached wire element on said workpiece while leaving it inserted in said through-hole against dropping out;
(d) positioning a wire electrode having a broken, free end portion extending continuously from the supply means through a first of said wire guide members disposed at an inlet side of said workpiece to locate said broken, free end portion ahead of said workpiece;
(e) positioning said workpiece to locate said broken, free end portion projecting from said first wire guide member, ahead of and coaxially with said through-hole;
(f) connecting an end of said detached wire element projecting from said through-hole at said inlet side with said broken, free end portion of the wire electrode;
(g) withdrawing said detached wire element from said through-hole through a second of said wire guide members disposed at an outlet side of said workpiece and continuingly displacing said element to advance said wire electrode through said second wire guide member onto said collection means; and subsequently
(h) proceeding to the wire-cutting of said workpiece by electroerosion.

4,379,960

ELECTRICAL DISCHARGE MACHINING METHOD AND APPARATUS USING ULTRASONIC WAVES AND MAGNETIC ENERGY APPLIED CONCURRENTLY TO THE MACHINING GAP

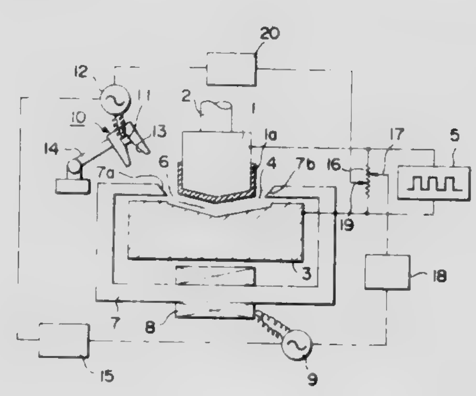
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Continuation-in-part of Ser. No. 150,355, May 16, 1980, Pat. No. 4,366,358. This application Jan. 19, 1981, Ser. No. 226,417

Claims priority, application Japan, Jan. 22, 1980, 55-6632

Int. Cl.^{3} B23P *1/08*

U.S. Cl. 219—69 M **29 Claims**



1. A method of electroerosively machining a workpiece, comprising the steps of:
positioning a tool electrode in a spaced juxtaposition with said workpiece to define a machining gap therewith in a machining liquid received in a worktank;
applying a succession of electrical machining pulses between said tool electrode and said workpiece to produce electrical discharges across said machining gap flooded with said machining liquid, thereby removing material from said workpiece and forming a recess therein;
relatively displacing said tool electrode and said workpiece so that the successive removal of material progressively advances the formation of said recess in said workpiece;
applying a magnetic field of a magnitude not less than 100 Gauss to the region of said recess for a first time period;
applying ultrasonic waves of a frequency not less than 10 kHz through said machining liquid to the region of said recess for a second time period; and
providing a third time period in which said first and second time periods coincide with each other at least partly.

4,379,961

METHOD OF MAKING AN APPARATUS CONTAINING A DIAPHRAGM

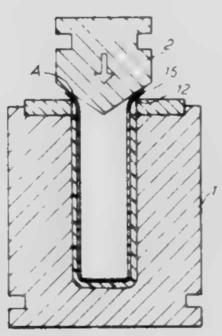
Jorn M. Schmidt, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Continuation of Ser. No. 48,845, Jun. 15, 1979, abandoned, which is a continuation of Ser. No. 898,092, Apr. 20, 1978, abandoned. This application Oct. 16, 1980, Ser. No. 197,517

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1777, 2718609

Int. Cl.³ B23K *11/16*

U.S. Cl. 219—78.01 **1 Claim**



1. A method of making apparatus having a thin walled diaphragm unit, comprising the steps of, initially forming a thin tube element of a ferrous compound and with a cylindrical shape, providing a ring element of a ferrous compound having an inside diameter larger than the diameter of said tube element, forming an oblique rim on said tube element, applying a layer of from 4 to 8 microns of an alloy of phosphorous and nickel having a melting point of about 900° C. only on the ring element, said alloy having a substantially higher electrical resistance than said ferrous compounds, placing said ring element in surrounding relation to said tube element in juxtaposition to said rim, said layer being between said ring element and said rim, and pressing said rim into contact with said ring element while passing an electric current through said rim and said ring element to provide heat for joining said elements together, said heat being concentrated in said layer of said alloy which attains a substantially higher temperature than said tube and ring elements by reason of said substantially higher electrical resistance thereof.

4,379,962

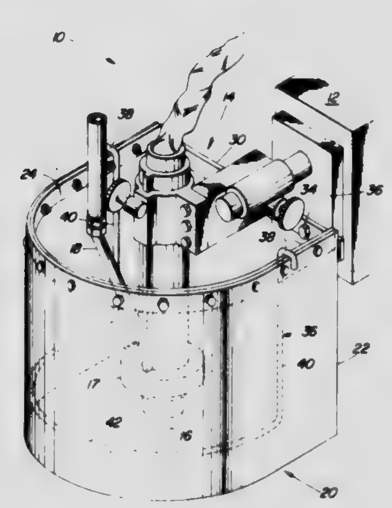
SUPPORT STRUCTURE FOR PLASMA ARC CUTTING TORCH SHIELD

Richard W. Hirst, Hazel Green, Wis., assignor to Deere & Company, Moline, Ill.

Filed Apr. 30, 1981, Ser. No. 259,128

Int. Cl.³ B23K *9/00*

U.S. Cl. 219—121 P **10 Claims**



1. In a machine including a frame supporting a plasma arc cutting torch having a downwardly projecting nozzle and a shielding structure including a shield supported in surrounding relationship to the nozzle, an improved shield support structure, comprising: a pair of upwardly opening receptacles mounted on the frame in spaced relationship to each other at respective locations elevated above and equidistant from the torch nozzle; an elongate shield holder having downwardly extending projections at its opposite ends; said projections being respectively releasably received in the pair of upwardly opening receptacles; said shield holder being located approximately at the level of the receptacles and having an arcuate portion extending at least 180° about the torch nozzle; and a plasma arc shield secured to the shield holder in depending relationship thereto and having a lower edge located no higher than the bottom of the nozzle.

4,379,963

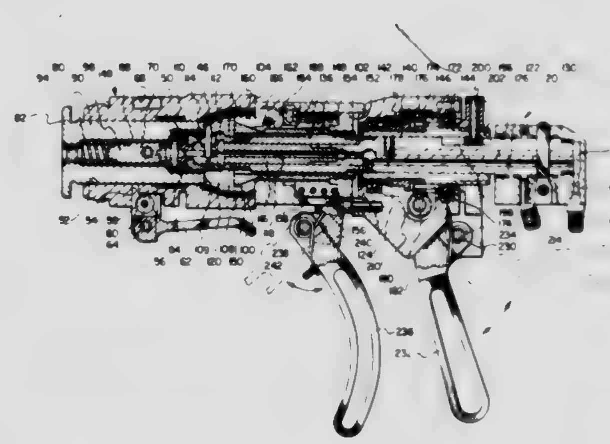
WELDING APPARATUS DESIGNED PARTICULARLY FOR USE WITHIN A CONFINED AREA

Gasparas Kazlauskas, 10219 Briarwood Dr., Los Angeles, Calif. 90024

Filed Jan. 5, 1981, Ser. No. 222,704

Int. Cl.³ B23K *9/225*

U.S. Cl. 219—136 **21 Claims**



1. A welding apparatus for producing a weld on a workpiece, said welding apparatus comprising:

a main housing having a longitudinal center axis, said main housing being tubular having an elongagted opening;

a shaft mounted within said elongated opening, said shaft being longitudinally movable along said longitudinal center axis and rotatable about said longitudinal center axis, a welding electrode connected to one end of said shaft, said welding electrode being spaced from said main housing, said welding electrode being rotated by rotation of said shaft;

securing means for longitudinally fixing said shaft relative to said main housing at a particular established position, said securing means being releasable permitting longitudinal movement of said shaft relative to said main housing; and

handle means mounted upon said main housing, said handle means being movable between an operable position and a collapsed position, whereby said handle means is to be located in said collapsed position and said welding apparatus then moved through a confining opening into an enlarged internal chamber to be then utilized to weld with said handle means being moved to said operable position.

4,379,964

METHOD OF FOOD HEATING CONTROL BY DETECTING LIBERATED GAS OR VAPOR AND TEMPERATURE OF FOOD

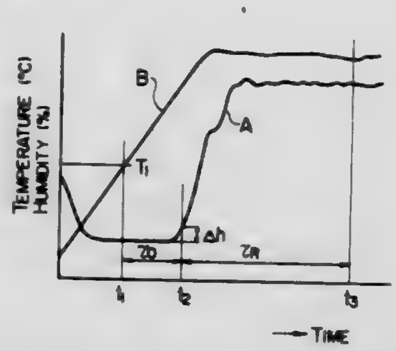
Takato Kanazawa; Keijiro Mori, both of Nara; Shigeru Kusunoki, Yamatokoriyama; Kazunari Nishii, Yamatokoriyama, and Tomotaka Nobue, Yamatokoriyama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jul. 14, 1980, Ser. No. 167,844

Claims priority, application Japan, Jul. 20, 1979, 54-93043; Sep. 6, 1979, 54-114501

Int. Cl.³ H05B *1/02*

U.S. Cl. 219—492 **7 Claims**



1. Heating apparatus including an oven and means for generating heating power for cooking foodstuffs, comprising:
- means for generating a temperature signal corresponding to the surface temperature of said foodstuff;
- means for amplifying said temperature signal and comparing said signal with a predetermined temperature setting, said means producing a temperature detection signal TEMP at a time t_1;
- means for generating at least one of a humidity and gas concentration signal corresponding to the humidity and gas concentration within said oven;
- means for amplifying a selected one of said humidity and gas concentration signals and producing a detection signal HUM at a time t_2 when said one of said humidity and gas concentration begins to increase;
- means for starting and stopping said means for generating heating power;
- means for receiving and storing said temperature signal and one of said humidity and gas concentration signals; and
- a microprocessor for storing said signals and storing and executing a program for the sequence control of the operations of said respective means.

4,379,965

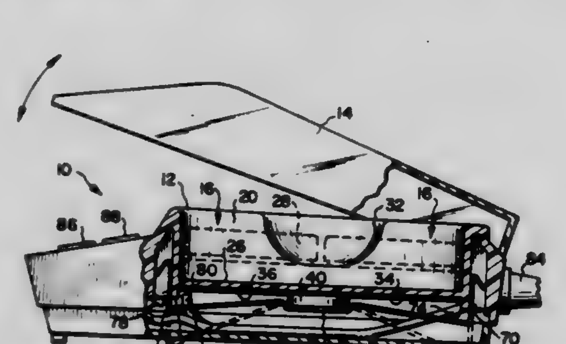
CONTACT LENS DISINFECTING APPARATUS

George H. Dounce, Rochester, and John A. Moore, Wyoming, both of N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Apr. 9, 1981, Ser. No. 252,643

Int. Cl.³ A61L *2/18;* **H05B** *3/06*

U.S. Cl. 219—521 **13 Claims**



1. Apparatus for disinfecting contact lenses contained within a contact lens carrying case, comprising:
- a housing defining a well for supporting a contact lens carrying case, said well being defined by side walls, end walls and bottom support means for supporting and conducting heat to contact lenses contained within said carrying case;
- a heat sink positioned in said housing to directly contact said well bottom support means for conducting heat to said bottom support means;
- a PTC heater element for providing, and automatically controlling, heat supplied to said heat sink, said PTC heater element being electrically energizable and having the characteristics to initially sharply rise in temperature until a preset temperature is achieved and thereafter maintain that temperature until said PTC heater element is de-energized;
- a spring biasing member supporting said PTC heater element and locating and biasing said PTC heater element against said heat sink, including a central portion for receiving and positioning said PTC heater element in close relationship with said heat sink and a pair of extensions extending outwardly from said central portion to form legs for engagement with said housing for locating said PTC heater element relative to said housing and said heat sink; and
- locating means being defined in said housing so as to receive and engage said legs of said spring biasing member in order to cause said extensions to sufficiently flex to urge and maintain said PTC heater element in close contact with said heat sink.

4,379,966

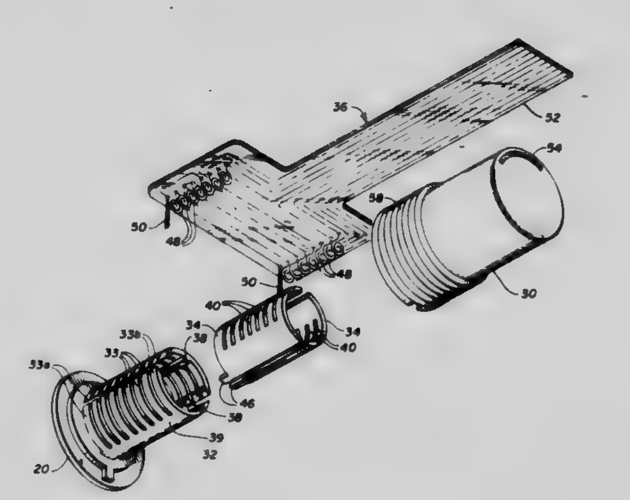
RECEPTACLE FOR ELECTRONIC INFORMATION KEY

William P. Flies, Burnsville, Minn., assignor to Datakey, Inc., Burnsville, Minn.

Filed Jul. 23, 1981, Ser. No. 286,362

Int. Cl.³ G06K *7/06*

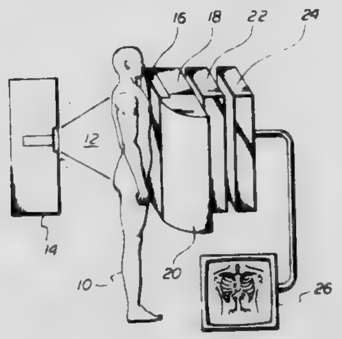
U.S. Cl. 235—443 **11 Claims**



1. A receptacle defining a keyway for an insert portion of a key-like device having an inserted and a "locked" position within the receptacle, the key-like device further having a plurality of spaced transverse grooves on said insert portion and containing an electrical element embedded therein, the element including a plurality of electrical leads each of which is carried on the surface of one of each of said grooves, the receptacle comprising:
- a plurality of spaced electrically conductive contact heads protruding into said keyway and positioned therein for contacting a correspondingly spaced key lead upon insertion of said key insert portion into the receptacle and rotation of the key to the "locked" position;
- finger spring cylinder means surrounding said keyway and including a plurality of arcuate finger spring members so as to form a cylinder-like structure of opposing finger spring pairs, the ends of each finger spring pair being positioned in supporting engagement with one each of said contact heads and the contact heads being arranged in the keyway such that the contact heads are displaced

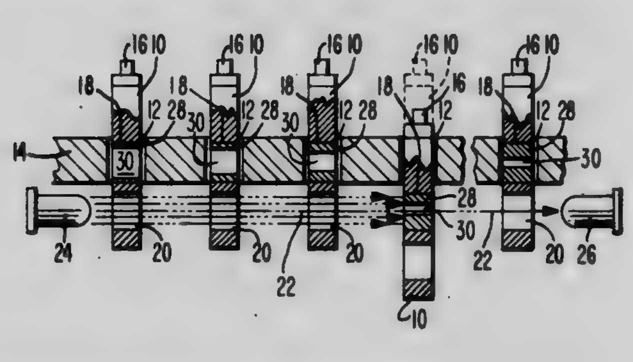
outwardly and urge the supporting finger spring pairs radially outwardly when the key is rotated to the "locked" position; and,
electrical connection means for connecting said receptacle to an operating electrical circuit.

4,379,967
FIBER OPTIC MATRIX CODING METHOD AND APPARATUS FOR RADIATION IMAGE AMPLIFIER
John A. McIntyre, 2316 Bristol St., Bryan, Tex. 77801
Filed Aug. 22, 1980, Ser. No. 180,331
Int. Cl.³ G02B *5/14*
U.S. Cl. 250—227 **47 Claims**



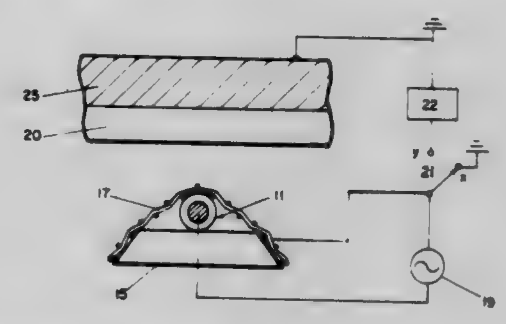
1. An apparatus for analyzing a radiation image comprising:
input means for receiving radiation in the pattern of an image to be reproduced and for converting said radiation pattern into a light pattern;
first coding means for conducting said light pattern from the input means and for coding portions of the light pattern in combinations indicative of the relative positions of said portions of the light pattern wherein said first coding means comprises a plurality of light transmitting elements;
second coding means for conducting said light pattern from the input means and for coding portions of the light pattern in combinations indicative of the relative positions of said portions of the light pattern wherein said second coding means comprises a plurality of light transmitting conduits;
output means for receiving said coded portions of the light pattern from the first coding means and from the second coding means and for converting said coded portions of the light pattern into electrical signals; and
means for determining the relative positions of said portions of said light pattern from the electrical signals provided by the output means to locate the detected incident radiation indicated by the light pattern.

4,379,968
PHOTO-OPTICAL KEYBOARD HAVING LIGHT ATTENUATING MEANS
Richard I. Ely, Orange Park, and Edward I. Nelson, Sunrise, both of Fla., assignors to Burroughs Corp., Detroit, Mich.
Filed Dec. 24, 1980, Ser. No. 220,130
Int. Cl.³ G01D *5/34*
U.S. Cl. 250—229 **12 Claims**



1. Photo-optical apparatus comprising,
a matrix of rows and columns of apertures,
slidably movable members arranged for movement within respective ones of said apertures in said matrix,
each of said movable members having oppositely disposed openings therein, said openings being arranged in vertical, parallel, separated pairs,
light generating means,
light receiving means,
said light generating and light receiving means being axially aligned and arranged so that light from the generating means to the receiving means is uninterrupted by said movable members in one position while in another position of said movable members, said light is partially blocked by said movable members, and
means for accurately varying the amount of light transmitted from said light generating means to said light receiving means, said means being disposed in separate ones of said movable members such that a differing but predictable percentage of total light is received by said light receiving means upon the movement of said movable members from a light unblocking position to a partial light blocking position.

4,379,969
CORONA CHARGING APPARATUS
Harold W. Cobb, Acton, and Richard A. Fotland, Holliston, both of Mass., assignors to Dennison Manufacturing Company, Framingham, Mass.
Filed Feb. 24, 1981, Ser. No. 237,559
Int. Cl.³ H01T *19/04*
U.S. Cl. 250—324 **27 Claims**



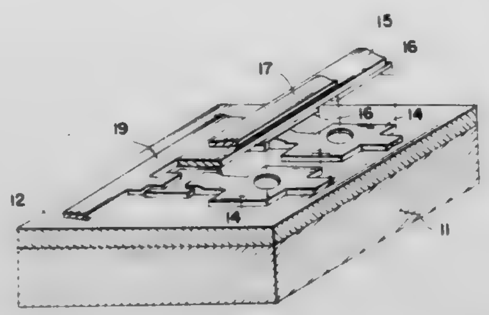
1. Apparatus for generating ions, comprising:
an elongate conductor;
a dielectric sheath for said elongate conductor;
an insulating support for the elongate conductor and dielectric sheath;
a conductive grid contacting said dielectric sheath;
a varying potential applied between said elongate conductor and said conductive grid in order to create a glow discharge; and
means for extracting ions from said glow discharge.

4,379,970
PYROELECTRIC DETECTOR ARRAYS
Archibald L. Fripp, Williamsburg; James B. Robertson, and Roger A. Breckenridge, both of Yorktown, all of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Division of Ser. No. 191,748, Sep. 29, 1980, Pat. No. 4,341,012. This application May 13, 1982, Ser. No. 377,892
Int. Cl.³ G01J *1/00*
U.S. Cl. 250—338 **5 Claims**

1. A pyroelectric detector array comprising:
a semiconductor substrate;
an insulator layer on one side of said semiconductor substrate;
a series of holes in said insulator layer;
a series of nontouching strips of soft metal on said insulator layer with each strip being around a corresponding one of

said series of holes wherein each strip is the output terminal for a pyroelectric detector;

a pyroelectric detector strip mounted over said series of holes in contact with said series of strips; and



a metal layer on said pyroelectric detector strip to provide a ground connection for the pyroelectric detectors.

4,379,971

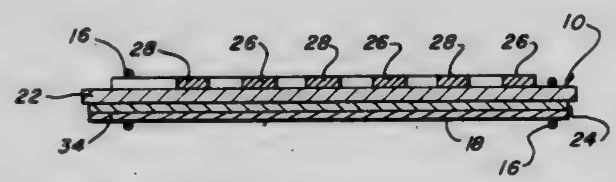
PYROELECTRIC SENSOR

Peter R. Smith, Littleton, and Charles Coleman, Lakewood, both of Colo., assignors to Statitrol, Inc., Denver, Colo.

Filed Nov. 10, 1980, Ser. No. 205,146

Int. Cl.^{3} G01J *1/00*

U.S. Cl. 250—342 **22 Claims**



1. A selective radiation sensing device which is capable of sensing radiated energy having a wavelength in a preselected band, the sensing device comprising:

a body means formed from a thin flexible sheet of pyroelectric material which will generate an electrical charge upon being subjected to a change in temperature;

a first area of electrical conducting material forming a first electrode and adhered to and substantially covering one surface of said pyroelectric material;

one or more areas of electrical conducting material forming at least a second electrode arranged on the opposite side of the pyroelectric material of said body means from the first electrode; and

a thin layer of material which is non-absorbing to all radiation outside of said preselected band, said material being positioned over and adhered to at least a portion of the outer surface of one of said electrodes, said material being capable of absorbing the radiated energy which is within the preselected wavelength band and converting this energy to heat whereby when this radiation is present the generated heat will be conducted from the selective absorbing material to the body means by the metallic electrode so that an electric signal change will be generated in the pyroelectric body material and sensed at the electrodes to indicate the presence of radiation within the preselected wavelength band.

4,379,972

TURBINE VENTILATOR

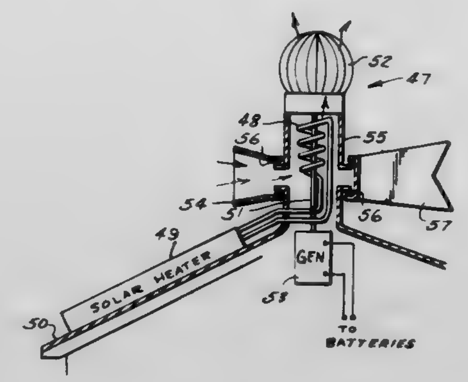
Thomas J. Sosa, San Leandro, Calif., and Daniel T. Sosa, 15576 Farnsworth St., San Leandro, Calif. 94579, assignors to Daniel T. Sosa, San Leandro, Calif.

Filed May 26, 1981, Ser. No. 266,663

Int. Cl.^{3} F03D *9/00*

U.S. Cl. 290—44 **1 Claim**

1. A turbine ventilator, comprising, in combination, a hollow housing mounted on top of an exterior surface of a building roof, opening means through said roof for rising hot air inside said building to enter said housing, a turbine on said housing, said turbine including a base through the top of said housing, and a rotatable spherical member thereupon rotated by said rising hot air, a downward rotor shaft from said spherical member providing electric generator driving means; a solar heater system including a solar collector upon said roof con-



nected by water pipe to a hot water coil inside said housing and around an upper portion of said rotor shaft; a fresh air entry port around a side of said housing, said port being at an elevation that is lower than said water coil, and a rotatable collar around said port having a sidewardly extending vane and a funneled air intake opening on diametrically opposite sides of said collar.

4,379,973

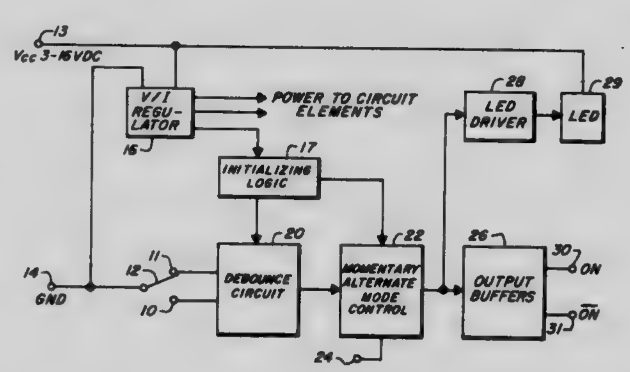
UNIVERSAL LOGIC SWITCH

W. Bard Turner, Lexington, and Thompson Shek, Brighton, both of Mass., assignors to C & K Components, Inc., Newton, Mass.

Filed May 20, 1981, Ser. No. 265,463

Int. Cl.^{3} H02B *1/24;* **H01H** *9/00*

U.S. Cl. 307—112 **22 Claims**



22. A logic switch operable over a predetermined range of input voltages, comprising:

a housing;

mechanical switching means having at least a pair of switch contacts and a switch arm therebetween provided within said housing, said switch arm adapted to be moved by manual force momentarily from a rest position in contact with one of said pair of switch contacts to a second operating position in contact with the other one of said switch contacts, said switching means remaining in said second operating position only so long as manual force is applied thereto;

electronic switching means within said housing for producing an electrical switching function in a selected operating mode from one state of actuation to another state in response to movement of said arm of said mechanical switching means from one of said rest and said second contact positions to the other of said rest and said second contact positions;

circuit means within said housing for initializing said electronic switching means in one of said states of acutation upon interruption of power to said switch;

means provided within said housing for selecting the mode of operation of said electronic switching means; and
output buffer circuit means within said housing for providing a complementary output voltage.

4,379,974

DELAY STAGE FOR A CLOCK GENERATOR

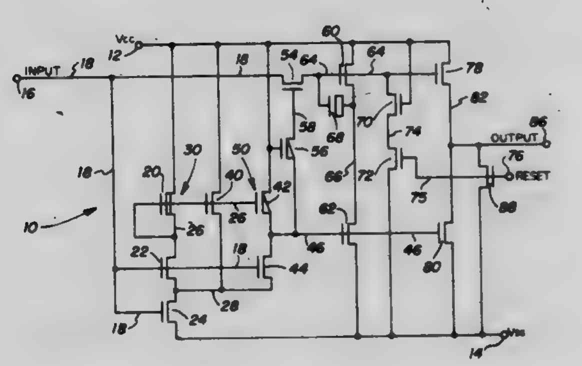
Robert S. Plachno, Lewisville, Tex., assignor to Mostek Corporation, Carrollton, Tex.

PCT No. PCT/US80/01163, § 371 Date Sep. 10, 1980, § 102(e) Date Sep. 10, 1980, PCT Pub. No. WO82/00930, PCT Pub. Date Mar. 18, 1982

PCT Filed Sep. 10, 1980, Ser. No. 261,121

Int. Cl.³ H03K *5/135, 3/295, 3/356, 17/284*

U.S. Cl. 307—269 **25 Claims**



18. A clock generator circuit for producing clocking signals which receives an input signal at an input terminal, produces an output signal at an output terminal and is powered through first and second power terminals, comprising:
- first, second and third transistors each having drain, source and gate terminals and being connected in series between the first power terminal and the second power terminal and forming a first node between said first and second transistors and a second node between said second and third transistors;
- a fourth transistor having drain, source and gate terminals connected between the first power terminal and said second node, said gate terminal thereof connected to said first node;
- fifth and sixth transistors each having drain, source and gate terminals and being connected in series between the first power terminal and said second node, and forming a third node therebetween, said gate terminal of said fifth transistor connected to said first node;
- said gate terminal of said second transistor, said gate terminal of said third transistor and said gate terminal of said sixth transistor being connected to the input terminal;
- a seventh transistor having drain, source and gate terminals, said drain terminal thereof connected to the input terminal;
- an eighth transistor having drain, source and gate terminals, said drain terminal thereof connected to said gate terminal of said seventh transistor, said gate terminal thereof connected to the first power terminal and said source terminal thereof connected to said third node;
- ninth and tenth transistors each having drain, source and gate terminals and being connected in series between the first power terminal and the second power terminal and forming a fourth node therebetween, said gate terminal of said ninth transistor being connected to said source terminal of said seventh transistor and said gate terminal of said tenth transistor being connected to said source terminal of said eighth transistor;
- capacitor means connected between said source terminal of said seventh transistor and said fourth node; and
- eleventh and twelfth transistors each having drain, source and gate terminals and being connected in series between the first power terminal and the second power terminal and forming the output terminal therebetween, said gate terminal of said eleventh transistor connected to said gate terminal of said ninth transistor and said gate terminal of said twelfth transistor connected to said gate terminal of said tenth transistor.

4,379,975

REVERSE FLOW COOLED DYNAMOELECTRIC MACHINE

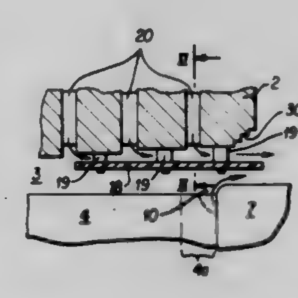
Toshio Kitajima, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jun. 25, 1981, Ser. No. 277,233

Claims priority, application Japan, Jun. 26, 1980, 55-87162

Int. Cl.³ H02K *9/00*

U.S. Cl. 310—59 **7 Claims**



1. A reverse flow cooled dynamoelectric machine comprising:
- a gas tight casing containing cooling gas;
- a stator disposed within said casing and including a core of stacked laminations having spaced radially extending cooling passages disposed therein;
- a rotor disposed within said stator and spaced therefrom by a gap, said rotor including end turn regions and a gas passage disposed in at least one said end turn region to cool said at least one end turn region of said rotor;
- cooling means disposed in said casing;
- fan means mounted on said rotor for circulating said cooling gas and including means for the reverse flow circulation of said cooling gas; and
- baffle means disposed between said cooling passages of at least one end turn region of said stator and said gas passage of said at least one end turn region of said rotor, said baffle means disposed in said gap and spaced from said laminations for forming a ventilation section so as to prevent the impinging of gas from the cooling passages disposed in said stator with gas from said end turn regions of rotor, the size of said ventilation section gradually increasing toward the axial ends of said machine.

4,379,976

PLANOCENTRIC GEAR DRIVE

Edward J. Pitchford, Glendora, and Edward M. Troup, Mount Baldy, both of Calif., assignors to Rain Bird Sprinkler Mfg. Corp., Glendora, Calif.

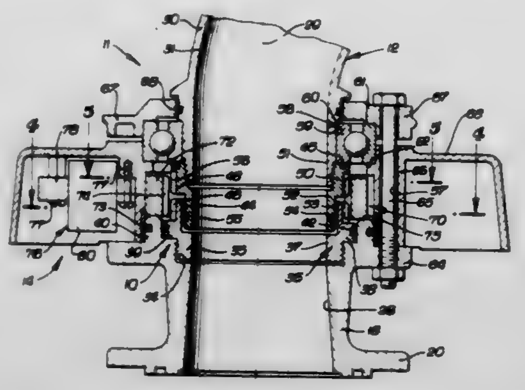
Filed Jul. 20, 1981, Ser. No. 284,714

Int. Cl.³ F16H *1/20*

U.S. Cl. 310—83 **53 Claims**

1. A planocentric gear drive, comprising:
- a fixed stator gear and a rotatable output gear mounted coaxially and having different numbers of teeth;
- a toothed driving gear formed at least in part from a magnetically permeable material and supported for eccentric floating with respect to said common axis and for meshing engagement with said stator and output gears on a common axial line of contact; and
- electromagnetic means for orbiting said driving gear about

said axis in meshing engagment with said stator and output gears, whereby the teeth on said driving gear wedge



against the teeth on said output gear to rotate said output gear with respect to said stator gear.

4,379,977

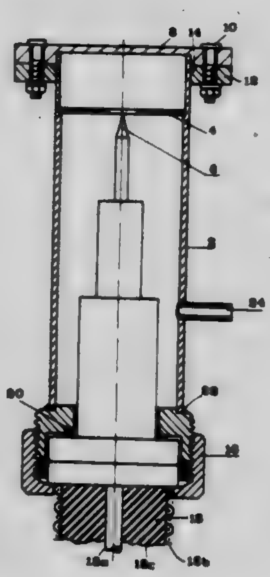
SPACE-DISCHARGE ELECTRONIC DEVICE PARTICULARLY USEFUL AS A FLASH X-RAY TUBE

Yuval Carmel, and Shmuel Eylon, both of Haifa, Israel, assignors to State of Israel, Rafael Armament Development Authority, Ministry of Defense, Haifa, Israel

Continuation of Ser. No. 62,476, Jul. 31, 1979, abandoned. This application May 13, 1981, Ser. No. 262,886

Int. Cl.^{3} H01J *35/04*

U.S. Cl. 378—136 **7 Claims**



1. A space-discharge electronic tube including a cathode and a target anode, characterized in that said cathode consists of a single planar electrode formed with a circular opening therethrough, and that said target anode is of conical shape and has a pointed tip at the end thereof facing said planar cathode electrode, the longitudinal axis of the target anode being normal to the plane of said planar cathode electrode and the pointed tip of the target anode being located in the plane of said planar cathode electrode at the center of its circular opening.

4,379,978

MEANS AND METHOD FOR MAKING ELECTRICAL CONNECTION TO CATHODE RAY TUBES

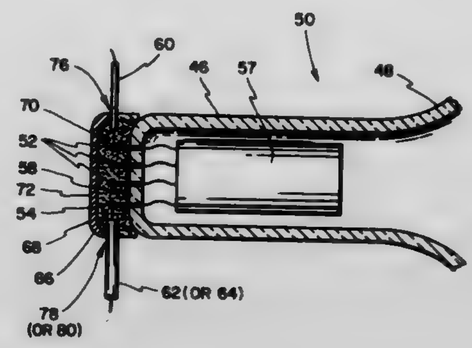
Richard L. Hockenbrock, Mundelein, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Mar. 20, 1981, Ser. No. 245,796

Int. Cl.^{3} H01J *5/48*

U.S. Cl. 313—318 **6 Claims**

1. In a cathode ray picture tube having a narrow neck terminated by a plurality of electrically conductive pins extending axially from the neck terminus, said tube being characterized by each pin being relatively short and having a radially outwardly extending, electrically conductive wire attached thereto in close adjacency to said neck terminus, said tube having a shallow base for accepting and enclosing said pins in abutting relationship to said neck terminus, said base comprising an insulative cylinder filled with an electrically insulative adhesive, said base having a closed end and an open end facing said terminus, said open end having a plurality of crenelations



equal in number to said wires for receiving and passing said wires, such that said wires are maximally electrically isolated one from the others by their spacings, their radially outward extension, and said insulative adhesive; said base is adhered to said neck terminus by said adhesive; and the overall axial length of said tube when connected for operation is reduced by the shallowness of said base, the relative shortness of said pins, and the radially outward extension of said wires.

4,379,979

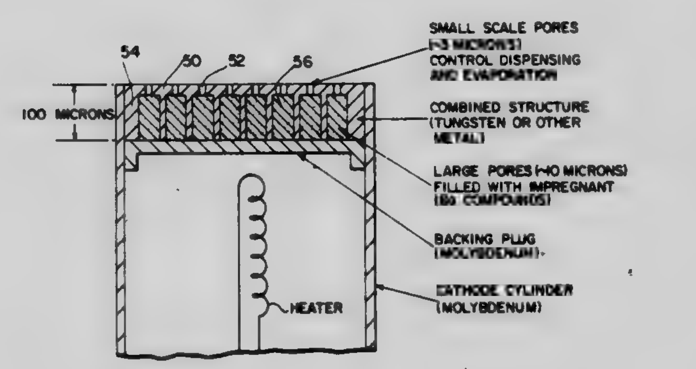
CONTROLLED POROSITY SHEET FOR THERMIONIC DISPENSER CATHODE AND METHOD OF MANUFACTURE

Richard E. Thomas, Riverdale, and Richard F. Greene, Bethesda, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 6, 1981, Ser. No. 232,444

Int. Cl.^{3} H01J *1/14, 19/06;* **H01K** *1/04*

U.S. Cl. 313—346 R **18 Claims**



1. A method of making a controlled porosity surface sheet useful in cathode structures comprising:

manufacturing a substrate of single crystal silicon which has a predetermined array of microposts upstanding from the substrate, said manufacturing including the step of etching the substrate surface in a crystallographically orientation-dependent etch;

applying a metal layer upon the silicon substrate to a desired thickness including covering the microposts;

abrading the resultant structure in order to remove the surface metal and expose tips of the microposts; and

etching away the silicon substrate including the microposts with an anisotropic etching agent to leave a porous sheet.

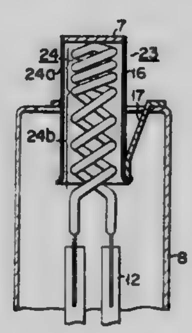
15. In a thermionic dispenser type cathode having an emissive member comprising a backing plug, active cathode material adjacent the backing plug and a thin foil facing the backing plug, the foil being formed from at least one refractory metal with a set of uniformly sized and spaced holes therein to permit

the active cathode material to migrate through the holes and to spread over the exposed surface of the foil when the active cathode material is heated to the proper temperature, the improvement which comprises the holes having a pore width of 1-25 microns on the side of the foil facing away from the cathode material and a larger pore width of 25-100 microns on the other side, pore spacings of from 5-100 microns, and foil thickness from 25-100 microns, said active cathode material substantially filling the portion of the pores having the larger pore width.

4,379,980
QUICK OPERATING CATHODE

Yukio Takanashi, Hiratsuka; Tooru Yakabe, Yokohama, and Shunji Asano, Kawasaki, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Apr. 20, 1981, Ser. No. 255,637
Claims priority, application Japan, Apr. 21, 1980, 55-51705
Int. Cl.[3] **H01J** *1/22, 1/20, 29/04*
U.S. Cl. 313—446 **6 Claims**

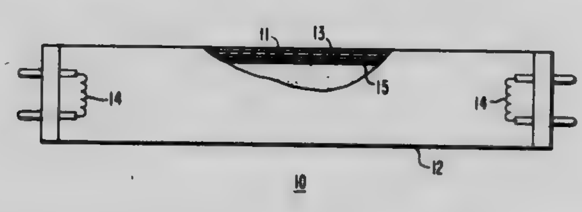


1. A quick operating type cathode having a cathode body consisting of: a cathode sleeve and a metal substrate which is mounted at the top opening part of the cathode sleeve and the top surface of which is coated with an electron-emissive material; and a double helical coil heater which is inserted within the cathode sleeve and the surface of which is coated with an insulating material, characterized in that said heater comprises a coil part and a pair of leg parts connected to the end part of said coil part, a dense pitch part is formed at the top portion of said coil part, a sparse pitch part is formed in said coil part at the side of the leg parts and the amount of said coated insulating material per unit length of the coil wire at said sparse pitch part is larger than that at said dense pitch part.

4,379,981
FLUORESCENT LAMP HAVING IMPROVED BARRIER LAYER

Larry P. Rusch, East Brunswick, N.J., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 4, 1981, Ser. No. 270,472
Int. Cl.[3] **H01J** *61/35, 61/42, 61/54*
U.S. Cl. 313—489 **5 Claims**

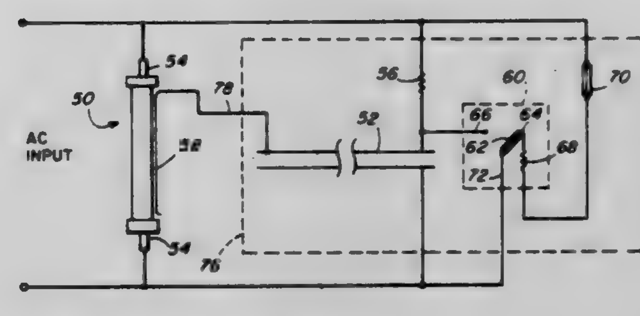


1. A fluorescent lamp comprising a vitreous envelope having electrodes operatively disposed at opposite ends thereof, an electrically conductive first layer carried on the inner surface of said vitreous envelope, an electrically non-conductive second layer carried on said electrically conductive first layer, said electrically non-conductive second layer consisting essentially of a mixture of very finely-divided aluminum oxide and finely-divided titanium dioxide in predetermined relative weight ratio, and phosphor means formed in at least one layer carried on said second layer.

4,379,982
LOW ENERGY STARTING AID FOR HIGH INTENSITY DISCHARGE LAMPS

Joseph M. Proud, Wellesley, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

Continuation of Ser. No. 193,786, Oct. 2, 1980, abandoned. This application Feb. 4, 1982, Ser. No. 345,866
Int. Cl.[3] **H01J** *7/44, 17/34, 19/78, 29/96*
U.S. Cl. 315—73 **2 Claims**



1. A light source comprising:

a high pressure discharge lamp including a discharge tube having first and second electrodes sealed therein at opposite ends for receiving ac power and enclosing a fill material which emits light during discharge;

pulse generating means operative to provide at an output thereof a high voltage, short duration pulse of predetermined energy; and

a conductor including a generally straight portion extending from a region proximate to one of said electrodes towards a region proximate to the other of said electrodes coupled to said output of said pulse generating means and disposed in close proximity to an outer surface of said discharge tube for providing within said discharge tube an ionization path between said electrodes when said conductor is energized by said pulse generating means at which time said first electrode is at a first voltage potential, said second electrode is at a second voltage potential, and said conductor is at a third voltage potential higher than said first and second potential, wherein:

said high pressure discharge lamp is a high pressure sodium discharge lamp;

said fill material contains approximately 200 torr xenon pressure; and

said pulse generator means provides a pulse of approximately 25 kilovolts for a duration of approximately 10 nanoseconds of approximately 10 millijoules energy.

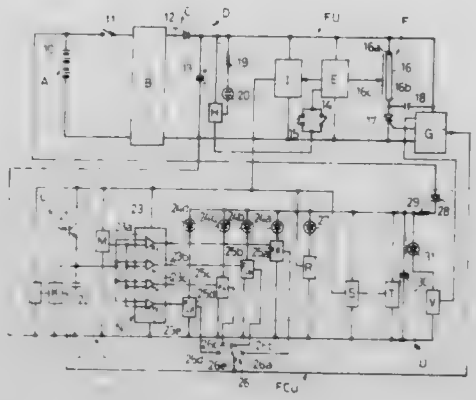
4,379,983
ELECTRIC FLASH DEVICE

Yoshiyuki Takematsu, Tokyo, Japan, assignor to Fuji Koeki Corporation, Tokyo, Japan

Filed Mar. 2, 1981, Ser. No. 239,619
Claims priority, application Japan, May 26, 1980, 55-69874
Int. Cl.[3] **H05B** *41/32*
U.S. Cl. 315—151 **14 Claims**

1. An electronic flash device comprising, in combination, a flash unit having electric power supply means including a direct current voltage power source, means for boosting voltage of said direct current power source and for storing electric energy, flash light generating member including a flash tube generating flash light, trigger signal generating means triggering said flash light generating member, and means for stopping flash of said flash light generating member when flash light quantity of said flash light attains to a predetermined value, and a flash control unit having light receiving means for receiving a reflecting light which is produced from said flash tube and is reflected from an object to be photographed, flash light quan-

tity detecting means for detecting flash light quantity of said flash light generated from the flash tube by means of comparing an electric value obtained by integrating output of said light receiving means with reference voltage, means for indicating light exposure quantity in response to a plurality of outputs of said flash light quantity detecting means, and flash light quantity control means for controlling said flash light quantity of said flash light.



4,379,984

BRUSHLESS DC MOTOR DRIVEN BY COMPLEMENTARY TYPE TRANSISTORS

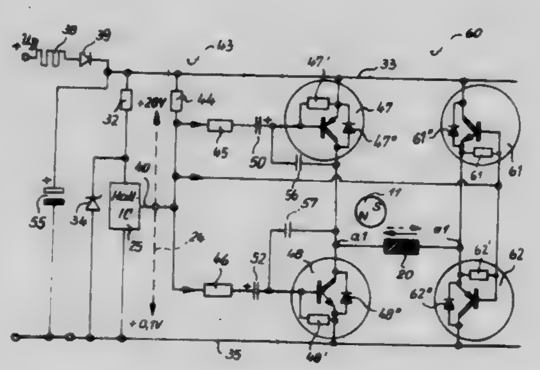
Rolf Müller, St. Georgen, Fed. Rep. of Germany, assignor to Papst-Motoren GmbH & Co. KG, St. Georgen, Fed. Rep. of Germany

Filed Apr. 1, 1981, Ser. No. 250,011

Claims priority, application Fed. Rep. of Germany, Jun. 19, 1980, 3022836

Int. Cl.³ H02K *29/00*

U.S. Cl. 318—254 10 Claims



1. A brushless d.c. motor having a rotor, a stationary motor winding (20), a rotor position sensor (25) and means, including a full bridge circuit, for providing to said winding from a d.c. current source (33,35), under control of said sensor, two current pulses per 360° el. of rotation of said rotor and further comprising, in accordance with the invention:
   two transistors (47,48) of opposite conductivity type connected in series providing a first pair of adjacent arms of said bridge circuit and having their emitters respectively connected to opposite poles of said d.c. current source and having their collectors connected together and to a first terminal of said motor winding;
   two transistors (61,62) of opposite conductivity type connected in series providing a second pair of adjacent arms of said bridge circuit, having their respective collectors connected to said opposite poles of said d.c. current source and having their emitters connected together and to a second terminal of said motor winding;
   means, constituted at least in part by said sensor (25) and including semiconductor means, for producing a rotor position signal of large amplitude, a potential being supplied to said semiconductor means which is substantially equal to that of one pole (35) of said d.c. current source (33,35), and
   means for applying said rotor position signal (24) of large amplitude to the control electrodes of said transistors (47,48) providing said first pair of adjacent bridge arms through a resistance network (43;72) having a first resistance (46,75) connected between the output of said semiconductor means (25;70) and the control electrode of a first one (48) of said transistors of said first pair and a second resistance (44,73) connected between said output of said semiconductor means (25;70) and the control electrode of the second one (47) of said transistors of said first pair.

4,379,985

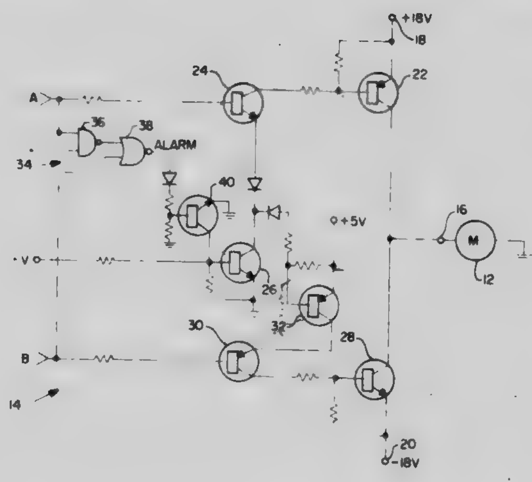
BIPOLAR DRIVER WITH ILLEGAL CODE DETECTOR

Vincent G. Coppola, Branford, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Continuation of Ser. No. 260,465, May 4, 1981, which is a continuation of Ser. No. 49,241, Jun. 18, 1979. This application May 14, 1982, Ser. No. 378,371

Int. Cl.³ H02P *1/22*

U.S. Cl. 318—293 12 Claims



1. An interface for a processor, a reversible polarity load having two terminals the first of which terminals being tied to a substantially fixed reference level, and a pair of opposite polarity power supplies, the processor selectively transmitting one of several possible command signal codes to the interface, the signal codes designating different modes of operation of the load, the interface comprising:
   a first power switch means, the first power switch means selectively interconnecting the second of said terminals of the load and the power supply of one polarity,
   a second power switch means, the second switch means selectively interconnecting the second of said terminals and the power supply of opposite polarity,
   means receiving each signal code and
   (a) in response to a first signal code, forward biasing the first power switch means to interconnect the second of said terminals and the power supply of one polarity and reverse biasing the second power switch means such that the second of said terminals is not interconnected with the power supply of the opposite polarity,
   (b) in response to a second signal code, reversing the first power switch means such that the second of said terminals is not interconnected to the power supply of one polarity and forward biasing the second power, switch means to interconnect the second of said terminals and the power supply of the opposite polarity, and
   (c) in response to a third signal code, reverse biasing both power switch means such that the second of said terminals is not connected with either power supply,
the interface further comprising illegal signal code inhibit means, the inhibit means including monitoring means receiving the signal codes and in response to an invalid

signal code which would otherwise function to forward bias both power switch means, inhibiting the operation of both of said power switch means.

4,379,986

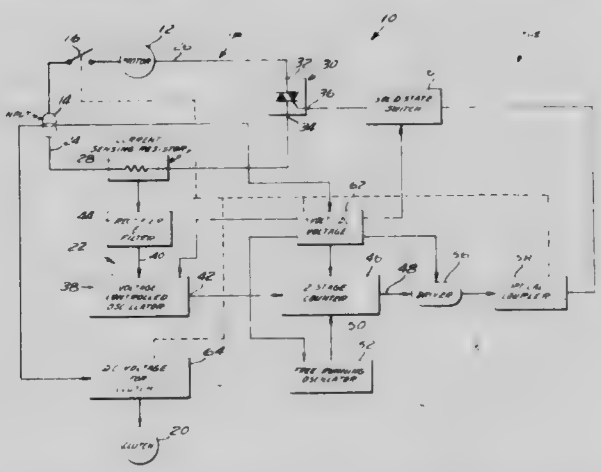
STALL SENSING CIRCUIT FOR SHADED POLE MOTORS

Donald J. Baxter, Simpsonville, and Hugh L. Childress, Jr., Gray Court, both of S.C., assignors to Marquette Metal Products Co., Fountain Inn, S.C.

Filed Aug. 24, 1981, Ser. No. 295,655

Int. Cl.³ H02H *7/085*

U.S. Cl. 318—434 **9 Claims**



1. A motor control circuit for automatically uncoupling its motor's power supply during a stall condition while maintaining it coupled in its running condition comprising:

power supply coupling means;

motor connecting means;

signal sensing means for providing an output sensing signal, the magnitude of which is a function of the condition of the motor's load;

switching means having a conduction and non-conduction state and having an output, input and control terminal, the output and input terminals connected in series with said power supply coupling means, motor connecting means and signal sensing means, responsive to the magnitude of a control signal applied to its control terminal to control its state;

controlled oscillator means, having an input and output, coupled at its input to said signal sensing means, for generating an output signal the frequency of which is a function of the magnitude of the sensing signal;

counting means having an input, output and reset terminal, for providing a control signal at its output in response to a predetermined count and for resetting said counting means when a reset signal is applied to said reset terminal, the input of said counting means being coupled to the output of said controlled oscillator means;

resetting means, coupled to said counting means; reset terminal, for providing a reset signal to said reset terminal prior to and after said predetermined count in response to the output signals generated during running condition and stall condition respectively; and

coupling means, connected to the output of said counting means and to the control terminal of said switching means, for transmitting a control signal from said counting means for changing said switching means' state.

4,379,987

SPINDLE ROTATION CONTROL SYSTEM

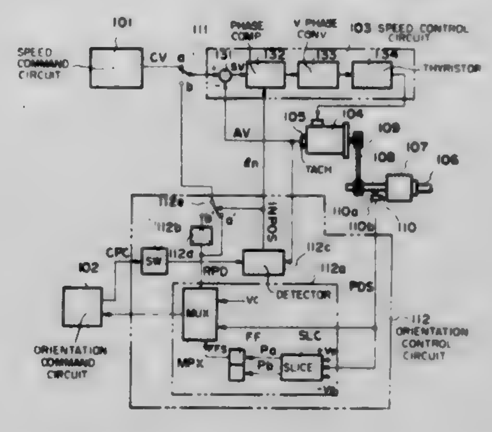
Yoshinori Kohzai, and Yoshiki Fujioka, both of Hino, Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan

Filed Sep. 25, 1980, Ser. No. 190,659

Claims priority, application Japan, Oct. 9, 1979, 54-130153

Int. Cl.³ G05B *13/00*

U.S. Cl. 318—561 **8 Claims**



1. A system for controlling the rotation of a spindle, comprising:

means for providing an orientation command signal;

a motor;

speed detecting means, operatively connected to said motor, for detecting the speed of said motor and for generating a signal representing the actual speed of said motor;

a speed control circuit, operatively connected to said speed detecting means and said motor, for controlling said motor so as to narrow to zero a deviation between the actual speed thereof and a commanded speed;

a spindle driven by said motor; and

a position control circuit, operatively connected to said spindle and said speed control circuit, for generating a position deviation signal on the basis of a commanded stopping position and the rotational position of said spindle;

said spindle being rotated at a commanded speed by said motor under the control of said speed control circuit, and rotationally controlled by the orientation command signal so as to make the position deviation signal zero;

said position control circuit including a proximity switch, mounted on said spindle, for detecting the present rotational position of said spindle, for generating a detection signal having a value of zero volts when a predetermined point on said spindle has reached a commanded stopping position, and for generating either a positive or negative value depending upon whether the specified point on said spindle is immediately to the left or right of the commanded stopping position, said position control circuit generating the position deviation signal in dependence upon the detection signal.

4,379,988

MOLDED HEARING AID AND BATTERY CHARGER

Patricio Mattatall, P.O. Box 910, Winter Park, Fla. 32789

Filed Jan. 19, 1981, Ser. No. 226,212

Int. Cl.³ H02J *7/02;* H04R *25/02*

U.S. Cl. 320—4 **6 Claims**

1. A self-contained hearing aid insertable in the ear of the user and having a rechargeable battery, the battery charging system comprising:

oscillator means for producing electrical oscillations;

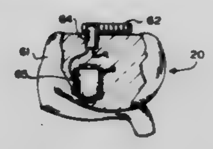
a first inductor associated with said oscillator means for producing an inductive magnetic field from said electrical oscillations;

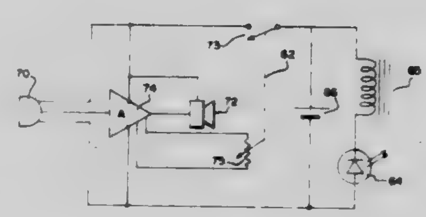
holding means for supporting said hearing aid for charging said rechargeable battery;

a second inductor disposed within said hearing aid, said holding means supporting said hearing aid in a manner to

inductively couple said first inductor and said second inductor whereby an electromotive force is induced in said second inductor; and

a light emitting diode disposed in said hearing aid and visible externally thereto, said diode connected in series with said second inductor, the series combination of said diode and said second inductor connected in parallel with said battery, whereby said electromotive force induced in said





second inductor causing said diode to produce a pulsating direct current flowing in the direction to charge said battery and to emit a light external to said hearing aid to indicate such flow of charging current, said hearing aid position adjustable within said holding means by the user to maximize the degree of inductive coupling between said first and second inductors, said light emitting diode functioning to indicate said degree of coupling by the intensity of emitted light therefrom.

4,379,989

SYSTEM FOR PREVENTING DAMAGE TO A BATTERY CHARGER DUE TO APPLICATION OF A BATTERY WITH WRONG POLARITY

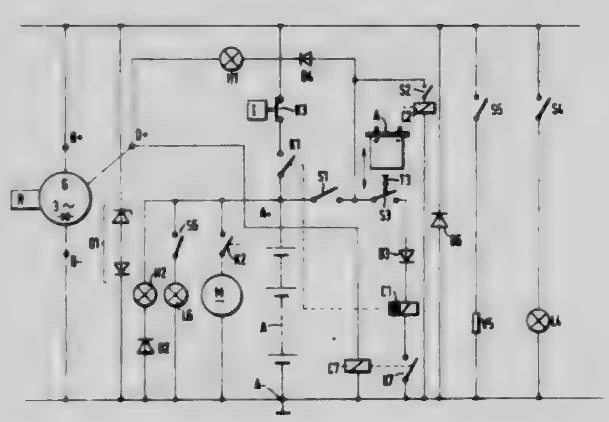
Wolfgang Kurz, Hemmingen, and Rainer Leunig, Gerlingen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed May 6, 1980, Ser. No. 147,300

Claims priority, application Fed. Rep. of Germany, May 11, 1979, 2919021; May 11, 1979, 2919022

Int. Cl.^{3} H02J *7/00*

U.S. Cl. 320—26 **12 Claims**



1. In an automotive electrical system including

an alternator having an exciter winding, exciter diodes connected to said exciter winding, a positive exciter terminal (D+), a positive rectified alternator output terminal (B+), and a negative rectified alternator terminal (B−), connected to a reference potential,

a battery (B) having a negative terminal (A−) connected to said reference potential and a positive terminal (A+);

a starter motor (M);

and starter switch means (S2, C2, K2) connected to said battery so that said motor is started upon activation of said starter switch means independent of the polarity of said battery,

apparatus for protecting said system from application of a voltage having a polarity opposite the polarity of said battery comprising

a control switch S1;

a protective diode (D3) conductive only when the polarity of the DC voltage is of the predetermined polarity of said battery,

switch means including a relay (C1, K1) comprising a relay coil (C) connected in series with said protective diode and the control switch (S1) and a pair of relay contacts (K1) operative on the control of said relay coil and connected in series with the terminals (A+, A−) of said battery;

the relay coil being connected to said system and to said blocking diode for connection of DC voltage to, and disconnection of DC from said system when said blocking diode is, respectively, conductive or non-conductive with respect to said polarity of the battery;

and further comprising an auxiliary relay (C7, K7) having a coil connected between said positive exciter terminal (D+) and said reference potential (B−, A−),

and a pair of auxiliary relay contacts (K7) connected in series with the relay coil (C1) of said first relay (C1, K1).

4,379,990

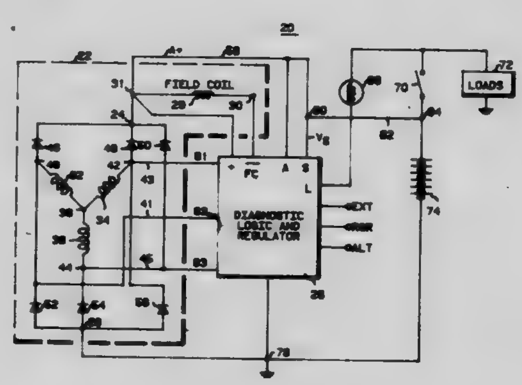
FAULT DETECTION AND DIAGNOSTIC SYSTEM FOR AUTOMOTIVE BATTERY CHARGING SYSTEMS

Kirk A. Sievers, Roselle, and Robert W. Mortonson, Addison, both of Ill., assignors to Motorola Inc., Schaumburg, Ill.

Filed May 22, 1980, Ser. No. 152,225

Int. Cl.^{3} G01R *31/02;* **G08B** *21/00;* **H02J** *7/24*

U.S. Cl. 322—99 **36 Claims**



1. An in situ self-diagnostic automotive alternator-battery charging system comprising:

a battery;

voltage regulator means sensing battery voltage and generating an excitation signal in response thereto;

alternator means coupled to said battery and said voltage regulator means, driven by a vehicle engine, providing a rectified electrical signal for charging said battery in response to said excitation signal;

a plurality of electronic circuit status detectors, each of said plurality maintaining a first logic state when a corresponding electrical signal characteristic is within a predetermined range and a second logic state when said electrical signal characteristic is outside said predetermined range, selected ones of said plurality being coupled to said battery, voltage regulator means and said alternator means with at least one of said electronic circuit status detectors including resettable timing means establishing time intervals for the detection of repetitive occurrences of pulse signals; and

logic means coupled to said plurality of circuit status detectors and responsive to the logic output states of said circuit status detectors, identifying predetermined sequences of logic states thereby to identify the occurrence of faults in said charging system.

4,379,991

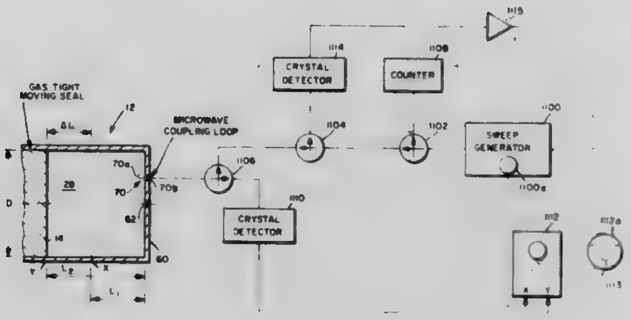
APPARATUS FOR ACCURATELY MEASURING THE VOLUME OF A METER PROVER

William W. Ho, and William F. Hall, both of Thousand Oaks, Calif., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed Mar. 28, 1980, Ser. No. 135,191

Int. Cl.[3] G01R *27/04;* G01F *17/00*

U.S. Cl. 324—58.5 C **13 Claims**



1. Apparatus for measuring with a high degree of accuracy the volume of a chamber of a meter prover, said chamber having the regular geometry of a right circular cylinder, the volume of said right circular cylinder being defined its diameter and length, said measuring apparatus comprising;

(a) antenna means disposed for generating electromagnetic energy into and for receiving electromagnetic energy reflected from said chamber;

(b) generating means coupled to said antenna means for generating first and second resonant modes of selected electromagnetic energy fields, each of said first and second modes having an electromagnetic energy field whose electric and magnetic component fields are uniquely related to said diameter and said length of said right circular cylinder;

(c) means coupled to said antenna means for detecting the electromagnetic energy reflected from said right circular cylinder;

(d) resonant condition detecting means coupled to said energy detecting means for providing first and second indications of the occurrences of the minimum levels of the reflected electromagnetic energy corresponding to the establishment of a standing wave resonant condition within said right circular cylinder for each of said first and second resonant modes; and

(e) means coupled to said generating means for detecting first and second frequencies at which said standing wave resonant conditions are established within said right circular cylinder, said first and second frequencies being a function of the volume of said right circular cylinder whereby said volume is defined with the high degree of accuracy.

4,379,992

PRINTED CIRCUIT BOARD ELECTRONIC TESTER

Donald J. Geisel, Madison, N.Y., assignor to General Electric Company, Utica, N.Y.

Continuation of Ser. No. 103,972, Dec. 17, 1979, abandoned. This application Jul. 6, 1981, Ser. No. 280,671

Int. Cl.[3] G01R *31/02*

U.S. Cl. 324—158 F **6 Claims**

1. An automated testing apparatus for performing shorts and continuity tests on a printed circuit board or ceramic substrate submerged in an ionic conducting solution comprising:

(a) a bath composed of an ionic conducting solution;

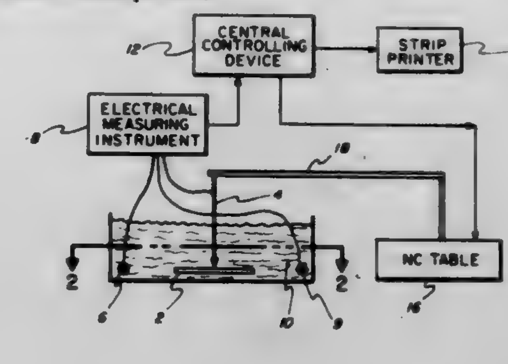
(b) an electrically insulated movable probe positioned within said bath and having its tip in electrical contact with one point on said printed circuit board;

(c) at least one reference electrode positioned within said bath;

(d) an electrical measuring instrument capable of measuring electrical characteristics, said instrument having a first lead connected to said movable probe and a second lead connected to one of said reference electrodes;

(e) a controlled table;

(f) a support means connected between said controlled table and said movable probe;



(g) a central controlling device receiving values of electrical characteristics measured by said electrical measuring instrument and outputting control information to said controlled table; and

(h) means responsive to record data generated by said central controlling device.

4,379,993

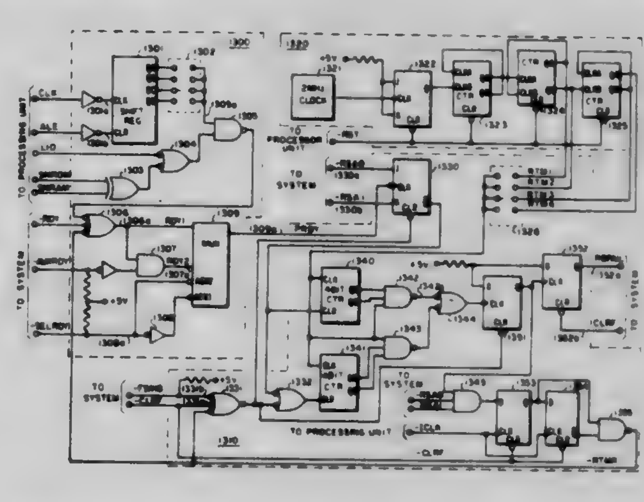
PULSE FAILURE MONITOR CIRCUIT EMPLOYING SELECTABLE FREQUENCY REFERENCE CLOCK AND COUNTER PAIR TO VARY TIME PERIOD OF PULSE FAILURE INDICATION

James R. Holden, Chicago, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Dec. 29, 1980, Ser. No. 220,932

Int. Cl.[3] H03K *13/32, 17/296*

U.S. Cl. 328—120 **14 Claims**



1. A pulse monitor circuit for use in a switching system, said pulse monitor circuit comprising:

a first source of pulses;

a second source of pulses;

input storage means connected to said first pulse source operated in response to each of a first group of alternately occurring pulses to generate a first clear signal, said input storage means further operated in response to each of a second group of alternately occurring pulses from said first pulse source to generate a second clear signal;

a first counter circuit connected to said input storage means and said second pulse source, operated in response to an absence of said first clear signal to count pulses from said second pulse source;

a second counter circuit connected to said input storage means and said second pulse source, operated in response to an absence of said second clear signal to count pulses from said second pulse source;

output storage means connected to said first and second counter circuits, operated in response to a predetermined count from said first or second counter circuits to generate a pulse failure signal; and

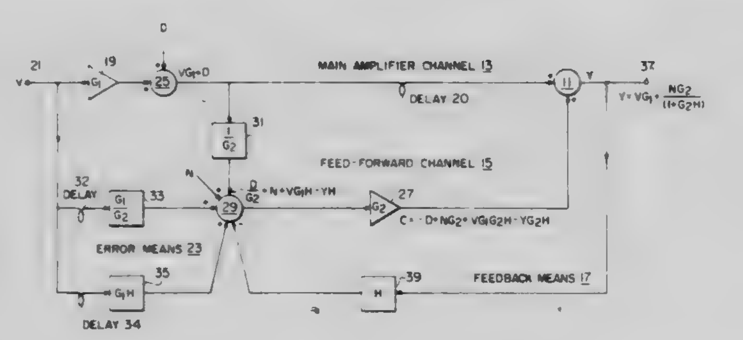
third pulsing means connected to said output storage means, operated in response to said pulse failure signal to generate a toggle pulse; said output storage means further operated in response to said toggle pulse to prevent generation of said pulse failure signal.

4,379,994
FEED-FORWARD AMPLIFIER

Ronald M. Bauman, Washington, D.C., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 16, 1981, Ser. No. 244,175
Int. Cl.³ H03F *1/26*

U.S. Cl. 330—149 **10 Claims**



1. A feed-forward-compensated amplifier comprising:

a main amplifier channel including a main amplifier for receiving an input signal and producing an amplified signal therefrom;

a feed-forward channel including error means connected to the input and the output of the main amplifier for producing an error signal which is a function of the error introduced into the amplified input signal by the main amplifier, and a subsidiary amplifier connected to the error means for receiving the error signal and producing a correction signal therefrom;

first coupling means for coupling a plurality of inputs together in algebraic summing relationship,

the output of the feed-forward channel and the output of the main amplifier channel being connected as inputs to the first coupling means so that the correction signal is summed with the amplified signal to produce a feed-forward-compensated output signal; and

feedback means connected to the output of the first coupling means for returning a fraction of the output signal to the input of the subsidiary amplifier,

whereby an output signal is obtained which is substantially free of error caused by both the main and the subsidiary amplifiers.

4,379,995
GAIN CONTROLLED AMPLIFIER

Hisashi Yamada, Yokohama, and Tsutomu Sugawara, Yokosuka, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Sep. 16, 1980, Ser. No. 187,490
Claims priority, application Japan, Sep. 21, 1979, 54-121865
Int. Cl.³ H03F *3/45;* H03G *3/10*

U.S. Cl. 330—254 **11 Claims**

1. A gain controlled amplifier comprising:

(a) first means for separately providing a first current corresponding to the positive component of an input signal and a second current corresponding to the negative component of said input signal;

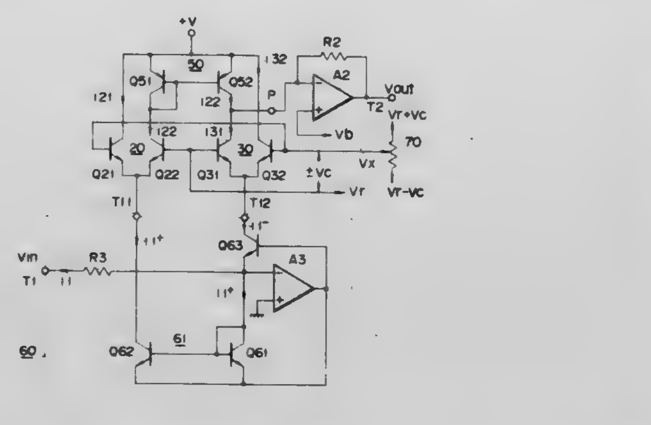
(b) second means connected to said first means for providing a first attenuated current corresponding to said first current;

(c) third means connected to said first means for providing a second attenuated current corresponding to said second current;

(d) fourth means connected to said second and third means for providing a control signal for changing magnitude of said first and second attenuated currents;

(e) fifth means connected to said second and third means for providing an output signal corresponding to said first and second attenuated current;

(f) sixth means coupled to said first, second and third means, said sixth means being responsive to a third current which



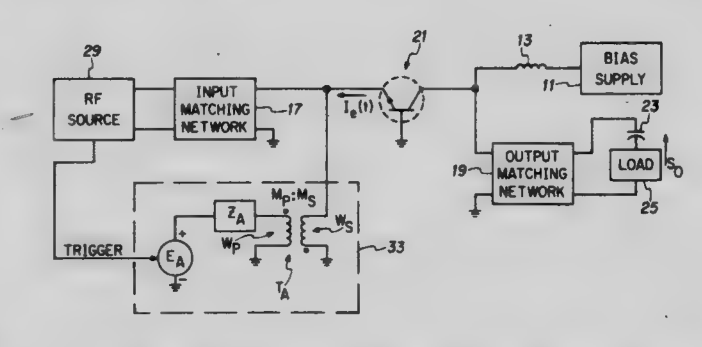
corresponds to a difference between said first current and said first attenuated current, and said sixth means also being responsive to a fourth current which corresponds to a difference between said second current and said second attenuated current, said sixth means providing said first means with an input current corresponding to said input signal.

4,379,996
ENHANCEMENT OF CLASS C OPERATION OF BIPOLAR JUNCTION TRANSISTOR

Robert J. Weber, Marion, Iowa, assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Feb. 13, 1981, Ser. No. 234,132
Int. Cl.³ H03F *1/00*

U.S. Cl. 330—296 **15 Claims**



1. A circuit comprising a class C biased BJT which is for outputting RF bursts, and means for controlling the shape of the envelope of said RF burst, said shape controlling means comprising:

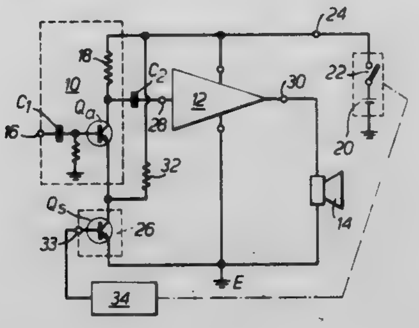
first means comprising a transformer having a primary winding with M_p turns and a secondary winding with M_S turns where $M_p:M_S>1$, said secondary winding being connected in the BJT emitter current path,

pulse source second means, connected to the primary winding, for providing pulses having predetermined parameters,

impedance third means connected to the primary winding,

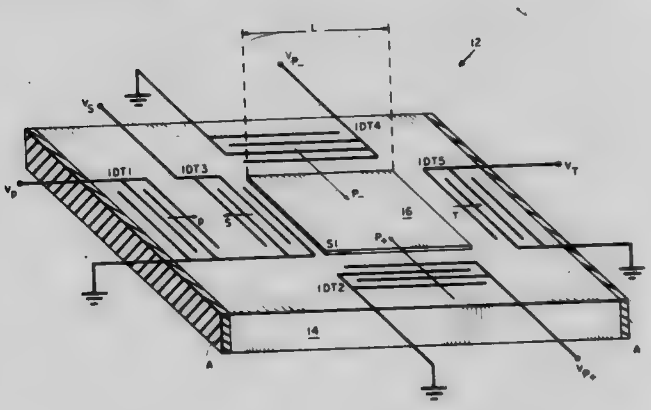
said first, second, and third means cooperating to control the BJT emitter current and cause the BJT emitter current envelope to substantially conform to a predetermined function of time $I_e(t)$, where $I_e(t)$ is a pulse waveform.

4,379,997
POWER AMPLIFIER
Minoru Ooishi, Yokohamashi; Teruji Mochizuki, Fujisawashi, and Yutaka Suzuki, Yokohamashi, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Jan. 5, 1981, Ser. No. 222,739
Claims priority, application Japan, Feb. 8, 1980, 55-14343
Int. Cl.³ H03F *3/04*
U.S. Cl. 330—298 **12 Claims**



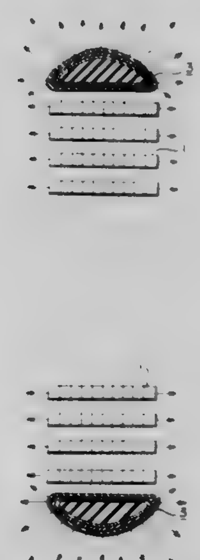
1. A power amplifier comprising:
an input circuit means;
a power supply having first and second power source terminals;
a preamplifying stage having at least one transistor with first, second and third electrodes, said first electrode being connected to said input circuit means;
a resistance load, said second electrode being connected to said first power source terminal through said resistance load, and said third electrode being connected to said second power source terminal;
a power amplifying stage connected at its input to said second electrode of said at least one transistor;
an electrode switch means connected between said third electrode of said at least one transistor and said second power source terminal, and having a control terminal;
resistance means connected between said third electrode of said at least one transistor and said first power source terminal, in parallel with said at least one transistor and said resistance load; and
control circuit means connected to said control terminal of said electronic switch means for applying a muting signal to said electronic switch means in the event excessive input signals are applied to the power amplifier or overloading occurs to prevent damage to the power amplifier.

4,379,998
ACOUSTIC DEGENERATE FOUR-WAVE MIXING PHASE-CONJUGATE REFLECTOR
Richard C. Shockley, San Diego, Calif., assignor to The Standard Oil Company, Cleveland, Ohio
Filed Jun. 25, 1981, Ser. No. 277,448
Int. Cl.³ H03H *9/25, 9/42, 9/145*
U.S. Cl. 333—150 **11 Claims**



1. An acoustic surface wave device comprising:
a piezoelectric substrate for propagating acoustic waves;
a first transducer disposed on said substrate for receiving a modulated input signal having a carrier center frequency f_1 and for converting said input signal to an input acoustic wave;
a second transducer colinearly aligned with said first transducer;
a semiconductor material disposed over said piezoelectric substrate and having a dimension L colinear with said first and second transducers and defining a nonlinear acoustic wave interaction region;
means for generating an acoustic standing wave having a frequency f_1 in said nonlinear interaction region whereby said input acoustic wave interacts with said standing wave in said nonlinear interaction region to create an output signal on said second transducer that is the phase conjugate of said modulated input signal.

4,379,999
ELECTROSTATIC SHIELD FOR A TRANSFORMER
Minoru Kimura, Nishinomiya, and Teruo Ina, Takarazuka, both of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 30, 1981, Ser. No. 316,905
Claims priority, application Japan, Nov. 5, 1980, 55/158679[U]
Int. Cl.³ H01F *15/04*
U.S. Cl. 336—84 C **6 Claims**

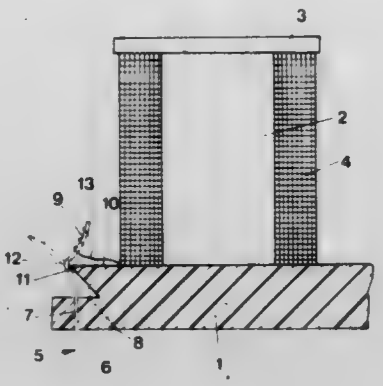


1. An electrostatic field for an electrical transformer coil comprising a substantially ring shaped inner insulator, a field concentration relaxation conductor formed by winding a conductive foil into a sheet forming a layer completely surrounding the inner insulator, and a multiple outer insulation layer surrounding the field concentration relaxation conductor, said multiple outer insulation layer comprising at least one layer of polyethylene terephthalate film and at least one mica insulation layer.

4,380,000
COIL ARRANGEMENT, PARTICULARLY FOR RELAYS, AND METHOD OF MAKING SAME
Holger Nicolaisen, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark
Filed Nov. 6, 1981, Ser. No. 318,833
Claims priority, application Fed. Rep. of Germany, Nov. 15, 1980, 3043148
Int. Cl.³ H01F *15/10*
U.S. Cl. 336—192 **2 Claims**

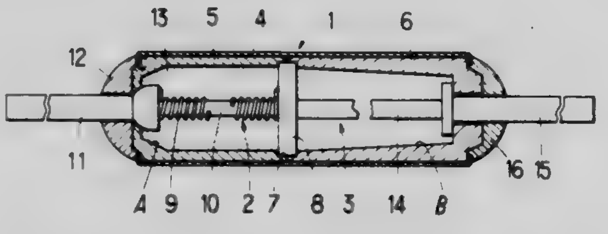
1. A coil assembly for a relay or the like, comprising, a base plate having first and second sides, a cylindrically shaped coil mounted on said first side of said base plate in normal relations thereto, said coil having a coil wire end portion, said base plate having a notch radially displaced from said coil forming with said base plate second side a protruding portion and having an

obliquely extending face which intersects said base plate first side to form a lip portion, a normally extending hole in said protruding portion having a locus which intersects said



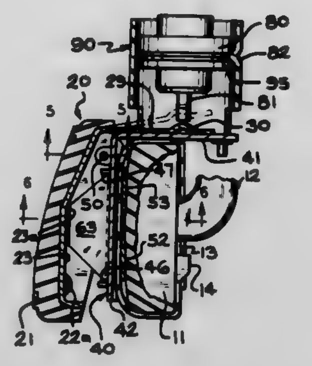
obliquely extending face, a terminal pin in said hole and bent around said lip portion in the direction of said coil, and said coil wire end portion being connected to said terminal pin.

4,380,001
ELECTRIC SAFETY DEVICE
Mikizo Kasamatsu, No. 22-7, Korikitano-cho, Neyagawa-shi, Osaka-fu, Japan
Filed Jul. 7, 1981, Ser. No. 281,244
Int. Cl.³ H01H *85/00*
U.S. Cl. 337—4 2 Claims



1. An electrical safety device comprising:
a housing;
an electrically conducting wall member located within said housing and dividing said housing into first and second chambers;
a first electrical lead wire penetrating said housing, said first electrical lead wire having an outer end outside of said housing for connection in an electrical circuit and having an inner end in said first chamber for connection to a first fuse element;
a second electrical lead wire penetrating said housing, said second electrical lead wire having an outer end outside of said housing for connection in an electrical circuit, and having an inner end in said second chamber for connection to a second fuse element;
a first fuse element adapted to break an electrical circuit on passage of an overcurrent, said first fuse element being provided in said first chamber and comprising an electrically conducting element electrically connected in series between said inner end of said first electrical lead wire and said electrically conducting wall member; and
a second fuse element adapted to break an electrical circuit on being heated above a predetermined temperature, said second fuse element comprising an electrically conducting solder metallic wire, the surface of which is coated with pine resin, said solder wire being electrically connected in series between said inner end of said second electrical lead wire and said electrically conducting wall member.

4,380,002
SECONDARY BRAKE PEDAL ASSEMBLY
Daniel L. Neill, Belleville, and Paul Weiner, Pinckney, both of Mich., assignors to Kelsey-Hayes Co., Romulus, Mich.
Filed Nov. 28, 1979, Ser. No. 98,102
Int. Cl.³ H01C *10/00*
U.S. Cl. 338—153 6 Claims

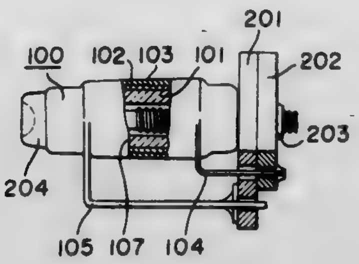


1. A brake pedal transducer assembly adapted for securement to a primary brake pedal to translate foot-applied pressure necessary to achieve a given primary braking pressure for a towing vehicle to an electric signal yieldative of a corresponding electric brake force for a towed vehicle, said assembly comprising:
(1) a base plate having a lower surface abutting the tread surface of a primary brake pedal and being securable to said primary brake pedal, said plate including an integral ear portion extending downwardly behind said primary brake pedal,
(2) a pedal member hingedly connected to said base plate, said hinged connection allowing relative pivotal movement as between said pedal member and said base plate, said pedal member including a generally upper tread surface for receiving foot-applied pressure and an integral lever arm projecting downwardly with respect to said tread surface,
(3) spring means situated between said base plate and pedal member and serving to resist pivotal movement of said pedal member toward said base plate and, in turn, a corresponding movement of said lever arm,
(4) a housing mounted on said base plate ear portion and extending rearwardly thereof, said housing being constructed and arranged to accommodate said lever arm and
(5) potentiometer means mounted within said housing, said potentiometer including a plunger preselectively positioned for axial movement responsive to contacting deflection of said lever arm.

4,380,003
RESISTOR DEVICE AND GENERATOR FOR CAR CHARGER
Yoshiyuki Iwaki, and Hitoshi Goto, both of Himeji, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 3, 1980, Ser. No. 183,636
Claims priority, application Japan, Sep. 3, 1979, 54-113409; Sep. 14, 1979, 54-127957
Int. Cl.³ H01C *1/01*
U.S. Cl. 338—315 6 Claims

1. A spacer type resistor device for mounting on a printed circuit board and a fixing plate comprising:
at least one insulating substrate having a throughhole formed therein;
a resistance layer formed on the outer surface of each of said at least one insulating substrate;
first and second electrode layers positioned adjacent opposite axial end surfaces of said at least one insulating substrate and contacting said resistance layer; and

means disposed within said throughhole for securing said at least one insulating substrate to said board and said plate



and contacting one of said first and second electrode layers.

4,380,004

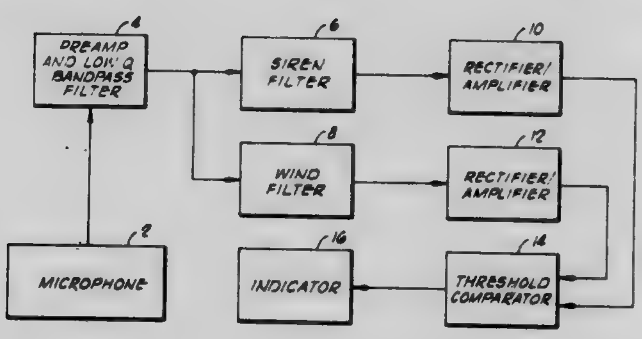
EMERGENCY SOUND DETECTOR DEVICE

Montgomery R. Coats, 2821 Blue Spruce Rd., and Gwen V. Janssen, 1725 Kings Rd., both of Edmond, Okla. 73034

Filed Mar. 19, 1981, Ser. No. 245,593

Int. Cl.³ G08G *1/00;* **G01S** *7/40*

U.S. Cl. 340—34 **27 Claims**



1. An apparatus for detecting a warning sound emitted by an emergency vehicle or the like, comprising:

first monitor means for monitoring a first predetermined range of frequencies including at least a portion of the spectrum of frequencies of the emitted warning sound;

second monitor means for monitoring a second predetermined range of frequencies, the frequencies of the second predetermined range of frequencies being lower than the frequencies of the first predetermined range of frequencies;

comparator means for comparing a first magnitude derived from an electrical signal detected to have a frequency within the first predetermined range of frequencies monitored by said first monitor means with a second magnitude derived from an electrical signal detected to have a frequency within the second predetermined range of frequencies monitored by said second monitoring means; and

indicator means, responsive to said comparator means, for indicating when the first magnitude is greater than the second magnitude.

4,380,005

DYNAMIC ZERO OFFSET COMPENSATING CIRCUIT FOR A/D CONVERTER

Pierre Debord, Vence, and Jean-Louis Marijon, Le Bar-sur-Loup, both of France, assignors to International Business Machines Corp., Armonk, N.Y.

Continuation of Ser. No. 912,123, Jun. 2, 1978, Pat. No. 4,251,803. This application Apr. 11, 1980, Ser. No. 139,329

Claims priority, application France, Jun. 30, 1977, 77 20730

The portion of the term of this patent subsequent to Feb. 17, 1998, has been disclaimed.

Int. Cl.³ H03K *13/02*

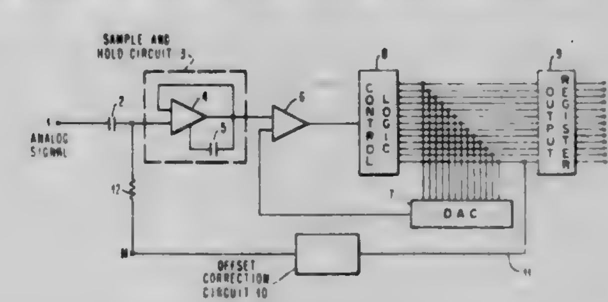
U.S. Cl. 340—347 AD **2 Claims**

1. In an analog device having at least one input and one output and receiving an analog signal with a zero mean value on said input and supplying a signal with a determined relationship with respect to the input signal on its output, an improved compensation circuit for continuously compensating for the zero offset level introduced into the output signal by the device, comprising:

means for comparing the level of the output signal with the offset zero level and supplying the sign of the output signal with respect to the offset zero level, said sign being positive if the output signal level exceeds that of the offset zero level and negative if the output signal level is less than the offset zero level;

a storing capacitor having a first terminal M and a second terminal connected to ground;

charging means for applying a charge current +I to terminal M when the sign of the output signal is negative;



discharging means for applying a discharge current −I to terminal M when the sign of the output signal is positive; and

means for continuously adding the voltage generated at terminal M in response to the charge and discharge of said storing capacitor to the input signal;

and wherein said charging and discharging means include two current sources for supplying currents having the magnitude and sign, respectively, of 2I and −I and which are series-connected between two positive and negative voltage supplies, respectively, having their common point connected to terminal M of said capacitor, said two supplies being always switched on, and

steering means for steering 2I to ground when the sign of the output signal is positive.

4,380,006

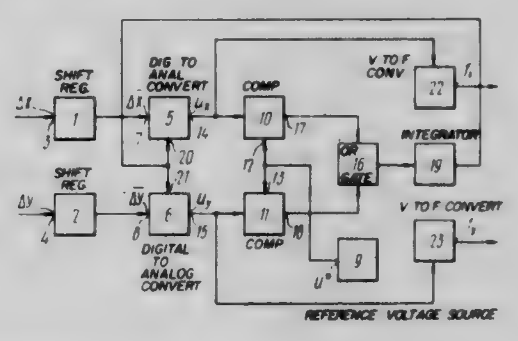
LINEAR INTERPOLATOR

Vladimir S. Borisov, ulitsa Lugovaya, 35/37, kv. 9, and Vyacheslav V. Korovin, ulitsa Shekhardina, 60, kv. 30, both of Saratov, U.S.S.R.

Filed Jun. 8, 1981, Ser. No. 271,649

Int. Cl.³ H03K *13/02*

U.S. Cl. 340—347 CC **1 Claim**



1. A linear interpolator to provide for conversion of codes representing X- and Y-axis increments obtainable from an external data source to corresponding trains of pulses applied to control circuits of first and second actuation means comprising:

a code digital normalization unit; shift registers of said unit; an input and an output of each of said shift register; said inputs of said shift registers connected to said external data source;

first and second digital-to-analog converters to convert

digital data to analog voltage each having a first input, a second input, and an output, said second inputs being joined together;

respective ones of said inputs of said digital-to-analog converters connected to said outputs of said shift registers of said code digital normalization unit;

an adjustable reference voltage source having an output;

first and second comparators to compare output voltages from said digital-to-analog converters to a reference voltage each having a first input, a second input, and an output;

said first inputs of said comparators joined together and connected to said output of said adjustable reference voltage source;

said second inputs of said comparators connected respectively to said outputs of said digital-to-analog converters;

an OR gate having a first input, a second input and an output, said first and second inputs being connected to said second joined inputs of said digital-to-analog converters producing reference voltages;

an X-axis voltage-to-frequency converter to convert analog voltage to trains of output control pulses having an input and an output which are connected respectively to the output of said first digital-to-analog converter and the control circuit of said first actuation means;

an Y-axis voltage-to-frequency converter having an input and an output which are connected respectively to the output of said second digital-to-analog converter and the control circuit of said second actuation means.

4,380,007

PROXIMITY SWITCH

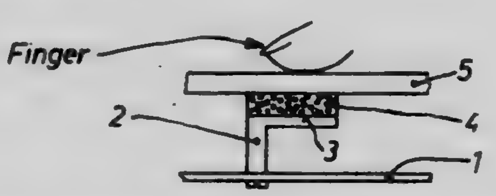
Walther Steinegger, Schaffhausen, Switzerland, assignor to Playmont AG, Switzerland

Filed May 27, 1981, Ser. No. 267,819

Claims priority, application Switzerland, May 27, 1980, 4106/80

Int. Cl.³ G08C *9/02*

U.S. Cl. 340—365 C **6 Claims**



1. Proximity switch actuated by an alternating electrical field comprising

a circuit-carrying base plate;

at least one capacitively actuatable sensor protruding from said circuit-carrying base plate;

said sensor including

a metallic support having a surface facing away from said base plate,

a layer of electrically conductive foamed material lining said surface of said metallic support.

4,380,008

METHOD OF DRIVING A MATRIX TYPE PHASE TRANSITION LIQUID CRYSTAL DISPLAY DEVICE TO OBTAIN A HOLDING EFFECT AND IMPROVED RESPONSE TIME FOR THE ERASING OPERATION

Hideaki Kawakami, Mito; Masaaki Kitazima, Hitachi; Naoyuki Izaki, Hitachi, and Yoshiharu Nagae, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 1, 1979, Ser. No. 80,201

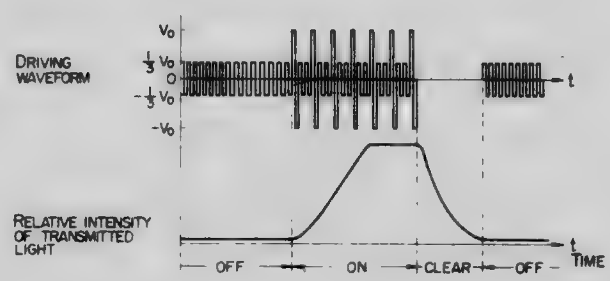
Claims priority, application Japan, Sep. 29, 1978, 53-119374; Oct. 18, 1978, 53-127376

Int. Cl.³ G09G *3/36*

U.S. Cl. 340—784 **6 Claims**

1. An amplitude selective multiplexing method of driving a matrix type liquid crystal display device which includes a layer of guest-host type phase transition liquid crystal sandwiched between a pair of electrode groups including at least one transparent electrode group and arranged in the form of a matrix, intersecting portions of said electrode groups being employed as display segments for displaying information by driving column or row electrodes of said matrix electrode groups with a one-line-at-a-time scanning system, wherein said phase transition liquid crystal exhibits a hysteresis characteristic in the relative brightness thereof against root mean square values of applied voltage, said amplitude selective multiplexing matrix driving method comprising:

scanning said segments and applying across them a write-in voltage when the segments are to be changed from an off state to an on state, an erasing voltage when the segments are to be changed from the on state to the off state, and a holding voltage when a present on or off state of each of the segments is to be maintained; and



applying a holding voltage across each of segments other than segments just subjected to scanning to maintain the present on or off state of the segments,

wherein said write-in voltage has a root mean square value sufficient for effecting such a phase transition of said phase transition liquid crystal from a low brightness to a high brightness condition thereby to turn on said display device, said holding voltage has a root mean square value lower than said write-in voltage and not sufficient for effecting the phase transition of said phase transition liquid crystal thereby to hold the present brightness of said display device at the level it is at at the moment the holding voltage is applied, and said erasing voltage has a root mean square value lower than said holding voltage and sufficient for effecting such a phase transition of said phase transition liquid crystals from the high brightness to the low brightness condition thereby to turn off said display devices.

4,380,009

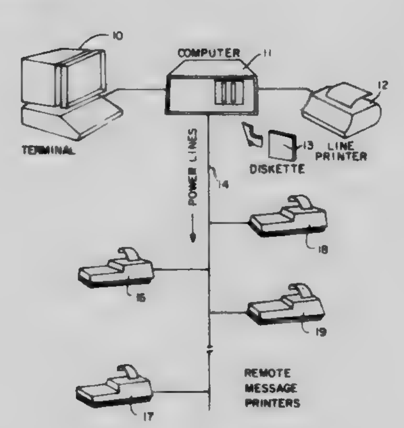
MESSAGE COMMUNICATION SYSTEM

Ernest L. Long, San Jose; William S. Duvall, Portola Valley, and Donald P. Allen, Menlo Park, all of Calif., assignors to Amtel Systems Corporation, Sunnyvale, Calif.

Filed Feb. 29, 1980, Ser. No. 125,844

Int. Cl.³ H04L *15/34;* **H04Q** *9/00*

U.S. Cl. 340—825.55 **41 Claims**



1. In an office complex, a message communication system comprising:

means for generating an analog carrier signal,

means for modulating said analog carrier signal with a digital message signal such that said digital message signal is phase coherent with said analog carrier signal, said digital message signal including information identifying a unique address or set of unique addresses of one or more of the plurality of remote locations,

means for transmitting said message signal from a first central location over an office power line to a group of remote locations, and

message display means each having one or more unique destination address means corresponding to said specified information and responsive to said transmitted message signal for displaying said message.

4,380,010

PHASE DIRECTIONAL ANTENNA ARRAY AND PHASED RING COMBINER FOR RADIO DIRECTION FINDING

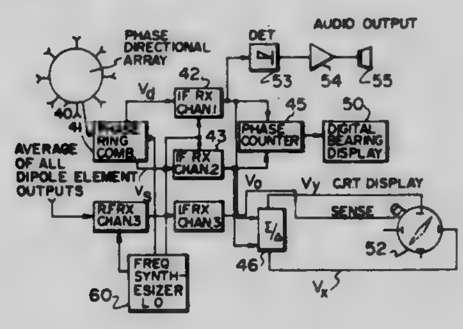
Zdzistaw A. A. Krajewski, Ajax, Canada, assignor to Bayly Engineering Limited, Ajax, Canada

Filed Sep. 9, 1980, Ser. No. 186,016

Claims priority, application Canada, Sep. 12, 1979, 335462

Int. Cl.[3] G01S *3/06*

U.S. Cl. 343—113 R **9 Claims**



1. A radio direction finding system for determining the relative bearing angle θ of an incoming signal comprising a circular array of an even number of vertical dipoles arranged in diametrically opposed pairs equally spaced apart around the array, each dipole pair having an output feeding two branches, one branch electrically advancing the phase of a signal from each dipole pair by an amount equivalent to the angular displacement in one direction of each dipole pair with respect to a reference direction established by a reference dipole pair and the other branch retarding the phase of a signal from each dipole pair by an amount equivalent to said angular displacement, means for combining all the phase advanced signals to form a signal voltage V_d which is retarded in phase by an angle θ corresponding to said relative bearing, means for combining all the phase retarded signals to form a signal voltage V_s which is advanced in phase by said angle θ, and means for measuring the phase difference (2θ) between V_d and V_s whereby θ is obtainable by dividing said phase difference by 2.

4,380,011

LOOP ANTENNA ARRANGEMENT FOR INCLUSION IN A TELEVISION RECEIVER

Rafael Torres, Plainsboro, and Oakley M. Woodward, Princeton, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Nov. 25, 1980, Ser. No. 210,249

Int. Cl.[3] H01Q *1/24*

U.S. Cl. 343—702 **27 Claims**

1. An antenna arrangement for inclusion within a television receiver having a tuner, and responsive to signals in selected frequency bands comprising:

a cabinet for said television receiver having at least two opposing substantially vertical side surfaces and a substantially vertical back surface therebetween, and having a top surface substantially horizontally disposed between said side side surfaces;

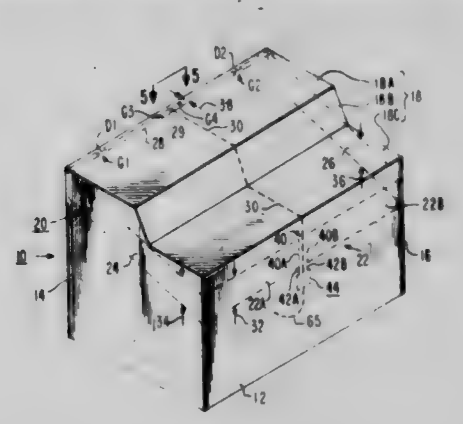
a substantially horizontal loop formed of a band of electrically conductive material having a gap defining first and second feed terminals, which loop includes

a first portion of said band of electrically conductive material affixed along said top surface between said side surfaces,

a second portion of said band of electrically conductive material substantially horizontally affixed along said back surface between said side surfaces,

a third band portion of said of electrically conductive material affixed along one of said side surfaces for connecting one end of said first portion of said band to one end of said second portion of said band,

a fourth portion of said band of electrically conductive



material affixed along the other of said side surfaces for connecting an other end of said first portion of said band to an other end of said second portion of said band, and

said second, third and fourth portions of said band each having a respective width dimension greater than that of said first portion of said band,

whereby the width dimension of said first portion of said band lies in a substantially horizontal plane and the width dimensions of said second, third and fourth portions of said band lie in substantially vertical planes;

tuning circuitry coupled to said first and second feed terminals for tuning said loop over at least a portion of said frequency bands responsive to a control potential, said tuning circuitry being affixed to said cabinet proximate said first and second feed terminals; and

a transmission line for coupling said tuning circuitry to the tuner of said television receiver.

4,380,012

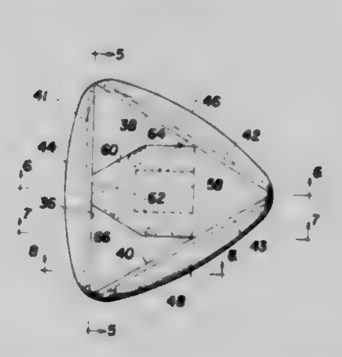
RADOME FOR AIRCRAFT

David Bevan, Media, Pa.; James S. Yee, Seattle, Wash., and Richard R. Pruyn, Valley Forge, Pa., assignors to The Boeing Company, Seattle, Wash.

Filed Jul. 17, 1981, Ser. No. 284,029

Int. Cl.[3] G09F *9/30*

U.S. Cl. 343—705 **20 Claims**



10. In an aircraft radar system, the combination comprising:

a housing having a planform which approximates an equilateral triangle in shape and including triangular top and bottom walls joined by three side walls to define a housing

enclosure therebetween, the three side walls being curved outwardly between the top and bottom walls;

housing support means for mounting the housing to the aircraft;

three identical, substantially planar radar antennas disposed in a substantially triangular planform within the housing and facing outward respectively toward the three housing side walls, each antenna including a phased array of antenna elements.

4,380,013

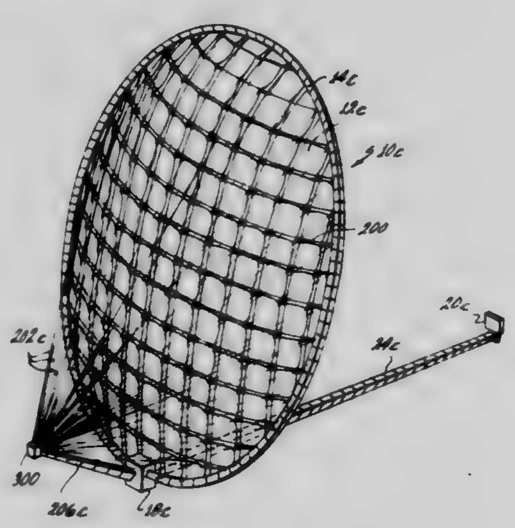
EXPANDABLE PANEL AND TRUSS SYSTEM/ANTENNA/SOLAR PANEL

Paul Slysh, San Diego, Calif., assignor to General Dynamics Corp./Convair Division, San Diego, Calif.

Filed Feb. 17, 1981, Ser. No. 234,830

Int. Cl.³ H01Q *1/28, 1/08*

U.S. Cl. 343—753 **41 Claims**



1. An expandable panel/truss system wherein a plurality of panels are alternately folded in an accordian-like stack as panel sets in a storage container for transporting into space for deployment to form space structures, the improvement comprising:

truss means in the form of a ring formed by deployed unfolded panels emanating from said storage container which forms a selected geometric configuration outlining a space;

said storage container forming part of said geometric configuration; and

means folded in said storage containers and unfolded and deployed with said truss means to fill the space outlined by said geometric configuration

said panel sets are panel pairs which when deployed are circular in cross-section.

4,380,014

FEED HORN FOR REFLECTOR ANTENNAE

H. Taylor Howard, San Andreas, Calif., assignor to Chaparral Communications, Inc., Los Altos, Calif.

Filed Aug. 13, 1981, Ser. No. 292,509

Int. Cl.³ H01Q *13/00*

U.S. Cl. 343—786 **6 Claims**

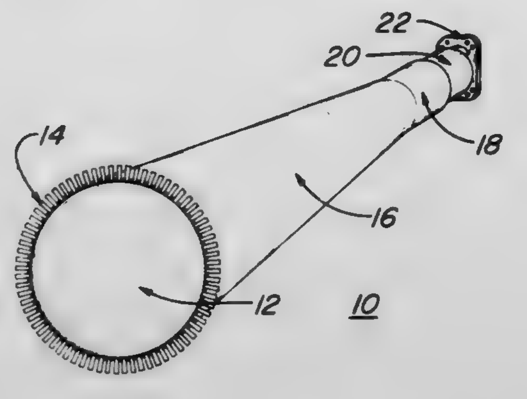
1. An electromagnetic feed horn for use with antenna reflectors in a waveguide transmission system, said feed horn comprising:

an aperture for receiving electromagnetic waves, including a plurality of protuberances symmetrically disposed radially outward along the periphery thereof and orthogonal to the direction of propagation of said waves;

a conical section coupled to the aperture for receiving electromagnetic signals therefrom;

a waveguide mount for mounting the feed horn to the waveguide transmission system;

an impedence matching section coupled to the waveguide mount, for matching the electromagnetic signal impedance of the feed horn to the waveguide system; and



a waveguide transition section for coupling the conical section to the impedance matching section and for converting energy received from the conical section to signals propagating in a waveguide mode.

4,380,015

RECORDING SYSTEM FOR RECORDING INFORMATION ON RECORD MEDIUM BY USING ENERGY BEAM

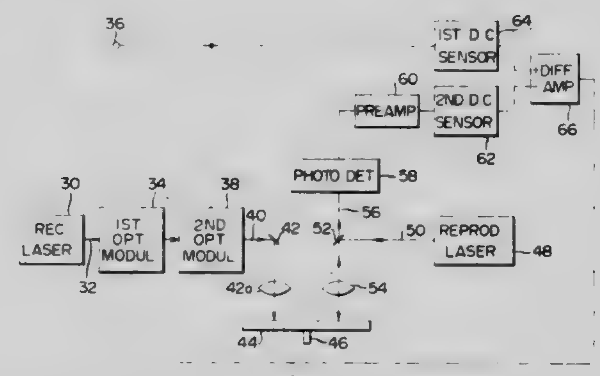
Osamu Ito, Itami, and Isao Watanabe, Takatsuki, both of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 3, 1981, Ser. No. 240,063

Claims priority, application Japan, Apr. 28, 1980, 55-56526

Int. Cl.³ G01D *15/14*

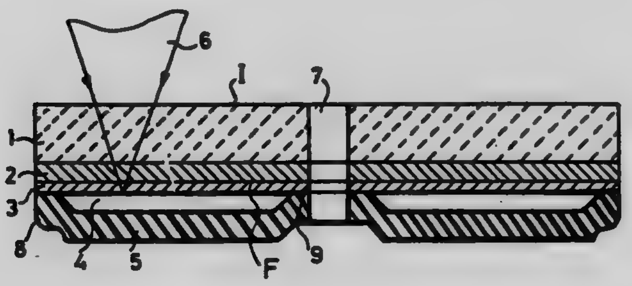
U.S. Cl. 346—108 **6 Claims**



1. A recording system for recording information on a record medium by using an energy beam, comprising an input terminal which is supplied with an electrical recording signal, a recording source of an energy beam for generating an energy beam for recording information on said record medium, a modulator means for modulating said energy beam with said electrical recording signal, a recording means for recording said information on said record medium with said modulated energy beam, a reproducing means for reproducing information recorded on said record medium substantially simultaneously with the recording of said information to produce a reproduced signal converted to an electrical signal, a first duty cycle sensor means connected to said reproducing means to sense a duty cycle of said reproduced signal from said reproducing means, a second duty cycle sensor means connected to said input terminal to sense a duty cycle of said recording signal, a differential amplifier means connected to said first and second duty cycle sensor means to generate a difference between output signals from said first and second duty cycle sensor means to produce a differential signal, and a control means connected to said differential amplifier means to control the power of said energy beam entered into said modulator means from said source of said energy beam in response to said differential signal from said differential amplifier means.

4,380,016
PROTECTED OPTICAL DISC

Jean-Claude Lehureau; Henriette Magna, and Michel Thirouard, all of Paris, France, assignors to Thomson-CSF, Paris, France
Division of Ser. No. 78,728, Sep. 25, 1979, Pat. No. 4,308,545. This application Oct. 15, 1980, Ser. No. 197,233
Claims priority, application France, Sep. 29, 1978, 7827920
The portion of the term of this patent subsequent to Dec. 29, 1998, has been disclaimed.
Int. Cl.³ G01D *15/34*
U.S. Cl. 346—135.1 **8 Claims**



1. A protected optical disc for the recording of information comprising:

an optically transparent plate having a central hole and outer and inner surfaces;

a layer of recording material deposited on said inner surface, said layer being inscribable and optically legible by reflection by a radiation beam traversing said transparent plate and being focused on said layer in a ring-shaped inscription region thereof;

an intergral preshaped cover having a central hole of substantially the same diameter as the central hole of said optically transparent plate, a central ring-shaped contact surface immediately surrounding said central hole, and an edge ring-shaped contact surface the two contact surfaces being adapted to be in contact with said layer of preceding material deposited on said inner surface of said transparent plate with the central hole of the integral cover being aligned with the central hole of the transparent plate, the cover being shaped so as to include an inner annulus forming said central ring-shaped contact surface in contact with said inner surface of said transparent plate, an intermediate annulus, concentric with said inner region, not in contact with said inner surface of said transparent plate and an outer annulus forming said edge ring-shaped contact surface in contact with said inner surface of said transparent plate, an annular chamber being formed by the contact between said transparent plate and said preshaped cover at said two contact surfaces.

4,380,017
METHOD FOR INK JET PRINTING

Donald L. Ort, Dallas, Tex., assignor to Xerox Corporation, Stamford, Conn.
Filed Oct. 1, 1980, Ser. No. 192,674
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R **6 Claims**

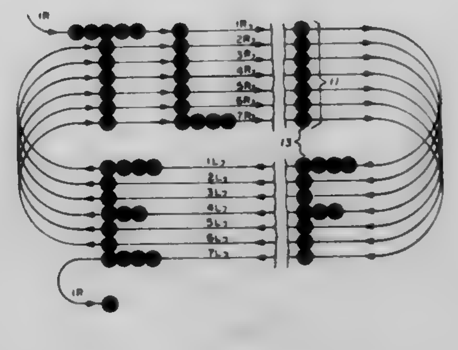
1. A method of bidirectional ink jet printing, which eliminates the necessity for compensating for velocity imparted droplet offset, which comprises:

(a) moving at least one ink jet nozzle of the drop-on-demand type relative to a record receiving surface in a first direction to print a first line thereon;

(b) providing relative movement between said record receiving surface and said at least one ink jet nozzle to align said nozzle with a second line in printing relationship thereto;

(c) moving said at least one ink jet nozzle relative to said record receiving surface in a second direction, which is opposite to said first direction, to print a second line on said record receiving surface;

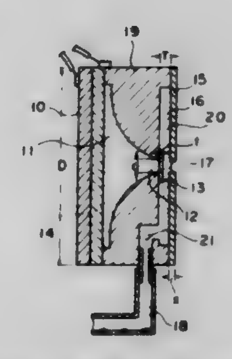
(d) providing relative movement between said record receiving surface and said at least one ink jet nozzle to align said at least one ink jet nozzle in printing relationship to said first line; and



(e) repeating step (a) at least once, and wherein printing of said first line occurs only while said ink jet nozzle is moving in said first direction and wherein printing of said second line occurs only while said ink jet nozzle is moving in said second direction.

4,380,018
INK DROPLET PROJECTING DEVICE AND AN INK JET PRINTER

Sadanari Andoh; Junji Maeda, both of Kyoto; Kiyoshi Fukushima, Kobe; Hiroichi Yoneda, Neyagawa, and Naotomo Jinushi, Hirakata, all of Japan, assignors to Sanyo Denki Kabushiki Kaisha, Osaka, Japan
Filed Jun. 10, 1981, Ser. No. 272,078
Claims priority, application Japan, Jul. 22, 1980, 55-103727[U]; Aug. 11, 1980, 55-114120[U]; Oct. 16, 1980, 55-145370; Feb. 18, 1981, 56-23445; Jun. 20, 1981, 56-84264; Sep. 17, 1981, 56-132128[U]
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R **19 Claims**



18. An ink jet printer including an ink droplet projecting device comprising:

a pressure generating means which vibrates in response to an electric signal;

a pressure cell, a part of the side wall thereof being composed of said pressure generating means and a passive vibrating means which has a smaller area than that of the pressure generating means;

transmission medium filled in said pressure cell to transmit the vibration of the pressure generating means to the passive vibrating means; and

means for holding an ink layer on the passive vibrating means on the exterior side of said pressure cell;

whereby the pressure generated by the vibration of the pressure generating means is concentrically given to the passive vibrating means through the transmission medium, the passive vibrating means vibrates thereby, and by this vibration, the ink droplet is projected from the ink layer.

4,380,019

DEVICE FOR MONITORING THE SUPPLY OF PRINTING FLUID IN INK PRINTING DEVICES

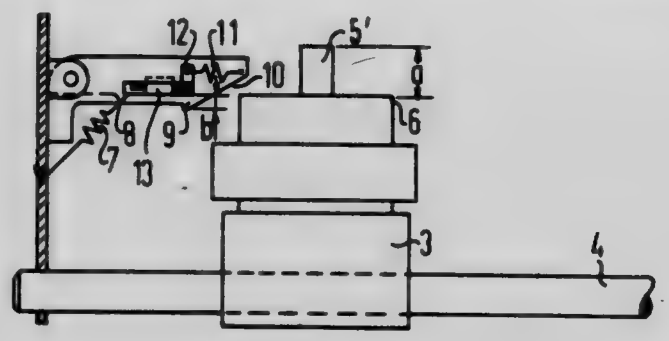
Wolfgang Steinberger, Greilsberg, and Gerhard Stempfl, Toeging, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Aug. 28, 1981, Ser. No. 297,368

Claims priority, application Fed. Rep. of Germany, Sep. 10, 1980, 3034067

Int. Cl.³ G01D *15/16*

U.S. Cl. 346—140 R **5 Claims**



1. Apparatus for monitoring ink supply for an ink printing device comprising a printing carriage means disposed for back and forth movement on a lateral path along a guidance structure, a printer head means mounted on said printing carriage means, an ink reservoir housing for containing an ink supply mounted on said printing carriage means cooperatively connected to said printer head means via a supply means, said reservoir housing having a cover portion and a tappet member, said tappet member having a base portion for resting on the upper level of the ink supply and an upstanding stem portion freely projecting through said cover portion for reciprocable movement in accordance with the changing level of the ink supply, and a monitoring means stationarily mounted at one lateral end of said guidance structure disposed in the movement path of said reservoir housing for sensing the degree of projection of said stem portion over said cover portion to detect the level of ink supply in said reservoir housing.

4,380,020

ACTIVE HIGH FREQUENCY SEMICONDUCTOR DEVICE WITH INTEGRAL WAVEGUIDE

Lloyd T. Yuan; Yu-Wen Chang, both of Rancho Palos Verdes, and Thomas G. Mills, Carson, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Jan. 21, 1980, Ser. No. 114,031

Int. Cl.³ H01L *27/26*

U.S. Cl. 357—3 **14 Claims**

1. A monolithic semiconductor device capable of operation at extremely high frequencies, said device comprising:
a substrate that serves as a waveguide as well as a substrate;
a metallic layer on said substrate having a recess opening toward said substrate and defining a cavity and a contact portion extending across said recess;
an active high-frequency semiconductor device within said cavity between and in contact with said substrate and said contact portion including a first semiconductor layer on said substrate extending across said cavity beyond said contact portion and a second semiconductor layer in contact with said contact portion; and
conductor means on said substrate within said recess and contacting said first semiconductor layer for supplying power to said device.

4,380,021

SEMICONDUCTOR INTEGRATED CIRCUIT

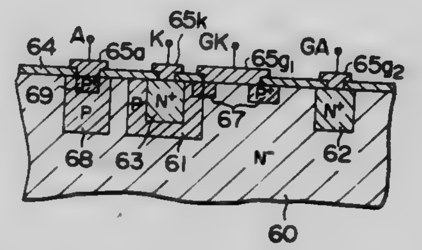
Mitsuo Matsuyama; Ichiro Ohhinata, and Junjiro Kitano, all of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 21, 1980, Ser. No. 131,931

Claims priority, application Japan, Mar. 22, 1979, 54-32285

Int. Cl.³ H01L *29/48*

U.S. Cl. 357—15 **3 Claims**



1. A semiconductor integrated circuit comprising:
a semiconductor substrate of a first conductivity type;
at least one first diffusion layer with a low impurity concentration of a second conductivity type opposite to the first conductivity type formed within said substrate;
a second diffusion layer with a high impurity concentration of the first conductivity type formed within said first diffusion layer;
a third diffusion layer with a high impurity concentration of the first conductivity type formed within said substrate;
wiring layers formed on the surfaces of said second and third diffusion layers;
a metal layer directly contacting with said substrate; and
a fourth diffusion layer of the second conductivity type shaped within said substrate like a frame under the peripheral portion of said metal layer and formed more shallowly than said first and said second diffusion layer, in which
a portion of said second diffusion layer overlaps a portion of said first diffusion layer; said metal layer serves as an external contact wiring layer for said first diffusion layer; said substrate, said first diffusion layer and said second diffusion layer are used as a collector region, a base region and an emitter region, respectively, thereby to form an NPN transistor; said third diffusion region is used as an ohmic contact for said collector region; and said substrate, said metal layer and said fourth diffusion layer are used as a cathode region, an anode region and a guard ring, respectively, thereby to form a Schottky barrier diode.

4,380,022

MONOLITHIC FULLY INTEGRATED CLASS B PUSH-PULL MICROWAVE GaAs MESFET WITH DIFFERENTIAL INPUTS AND OUTPUTS WITH REDUCED MILLER EFFECT

Max N. Yoder, Falls Church, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 9, 1980, Ser. No. 214,601

Int. Cl.³ H01L *29/80*

U.S. Cl. 357—22 **4 Claims**

1. An improved field effect transistor device of the type having a body of semiconductor material, and a plurality of drains, gates and sources operatively disposed on the body of semiconductor material, said field effect transistor device being connected in a differential input and output configuration including a positive gate bus, a negative gate bus, a positive drain bus, a negative drain bus, and a common source bus, wherein the improvement for a single one of a plurality of

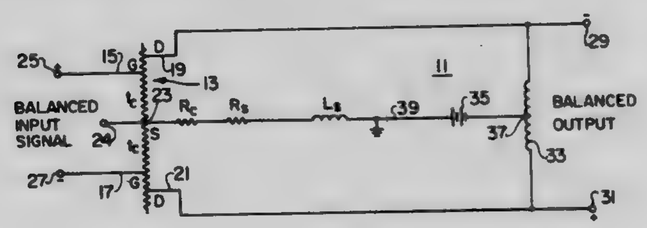
alternate parallel connected operating units of said field effect transistor device comprises:

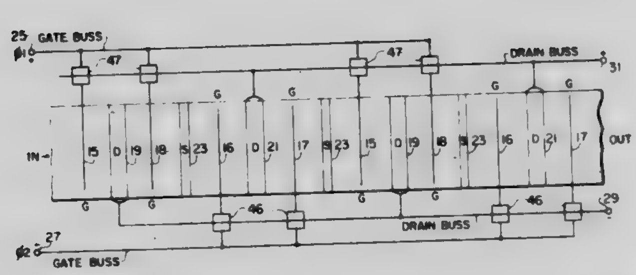
a common source operatively connected to the common source bus;

first and second drains juxtaposed on opposite sides of said common source, said first drain being operatively connected to the negative drain bus, and said second drain being operatively connected to the positive drain bus;

first and second gates juxtaposed on opposite sides of said first drain, said first and second gates being operatively connected to the positive gate bus;

third and fourth gates juxtaposed on opposite sides of said second drain, said third and fourth gates being operatively connected to the negative gate bus; and





positive feedback means including first, second, third and fourth crossover capacitors, said first and second crossover capacitors being operatively connected between the positive gate bus and the positive drain bus at said first gate and said second gate, respectively, and said third and fourth crossover capacitors being operatively connected between the negative gate bus and the negative drain bus at said third gate and said fourth gate, respectively, for minimizing the negative feedback effect of the Miller capacitance beween the positive gate bus and the positive drain bus and said first and second gates and said first drain, and for minimizing the negative feedback effect of the Miller capacitance between the positive gate bus and the positive drain bus and said first and second gates and said second drain.

4,380,023

ELECTRONIC IMAGING APPARATUS WITH LIGHT VALVE AREA ARRAYS

Jose M. Mir, Rochester; Jerry R. Varner, Fairport, and Clark N. Kurtz, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 29, 1981, Ser. No. 230,097

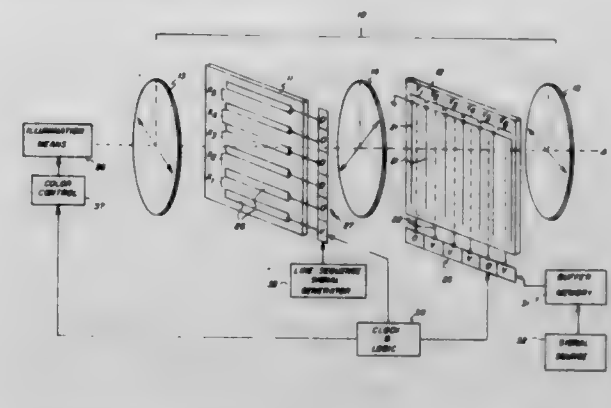
Int. Cl.[3] H04N *1/46, 1/22*

U.S. Cl. 358—75 **13 Claims**

1. An electronic imaging device comprising:

(a) first and second light-modulating panels each including (i) a plurality of generally coplanar and parallel light valve strips, formed of an electro-optic material of the type that is transformable by an electric field from a non-polar, isotropic state to a polar, birefringent state, and (ii) addressable means for selectively applying discrete electric fields transversely across respective strips, said panels being generally parallel, with their respective strips opposing and in a generally orthogonal relation; and

(b) first, second and third light-polarizing means in optical alignment with said panels, said first and third polarizing means being located respectively on opposite sides of said panels and oriented with their directions of polarization generally aligned, said second polarizing means being located between said panels and oriented with its direction



of polarization generally orthogonal to those of said first and third light-polarizing means.

4,380,024

AIRBORNE VEHICLE REFERENCED (OUTSIDE WORLD) RECORDING DEVICE UTILIZING AN ELECTRO-OPTICAL CAMERA AND AN ELECTRONIC ALIGNMENT PROCEDURE

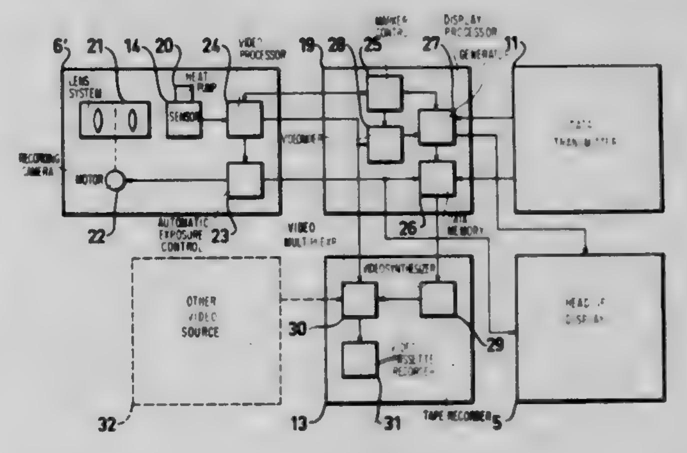
Hasse E. O. Olofsson, 25 Nämndemansbacken, Enskede, Sweden (S-122 36)

Filed Nov. 19, 1980, Ser. No. 208,282

Claims priority, application Sweden, Nov. 19, 1979, 7909530

Int. Cl.[3] H04N *7/18*

U.S. Cl. 358—93 **7 Claims**



1. Arrangement for electronic recording of outside world and display symbol registration in airborne vehicles comprising an electronic recording camera, a head up display and a recorder characterized in that the camera is calibrated with close tolerances to the same reference axes as the head up display's display symbology, the output signals from said camera and control signals of said display symbology being processed and combined in an electronic unit for simultaneous registration in the recorder.

4,380,025

AUXILIARY BLANKING AND AUXILIARY SIMULATED VIDEO LINE GENERATOR UNIT FOR A VIDEO INSPECTION SYSTEM

David W. Deane, Otterbein, Ind., assignor to Ball Corporation, Muncie, Ind.

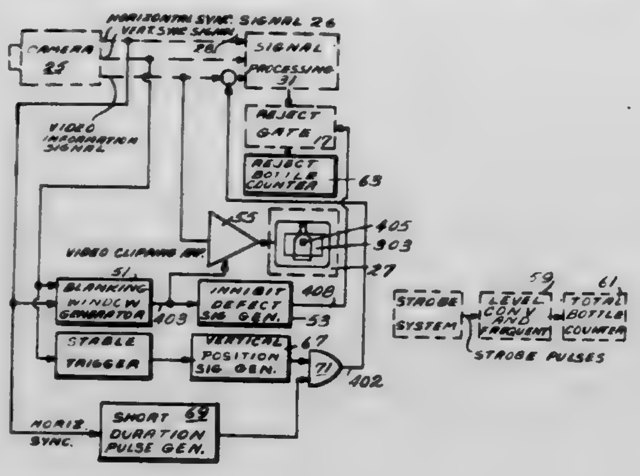
Filed Aug. 6, 1979, Ser. No. 63,927

Int. Cl.[3] H04N *7/18*

U.S. Cl. 358—106 **19 Claims**

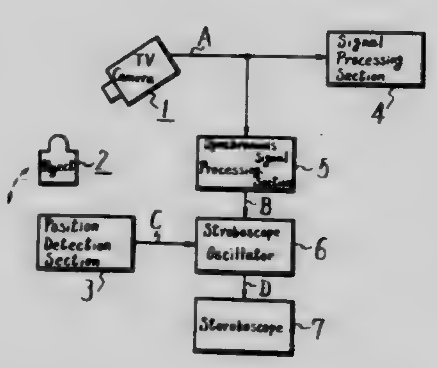
1. In a video inspection system for the inspection of articles of manufacture including a video camera for supplying a video information signal and utilizing horizontal and vertical sync signals, a blanking apparatus for producing within a predetermined inspection window a blanking window within which inspection is inhibited, said blanking apparatus comprising:

means for generating a horizontal lead signal having timing adjustable with respect to said horizontal sync pulses;
means for generating a horizontal trail signal having timing adjustable with respect to said horizontal sync pulses;
means for generating a vertical lead signal having timing adjustable with respect to said vertical sync pulses;



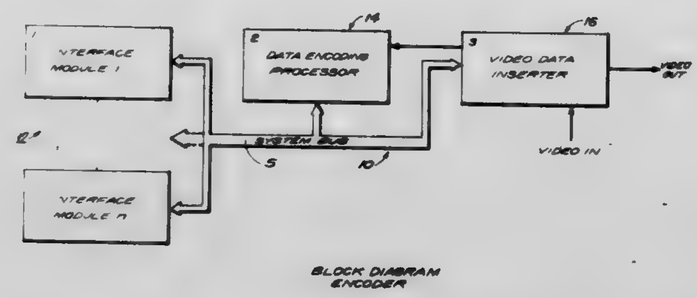
means for generating a vertical trail signal having timing adjustable with respect to said vertical sync pulses; and
means for combining said horizontal lead signal, horizontal trail signal, vertical lead signal and vertical trail signal to form a blanking window signal defining said blanking window within which inspection is inhibited.

4,380,026
METHOD FOR FLASHING A STROBOSCOPE FOR USE WITH JUDGING THE GOOD OR BAD OF AN OBJECT TO BE INSPECTED
Yutaka Kubota, Odawara, Japan, assignor to Stanley Electric Co. Ltd., Tokyo, Japan
Filed Dec. 10, 1980, Ser. No. 215,138
Claims priority, application Japan, Dec. 12, 1979, 54-161148
Int. Cl.³ H04N *7/18*
U.S. Cl. 358—106 **1 Claim**



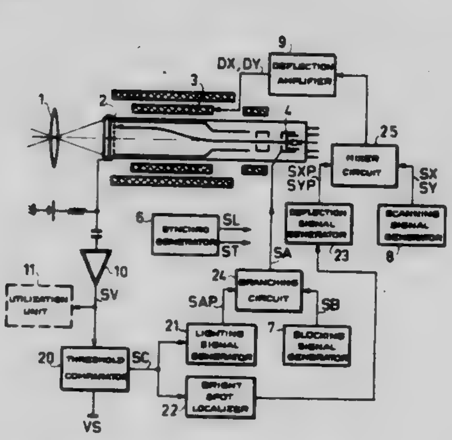
1. A method for flashing a stroboscope for use with judging the good or bad of an object to be inspected comprising the steps of:
(a) picking up an object by a television camera and producing a video signal thereof;
(b) providing a stroboscope for irradiation of said object with light therefrom;
(c) separating a vertical synchronizing signal from said video signal;
(d) detecting said object arriving at a predetermined detecting position and producing a position detecting signal, having an ON signal period longer than the period between adjacent vertical synchronizing signals;
(e) generating a signal for flashing said stroboscope when both of said position detecting signal and said vertical synchronizing signal exist,
whereby the video signal of said object is delivered from said television camera at the beginning of the scanning thereof.

4,380,027
DATA ENCODING FOR TELEVISION
William Leventer, 62 Sutton Pl., Lawrence, Long Island, N.Y. 11559, and Lawrence M. Shulman, 74 Mercury Ave., East Patchogue, N.Y. 11772
Filed Dec. 8, 1980, Ser. No. 213,915
Int. Cl.³ H04N *7/08*
U.S. Cl. 358—147 **29 Claims**



1. A system for encoding data to be transmitted along with an incoming television video signal of a given field rate, wherein a predetermined number of scan lines compose each field, comprising:
input interface means for receiving data from a number of input devices each of which provides data at a particular information rate;
encoding processing means coupled to said input interface means for accessing the data received by said input interface means from the input devices and for arranging the data into separately identifiable data groups, each of said data groups corresponding to the input device which originated the data in that group; and
inserting means coupled to said encoding processing means and to the incoming video signal for accessing said data groups from said encoding processing means and for inserting said data groups into a selected scan line of the video signal, said inserting means including timing means for providing timing signals to define a number of data channels over a portion of said selected scan line, said inserting means operating to insert each of said data groups into an associated data channel so that said data channels on said selected scan line include data which originates from the number of input devices, the amount of data identifiable with a particular input device corresponding directly to the particular information rate of the input device.

4,380,028
TELEVISION CAMERA EQUIPPED WITH AN ANTI-BLOOMING DEVICE
Christian Pepin, and Jean P. Trahand, both of Paris, France, assignors to Thomson-CSF, Paris, France
Filed Feb. 10, 1981, Ser. No. 233,120
Claims priority, application France, Feb. 12, 1980, 80 03048
Int. Cl.³ H04N *5/34*
U.S. Cl. 358—219 **6 Claims**



1. A television camera equipped with an anti-blooming device intended more particularly for homing apparatus, comprising;

a camera tube for supplying a video signal and having an electrode;

scanning circuits for providing horizontal and vertical deflection signals of a raster scan for said tube;

a first signal generator for producing electron-beam blanking signals during the line and frame flyback periods;

a second signal generator for producing line and frame synchronizing signals;

an anti-blooming device comprising:

threshold comparator means for comparing said video signal to a threshold substantially equal to the camera tube saturation level to detect video signal amplitudes corresponding to a bright spot,

first means connected to the output of said comparator means for generating deflection signals which correspond to the horizontal and vertical coordinates of said bright spot, and

second means connected to the output of said comparator means for generating a signal unblanking the camera tube during a portion of the flyback period to provide a determined electron-beam intensity, said signal being provided at a repetition rate at least equal to a line period and the number of repeated occurrences thereof being determined by the brightness of the bright spot;

first mixing means for providing the raster scan deflector signals and, during flyback periods, said bright spot deflection signals; and

second mixing means for providing to the electrode of said camera tube, electron-beam intensity modulating signals comprising said unblanking signals during flyback periods for producing a local modification of the tube sensitivity.

4,380,029

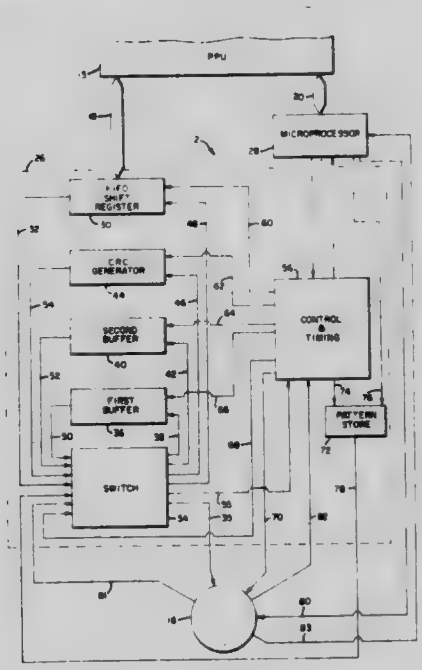
DATA RECORDING FORMAT AND METHOD AND APPARATUS FOR PRODUCING SAME

Elwood J. Bode, Newark, Calif., assignor to BTI Computer Systems, Sunnyvale, Calif.

Filed Mar. 13, 1981, Ser. No. 243,534

Int. Cl.[3] G11B *5/09*

U.S. Cl. 360—48 **9 Claims**



1. Apparatus for recording data in the form of a sector of serially occurring binary bits onto a storage medium comprising means for sequentially grouping the bits into n data segments wherein n is a positive integer greater than one and each data segment includes 1/n times the number of bits in said sector, means coupled to said grouping means for transmitting the bits in a data segment to said storage medium, means coupled to said grouping means for temporarily storing a data segment of bits, means coupled to said grouping means and said storing means for combining in accordance with a prescribed function the bits of the data segment in said storing means with the bits in the immediately succeeding data segment thereby to update the contents of said storing means as each data segment is transmitted to said storage medium, means responsive to the bits in a data segment for generating a CRC signal, means for coupling the CRC signal to said transmitting means so that the CRC signal is applied to the storage medium in association with the data segment in response to which the CRC signal is generated, and means for transmitting the content of said storing means to said storage medium for storage thereinafter the nth data segment and the CRC signal associated therewith, thereby to establish a check segment containing a data pattern representative of the data stored in all said data segments.

4,380,030

MAGNETIC TAPE CASSETTE

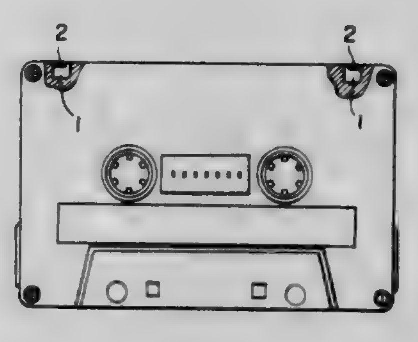
Haruo Shiba, Saku, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 79,194, Sep. 26, 1979, abandoned. This application Jun. 16, 1981, Ser. No. 274,198

Claims priority, application Japan, Nov. 20, 1978, 53-158695

Int. Cl.[3] G11B *15/04, 23/06*

U.S. Cl. 360—132 **3 Claims**



1. A magnetic tape cassette, comprisig:

a cassette casing having a first surface including a tape reading aperture and a second surface opposite said first surface;

at least one recess on said second surface, each said at least one recess including opposing lateral walls, a bottom wall, a projection centrally located on each of said lateral walls and a slot extending in said bottom walls; and

an elastic fitting piece for each said at least one recess, each said fitting piece forming a channel shape including two legs and a connecting portion and being symmetric about a plane passing centrally through said legs and connecting portion, each of said legs including a lug forming an enclosing mating portion, each said lug being centrally located on one of said legs and on said plane of symmetry, said connecting portion including an extending portion which extends beyond said legs;

wherein said fitting piece is adapted to fit into said recess in either of two positions, a first position in which each said enclosing mating portion of each said lug is matingly engaged with one of said projections and said connecting portion covers all of said recess except for a portion corresponding to said slot, and a second position in which each said enclosing mating portion of each said lug is matingly engaged with one of said projections and said connecting portion is perpendicular to said bottom wall to uncover said recess, with said extending portion engagingly inserted in said slot to prevent lateral movement of said fitting piece,

whereby said fitting piece maybe moved from one of said two positions to the other of said two positions with said plane of symmetry in either of two opposite angular orientations.

4,380,031

CONTROL FOR BIDIRECTIONAL DRIVE RESPONSIVE TO GAPS IN RECORDED SOUND

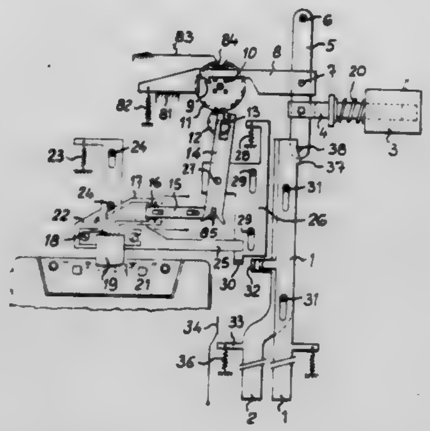
Stephane M. A. d'Alayer de Costemore d'Arc, Genappe, Belgium, assignor to Staar S.A., Belgium

Filed Oct. 14, 1980, Ser. No. 196,754

Claims priority, application Belgium, Mar. 14, 1980, 1/99789

Int. Cl.³ H04N *9/16*

U.S. Cl. 360—74.1 **15 Claims**



1. In a tape transport having a bi-directional drive for movement of tape at playback speed and fast speed in either direction; a soundtrack pick-up head operatively positioned to engage the tape, said head having two sets of head channels for detecting recordings on respective sets of recording tracks on recording tape; switch means shiftable from one state to another for enabling one set or the other of said sets of head channels; signal detection circuit means for receiving audio signals from the enabled set of head channels and for producing actuating signals in response to a silence interval of predetermined minimum duration in said audio signals indicating a silence period between recordings on the corresponding set of recording tracks; drive control means including a reversing mechanism operable to reverse the drive for movement of tape at playback speed or fast rewind speed; and a fast rewind actuator; the improvements comprising:

means connecting said reversing mechanism for said bidirectional drive to said switch means, including means having two states representing the respective directions of tape movement connected for shifting the state of said switch means and switching the enabled sets of head channels to accommodate the direction of tape movement upon reversal of said drive;

means for disconnecting said connecting means from shifting the state of said switch means upon reversal of said drive for movement of the tape at fast rewind speed so as to maintain the same state of said switch means and enabled set of head channels;

said connecting means being operable to shift the state of said switch means upon reversal of said drive for movement of the tape at playback speed; and

means for connecting said actuating signals from said silence detection circuit means to operate said drive control means and actuate said reversing mechanism during movement of the tape by said drive at fast rewind speed.

4,380,032

TAPE SYSTEM WITH OPTICALLY CONTRASTING DATA MARKS

R. Fred Pfost, Los Altos, Calif., assignor to Newell Research Corporation, Saratoga, Calif.

Filed Apr. 25, 1980, Ser. No. 143,785

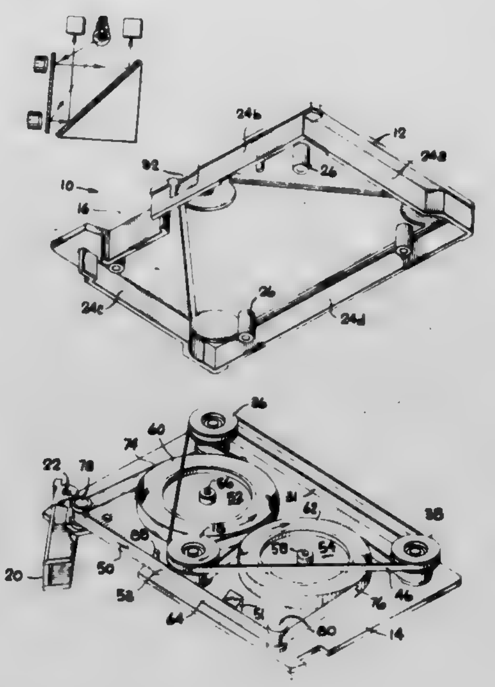
Int. Cl.³ G11B *15/52*

U.S. Cl. 360—74.6 **14 Claims**

12. In a tape playing system wherein the tape moves in a tape path and has color marks thereon indicative of data, the improvement comprising,

(i) lamp means for illuminating a tape path in which a tape with color marks thereon moves relative to the lamp means,

(ii) at least one light sensor disposed with a viewing axis for receiving light after impingement on the tape from the source,



(iii) feedback means connected to said light intensity detection means and to said lamp means for controlling the intensity of illumination onto said tape path and directed to the light sensors such that an approximately constant level of illumination is set at the detectors defining the tape background and the contrast ratio between the color marks and the tape background exceeds a threshold level.

4,380,033

DISC-DRIVE HEAD POSITIONING SYSTEMS

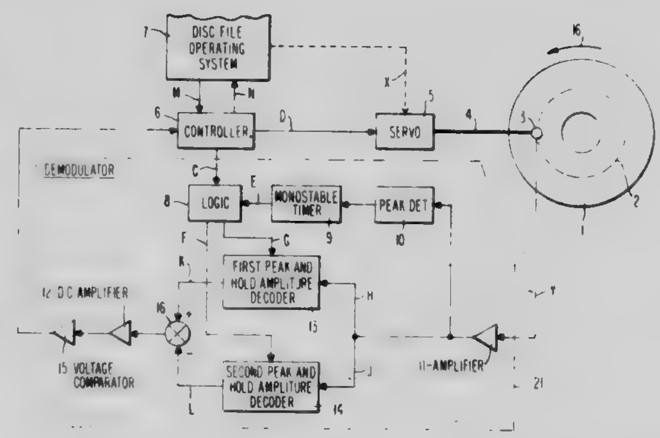
Kantilal Bacrania, Stevenage, England, assignor to Burroughs Corporation, Detroit, Mich.

Filed Jul. 21, 1980, Ser. No. 170,334

Claims priority, application United Kingdom, Jul. 19, 1979, 7925197

Int. Cl.³ G11B *3/10, 5/58;* **G05B** *15/02*

U.S. Cl. 360—77 **8 Claims**



1. Apparatus for computing the mean value of a correction position demand signal for a servo track on a moving medium, said mean value to be used for error correction of the position demand signal for other tracks, said position demand signals being applied to a servomechanism to move a transducer to a disposition over a track on said moving medium, said transducer recovering first and second position-indicating signal components from said servo track, comprising:

a controller for communicating with said servomechanism;

control logic communicating with said controller; and

a demodulator including first and second amplitude decod-

ers and a comparator, said first and second amplitude decoders communicating with said control logic, said first and second amplitude decoders receiving and detecting said first and second position indicating signals respectively from said transducer, the outputs of said first and second amplitude decoders being coupled to said comparator which provides a nonparity output when said transducer is not proximately disposed over said servo track and a parity output when said transducer is proximately disposed over said servo track, said comparator output coupled to said controller which provides a first correction position demand signal to said servomechanism to move said transducer until said parity is reached in said comparator, said control logic responding to said parity to cause said first and second amplitude decoders to next receive and detect said second and first position indicating signals respectively, and provide outputs to said comparator, said comparator providing an output to said controller to provide a second correction position demand signal to said servomechanism to move said transducer until parity is reached in said comparator, said controller computing the mean value of said first and second correction position demand signals at parity, whereby, said mean value is used to correct the positional demand signals for all other tracks on the medium.

4,380,034

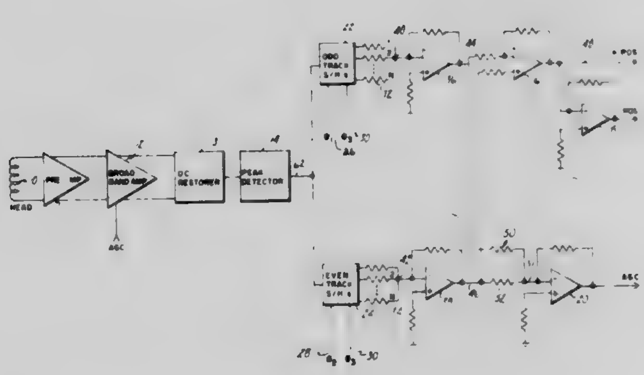
TRACK CENTERING SERVO PULSE NOISE FILTER

Guss L. Krake, Richfield, Minn., assignor to Magnetic Peripherals Inc., Minneapolis, Minn.

Filed Sep. 26, 1980, Ser. No. 191,471

Int. Cl.³ G11B *21/10*

U.S. Cl. 360—77 **7 Claims**



1. In a disk track centering servo system having even pulses written on one servo track and odd pulses written on an adjacent servo track, a read head for reading information, including said pulses, means for preamplifying said pulses, and means for distinguishing between odd and even pulses, the improvement comprising:

- first and second pluralities of analog sample and hold circuits, each having an output;
- means for inputting even pulses, one pulse per circuit, into said first plurality of said circuits; said first circuits holding the latest received N pulses, where N is a predetermined number;
- means for inputting odd pulses, one pulse per circuit, into said second plurality of said circuits; said second circuits holding the latest received N pulses, where N is a predetermined number;
- means for analog summing the outputs of said first plurality of circuits to form a first sum;
- means for analog summing the outputs of said second plurality of circuits to form a second sum; and
- means for deriving the difference between said first sum and said second sum to form a position error signal.

4,380,035

MAGNETIC TAPE CASSETTE

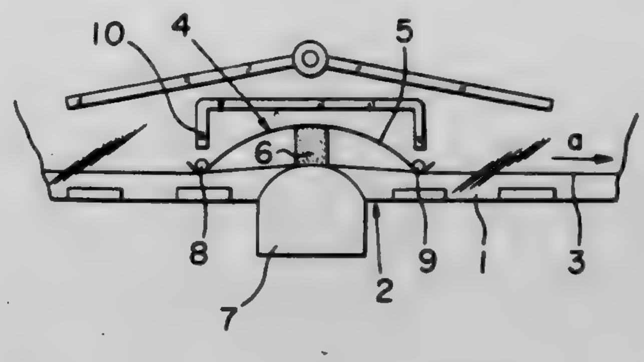
Hiroshi Ota; Eiji Horigome, and Hitoshi Azegami, all of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Sep. 4, 1980, Ser. No. 184,063

Claims priority, application Japan, Sep. 6, 1979, 54-123156[U]

Int. Cl.³ G11B *23/04*

U.S. Cl. 360—130.33 **5 Claims**



1. A magnetic tape cassette, which comprises: a resilient, coated pad support member having a coat formed from an organic solvent soluble rust inhibitor and an organic solvent soluble synthetic resin, wherein said coated pad support member produces a pad pressure substantially the same as the pressure produced when said pad support member is uncoated.

4,380,036

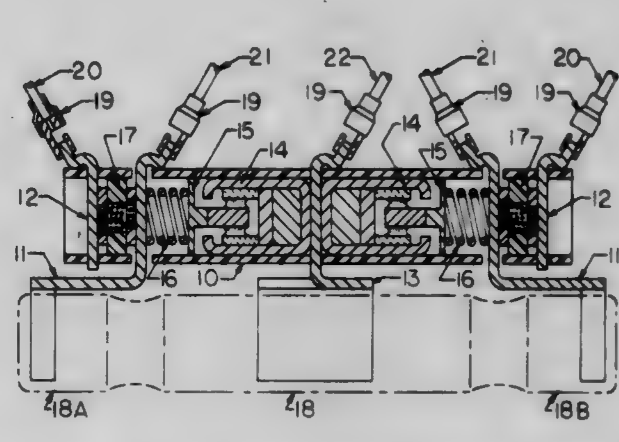
CLIP-ON PROTECTOR

Gerald Coren, 18 Willben La., Plainview, N.Y. 11803

Division of Ser. No. 74,885, Sep. 12, 1979, Pat. No. 4,317,153, which is a continuation-in-part of Ser. No. 880,756, Feb. 24, 1978, Pat. No. 4,191,987. This application Aug. 12, 1981, Ser. No. 292,232

Int. Cl.³ H02H *9/06*

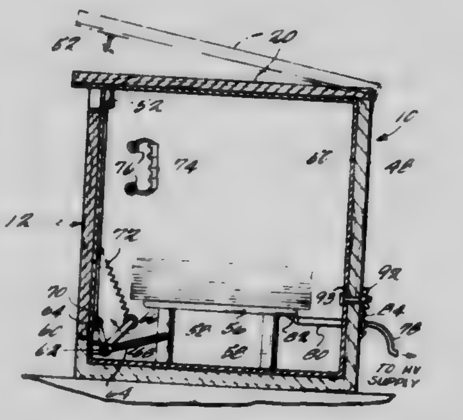
U.S. Cl. 361—119 **1 Claim**



1. A method of assuring multi-mode electrical protection for telephone lines that employ a gas tube arrestor and wherein the method is adapted for use with a device which clips onto the gas tube arrestor by means of metallic fingers that are in thermal and electrical contact with the respective electrodes of the gas tube arrestor, comprising the steps of placing a heat coil assembly in the device which is responsive to a sustained overcurrent condition and is adapted to open-circuit upon same, placing a common form of terminal means on the device, with the terminal means extending from the periphery of the device, positioning the heat coil assembly between a first one and a second one of the terminal means, placing an over-voltage arrestor in the device with the over-voltage arrestor in pressure engagement with the heat coil assembly thus causing the heat coil assembly to establish electrical continuity with the two terminal means between which it is positioned whereupon removal of the over-voltage arrestor or heat coil assembly from the device operates to break the electrical continuity established between the two terminal means, placing a common form of connector on each incoming line, placing a com-

mon form of connector on each apparatus line, the common form of connector that is placed on each incoming and apparatus line being adapted to mate with the common form of terminal means on the device, connecting the common form of connector on an incoming line to one of the two terminal means, and connecting the common form of connector on an apparatus line to the other one of the two terminal means thus establishing electrical continuity between associated incoming and apparatus lines whereby if either incoming or apparatus line is disconnected from its respective terminal means, electrical continuity between the associated incoming and apparatus lines is broken electrically isolating the same.

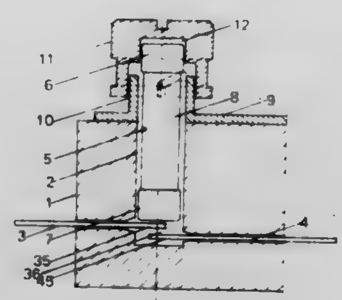
4,380,037
ELECTROSTATIC TREATMENT OF PAPER
William D. Harris, Greensboro, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.
Filed May 18, 1981, Ser. No. 264,697
Int. Cl.³ H05F *3/00*
U.S. Cl. 361—214 **7 Claims**



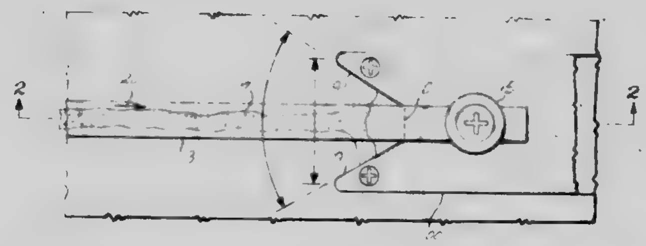
1. A method of altering electrostatic charges of sheets of dielectric material arranged in a stack, utilizing a plate comprised substantially of electrically conductive material inside an enclosure having electrically conductive interior surfaces, the plate being electrically insulated from the interior surfaces, comprising the steps of:
(a) placing one sheet of the stack in operative association with the plate, while maintaining the rest of the sheets of the stack free from contact with any electrically conductive manner;
(b) electrically connecting the interior surfaces to a first voltage; and
(c) electrically connecting the plate to a second voltage, much greater than the first voltage, long enough to alter the electrostatic charges.

4,380,038
OVERVOLTAGE PROTECTIVE MODULE
Maurice Roudeau, Résidence de la Commanderie Brelevenez, Lannion, France (22300)
Filed May 5, 1981, Ser. No. 260,807
Claims priority, application France, May 6, 1980, 80 10098
Int. Cl.³ H02H *9/06*
U.S. Cl. 361—119 **17 Claims**

1. An overvoltage protective module comprising:
a body of insulating material having a recess;
an overvoltage protective element having first and second terminals and positioned in said recess;
two conducting strips held in the bottom of said recess and having free and flexible ends which are located one above the other below said second terminal of said overvoltage protective element; and
means for guiding said overvoltage protective element, said guiding means including:
means secured to a face of said body and having a hole crossed by said overvoltage protective element for grounding said first terminal of said overvoltage protective element, and
detachable closing means abutting against said first terminal of said overvoltage protective element and cooperating with said grounding means to be guided along a translatory and rotatory stroke;
said free end of one of said conducting strips being disconnected from said free end of the other conducting strip and connected to said second terminal of said overvoltage protective element when said closing means is at an intermediate stationary position of said translatory and rotatory stroke, and being forced against said free end of said other conducting strip by said second terminal of said overvoltage protective element when said closing means rotates at the end of said stroke.



4,380,039
GROUNDING TERMINAL FOR LIGHTNING DIVERTER STRIP
Charles H. King, Kent, Wash., assignor to The Boeing Company, Seattle, Wash.
PCT No. PCT/US81/01313, § 371 Date Sep. 28, 1981, § 102(e) Date Sep. 28, 1981
PCT Filed Sep. 28, 1981, Ser. No. 310,242
Int. Cl.³ H05F *3/00*
U.S. Cl. 361—218 **2 Claims**



1. A system for conducting lightning induced electrical currents to a metallic grounding structure in an aircraft, said system comprising:
a lightning diverter strip for conducting lightning induced electrical currents along an aircraft outer surface portion;
a grounding terminal having an end portion including a truncated V-notch shaped end surface;
said lightning diverter strip coupled across said aircraft outer surface portion and through the center region of said truncated V-notch shaped end surface to said metallic grounding structure.

4,380,040

CAPACITIVE SYSTEMS FOR TOUCH CONTROL SWITCHING

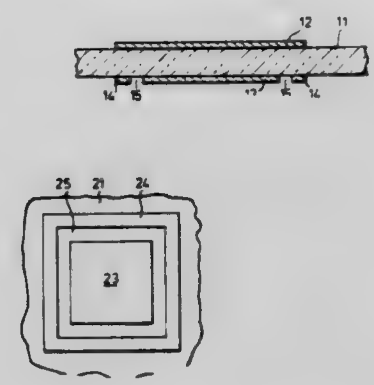
Robert Posset, Mont-sur-Marchienne, Belgium, assignor to BFG Glassgroup, Paris, France

Filed Aug. 7, 1980, Ser. No. 176,029

Claims priority, application United Kingdom, Sep. 28, 1979, 7933729

Int. Cl.³ H01G *7/00*

U.S. Cl. 361—280 **9 Claims**



1. A capacitive system for touch control switching comprising a dielectric sheet having a first electrode on one side thereof said first electrode constituting a touch pad, and on the other side thereof in capacitive relation with the first electrode, second and third electrodes which are mutually spaced, characterised in that of said second and third electrodes, one constitutes an inner electrode and the other constitutes an outer electrode and is shaped to surround at least the major part of the periphery of said inner electrode and in that the ratio of the area of said inner electrode to the area of said outer electrode is greater than 0.25 to 1.

4,380,041

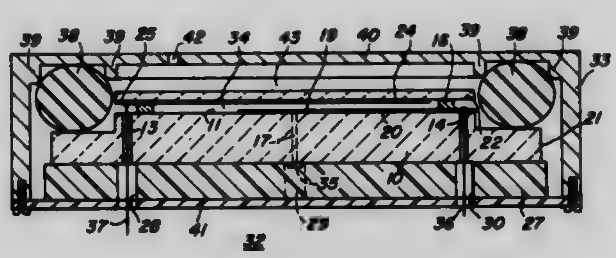
CAPACITOR PRESSURE TRANSDUCER WITH HOUSING

Roland K. Ho, McHenry, Ill., assignor to Motorola Inc., Schaumburg, Ill.

Continuation of Ser. No. 133,237, Mar. 24, 1980, abandoned, which is a continuation of Ser. No. 945,284, Sep. 25, 1978. This application Oct. 26, 1981, Ser. No. 314,811

Int. Cl.³ H01G *7/00*

U.S. Cl. 361—283 **12 Claims**



1. A pressure transducer assembly comprising:
a pressure transducer including,
base substrate means having a top surface with a peripheral portion and a bottom surface,
flexible diaphram means having a planar central portion and a surrounding peripheral portion along the perimeter of the diaphragm means,
mounting means for mounting said peripheral portion of said diaphragm means to said base substrate top surface peripheral portion, said mounting means, said diaphragm planar central portion and said substrate top surface generally forming an internal cavity, said diaphragm central portion being displaceable with respect to said top surface in response to pressure changes, wherein said internal cavity maintains a reference pressure and pressures applied exterior to said internal cavity cause said diaphragm means to flex and thereby alter electrical characteristics of said transducer in response to pressure changes, and
a flange means attached to said base substrate means and extending laterally with respect to and beyond said top surface peripheral portion and said peripheral portion of said diaphragm means, whereby said flange means forms a mounting ledge by which said transducer can be mounted without applying stress to said diaphragm means;
housing means for providing a substantially closed package for housing said pressure transducer within said housing means, said housing means having a wall to which said pressure transducer is to be mounted;
annular sealing means mounted on said flange means and positioned laterally beyond the perimeter of said diaphragm means; and
means mounting said annular sealing means and said pressure transducer to said wall, said annular sealing means contacting an interior surface of said wall and said flange means and sealing and forming an external cavity between said interior surface of said wall and said diaphragm means, said annular sealing means determining the spacing between said interior surface of said wall and said diaphragm means,
said wall having a hole therethrough extending into said internal cavity through which pressures are applied exterior to said interior cavity to cause said diaphragm means to flex and thereby alter electrical characteristics of said pressure transducer in response to pressure changes, said hole being substantially smaller than the lateral dimensions of said diaphragm means,
wherein said top surface peripheral portion of said base substrate means is planar, and
wherein said flange means is located below said plane of said peripheral portion of said base substrate means top surface and between said top and bottom surfaces of said base substrate means.

4,380,042

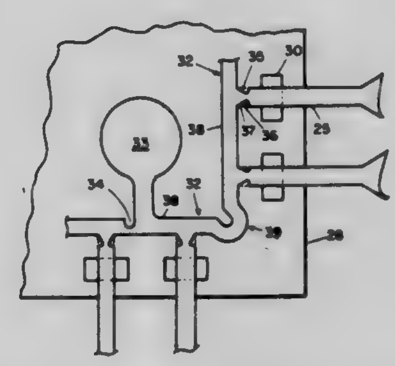
PRINTED CIRCUIT LEAD CARRIER TAPE

Thomas L. Angelucci, Sr., 89 Charlan Cir., Cherry Hill, N.J. 08003, and Joseph L. Angelucci, 1948 Little Dr., Deptford, N.J. 08096

Filed Feb. 23, 1981, Ser. No. 235,341

Int. Cl.³ H01L *23/48, 29/32*

U.S. Cl. 361—421 **10 Claims**



1. A continuous flexible lead carrier tape having a plurality of sequential lead patterns thereon, the improvement comprising:
a flexible dielectric carrier based tape,
a flexible foil conductive pattern on said base tape,
an aperture in said tape adapted to receive a semiconductor device and to be connected to said foil pattern,
said foil pattern having a plurality of finger-shaped leads converging towards said aperture and extending as cantilevered leads in a common plane from said base tape over the edge portion of said aperture in said base tape to provide a plurality of inner electrical leads adapted to be connected to terminals on said semiconductor device,
a removable lead stabilizing connecting frame,

said connecting frame being formed from said foil conductive pattern,
said frame being located juxtaposed the end portion of said cantilevered leads,
lead tear links forming a conductive foil connection between said frame and said end portions of said cantilevered leads,
a frame tear link in said stabilizing connecting frame for initially severing one side of said frame, and
said stabilizing frame being adapted to be removed from said cantilevered leads by first severing said frame tear link after said cantilevered leads are connected to said terminals on said semiconductor device and subsequentially severing each lead tear link one after the other so that a uniform severing force is applied to each lead tear link.

4,380,043

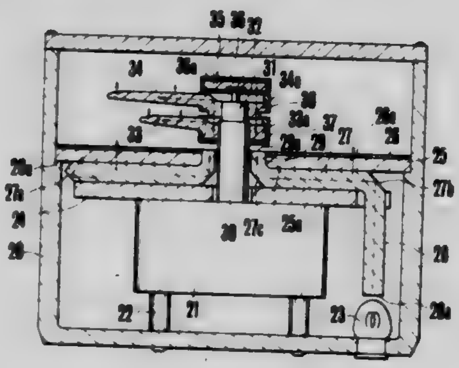
APPARATUS FOR ILLUMINATING INSTRUMENT POINTERS

Mashiro Takamatsu, Toyota; Makoto Nakao, Yokohama, and Isao Ogawa, Sagamihara, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota and Jeco Co., Ltd., Kawasaki, both of, Japan

Filed Dec. 5, 1980, Ser. No. 213,466

Int. Cl.³ G01D *11/28*

U.S. Cl. 362—26 **6 Claims**



1. An apparatus for illuminating instrument pointers comprising:
a dial board having a shaft hole;
pointer shafts extending from a pointer shaft drive unit to pass through said shaft hole to the front of said dial board;
a light conductive member made of a transparent material and disposed behind said dial board, said member comprising a light receiving section and a light transmission section;
a plurality of instrument pointers each made of a transparent material and comprising a collar section and a pointer section, each of said instrument pointers being mounted on said pointer shaft such that light beam emitted from said light transmission section is introduced through said collar section; and
a light emitting member opposing said light receiving section, for emitting light beam being transmitted through said light conductive member to said collar sections and to said pointer sections so as to illuminate said instrument pointers;
wherein said instrument pointers include an hour hand and a minute hand, the back surface of the collar section of said hour hand facing said light transmission section, and the back surface of the collar section of said minute hand facing the front surface of the collar section of said hour hand; and
wherein the front end surface of the collar section of said hour hand is formed with a slant plane, said light beam being transmitted through said slant plane to said collar of the minute hand.

4,380,044

D.C. TO D.C. CONVERTER WITH PLURAL FEEDBACK LOOPS

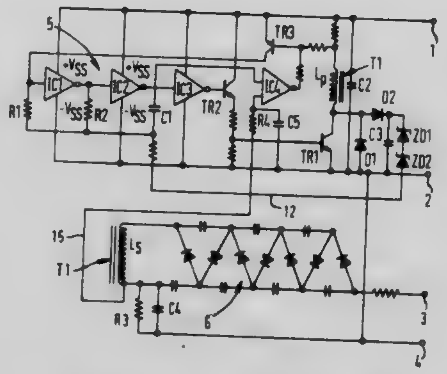
Andrew F. Parr, West Croydon, England, assignor to Imperial Chemical Industries PLC, London, England

Filed Oct. 3, 1980, Ser. No. 193,638

Claims priority, application United Kingdom, Oct. 4, 1979, 7934430

Int. Cl.³ H02M *3/335*

U.S. Cl. 363—21 **8 Claims**



1. A d.c. to d.c. converter for deriving from a relatively low voltage battery supply a relatively high voltage d.c. output, comprising:
a step up transformer having means defining primary and secondary windings;
oscillator means for producing an output which oscillates between first and second states;
semiconductor switching means controlled by said oscillator output to switch on and off in response to said first and second states, respectively, said switching means being arranged to switch current flowing through the transformer primary in such a manner that upon switching on of the switching means the current builds up progressively and upon switching off of said switching means the current changes abruptly in a manner to induce a relatively high voltage pulse in said secondary winding and such that there is formed in said primary winding a relatively low flyback voltage pulse of a magnitude which is a function of the magnitude of said high voltage pulse;
output means coupled to the secondary winding and arranged to derive said high voltage d.c. output from high voltage pulses induced in the secondary winding;
first control means for controlling the frequency of oscillation of the oscillator in dependence upon the magnitude of said low flyback voltage pulse formed in the primary winding;
second control means including
sensing means for sensing the magnitude of the current building up in the primary;
means for causing the oscillator output to change from said first to said second state when the current level sensed by said sensing means exceeds a given level; and
third control means for sensing an abnormal load condition on said high voltage d.c. output and controlling the oscillation frequency of said oscillator means in accordance therewith.

4,380,045

THYRISTOR CONVERTOR FAILURE DETECTION DEVICE

Toshiaki Ishii, Ichinomiya, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 6, 1981, Ser. No. 290,698

Claims priority, application Japan, Dec. 8, 1980, 55-172815

Int. Cl.³ H02H *7/125*

U.S. Cl. 363—54 **4 Claims**

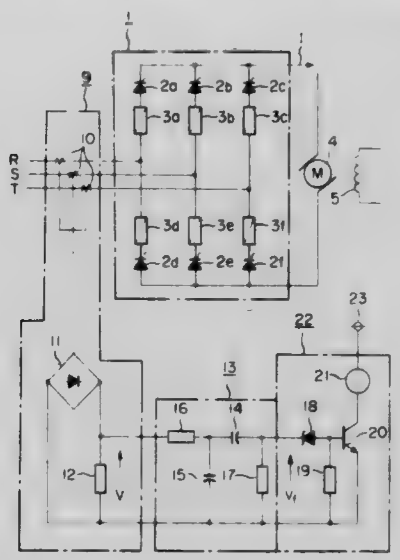
1. A failure detection device for a convertor circuit which converts alternating current into an output direct current through a plurality of rectifying elements connected between

an alternating current voltage source and a direct current load, said failure detection device comprising:

waveform detector means for detecting the waveform of said output direct current of said convertor, and for producing a waveform signal corresponding to said waveform;

harmonic component detector means connected to said waveform detector means and responsive to said waveform signal for detecting a harmonic component of said waveform, and for producing a harmonic component signal corresponding to said harmonic component, said harmonic component being a harmonic component having a frequency which is characteristic of an occurrence of a failure within said convertor; and

amplitude detector means connected to said detector means and responsive to said harmonic component signal for detecting the amplitude of said harmonic component and for producing a failure signal when said amplitude of said harmonic component exceeds a predetermined level.



4,380,046

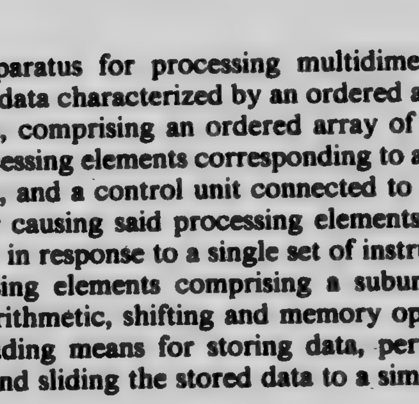
MASSIVELY PARALLEL PROCESSOR COMPUTER

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of, Lai-Wo Fung, Morristown, N.J.

Filed May 21, 1979, Ser. No. 41,143

Int. Cl.[3] G06F *15/16, 15/347*

U.S. Cl. 364—200 **14 Claims**



1. An apparatus for processing multidimensional, digital serial-by-bit data characterized by an ordered array of parallel data streams, comprising an ordered array of interconnected parallel processing elements corresponding to all or part of the data streams, and a control unit connected to said processing elements for causing said processing elements to process the data streams in response to a single set of instructions, each of said processing elements comprising a subunit A including means for arithmetic, shifting and memory operations, a subunit B including means for storing data, performing logical operations and sliding the stored data to a similar subunit in a neighboring processing element, a subunit C including means for storing, inputting and outputting data, a subunit D including additional memory means, and a bidirectional bus, all of said subunits being connected to said bidirectional bus for providing communication between said subunits.

4,380,047

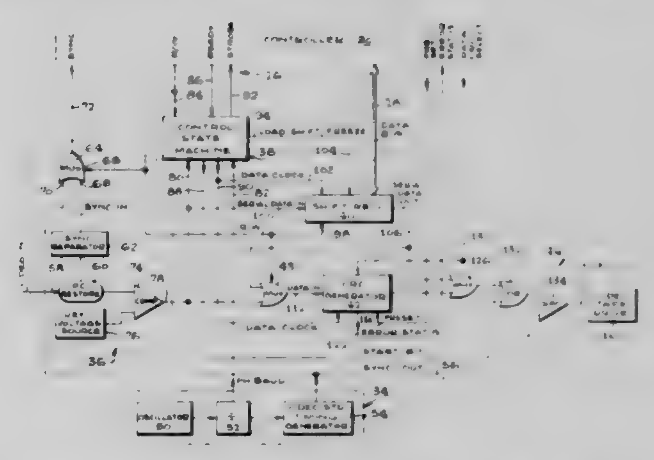
INTERFACE APPARATUS EMPLOYING A VIDEO TAPE DRIVE TO BACK-UP A DISC DRIVE AND INCLUDING ERROR DETECTING AND CORRECTING CIRCUITRY

Bruce T. Eisenhard, Cupertino, and Mark C. Hahn, San Jose, both of Calif., assignors to Corvus Systems, Inc., San Jose, Calif.

Filed Nov. 24, 1980, Ser. No. 209,903

Int. Cl.[3] G06F *3/06;* **G11B** *5/008, 5/012*

U.S. Cl. 364—200 **18 Claims**



1. An interface apparatus between a video tape recorder (VTR) having a magnetic tape and a disc drive having a magnetic storage medium and a controller, said VTR for providing on said tape memory back-up to said disc drive, said tape for recording a video signal including a sync portion and a data portion, said controller for receiving a sync signal, an error status signal, and for generating a read/write signal; said interface apparatus comprising:

a data bus for transferring data between said controller and said interface apparatus;

means for generating a clock signal;

first means responsive to the video signal and operative to separate the sync and data portions and to develop said sync signal and a data signal therefrom when said controller is generating a read signal;

a control state machine responsive to the read/write signal, and the clock signal and for generating a start bit, a data clock and a shift signal in a predetermined sequence;

a shift register coupled to said first means and said control state machine and being responsive to the data signal, said data clock and said shift signal and operative to transform data from said data signal applied in a serial manner thereto into a parallel stream of data and to apply said parallel stream onto said data bus for transfer to the magnetic storage medium of the disc drive, when said controller is generating a read signal;

said shift register also being responsive to the data clock and shift signal and operative to transform data from said controller applied on said data bus in a parallel manner thereto into a serial stream of data, when said controller is generating a write signal;

second means responsive to the data signal and said data clock and operative to selectively develop said error status signal when said controller is generating a read signal, said error status signal being indicative of an error in the video signal recorded on said tape;

said second means also responsive to the serial stream of data from said shift register and for generating an error checking signal, when said controller is generating a write signal; and

logic means for receiving said serial stream of data from said

shift register, said error checking signal, said start bit, and said clock signal and for generating a video signal for recording on said tape.

4,380,048

SHIFT CONTROL SYSTEM FOR A VEHICLE AUTOMATIC TRANSMISSION

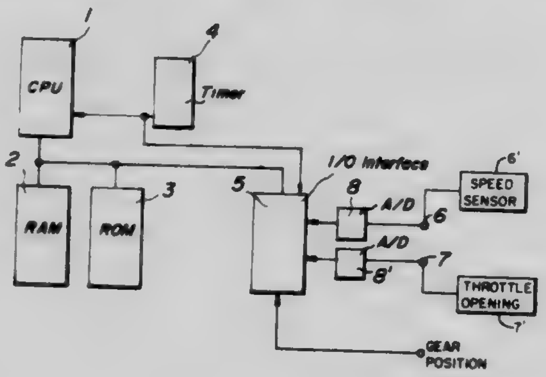
Norimasa Kishi, and Tadashi Suzuki, both of Yokosuka, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Mar. 28, 1980, Ser. No. 134,986

Claims priority, application Japan, Apr. 3, 1979, 54-39351

Int. Cl.³ B60K *41/08;* **G06F** *15/20*

U.S. Cl. 364—424.1 **12 Claims**



1. In a shift control system for an automatic transmission of the type having a plurality of predetermined shift characteristics and of the type for use in an engine powered vehicle, wherein said shift control system includes:

engine load sensor means for producing a signal corresponding to an engine load of a vehicle;

vehicle speed sensor means for producing a signal corresponding to a vehicle speed;

and means for providing a signal indicative of the presently selected one of the shift characteristics of the transmission;

the improvement comprising:

deriving means responsive to the signal from said engine load sensor means for deriving an averaged value of the engine load during a predetermined time interval for each of a succession of said predetermined time intervals;

and responsive to the signal from said vehicle speed sensor means for deriving an averaged value of the vehicle speed during said predetermined time interval for each time interval and for deriving an actual acceleration during each time interval;

means responsive to the signals from said deriving means indicative of the average value of the engine load and the average value of the vehicle speed and a signal from said signal indicator means indicative of the presently selected shift characteristic of the automatic transmission for determining a programmed acceleration as a function of said averaged engine load, said averaged vehicle speed, and the presently selected shift characteristic;

and means responsive to said so-determined programmed acceleration and said actual acceleration for comparing them to each other and discriminating whether or not another one of the transmission shift characteristics is to be selected.

4,380,049

METHOD AND APPARATUS FOR STOPPING AN ELEVATOR

Heimo Mäkinen, Hyvinkää, Finland, assignor to Elevator GmbH, Zug, Switzerland

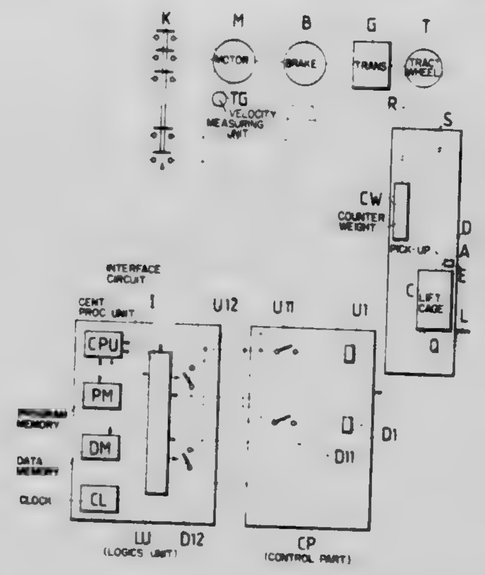
Filed Oct. 14, 1980, Ser. No. 196,286

Claims priority, application Finland, Oct. 18, 1979, 793228

Int. Cl.³ B66B *1/30;* **G06F** *15/50*

U.S. Cl. 364—426 **6 Claims**

1. A method for causing an elevator car in motion to stop at a pre-determined position along a guided hoist-way, without using feedback or programmed signals to the travel of said car after initiation of a braking stroke, said elevator car being powered to initiate and sustain motion, and being coupled to a stopping brake for stopping the motion of said car, said method for braking comprising the steps of: actuating said brake to initiate its braking stroke at an appropriate point in time, for causing said car in motion to stop at said predetermined position, and controlling said point in time for actuating said brake by and in direct relation to conditioning signals being sensed,



co-generated, accumulated, compared and stored prior to each braking stroke; conditioning said signals through changes of forces acting on velocity of an unbraked elevator car, including loaded weight of said car, motive power changes, direction of travel, and mechanical function; and changes of forces acting on said stopping brake performance including: brake temperature, wear, direction of braking, mechanical friction, brake-spring tension, velocity and load weight of said car being stopped.

4,380,050

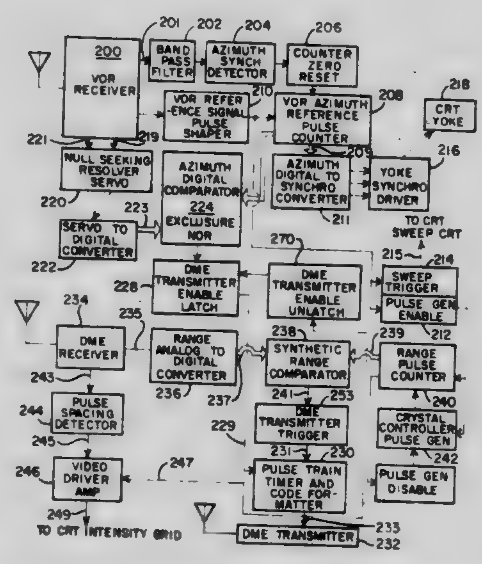
AIRCRAFT LOCATION AND COLLISION AVOIDANCE SYSTEM

Jesse H. Tanner, 361 Taylor Ave. Northwest, Renton, Wash. 98055

Filed Jun. 30, 1980, Ser. No. 164,042

Int. Cl.³ G01S *3/02*

U.S. Cl. 364—461 **33 Claims**



1. A system enabling a parent aircraft to determine the location of a target aircraft, comprising:

first means aboard a parent aircraft and a target aircraft, each for generating a synthetic azimuth function which is a time-expanded version of a periodic azimuth function describing the aircraft's azimuth as a time-delay with respect to the occurrence of an azimuth reference signal;

second means aboard the parent aircraft and target aircraft,

each for generating a time expanded synthetic range function, which function describes the aircraft's range as a time-delay with respect to the occurrence of a range reference signal;

means for providing the target aircraft with a signal representative of its azimuth with respect to a reference position and for providing the target aircraft with a signal representative of its range with respect to the reference position;

transmitter means aboard the target aircraft for transmitting an output signal at a time when the target aircraft's representative azimuth and range signals correspond, respectively, to the synthetic azimuth and synthetic range functions; and

means aboard the parent aircraft for comparing the transmitted output signal from the target aircraft to the synthetic azimuth function and to the synthetic range function generated by the first and second means aboard the parent aircraft and providing an output signal to the operator of the parent aircraft indicative of the location of the target aircraft.

4,380,051

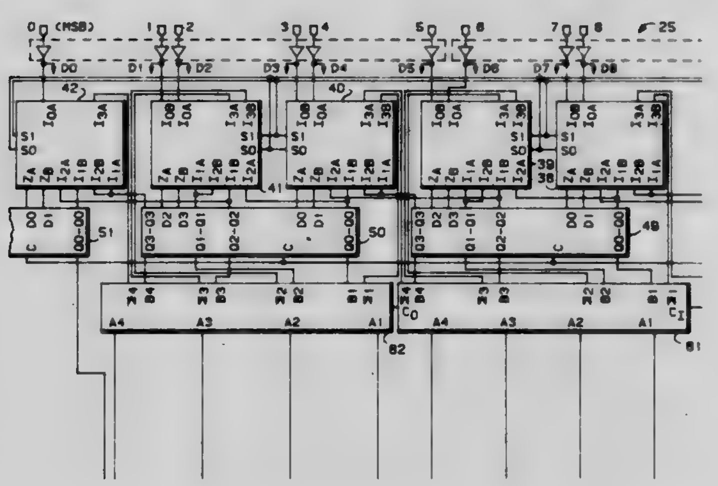
HIGH SPEED DIGITAL DIVIDER HAVING NORMALIZING CIRCUITRY

Bruce A. Fette, Mesa, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 28, 1980, Ser. No. 211,009

Int. Cl.³ G06F *7/54*

U.S. Cl. 364—766 7 Claims



1. A high speed digital, non-restoring divider circuit for obtaining a quotient from a multi-bit divisor and a multi-bit dividend, said divider circuit comprising:

(a) a first register including a plurality of stages connected to have the dividend stored therein;

(b) a second register including a plurality of stages connected to have the divisor stored therein;

(c) add/substract means connected to said first and second registers and having a control signal input for selectively, in response to a control signal, adding one of the divisor and a 2's complement of the divisor to the dividend to produce a multi-bit sum, said add/substract means having a summation output at which the sum is provided;

(d) comparing means connected to said first and second registers for comparing a most significant bit in each of said registers and having an output connected to the control signal input of said add/substract means for supplying a control signal thereto in response to a predetermined comparison of the most significant bits; and

(e) connecting means connecting said add/substract means to said first register so that the multi-bit sum replaces the dividend in a shifted orientation.

4,380,052

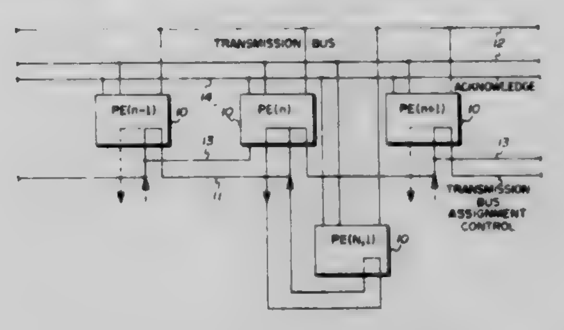
SINGLE TRANSMISSION BUS DATA NETWORK EMPLOYING A DAISY-CHAINED BUS DATA ASSIGNMENT CONTROL LINE WHICH CAN BYPASS NON-OPERATING STATIONS

George T. Shima, Kamakura, Japan, assignor to Burroughs Corporation, Detroit, Mich.

Filed Sep. 15, 1980, Ser. No. 187,531

Int. Cl.³ H04Q *9/00*

U.S. Cl. 364—900 9 Claims



1. A network of stations for data transmissions therebetween, said network comprising:

a single transmission bus;

a plurality of stations coupled to said bus;

a bus assignment control line coupled to each of said stations in a serial manner to transmit a bus assignment control pulse;

a plurality of preceding station non-operating alert lines, each coupled between a preceding station and a succeeding station to alert said a succeeding station that said a preceding station has received said bus assignment control pulse;

each of said stations including detection means to detect when its preceding station has received but not transmitted a bus assignment control pulse after a time duration sufficient to allow said preceding station to have been assigned to said transmission bus and to have completed its transmission;

a request counter means disposed for counting to a second given count in response to a signal requesting access to said transmission bus and, if said each station does not request access to said bus, to signal said pulse receiving and transmitting means to transmit said bus assignment control pulse to said next succeeding station; and

initiate circuit means disposed for initiating an assignment control pulse to be transmitted to another station after each said station has completed transmission, said request counter means resets said initiate circuit means when a particular count is reached which is greater than said second given count.

4,380,053

MEMORY ADDRESSING SYSTEM FOR SEQUENTIALLY ACCESSING ALL MEMORY ADDRESSES IN A MEMORY AREA

Hiroshi Takahashi, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 30, 1980, Ser. No. 192,219

Claims priority, application Japan, Oct. 17, 1979, 54-132826

Int. Cl.³ G06F *3/02*

U.S. Cl. 364—900 3 Claims

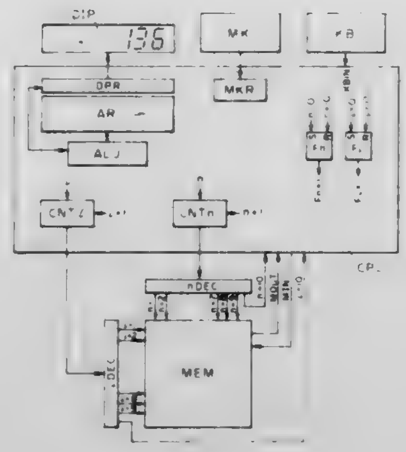
1. A memory addressing system comprising:

memory means having at least one memory area that includes a plurality of addressable locations;

a keyboard including input keys being operable to designate different ones of said plurality of addressable memory locations, a plurality of said keys capable of being operated in at least one specific sequence to designate one said memory area;

detecting means for detecting operation of said plurality of said keys in said one specific sequence to designate said

one memory area and including means for generating an output signal indicative of said detection; and



special access means for sequentially accessing all of said addressable memory locations in said one area in response to said output signal.

4,380,054

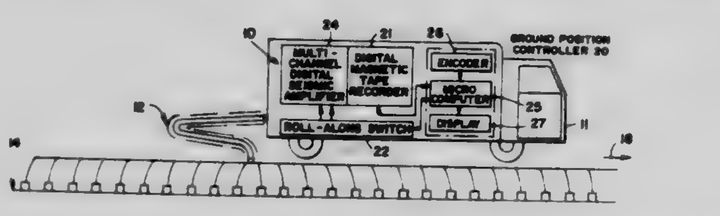
METHOD AND APPARATUS ASSOCIATED WITH A MICROCOMPUTER SYSTEM FOR INDICATING NEXT-IN-TIME PARAMETERS, AND FOR CONTROLLABLY GENERATING A POSITIONAL CODE FOR A ROLLALONG SWITCH ASSOCIATED WITH A SEISMIC SOURCE-DETECTOR ARRAY OF AN EXPLORATION SYSTEM

H. T. Carruth, Jr., Anaheim, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Jul. 16, 1980, Ser. No. 170,313

Int. Cl.³ G06F *15/20;* G01V *1/22*

U.S. Cl. 364—900 **9 Claims**



1. Method of controllably providing a next-in-time positional code for a rollalong switch of a digital field system of an exploration system that includes a source-detector array positioned along a line of survey for generating and collecting seismic data associated with earth formation underlying said array, said rollalong switch being employed to efficiently connect (and disconnect) different but contiguous sets of detectors of said array from amid a plurality of detectors, along said line of survey, said next-in-time positional code being simultaneously generated along with additional next-in-time array parameters associated with said exploration system, by a microcomputer system that includes an MPU memory units and display and switch means interconnected to each other and to said digital field system via a system bus, comprising:

(a) on being commanded by a roll switch update signal, establishing in digital format said next-in-time positional code for said rollalong switch;

(b) transmitting said code to said rollalong switch while simultaneously indicating to a human operator via at least one of audio and visual signals, that transmission of said next-in-time code is occurring;

(c) terminating transmission of said code when a correct rollalong switch position is attained.

4,380,055

STATIC RAM MEMORY CELL

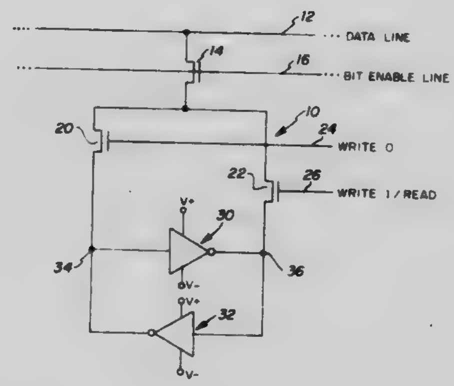
David N. Larson, Carrollton, Tex., assignor to Mostek Corporation, Carrollton, Tex.

PCT No. PCT/US80/01725, § 371 Date Dec. 24, 1980, § 102(e) Date Dec. 24, 1980, PCT Pub. No. WO82/02277, PCT Pub. Date Jul. 8, 1982

PCT Filed Dec. 24, 1980, Ser. No. 278,907

Int. Cl.³ G11C *7/06*

U.S. Cl. 365—154 **9 Claims**



5. A memory cell for storing data comprising:

a cell voltage supply source;

a data signal line for receiving control signals;

a bit signal line for receiving control signals;

first and second control lines for receiving control signals;

first transistor means having first and second terminals and a control terminal, said first terminal connected to said data signal line and said control terminal connected to said bit signal line, such that said first transistor means is activated by a first control signal received by said bit signal line;

second transistor means having first and second terminals and a control terminal, said first terminal being connected to said second terminal of said first transistor means and said control terminal being connected to said first control line, such that said second transistor means is activated by a second control signal received by said first control line;

third transistor means having first and second terminals and a control terminal, said first terminal being connected to said second terminal of said first transistor means and said control terminal being connected to said second control line, such that said third transistor means is activated by a third control signal received by said second control line;

first inverter means connected to said cell voltage supply source and having input and output terminals, said input terminal being connected to said second terminal of said second transistor means to form a first node and said output terminal being connected to said second terminal of said third transistor means to form a second node;

second inverter means connected to said cell voltage supply source and having input and output terminals, said input terminal being connected to said second node and said output terminal being connected to said first node; and

said first, second and third transistor means being operable, such that data is stored in the memory cell by activation of said first transistor means and one of said second or third transistor means, and data is read from the memory cell by activation of said first transistor means and said third transistor means.

4,380,056

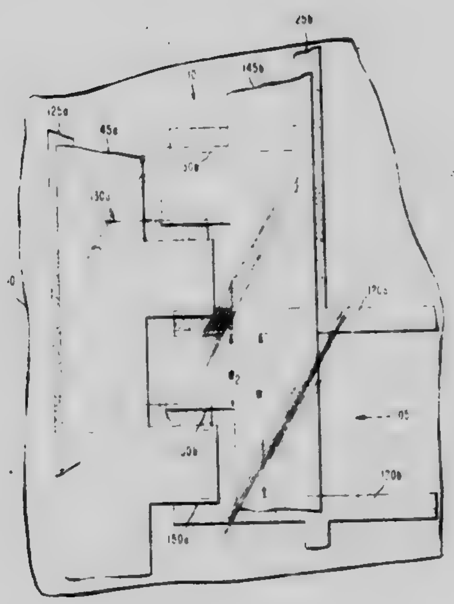
CHARGE COUPLED DEVICE FOCAL PLANE WITH SERIAL REGISTER HAVING INTERDIGITATED ELECTRODES

William J. Parrish, Santa Barbara, and Christopher L. Fletcher, Cardiff, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Continuation of Ser. No. 83,426, Oct. 10, 1981, abandoned. This application Feb. 20, 1981, Ser. No. 236,415

Int. Cl.³ G11C *13/04, 11/42*

U.S. Cl. 365—183 33 Claims



1. A charge coupled device (CCD) charge flow channel formed on a semiconductive substrate comprising:

first and second electrodes overlying said channel extending side-by-side in a first direction parallel to said channel and separated from one another by an insulating gap therebetween;

a first plurality of channel stop means in said substrate extending in a second direction transverse to said first direction for blocking charge flow in said first direction under said first electrode at a first plurality of spaced apart locations offset in said first direction from one another;

a second plurality of channel stop means extending in said second direction for blocking charge flow in said first direction under said second electrode at a second plurality of spaced apart locations offset in said first direction from one another and spaced apart in said first direction from said first plurality of spaced apart locations;

first electrode means for controlling charge transfer in said channel spanning said insulating gap between alternate pairs of adjacent ones of said first and second channel stop means;

a first conductor connected to said first electrode means;

second electrode means for controlling charge transfer in said channel spanning said insulating gap between the remaining pairs of adjacent ones of said first and second channel stop means;

a second conductor connected to to said second electrode means; and

means for applying clock signals to said electrodes and said conductors.

4,380,057

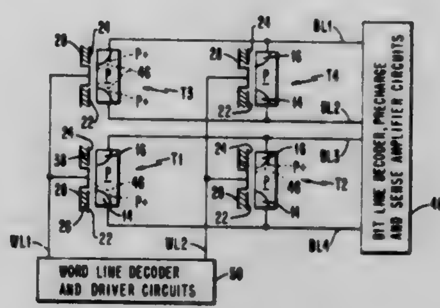
ELECTRICALLY ALTERABLE DOUBLE DENSE MEMORY

Harish N. Kotecha, Essex Junction; Wendell P. Noble, Jr., Milton, and Francis W. Wiedman, III, Stowe, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 27, 1980, Ser. No. 200,851

Int. Cl.³ G11C *11/40*

U.S. Cl. 365—185 15 Claims



1. A storage system comprising;

a field effect transistor having first and second spaced apart diffusion regions defining a channel region having first and second ends and a control gate disposed over said channel region and extending from said first diffusion region to said second diffusion region,

first and second charge trapping regions disposed over the first and second ends, respectively, of said channel region and between said control gate and said first and second diffusion regions,

means for applying control pulses to said control gate and to said first and second diffusion regions for selectively controlling charge on said first and second charge trapping regions, and

means for sensing current flow between said first and second diffusion regions.

4,380,058

STAGE TRACER

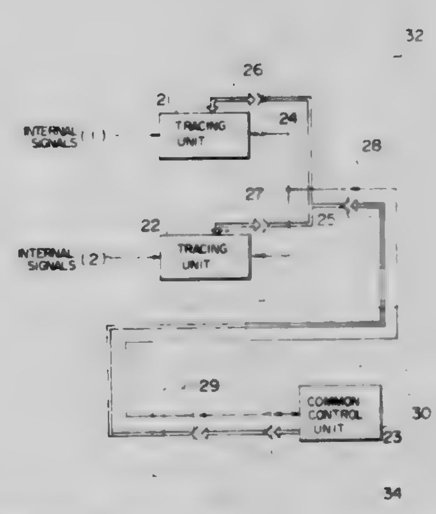
Katsuro Wakai, Hadano, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 5, 1981, Ser. No. 231,900

Claims priority, application Japan, Feb. 6, 1980, 55-12516

Int. Cl.³ G11C *7/00*

U.S. Cl. 365—244 2 Claims



1. A stage tracer comprising:

a plurality of tracing units which are physically independent of one another, each tracing unit including a memory unit having terminals for receiving signals to be observed and a read/write control logic unit for controlling the writing and reading of data into and out of said memory unit;

a common control unit provided physically independent of

said tracing units and connected electrically with said tracing units through a signal line group, to supply the control signal desired to said read/write control logic units of said tracing units through said signal line group; and

a data bus for connecting the outputs of said tracing units with said common control unit, wherein said read/write control logic units cause said signals to be observed to be written in the corresponding memory units and also cause the contents of said memory units to be sequentially read onto said data bus through the output terminals of the corresponding tracing units in response to said control signals from said common control unit.

4,380,059

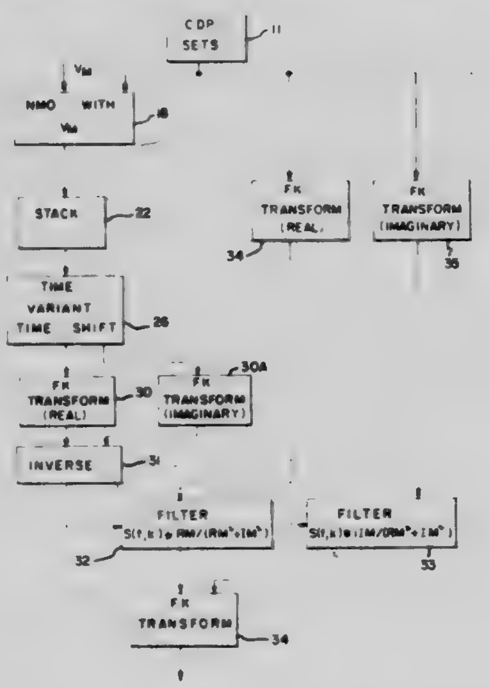
F-K FILTERING OF MULTIPLE REFLECTIONS FROM A SEISMIC SECTION

William H. Ruehle, Duncanville, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 179,748, Aug. 20, 1980, abandoned. This application Dec. 29, 1980, Ser. No. 220,881

Int. Cl.^{3} G01V *1/32, 1/36*

U.S. Cl. 367—46 **2 Claims**



1. A method of filtering multiple reflections from seismograms representing the earth's formations comprising:

(a) generating first seismograms representing the amplitude of seismic primary and multiple reflections as a function of time and distance along a line of exploration;

(b) transforming said first seismograms into an f-k array of first real and first imaginary parts representing amplitude as a function of frequency and wave number;

(c) normal moveout correcting said first seismograms with the apparent velocity of said multiple reflections to align said multiple reflections;

(d) stacking said normal moveout corrected first seismograms having aligned multiple reflections,

(e) inverse normal moveout correcting said stacked first seismograms to produce second seismograms representing multiple reflections,

(f) transforming said second seismograms with aligned multiple reflections into an f-k array of second real and second imaginary parts,

(g) determining the inverse of said second real and second imaginary parts of the f-k array of said second seismograms,

(h) filtering said first real part of the f-k array of said first seismograms by weighting all samples of said first real part with corresponding samples of the inverse of said second real part of the f-k array of said second seismograms,

(i) filtering said first imaginary part of the f-k array of said first seismograms by weighting all samples of said first imaginary part with corresponding samples of the inverse of said second imaginary part of the f-k array of said second seismograms, and

(j) transforming said filtered first real and first imaginary parts into third seismograms representing an enhanced representation of the earth's formation with suppressed multiple reflections as a function of time and distance along said line of exploration.

4,380,060

DEVICE FOR PUSH-PULL TRANSMISSION

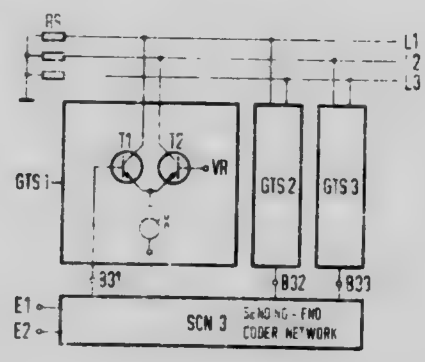
Wilhelm Wilhelm, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 24, 1980, Ser. No. 190,235

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1979, 2939252; Oct. 3, 1979, 2940140

Int. Cl.^{3} H04J *15/00*

U.S. Cl. 370—5 **5 Claims**



1. A system for push-pull transmission of an item of binary information, comprising: at least one line group having $n \geq 3$ lines; s push-pull transmitters and s push-pull receivers connected to the lines; a transmitting-end coder means for forming from k input signals to be transmitted $s = (n-1)\,n/2$ intermediate control signals for the control of the s push-pull transmitters whose outputs are connected in s different combinations to the n lines, where the number k of input signals is a maximum integer $< \log_2 (n?)$; inputs of the s push-pull receivers being connected to the n lines; and a receiving-end coder means for forming k output signals which are identical to the k input signals from s intermediate signals emitted from the s push-pull receivers.

4,380,061

LOOP TRANSMISSION SYSTEM WITH IMPROVED BYPASS ROUTING ARRANGEMENT

Kinji Mori, Sagamihara; Hirokazu Ihara, Machida, and Hiroshi Matsumaru, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 9, 1981, Ser. No. 281,782

Claims priority, application Japan, Jul. 11, 1980, 55-93924

Int. Cl.^{3} H04Q *9/00;* **H04J** *3/14*

U.S. Cl. 370—16 **12 Claims**

1. A loop transmission system comprising:

first and second loop-shaped transmission routes enabled to transmit a message in first and second directions, respectively;

a plurality of terminal units for communications through said first and second transmission routes;

a plurality of first transmission control units connected between said first transmission route and corresponding terminal units, respectively, for controlling the transmissions of the message on said first transmission route;

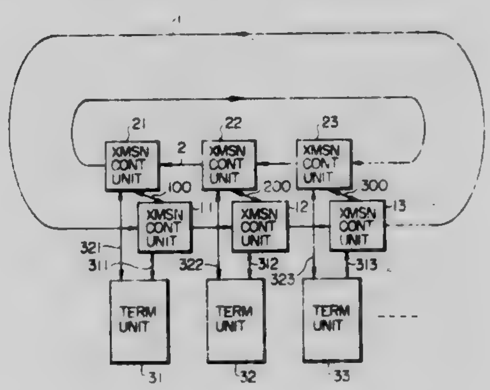
a plurality of second transmission control units connected between said second transmission route and corresponding terminal units, wherein each of said second transmission control units is coupled to mate with a corresponding one of

said first transmission control units and is connected with the same corresponding terminal unit to which said corresponding first transmission control unit is connected, said second transmission control units controlling the transmission of the message on said second transmission route; and

a plurality of bypass routes enabled to transmit the message in two ways and respectively connecting said first and second transmission control units mating with each other,

said message containing, in addition to data to be transferred, a sending address, which is equal to the address of the transmission control unit having transmitted said message, and a bypass code capable of taking a first or second value,

each of said first and second transmission control units including: means for sending the message to said bypass routes; means for receiving the message from said bypass routes; and means for storing and determining whether a minor loop is operating abnormally, said minor loop being comprised of said transmission control unit itself, a corresponding transmission control unit mated to said transmission control unit itself and located on a different transmission route, a bypass route for connecting said transmission control unit itself and the corresponding transmission control unit on a different path, a transmission control unit adjacent to said transmission control unit itself along the same transmission path, a transmission control unit corresponding to said adjacent transmission control unit and lying in the different transmission route, and a bypass route for connecting adjacent transmission unit and its corresponding transmission control unit; and



means for controlling the sending process of the message received at each of said first and second transmission control units so that, when said storing means indicates that said minor loop is abnormal in a case where said message is received from the corresponding loop-shaped transmission route to which said transmission control unit itself is coupled, said message having its bypass code corrected is fed out of said control unit such that said message having its bypass code corrected to the first value is fed out to the corresponding loop-shaped transmission route if the sending address of the message received is equal to the address of its mating transmission control unit and if said bypass code takes said second value, and such that said message is fed out to the corresponding bypass route if the sending address of the message received is equal to the address of its mating transmission control unit and if said bypass code takes said first value.

4,380,062

COMMUNICATION SYSTEM PROVIDING SIMULTANEOUS TWO-WAY TRANSMISSION

Richard L. Stuart, Columbia, Md., and Fred C. Killmeyer, Palm Bay, Fla., assignors to Rixon, Inc., Silver Spring, Md.

Filed Apr. 22, 1981, Ser. No. 256,422

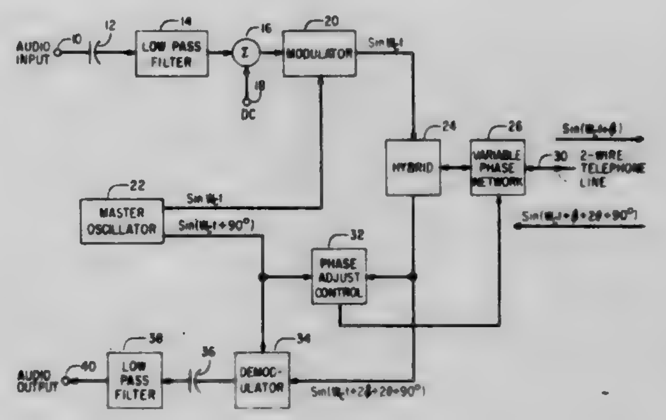
Int. Cl.³ H04B *1/56*

U.S. Cl. 370—20 **17 Claims**

6. A central transmit-receive unit for a communication system which enables signals to be simultaneously transmitted and received on a two wire line in the same frequency band, the central unit comprising:

means for transmitting a signal including means for modulating a carrier signal with an input signal to produce a transmit signal in a given frequency band;

means for receiving a signal in the same frequency band as the transmit signal, including means for demodulating the received signal, the received signal being substantially in quadrature with the transmit signal; and



means for automatically adjusting the phase of the received signal to compensate for delays in the communication system, the phase adjusting means including a variable phase network connected to the transmitter and receiver means, and means for comparing the phase of the received signal with a reference signal to control the phase adjustment of the variable phase network whereby the received signal and transmit signal are maintained in quadrature.

4,380,063

FLOW CONTROL MECHANISM FOR BLOCK SWITCHING NODES

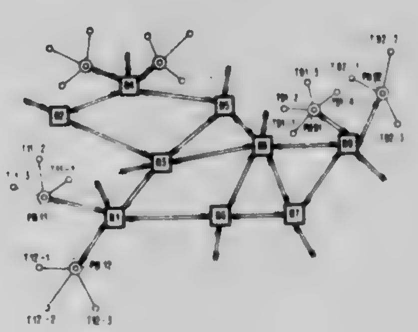
Philippe A. Janson, Wädenswil; Hans R. Müller, Langnau, and Ernst H. Rothauser, Reichenburg, all of Switzerland, assignors to International Business Machines Corp., Armonk, N.Y.

Filed Jun. 10, 1981, Ser. No. 272,143

Claims priority, application European Pat. Off., Jun. 19, 1980, 80/103407.5

Int. Cl.³ H04J *3/00;* G06F *15/16*

U.S. Cl. 370—60 **8 Claims**



1. In a communication network including a plurality of block switching nodes interconnected by links (22, 26) with a receive buffer (30) being provided for each incoming link in each node, a flow control mechanism in each node characterized by:

means (42) for maintaining a token indication at the sending end of each link, reflecting available buffer capacity in the receive buffer at the receiving end of said link in the next node,

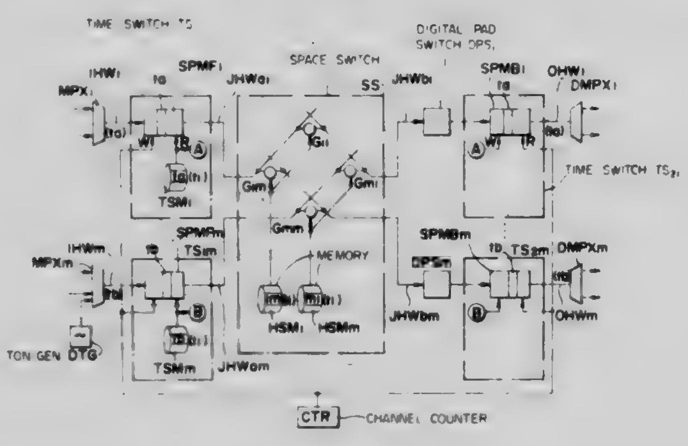
means (28, 68) for updating said token indication when a data block is transmitted over the respective link, and also when a token updating signal is received from the next node,

means (46, 48, 56, 58, 60, 70, 72, 74) for looking ahead across the node when a data block is to be dispatched from a re-

ceive buffer, to the token indication means of the appropriate outgoing link, and means (**38, 40, 50, 52, 54, 62, 66, 68, 77**) to cause transfer of said data block through the node and over the link to the next node in response to the current state of the token indication, and

means (**24, 34**) for transmitting a token updating signal to the token indication means at the respective link in the previous node when a data block is dispatched from a receive buffer (FIG. **6**).

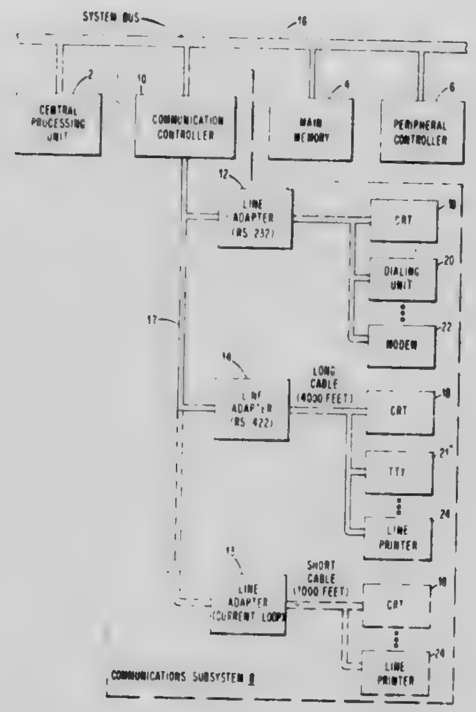
4,380,064
DIGITAL AUDIO SIGNAL CONTROL SYSTEM FOR A TIMEDIVISION SWITCHING SYSTEM
Hiroshi Ishikawa, Yokohama; Takuhito Kojima, Yamato, and Eiji Minamitani, Yokohama, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Filed Oct. 14, 1980, Ser. No. 196,569
Claims priority, application Japan, Oct. 17, 1979, 54-134484
Int. Cl.[3] H04Q *11/04*
U.S. Cl. 370—63 **17 Claims**



6. A signal control system comprising:
a tone signal generator for generating a continuous tone signal;
a time-division speech network, having an input operatively connected to said tone signal generator and having an output, for connecting said tone signal generator to the output of said time-division speech network;
attenuation means, operatively connected to the output of said time division speech network, for varying the attenuation of the continuous tone signal; and
a time switch, operatively connected to said attenuation means, for storing the output of said attenuation means.

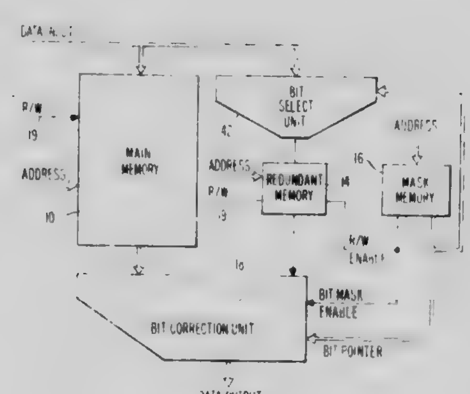
4,380,065
COMMUNICATION MULTIPLEXER VARIABLE PRIORITY SCHEME
Allen C. Hirtle, and Gary J. Goss, both of Acton, Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.
Filed Sep. 29, 1980, Ser. No. 191,629
Int. Cl.[3] H04J *3/02*
U.S. Cl. 370—96 **8 Claims**

1. A data processing system for transferring data bytes comprising:
a system bus;
a main memory coupled to said system bus for storing said data bytes;
a communication multiplexer coupled to said system bus for transferring said data bytes between said main memory and a plurality of devices, each device being enabled for operation in a receive and a transmit mode respectively in response to receive and transmit channel numbers from said communication multiplexer;
said communication multiplexer including polling means for sending a predetermined sequence of said receive channel numbers and said transmit channel numbers to said plurality of devices and receiving a request signal when one of said plurality of devices requests service by responding to said receive or transmit channel number;
said polling means including:
counter/register means for generating a first sequence of channel numbers during an initialization operation;
first multiplexer means in a first state coupled to said counter/register means for receiving each of said first sequence of channel numbers;
first in-first out (FIFO) means coupled for storing each of said first sequence of channel numbers;



said FIFO means being coupled to said counter/register means for recirculating said first sequence of channel numbers during a polling operation, said plurality of devices being coupled to said counter/register means and responsive to said recirculating receive and transmit channel numbers for generating said request signal when one of said plurality of channel numbers requesting service receives a preassigned channel number of said first sequence of channel numbers.

4,380,066
DEFECT TOLERANT MEMORY
David H. Spencer, Lebanon; Marvin E. Steiner, East Brunswick, both of N.J., and Donald H. Lang, FranklinSquare, N.Y., assignors to Burroughs Corporation, Detroit, Mich.
Filed Dec. 4, 1980, Ser. No. 212,772
Int. Cl.[3] G06F *11/20;* **G11C** *29/00*
U.S. Cl. 371—10 **12 Claims**



1. A defect tolerant memory including a multi-chip main memory receiving data inputs and address commands to read and write data, said defect tolerant memory further comprising:
a redundant memory receiving said data inputs and address

commands in parallel with said main memory to read, write and store data redundant to that contained in defective cells of said main memory, said redundant memory having multiple memory levels with each memory level having similar addresses, each similar address being representative of a segment of main memory, each said segment of main memory capable of containing multiple defects, the redundant data for each of said several defects being stored in a similar address of a different one of said memory levels, said redundant memory providing redundant data to addressed defective data as an output;

a mask memory receiving said address commands in parallel with said main memory and redundant memory for storing the sub-addresses of defective cells of said main memory, said mask memory made up of multiple bit-mask memories each cooperating with a different one of said redunant memory levels, each said bit-mask memory storing the sub-addresses of defective cells for a different redundant memory level, each bit-mask memory providing an enabling signal to its respective redundant memory level when a defective cell is addressed in the bit-mask memory, each said bit-mask memory having multiple sub-memory units, each said sub-memory unit having addresses each representative of a segment of main memory, each said address storing a word indicative of the location of a defective cell in the respective segment of said main memory, said multiple sub-memory units storing multiple addresses if multiple defects are found in a respective segment of main memory, said mask memory providing as an output an indication that a defective bit in main memory has been addressed.

4,380,067

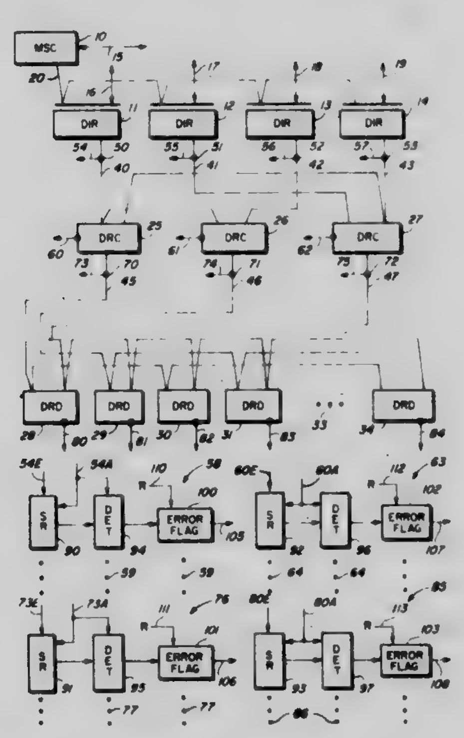
ERROR CONTROL IN A HIERARCHICAL SYSTEM

Brent C. Beardsley, Tucson, and Allen C. Brailey, Pima, both of Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 15, 1981, Ser. No. 254,356

Int. Cl.³ G06F *11/20*

U.S. Cl. 371—11 **10 Claims**



1. The method of operating a multilevel communication network having first and second levels each with a plurality of paths, a plurality of units selectively interconnecting said levels such that one path in each level is coupled via a unit to create a signal transfer path through said levels and a one of said units, the machine-executed steps of:

assigning a criticalness for successful network operation to each path in both said levels, said criticalness being different in such levels;

measuring the error rate of each path over a predetermined number of path usages;

setting a threshold of error-rate acceptability for said paths in accordance with said assigned criticalness, the greater the criticalness, the greater the threshold;

comparing said measured error rates with said thresholds, respectively, for said paths; and

when said measured error rate exceeds said threshold for a given path, reconfiguring said network to eliminate said path therefrom.

4,380,068

TEST UNIT FOR A HIGH-RATE MULTITRACK DIGITAL RECORDER

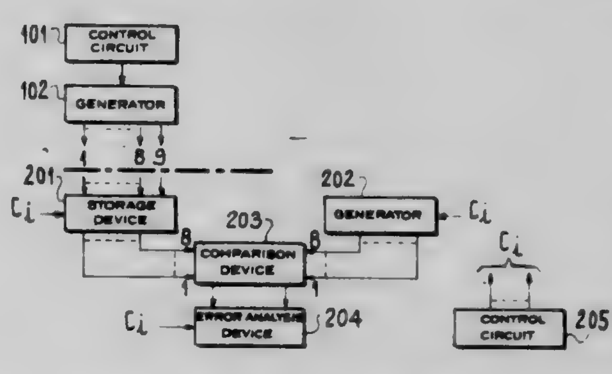
Tristan de Couasnon, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Jan. 19, 1981, Ser. No. 226,025

Claims priority, application France, Jan. 22, 1980, 80 01326

Int. Cl.³ G01R *31/28*

U.S. Cl. 371—24 **7 Claims**



1. A test unit for a high-rate multitrack digital recorder, said unit having a multiple input and output and comprising:

a first generator for producing a sequence of binary numbers and connected to said multiple output for transmitting data to the recorder to be tested;

a data storage means connected to said multiple input of said test unit for storing the data reproduced by the tested recorder;

a second generator for producing the same sequence of binary numbers;

means for comparing the reproduced sequence with the emitted sequence, said comparing means being connected to the output of the storage means to the output of the second generator;

an error analysis means connected to the output of the comparison means for counting the errors introduced by the recorder to be tested and detected by the comparing means; and

said error analysis means including a first counter for counting detected errors and means for locating detected errors, said error locating means including a second counter for counting reproduced binary numbers and delivering at each instant the address of the binary number analyzed in the sequence and a storage memory means connected to said comparing means and to said second counter and having a control input for causing storage of addresses of binary numbers in which errors are detected and the position of the detected errors in each erroneous number.

4,380,069

DIGITAL ERROR DETECTION USING BRACKETING

Glenn A. Reitmeier, 3 Metekunk Dr., Trenton, N.J. 08638, and Frank J. Marlowe, 20 Academy St., Kingston, N.J. 08528

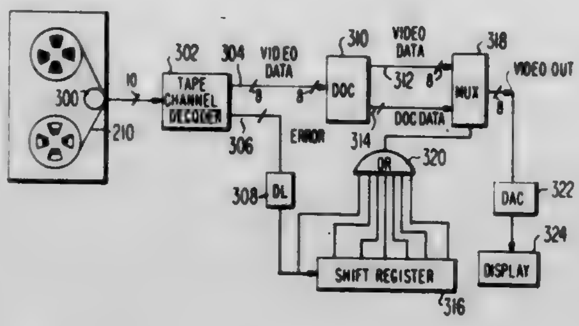
Filed Dec. 18, 1980, Ser. No. 217,796

Int. Cl.³ G06F *11/12*

U.S. Cl. 371—31 **10 Claims**

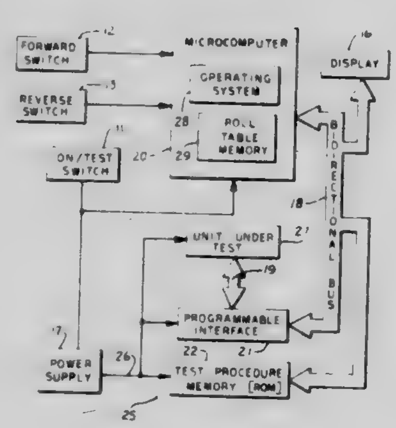
2. An apparatus for handling data code words, said apparatus comprising detecting means for detecting erroneous code words, estimating means coupled to said detecting means for

estimating replacement code words both for said detected erroneous code words and for at least some code words within a selected interval of said erroneous words, and replacing means coupled to said detecting means and said estimating



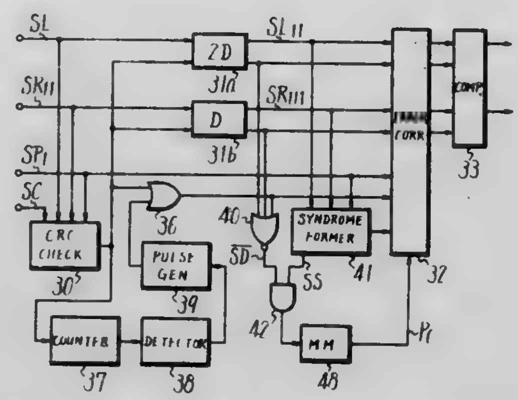
means for replacing said erroneous code word and said code words within said selected interval by said estimated code words respectively, whereby most undetected errors are thus concealed.

4,380,070
AUTOMATIC CIRCUIT IDENTIFIER
William G. Steiner, Marietta, Ga., assignor to Lockheed Corporation, Burbank, Calif.
Continuation-in-part of Ser. No. 96,030, Nov. 20, 1979, Pat. No. 4,291,404. This application Feb. 17, 1981, Ser. No. 234,686
Int. Cl.³ G06F *11/22*
U.S. Cl. 371—20 **5 Claims**



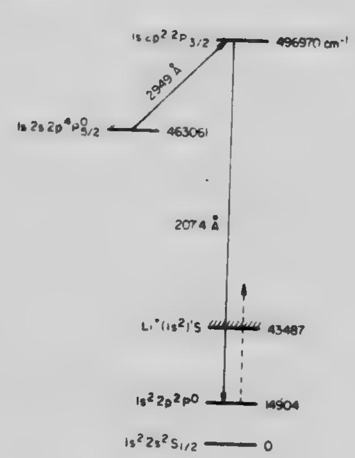
1. Apparatus for identifying a circuit having a known pin configuration and an unknown transfer characteristic among said pin configuration comprising:
a socket comprising a plurality of receptacles for holding said pin configuration;
bidirectional port means electrically connected to said socket, said bidirectional port means being selectively operable for providing input drive, output loading, and power supply conditions among said plurality of receptacles;
storage means for storing data corresponding to a plurality of input and output parameters for a plurality of circuits of known identity;
operating means connected to said storage means and responsive to said data for operating said bidirectional port means to provide said input drive, said output loading, and said power supply conditions corresponding to said input and output parameters sequentially for each of said plurality of circuits of known identity; and
testing means to control said operating means and to provide an identity signal in response to detection of said data corresponding to said input and said output parameters for one of said plurality of circuits of known identity.

4,380,071
METHOD AND APPARATUS FOR PREVENTING ERRORS IN PCM SIGNAL PROCESSING APPARATUS
Kentarou Odaka, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Feb. 2, 1981, Ser. No. 230,395
Int. Cl.³ G06F *11/10*
U.S. Cl. 371—40 **21 Claims**



1. A method of preventing errors in a PCM error-correction decoder of the type supplied with successive transmission blocks, each comprised of time-interleaved PCM, error-correction and error detection words, wherein said transmission blocks are supplied from one data source and then from a different data source to produce an error interval determined by the transition period from said one source to said different source, said method comprising the steps of detecting if a supplied transmission block contains an error; identifying as being erroneous each of the time-interleaved words included in the supplied transmission block which has been detected as containing an error, time de-interleaving each supplied transmission block to recover a de-interleaved block comprised of de-interleaved PCM and error-correction words; correcting an erroneous PCM word in said de-interleaved block as a function of the remaining non-erroneous PCM and error-correction words in that de-interleaved block; and inhibiting the correction of a PCM word in a de-interleaved block if said block contains at least one word derived from said one data source and another word derived from said different data source.

4,380,072
XUV LASER AND METHOD
Stephen E. Harris, Palo Alto, Calif., assignor to Stanford University, Palo Alto, Calif.
Filed Dec. 22, 1980, Ser. No. 218,781
Int. Cl.³ H01S *3/094*
U.S. Cl. 372—5 **12 Claims**



1. The method of generating XUV radiation which comprises exciting alkali metal atoms or ions of the isoelectronic sequence to a storage level which is metastable against both autoionization and radiation, pumping by irradiating with a laser the excited atoms to a higher level which is metastable

against autoionization but is strongly radiatively allowed to lase to a lower level other than ground and simultaneously emptying said lower level, both radiatively and by photoionization into the continua or to a level near enough to the continua, that electrons complete the emptying process.

4,380,073

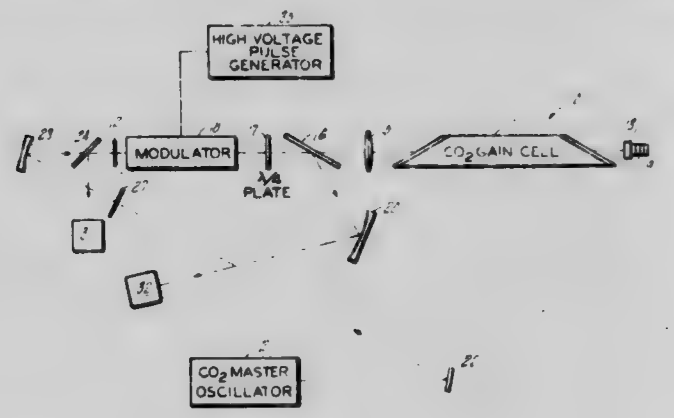
INJECTION CONTROL OF AN ELECTRO-OPTICALLY Q-SWITCHED CAVITY-DUMPED LASER

Robert J. Wayne, Glastonbury, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Nov. 10, 1980, Ser. No. 205,812

Int. Cl.^{3} H01S *3/10, 3/13*

U.S. Cl. 372—12 **3 Claims**



1. An apparatus for generating pulses of optical radiation comprising:
   - an electrically pumped gaseous optical gain medium;
   - electrical pumping means for building a population inversion within said gain medium;
   - a pair of reflective elements bracketing said gain medium and defining an optical cavity having an optic axis therethrough;
   - a polarization coupling means positioned along said optic axis intermediate said gain medium and one of said reflective elements and oriented at a predetermined angle with respect to said optic axis, whereby said coupling means couples out of said cavity radiation of a first linear polarization and passes radiation of a second polarization orthogonal to said first polarization;
   - phase retardation means and electro-optical polarization modulation means disposed intermediate said polarization coupling means and said one of said reflective elements;
   - means for applying an electrical pulse of predetermined voltage, rise time, duration and fall time to said polarization modulation means; and
   - continuous wave laser means for injecting a control beam of optical radiation into said optical cavity, whereby said cavity is Q switched by said polarization modulation means to build up intracavity electromagnetic radiation during said rise time and duration, which radiation is coupled out of said cavity by said polarization coupling means during said fall time.

4,380,074

INTEGRATED CIRCUIT LASER AND ELECTRO-OPTICAL AMPLIFIER

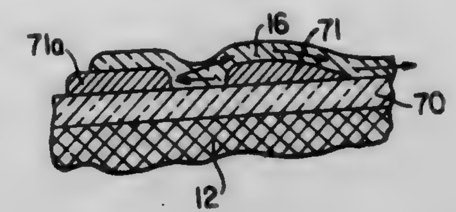
Peter J. Walsh, 40 St. Joseph Dr., Stirling, N.J. 07980

Filed Oct. 1, 1979, Ser. No. 80,526

Int. Cl.^{3} H01S *3/19*

U.S. Cl. 372—43 **10 Claims**

1. An opto-electronic device capable of being integrated on a substrate capable of having electronic integrated circuits fabricated thereon, said device being particularly suited for use as a source of laser energy radiation, comprising:
   - a first electrically conductive sheet;
   - a film of amorphous semiconductor material mounted in contact with said first electrically conductive sheet intermediate said sheet and said substrate, said first electrically conductive sheet and said substrate including means for applying an electrical signal therebetween;
   - a second electrically conductive sheet mounted on said substrate so that said film of amorphous semiconductor material is sandwiched between said first and second conductive sheets; and



   - one of said electrically conductive sheets being made of a material which partially reflects and is partially transparent to laser radiation, the other electrically conductive sheet being made of a material which substantially entirely reflects laser radiation, said radiation being emitted from said device through said one conductive sheet upon the application of an electrical signal between said conductive sheets.

4,380,075

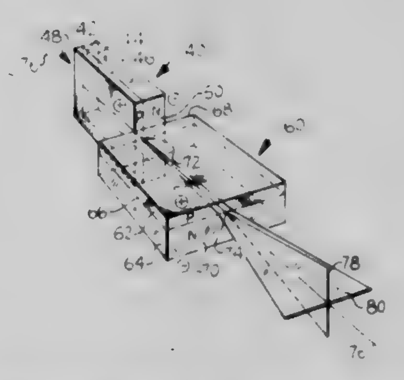
MODE STABLE INJECTION LASER DIODE

Louis B. Allen, Jr., Florissant, and Herbert G. Koenig, Jr., St. Charles, both of Mo., assignors to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Mar. 23, 1981, Ser. No. 246,271

Int. Cl.^{3} H01S *3/19*

U.S. Cl. 372—44 **10 Claims**



1. A semiconductor injection laser system comprising an input injection laser diode optically connected to an output injection laser diode wherein the central axes of the input diode and the output diode are substantially parallel and the plane of the junction of the input diode is rotated relative to the plane of the junction of the output diode at an angle sufficient to achieve mode stability in the laser output of the system.

4,380,076

APPARATUS FOR FOUR SIDE TRANSVERSE IRRADIATION OF A REGION

Donald S. Bethune, Mt. Kisco, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

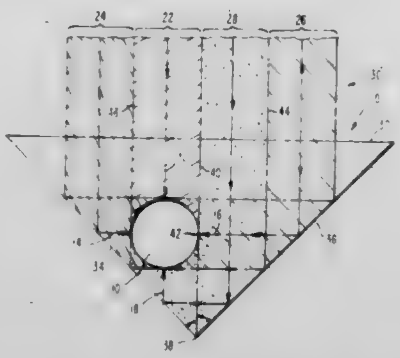
Filed Dec. 31, 1980, Ser. No. 221,599

Int. Cl.^{3} H01S *3/091*

U.S. Cl. 372—54 **9 Claims**

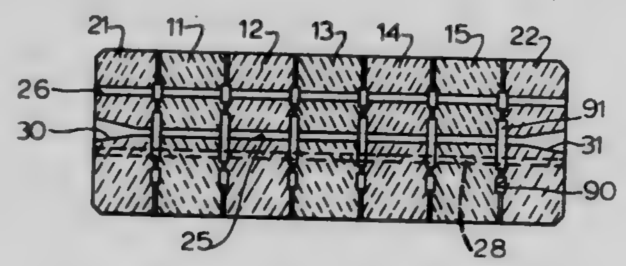
1. Apparatus for transversely irradiating a region equally from four directions using a single incident beam of substantially collimated radiation, comprising:
   - perpendicular reflective planes having a common edge and defining a corner region therebetween, said corner region being the region defined by all straight lines extending from one of said reflective planes to the other; and
   - means defining an irradiated region entirely within said corner region, said irradiated region being suitably posi-

tioned within said corner region such that said irradiated region does not intercept any ray of incident radiation from striking said common edge, said irradiated region being directly irradiated from a first direction by incident radiation, said irradiated region also being simultaneously indirectly irradiated from a second direction by incident radiation reflected from one of said planes, said irradiated



region also being simultaneously indirectly irradiated from a third direction opposite said second direction by incident radiation reflected from the other one of said planes, and said irradiated region being also simultaneously indirectly irradiated from a fourth direction opposite said first direction by incident radiation reflected from both of said planes.

4,380,077
SEGMENTED CERAMIC BORE LASER
William H. McMahan, Salt Lake City, Utah, assignor to American Laser Corporation, Salt Lake City, Utah
Filed Feb. 9, 1981, Ser. No. 232,543
Int. Cl.[3] H01S ***3/03***
U.S. Cl. 372—62 **1 Claim**



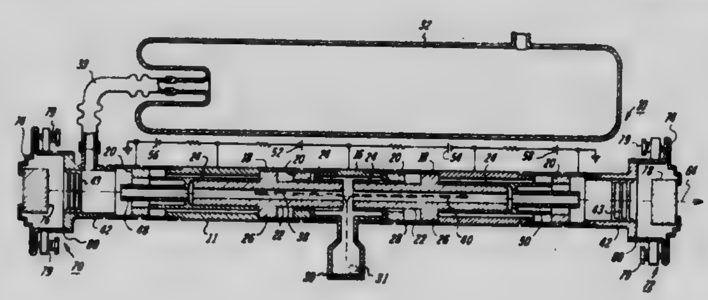
1. A cylindrical-shaped laser tube formed of a plurality of segments secured together and having a discharge bore and gas bypass bores formed through the segments, comprising:

(a) a plurality of ceramic cylindrical central segments with opposed end surfaces, each segment having a central aperture comprising a portion of the tube discharge bore and other apertures parallel to said central aperture and spaced radially outward therefrom and comprising portions of the tube gas bypass bores, each end surface having a first circular depression larger than, concentric with, and extending to and communicating with one end of said portion of said discharge bore and being defined by a surrounding first annular boss, a second annular depression radially spaced from said first circular depression and defined by said first annular boss and a second annular boss extending inwardly from the outer peripheral surface of said segment, one end of each said portion of said gas bypass bores extending to and terminating in said second annular depression with the width thereof being greater than the diameter of said gas bypass bores;

(b) a pair of end segments each having opposed outer and inner surfaces, a central aperture comprising a further portion of the tube discharge bore and other apertures parallel to said end segment central aperture and spaced radially outward therefrom and comprising further portions of the tube gas bypass bores, each said end segment outer surface being flat and surrounding a tapered end portion of said tube discharge bore and each said inner surface of each said end segment having the same formation as and mating that of each said central segment end surface; and

(c) metalizing means integrally joining the respective said segment faces together in sealing relation with said central segments being mated and disposed between said end segments and with the respective said discharge bore and gas bypass bore portions in the segments aligned, said tube discharge bore being thereby sealed off from said bypass gas bores and interrupted by first air gaps disposed at intervals along its length established by said segment first circular depressions and being effective to prevent the establishment of a continuously electrically conductive surface layer along the length of the said laser discharge bore and said bypass gas bores being interrupted by second air gaps spaced radially outward from said first air gaps and disposed at intervals along their length established by said second annular depressions.

4,380,078
SEGMENTED HOLLOW CATHODE LASER WITH SPLIT ANODE
Shing C. Wang, Arcadia, and Randolph W. Hamerdinger, Glendora, both of Calif., assignors to Xerox Corporation, Stamford, Conn.
Continuation-in-part of Ser. No. 948,077, Oct. 2, 1978, Pat. No. 4,287,484. This application Jun. 25, 1981, Ser. No. 277,314
The portion of the term of this patent subsequent to Mar. 10, 1998, has been disclaimed.
Int. Cl.[3] H01S ***3/08***
U.S. Cl. 372—62 **10 Claims**



1. A gas laser including an elongated envelope (11) containing a gaseous medium, hollow coaxial anode and cathode means (16,18) for connection to a voltage supply to produce an electrical discharge in the gaseous medium, and reflector means (60, 62) at or near the ends of the envelope, characterized in that the cathode means (18) comprises at least two separate cathodes and the anode means comprises at least two short cylindrical anodes centrally located between said separate cathodes.

4,380,079
GAS LASER PREIONIZATION DEVICE
David E. Cohn and Eugene E. Conley, Huntington Beach, Calif., assignors to Northrop Corp., Los Angeles, Calif.
Filed Sep. 12, 1980, Ser. No. 186,663
Int. Cl.[3] H01S ***3/093***
U.S. Cl. 372—87 **20 Claims**

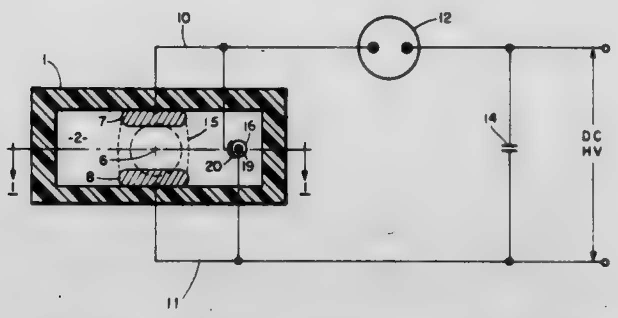
1. A gas laser including:

an elongated housing defining a resonant gas cavity through the center of which an optical axis extends longitudinally;

a pair of opposed electrodes extending longitudinally and disposed on opposite sides of said optical axis; and

means, disposed within said housing, for producing ultraviolet radiation for preionizing gas in said laser comprising a hollow dielectric tube extending parallel to said optical axis, an inner wire conductor in said tube, outer conduc-

tive means comprising one or more conductive strips along the outer surface of said tube, and means for con-



necting a source of high voltage between said inner wire and said outer conductive means.

4,380,080

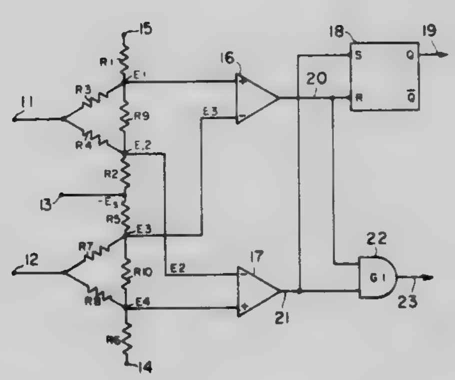
TRI-LEVEL DIFFERENTIAL LINE RECEIVER

Glen D. Rattlingourd, Salt Lake City, Utah, assignor to Sperry Corporation, New York, N.Y.

Filed Dec. 30, 1980, Ser. No. 221,248

Int. Cl.^{3} H03K *5/13*

U.S. Cl. 375—17 **11 Claims**



1. A receiver for receiving RZ tri-level bipolar signals, which signals are transmitted as true and complement signals, from a two-wire transmission line, comprising:

a first resistive network for shifting the bias level of said true signal in a positive direction at a first output and in a negative direction of equal magnitude at a second output;

a second resistive network symmetrical with said first resistive network for shifting the bias level of said compelement signal in a positive direction at a third output and in a negative direction of equal magnitude at a fourth output;

a first comparator having a fifth output and responsive to each change of polarity of the difference of the voltages at said first and third outputs to change the state of said fifth output and thus signal a first binary character; and

a second comparator having a sixth output and responsive to each change of polarity of the difference of the voltages at said second and fourth outputs to change the state of said sixth output and thus signal a second binary character.

4,380,081

DIGITAL RECEIVER FOR FOUR-PHASE-MODULATED CARRIER

Paolo Di Tria, Turin, Italy, assignor to Cselt - Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

Filed Aug. 6, 1981, Ser. No. 290,501

Claims priority, application Italy, Aug. 7, 1980, 68262 A/80

Int. Cl.^{3} H03D *3/22*

U.S. Cl. 375—82 **12 Claims**

1. A receiver of phase-modulated carrier waves arriving over a signal path of a telecommunication system in any of four possible phase positions representing dibits of transmitted data words,

comprising:

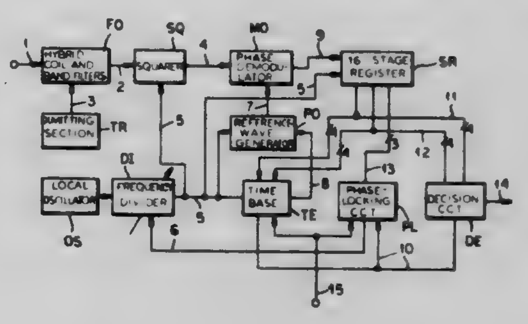
a squarer converting an incoming carrier wave into a phase-modulated square wave;

a generator of a reference square wave having a frequency harmonically related to that of the incoming carrier wave;

phase-demodulation means with inputs connected to said squarer and to said generator for emitting a binary sequence of a configuration determined by the relative phasing of said phase-modulated square wave and said reference square wave;

a source of timing pulses controlling the operation of said generator, said timing pulses having a cadence equal to a multiple of the frequency of said reference square wave;

a shift register connected to said phase-demodulation means for receiving therefrom samples of said binary sequence



which are taken upon the occurrence of said timing pulses, said shift register being stepped by said timing pulses and having a multiplicity of stages accommodating a number of said samples representing at least one full cycle of said reference square wave;

logic circuitry connected to said source and to stage outputs of said shift register for detecting characteristic bit groupings appearing in said stages, indicative of optimum instants for reading the contents of said shift register, said logic circuitry generating a reading command at said optimum instants; and

decision means connected to said stage outputs and responsive to said reading command for emitting a dibit decoded from said contents.

4,380,082

DIGITAL SIGNAL RECEIVER WITH FM INTERFERENCE ELIMINATION CAPABILITY

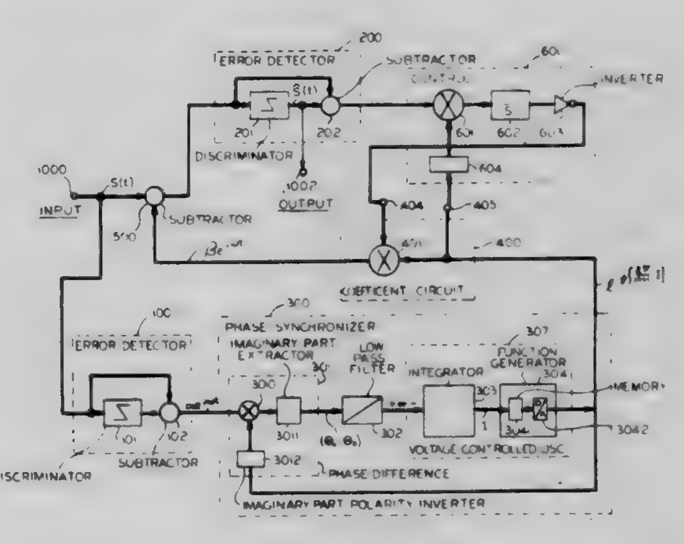
Junji Namiki, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Apr. 24, 1981, Ser. No. 257,234

Claims priority, application Japan, May 21, 1980, 55-67593; May 21, 1980, 55-67594

Int. Cl.^{3} H04L *1/00*

U.S. Cl. 375—102 **9 Claims**



2. A digital signal receiver comprising error detector means for generating an error signal based upon detected differences between discriminated transmission codes and received digital

baseband signals, synchronizing means responsive to said error signal for synchronizing said error signal with a complex value correcting signal, means for multiplying the output signal of said synchronizing means with a predetermined coefficient signal, subtracting means for extracting said multiplied correcting signal from said digital signal, and control means responsive to said subtracting means for adjusting said coefficient to produce an interference free digital signal.

4,380,083

METHOD OF AND AN ARRANGEMENT IN A TELECOMMUNICATION SYSTEM FOR REGULATING THE PHASE POSITION OF A CONTROLLED SIGNAL IN RELATION TO A REFERENCE SIGNAL

Karl A. I. Andersson, Ljusterö, and Sture G. Roos, Bergshamra, both of Sweden, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

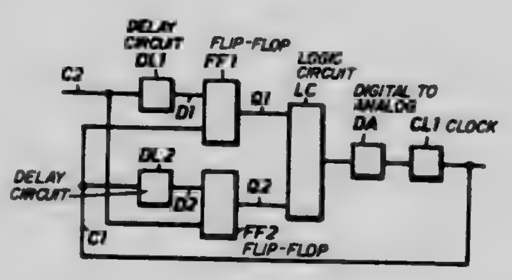
PCT No. PCT/SE79/00194, § 371 Date May 21, 1980, § 102(e) Date Apr. 17, 1980, PCT Pub. No. WO80/00901, PCT Pub. Date May 1, 1980

PCT Filed Sep. 21, 1979, Ser. No. 196,556

Claims priority, application Sweden, Sep. 21, 1978, 7809934

Int. Cl.³ H03L *7/06*

U.S. Cl. 375—120 **2 Claims**



1. Apparatus for regulating the phase position of a controlled signal with respect to a reference signal comprising a source of the reference signal, a first delay means for delaying the reference signal by a given period of time, a second delay means for delaying the controlled signal for said given period of time, a first comparison means having a first input connected to said first delay means to receive the reference signal delayed by said given period of time and a second input to receive the controlled signal for generating a first binary signal whose value is in indication of the relative phases of the received signals, a second comparison means having a first input connected to said second delay means to receive the controlled signal delayed by said period of time and a second input to receive the reference signal for generating a second binary signal whose value is an indication of the relative phases of the received signals, a controllable variable frequency oscillator means for generating the controlled signal, and control means connected to said comparison means for controlling the frequency of said variable frequency oscillator means in accordance with the values of the first and second binary signals.

4,380,084

NUCLEAR BOILER WITH DISMOUNTABLE WATER BOX

Gilles Aubert, Orsay, France, assignor to Commissariat a l'Energie Atomique, Paris, France

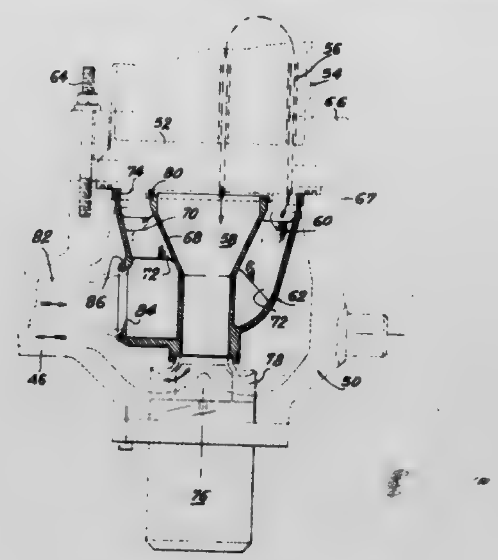
Filed Jul. 23, 1980, Ser. No. 171,412

Claims priority, application France, Jul. 24, 1979, 79 19053

Int. Cl.³ G21C *13/00*

U.S. Cl. 376—204 **8 Claims**

1. A nuclear boiler comprising a vessel having a top closed by a dismountable cover, a cage bearing the core of the reactor and separating the vessel into an inner hot zone and an outer cold zone, at least one steam generator disposed outside the vessel and comprising a tight enclosure, a tube plate separating the enclosure into a primary part, or water box, and a secondary part, and bearing U-shaped tubes whose ends open into two concentric zones of the water box separated by an internal structure, at least one hot connecting pipe and one cold connecting pipe respectively connecting the hot zone and the cold zone of the vessel to each of the concentric zones of the water box, wherein the tube plate, the tubes and the secondary part of



the enclosure of the steam generator define a sub-assembly dismountable from the primary part of the enclosure, the hot connecting pipe being dismountably mounted between the cage and the internal structure of the water box, said internal structure being dismountably mounted in the primary part of the enclosure.

4,380,085

ANGLED GAS CONDUIT

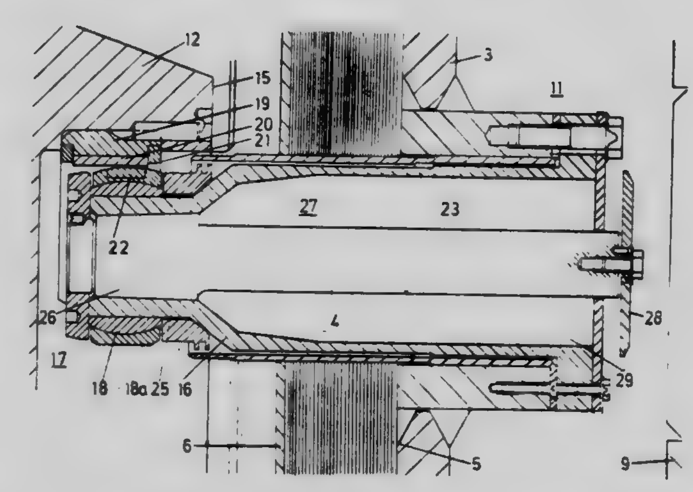
Josef Schoening, Hambruecken; Hans-Georg Schwiers, Ketsch; Claus Elter, Bad Durkheim; Wilfried Stracke, Oftersheim, and Reinhard Mauersberger, Juelich, all of Fed. Rep. of Germany, assignors to Hochtemperatur-Reaktorbau GmbH, Cologne, Fed. Rep. of Germany

Filed Apr. 1, 1980, Ser. No. 136,271

Claims priority, application Fed. Rep. of Germany, Apr. 4, 1979, 2913461; Apr. 4, 1979, 2913462

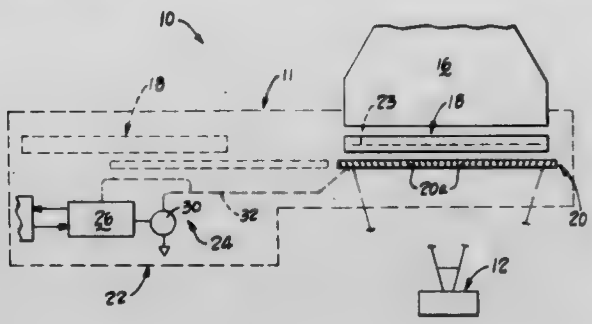
Int. Cl.³ G21C *3/56*; F15D *1/04*

U.S. Cl. 376—381 **17 Claims**



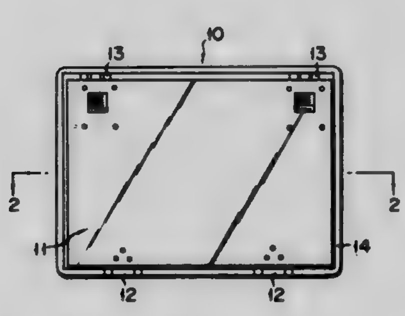
1. An angled conduit comprising a first conduit part and a second conduit part connected at an angle forming an area of deflection for gas flowing within said conduit parts and means for flowing gas under high pressure and at elevated temperature, said means including an apertured plate mounted at an oblique angle within said conduit in said area of deflection, said apertured plate having a plurality of circular passages for directing the flow of gas in said conduit and being mounted on at least three supporting bolts arranged in the wall of said gas conduit wherein each supporting bolt carries a ball joint on its end and protrudes into a recess open in the downward direction of the circumferential surface of said apertured plate.

4,380,086
RADIATION IMAGING SYSTEM WITH CYCLICALLY SHIFTABLE GRID ASSEMBLY
Robert J. Vagi, Broadview Heights, Ohio, assignor to Picker Corporation, Cleveland, Ohio
Filed Nov. 24, 1980, Ser. No. 209,309
Int. Cl.³ A61B *6/00*
U.S. Cl. 378—155 **13 Claims**



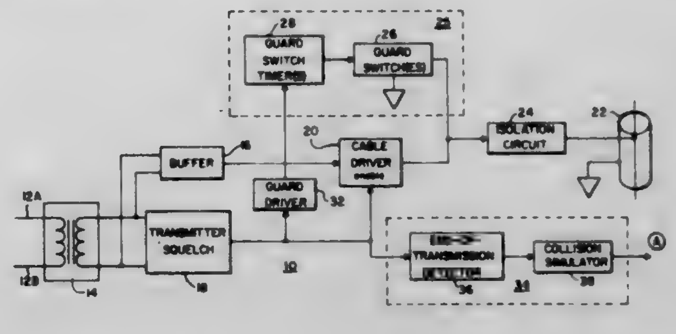
1. A method for producing a transparency image of an object subjected to penetrative radiation comprising:
(a) positioning a generally planar image forming element at a predetermined position relative to a source of penetrative radiation;
(b) stationing a grid assembly at an exposure position between the radiation source and the image forming element;
(c) directing penetrative radiation to said image forming element for a predetermined time; and,
(d) oscillating the grid assembly in a direction generally parallel to said plane at a first relatively constant frequency and altering the extent of grid assembly displacement from said exposure position during successive oscillations by cyclically shifting said grid assembly at a second substantially lower relatively constant frequency so that the grid assembly displacement in one direction of motion from the exposure position is not duplicated for a period which is relatively large compared to said time.

4,380,087
X-RAY FILM CASSETTE
Tsuneo Tanaka, Tokyo, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Sep. 3, 1980, Ser. No. 183,816
Claims priority, application Japan, Sep. 6, 1979, 54-114524
Int. Cl.³ G03B *41/16*
U.S. Cl. 378—186 **6 Claims**



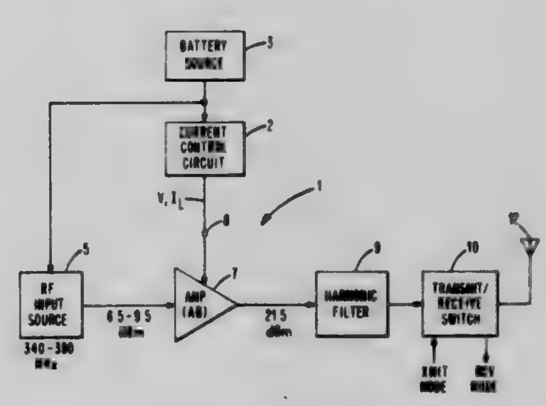
1. An X-ray film cassette comprising:
a. a front cover including a front panel and a side wall integral with and surrounding said front panel, each of said front panel and said side wall being formed of carbon fiber reinforced plastics;
b. a bottom cover including a bottom panel and a side wall surrounding said bottom panel;
c. hinge means swingably connecting said front cover and said bottom cover; and
d. a platelike cushion member bonded to the inside of the bottom panel of said bottom cover.

4,380,088
TESTER FOR COLLISION-DETECT CIRCUITRY
Jesse B. Lipcon, Harvard, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.
Continuation-in-part of Ser. No. 267,394, May 26, 1981. This application Aug. 11, 1981, Ser. No. 292,003
Int. Cl.³ H04B *17/00*
U.S. Cl. 455—67 **2 Claims**



1. In a transceiver for connecting a host device to a multiple access data communications network of the type employing carrier-sense collision detection control techniques, and wherein the transceiver includes a transmitter and a receiver, the transmitter including a squelch circuit for providing a squelch signal to control the enabling and disabling of the transmitter output, and the receiver including means for detecting collisions—i.e., multiple transmitters simultaneously transmitting, the improvement comprising:
(a) end-of-transmission detector means responsive to the squelch signal, for providing an end-of-transmission signal at the conclusion of a transmission; and
(b) collision simulation means, responsive to the end-of-transmission signal, for providing to the receiver a signal simulating a collision,
whereby the means for detecting collision is tested automatically at the end of every transmission.

4,380,089
BATTERY-POWERED TRANSMITTER INCLUDING CURRENT CONTROL CIRCUIT
Colin B. Weir, Franklin, Mass., assignor to GTE Products Corporation, Stamford, Conn.
Filed Jun. 16, 1980, Ser. No. 159,523
Int. Cl.³ H04B *1/04;* **H03G** *3/20*
U.S. Cl. 455—127 **14 Claims**



1. A transmitter powered by a dc voltage of a battery source and arranged to amplify a rf signal over a range of variations in the value of the voltage of the battery source, said transmitter comprising:
amplifier means arranged to receive said rf signal and having a control input;
control circuit means coupled to the battery source and to the control input of the amplifier means and powered by the battery source;
said control circuit means being operative to produce a control voltage at the control input of the amplifier means

and said amplifier means being operative in response to said control voltage to draw load current from the control circuit means having a value related to the value of the control voltage and to amplify the rf signal received thereby in accordance with the value of the control voltage;

said control circuit means comprising:

sensing circuit means operative to sense the value of load current drawn by the amplifier means and to produce a voltage related thereto; and

control means operative to compare the voltage produced by the sensing circuit means with a voltage varying with variations in the voltage of the battery source and to produce a control voltage related to the difference at the control input of the amplifier means, said control voltage having a value such that the load current drawn by the amplifier means does not exceed a specified maximum value, thereby conserving the battery source.

DESIGN PATENTS

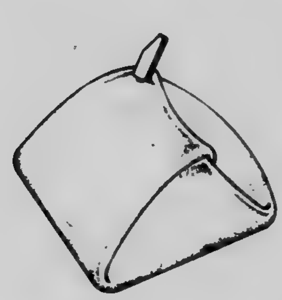
GRANTED APR. 12, 1983

ERRATA

For CLASS	See PATENT NO.
D23–006	268,563

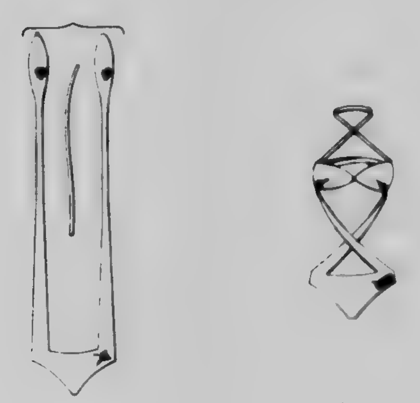
268,539
POTATO PRODUCT
Michael L. Hamann, Caldwell, Id., assignor to J. R. Simplot Company, Boise, Id.
Filed Jan. 12, 1981, Ser. No. 224,309
Term of patent 14 years
Int. Cl. D01—*02*
U.S. Cl. D1—1

268,540
SUSHI
Koki Uno, Tokyo, Japan, assignor to Kyotaru Co., Ltd., Tokyo, Japan
Filed Jan. 2, 1981, Ser. No. 222,162
Term of patent 14 years
Int. Cl. D01—*01*
U.S. Cl. D1—2



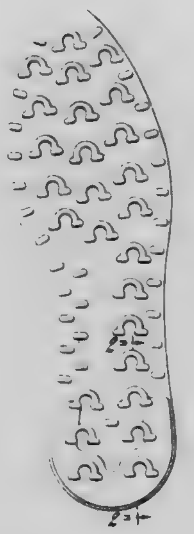
268,541
SUSHI
Koki Uno, Tokyo, Japan, assignor to Kyotaru Co., Ltd., Tokyo, Japan
Filed Jan. 2, 1981, Ser. No. 222,163
Term of patent 14 years
Int. Cl. D01—*01*
U.S. Cl. D1—2

268,542
SWIMMING SUIT
Vicki L. A. Johnson, 1105 S. State St., Provo, Utah 84601
Filed Apr. 22, 1980, Ser. No. 142,792
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—40

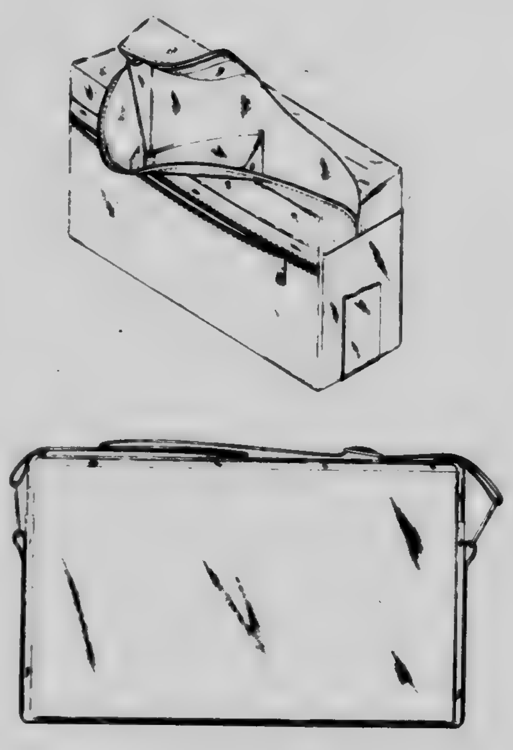


268,543
SHOE BASE
Walter Bretschneider, Heidekuppel 16, D-6491 Steinau-Neustall, Fed. Rep. of Germany
Filed Nov. 4, 1980, Ser. No. 203,961
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—320

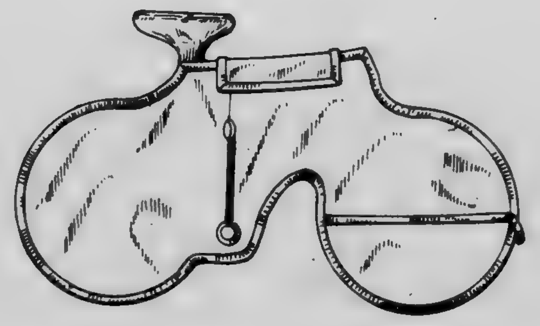
268,544
OUTSOLE FOR SPORTS SHOE
Kevin J. Crowley, Newburyport, Mass., assignor to Converse Inc., Wilmington, Mass.
Filed Feb. 4, 1981, Ser. No. 231,522
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—320



268,545
CARRY CASE FOR SMALL ARTICLES
Robert Weinreb, 510 Broadway, New York, N.Y. 10012
Filed May 16, 1980, Ser. No. 150,428
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—33



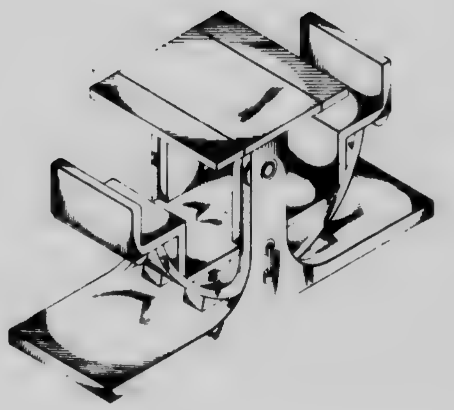
268,546
BICYCLE COVER
Jean-Pierre Edery, 3630 Hancock St., Ste. D, San Diego, Calif. 92110
Filed Nov. 14, 1980, Ser. No. 206,908
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—36



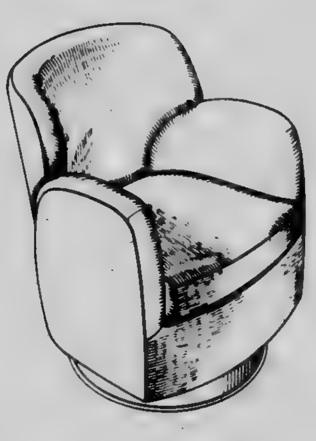
268,547
FISHING ROD CASE
Howard J. Ruckstuhl, 208 Oakview Dr., Kettering, Ohio 45429
Filed Aug. 22, 1980, Ser. No. 180,514
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—38

268,548
HANDBAG
Otto K. Schimmel, Scottsdale, Ariz., assignor to Amba Marketing Systems, Inc., Tempe, Ariz.
Filed Mar. 2, 1981, Ser. No. 239,610
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—48

268,549
COMBINED TABLE AND ROCKABLE CHAIR UNIT
Hsiung-Cheng Liu, No. 15-6, Lane 146, Wen Hua Rd., San Hsia Cheng, Taipei Hsien, Taiwan
Filed Oct. 2, 1980, Ser. No. 193,283
Claims priority, application Taiwan, Apr. 16, 1980, 6930742
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—6



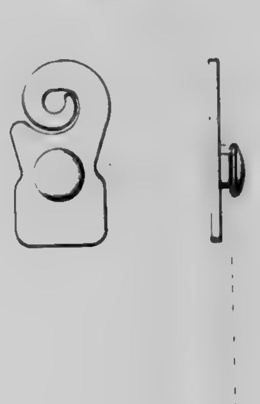
268,550
SWIVEL CHAIR
J. Thayer Coggin, High Point, N.C., assignor to Thayer Coggin Incorporated, High Point, N.C.
Filed Apr. 9, 1979, Ser. No. 28,489
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—26



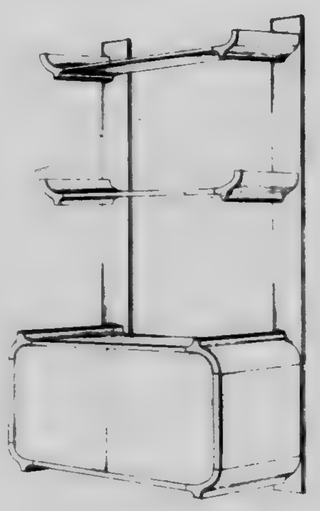
268,551
COMBINED TABLE AND SEATING UNIT
William B. Raftery, Ann Arbor, and Ronald L. Whitwam, Caledonia, both of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.
Division of Ser. No. 47,098, Jun. 11, 1979. This application Apr. 5, 1982, Ser. No. 365,353
Term of patent 14 years
Int. Cl. D6—*05*
U.S. Cl. D6—46

268,552
COMBINED TABLE AND SEATING UNIT
William B. Raftery, Ann Arbor, and Ronald L. Whitwam, Caledonia, both of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.
Division of Ser. No. 47,099, Jun. 11, 1979. This application Apr. 5, 1982, Ser. No. 365,354
Term of patent 14 years
Int. Cl. D6—*05*
U.S. Cl. D6—46

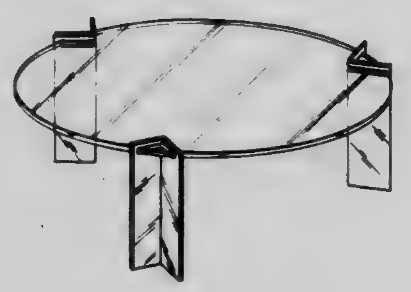
268,553
KEY HANGER
Hanns W. Beier, 26 Clove Brook Rd., Valhalla, N.Y. 10595
Filed Sep. 8, 1980, Ser. No. 185,269
Term of patent 7 years
Int. Cl. D6—*06*; D3—*01*; D8—*08*
U.S. Cl. D6—113



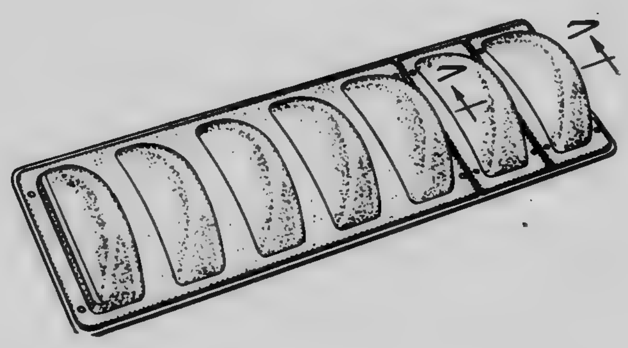
268,554
WALL MOUNTED COMBINED SHELF AND CABINET UNIT
Karl Springer, 425 E. 58th St., New York, N.Y. 10022
Division of Ser. No. 9,773, Feb. 6, 1979, Pat. No. Des. 260,336.
This application Jul. 18, 1980, Ser. No. 170,081
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—127

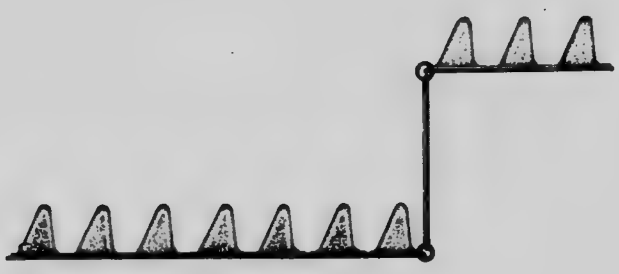


268,555
TABLE
Leon Rosen, Scarsdale, N.Y., assignor to The Pace Collection, Inc., New York, N.Y.
Filed Feb. 7, 1978, Ser. No. 875,918
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—146



268,556
DISPLAY RACK FOR PACKAGED PRODUCE
Leo F. Wildgen, Minneapolis, Minn., assignor to General Mills, Inc., Minneapolis, Minn.
Filed Jun. 16, 1980, Ser. No. 159,574
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—188

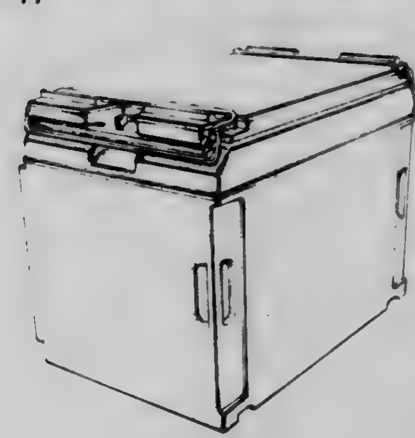




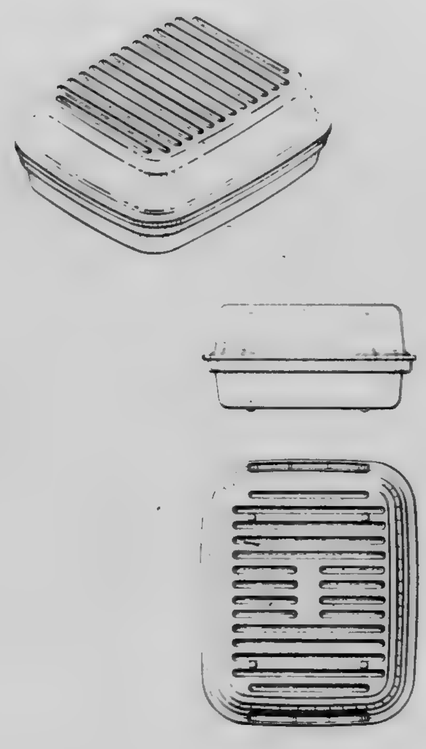
268,557
CASSEROLE DISH OR SIMILAR ARTICLE
George B. Jensen, deceased, late of Syracuse, N.Y., and by Stanley F. Campion, executor, Fayetteville, N.Y., assignors to Syracuse China Corporation, Syracuse, N.Y.
Filed May 11, 1979, Ser. No. 38,245
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—20

268,558
DRINK BAR
Gary L. Young, 54 Best St., North Fitzroy, Victoria, Australia
Filed Jul. 7, 1980, Ser. No. 166,122
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—71

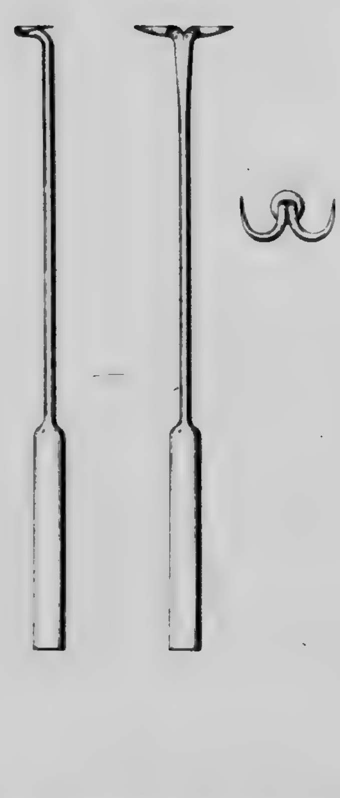
268,559
INSULATED CONTAINER
Jean Cornou, Verrieres le Buisson, France, assignor to Allibert S.A., Grenoble, France
Filed Jan. 23, 1981, Ser. No. 228,693
Claims priority, application Hague, Aug. 13, 1980, DM 000 307
Term of patent 14 years
Int. Cl. D07—*99*; D09—*04*
U.S. Cl. D7—77



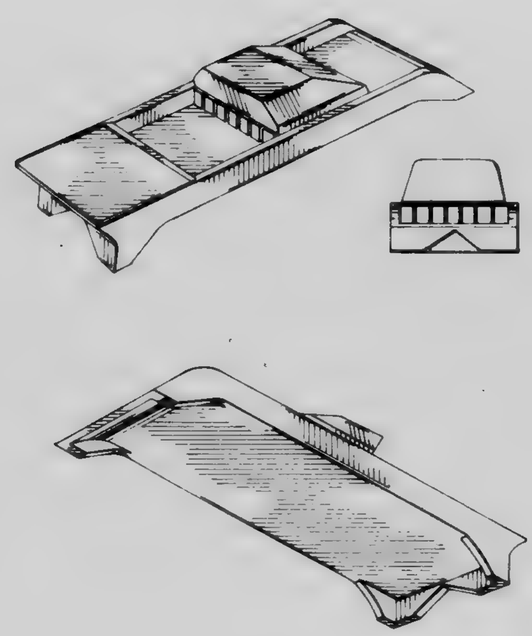
268,560
BREAD STORAGE CONTAINER OR THE LIKE
Robert H. C. M. Daenen, Hekelgem, and Pieter K. J. De Coster, Aalst, both of Belgium, assignors to Dart Industries, Inc., Northbrook, Ill.
Filed Sep. 18, 1980, Ser. No. 188,409
Term of patent 14 years
Int. Cl. D07—*07*
U.S. Cl. D7—82



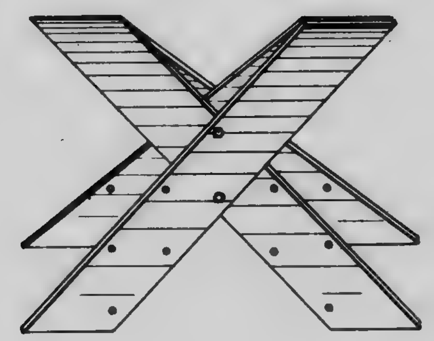
268,561
BARBECUE COOKING TOOL
Bryce N. Risser, P.O. Box 506, Valley City, N. Dak. 58072
Filed Jan. 19, 1981, Ser. No. 226,123
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—102



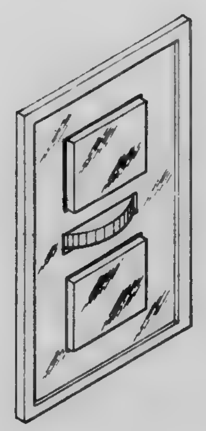
268,562
VEGETABLE CUTTER
John E. Bright, 3621 W. Sunland Dr., Phoenix, Ariz. 85041
Filed May 5, 1980, Ser. No. 146,626
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—381



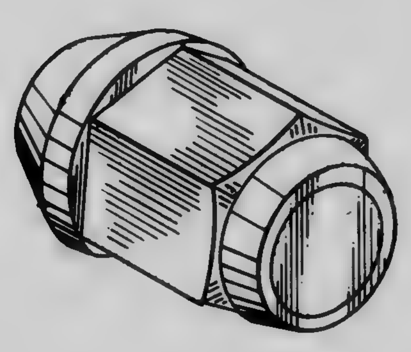
268,563
ADJUSTABLE AND FOLDABLE WOODEN LOG RACK OR THE LIKE
Lawrence J. Gagner, 1 Neptune Park East, Ormand Beach, Fla. 32074
Filed Apr. 18, 1980, Ser. No. 141,681
Term of patent 14 years
Int. Cl. D7—*08*
U.S. Cl. D23—138.5



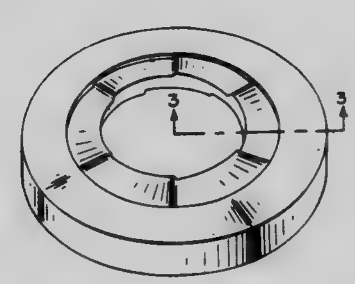
268,564
COMBINED WALL SWITCH AND ESCUTCHEON THEREFOR
Sandra L. Mack, 3498 Yorkshire Rd., Pasadena, Calif. 91107
Filed Jul. 31, 1980, Ser. No. 161,131
Term of patent 14 years
Int. Cl. D8—*09*; D13—*03*
U.S. Cl. D8—353



268,565
LUG NUT
Harold J. Mortus, Twinsburg, Ohio, assignor to Russell, Burdsall & Ward Corporation, Cleveland, Ohio
Filed Aug. 25, 1980, Ser. No. 180,884
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—397

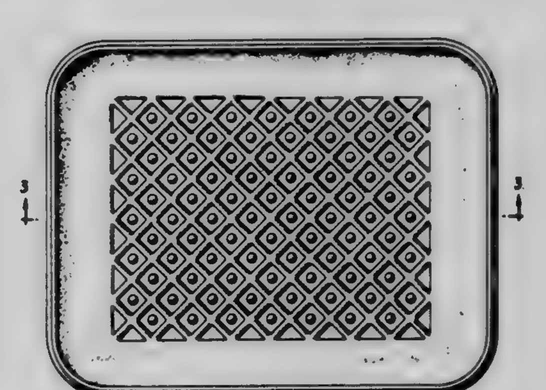


268,566
REVERSIBLE LOCK WASHER
Bengt O. Frieberg, 869 Picacho, La Habra Heights, Calif. 90631
Division of Ser. No. 180,410, Aug. 22, 1980, Pat. No. Des. 263,679. This application Sep. 28, 1981, Ser. No. 305,928
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—399

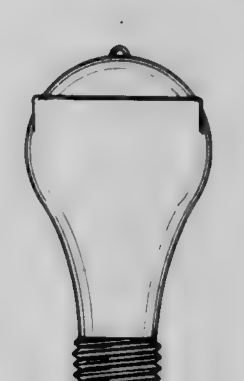


268,567
BOTTLE
Masao Kojima, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan
Filed Jan. 6, 1981, Ser. No. 223,029
Claims priority, application Japan, Aug. 21, 1980, 55-34461
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—372

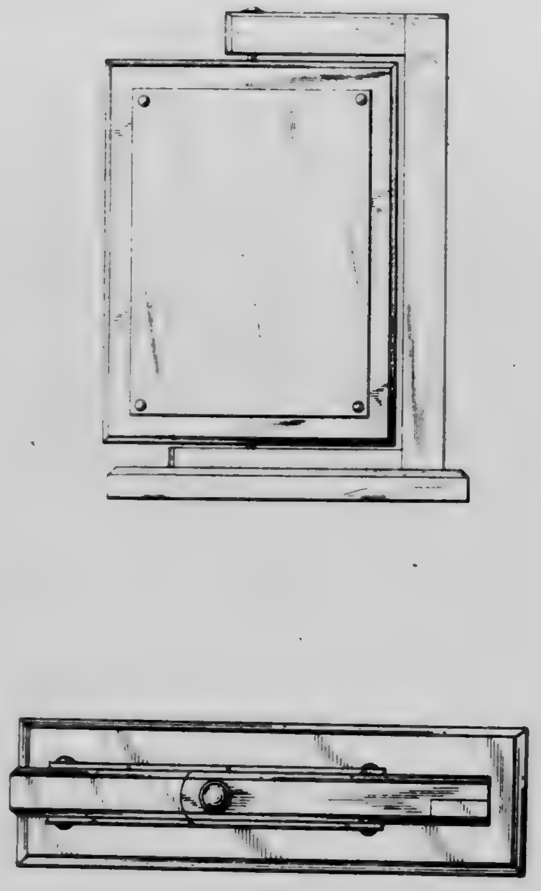
268,568
MEAT PACKAGING TRAY OR THE LIKE
Morell J. Holden, Canandaigua, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.
Filed Nov. 18, 1980, Ser. No. 207,588
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—425



268,569
JEWELRY PENDANT OR THE LIKE
Wayne C. Heatwole, 104 Leonard St., Dumfries, Va. 22026
Filed Jul. 29, 1980, Ser. No. 173,491
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—81

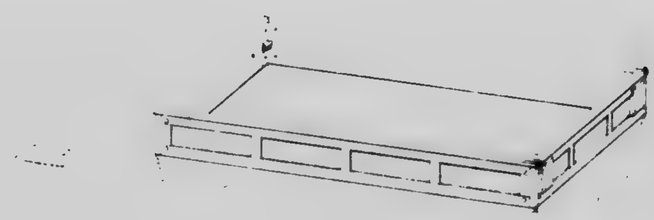


268,570
ROTATING RECTANGULAR-SHAPED PLAQUE
Aaron Wagman, 5 Dunn Rd., Monsey, N.Y. 10952
Filed Dec. 12, 1980, Ser. No. 215,749
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—132

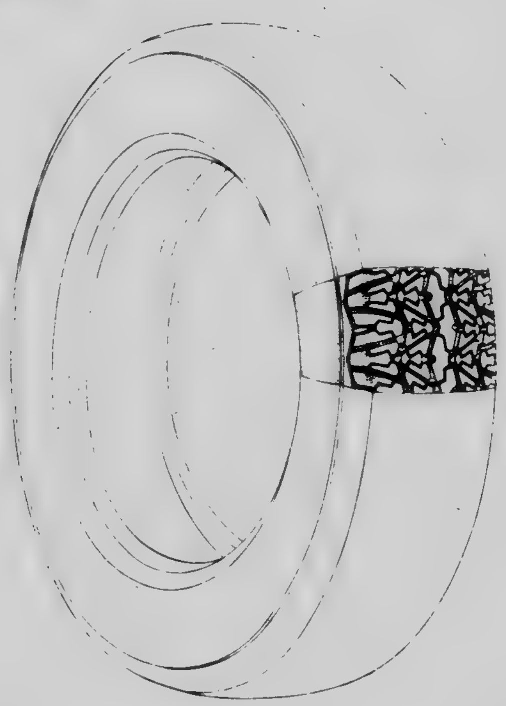


268,571
RABBIT
Doreen N. Roberts, Gwynedd, Wales, assignor to Pendelfin Studios Limited, Lancashire, England
Filed Jun. 17, 1981, Ser. No. 274,686
Claims priority, application United Kingdom, Feb. 3, 1981, 998721
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—158

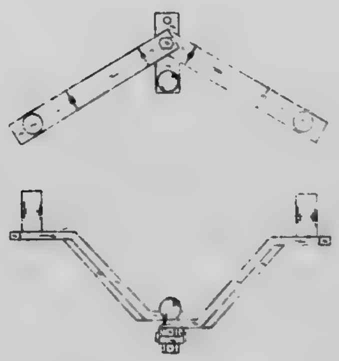
268,572
AUXILIARY SIDES FOR UTILITY TRAILER
David J. Johnson, 486 S. 200 West, Mt. Pleasant, Utah 84647
Filed Oct. 20, 1980, Ser. No. 198,962
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—106



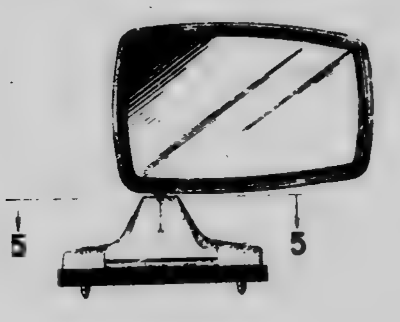
268,573
TIRE
Philippe Grenie, Chateaugay, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France
Filed Sep. 11, 1981, Ser. No. 301,210
Claims priority, application France, Apr. 23, 1981, 50
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—147



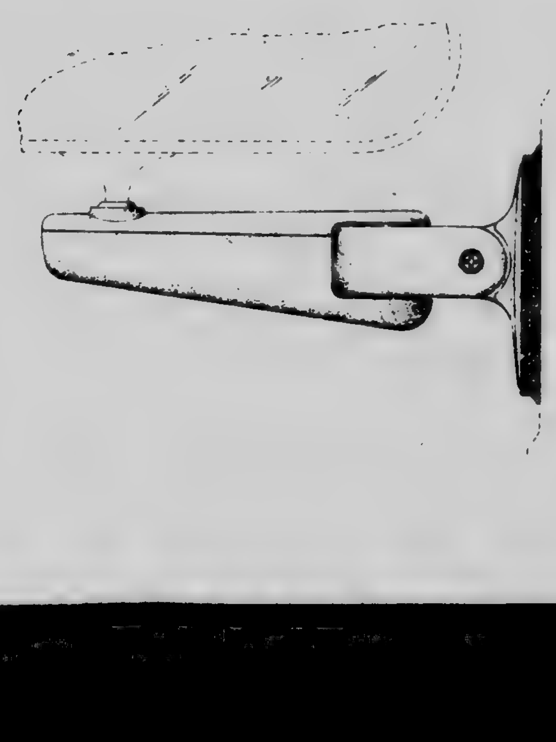
268,574
COMBINED BALL HITCH AND VEHICLE CARRIER FOR GOLF CLUB CARTS HAVING VERTICAL MOUNTING COUPLING
Auborn R. Hampton, 1307 Garth Ave., Decatur, Ala. 35601
Filed Feb. 25, 1980, Ser. No. 124,231
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—157



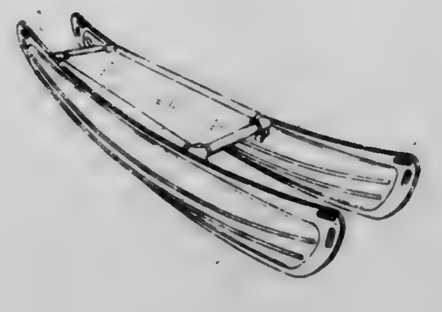
268,575
REAR VIEW MIRROR
Bernard C. Sharp, White Plains, N.Y., assignor to Parker-Hannifin Corporation, Shelton, Conn.
Filed Oct. 27, 1980, Ser. No. 201,152
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—187



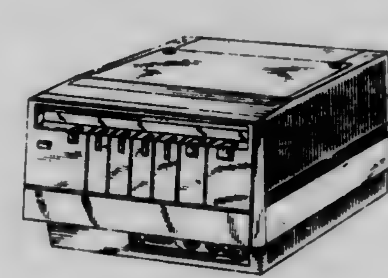
268,576
REAR VIEW MIRROR MOUNTING
Bernard C. Sharp, White Plains, N.Y., assignor to Parker-Hannifin Corporation, Shelton, Conn.
Filed Jan. 2, 1981, Ser. No. 222,123
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—187



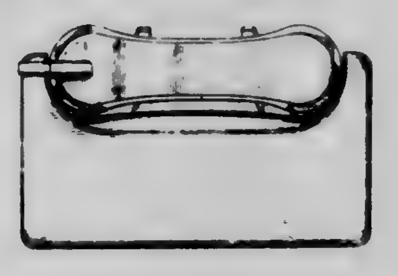
268,577
PADDLING CATAMARAN
Carl Gillberg, 1710 Decker Canyon Rd., Malibu, Calif. 90265
Filed Sep. 5, 1979, Ser. No. 72,687
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D12—304

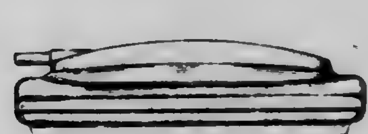


268,578
ADAPTER FOR CONVERTING RECORDED VIDEO SIGNALS FROM ONE TO ANOTHER SIZE CASSETTE
Toshio Ohya, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Nov. 10, 1980, Ser. No. 205,642
Claims priority, application Japan, May 14, 1980, 55-018898
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—2

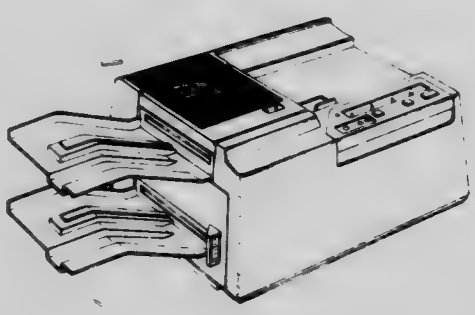


268,579
TELEPHONE
Eric J. Marshall, 5 Carlton Gardens, London SW1, England
Filed Jul. 28, 1980, Ser. No. 173,086
Claims priority, application United Kingdom, Feb. 5, 1980, 993474
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53

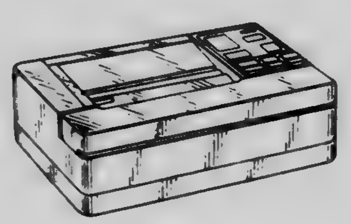




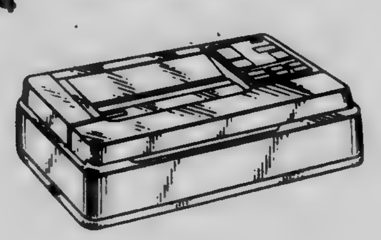
268,580
FACSIMILE RECORDER AND TRANSCEIVER
Nobuki Matsumoto; Manzo Yoshihama, both of Yokohama, and Fumiyo Kojima, Hiratsuka, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan
Filed Jan. 9, 1981, Ser. No. 223,754
Claims priority, application Japan, Jul. 14, 1980, 55-028174
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—94



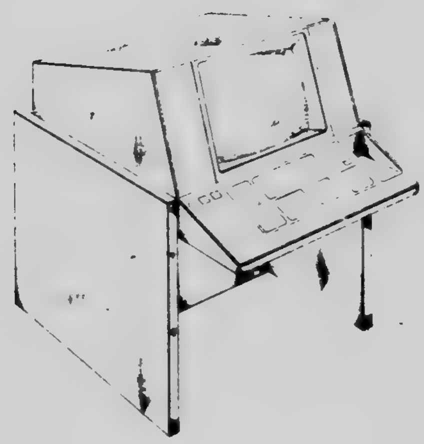
268,581
FACSIMILE TRANSCEIVER OR THE LIKE
Nobuo Kikuchi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 18, 1981, Ser. No. 235,759
Claims priority, application Japan, Aug. 21, 1980, 55-34257
Term of patent 14 years
Int. Cl. D14—*01, 03*
U.S. Cl. D14—94



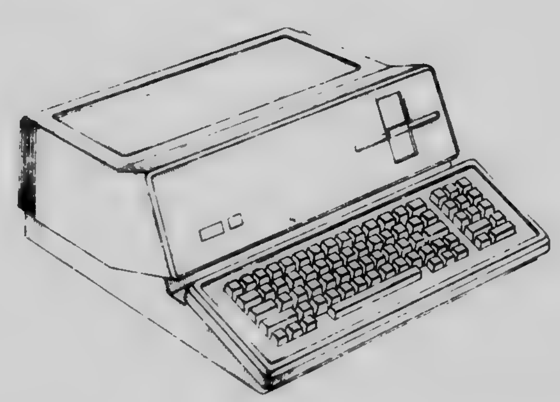
268,582
FACSIMILE TRANSCEIVER OR THE LIKE
Nobuo Kikuchi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 18, 1981, Ser. No. 235,665
Claims priority, application Japan, Aug. 21, 1980, 55-34258
Term of patent 14 years
Int. Cl. D14—*01, 03*
U.S. Cl. D14—94



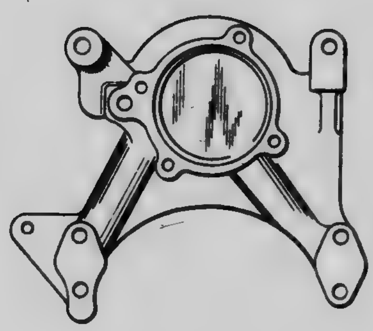
268,583
CONTROL CONSOLE
George S. Whaley, Eastlake, and Thomas L. Willmott, Russell, both of Ohio, assignors to The Babock & Wilcox Company, New Orleans, La.
Filed Apr. 9, 1981, Ser. No. 252,705
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—103



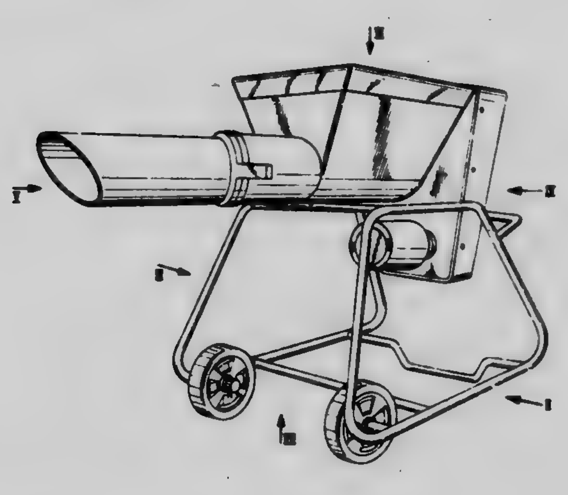
268,584
PERSONAL COMPUTER
Steven P. Jobs, Los Gatos; Jerrold C. Manock, Palo Alto; Dean A. Hovey, Los Altos, and David M. Kelley, Palo Alto, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.
Filed Nov. 3, 1980, Ser. No. 203,502
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—106



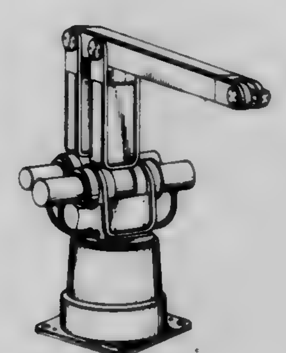
268,585
WATER PUMP HOUSING
John Drakulic, Box 482, 1st St., Trafford, Pa. 15085
Filed Oct. 28, 1980, Ser. No. 201,512
Term of patent 14 years
Int. Cl. D15—*02*
U.S. Cl. D15—5



268,586
MORTAR MIXER
Rolf Baum, Kirchzarten, Fed. Rep. of Germany, assignor to Mathis System-Technik GmbH, Merdingen, Fed. Rep. of Germany
Filed Oct. 6, 1980, Ser. No. 194,579
Claims priority, application Fed. Rep. of Germany, Apr. 5, 1980, MR Bd.II NO3Bs
Term of patent 14 years
Int. Cl. D15—*04*
U.S. Cl. D15—19

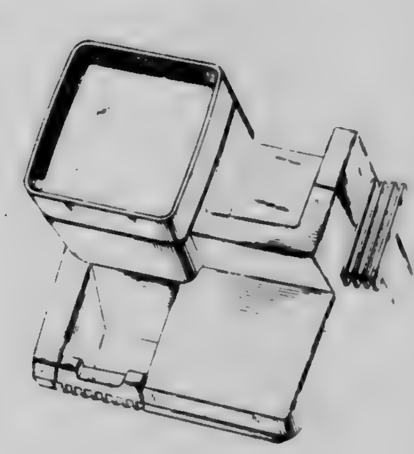


268,587
INDUSTRIAL ROBOT
Michinaga Kono; Yoshio Matsumoto, both of Yokohama; Hirosuke Katsumi, Tokyo, and Fumio Fukuchi, Funabashi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Apr. 4, 1980, Ser. No. 137,492
Claims priority, application Japan, Oct. 5, 1979, 54-41673; Feb. 12, 1980, 55-4391; Mar. 26, 1980, 55-11412
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—122

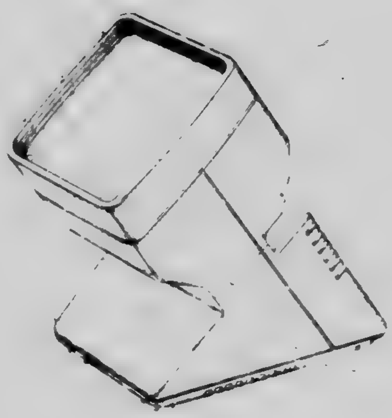


268,588
PORTABLE ORE SEPARATING BOWL
Wilbert H. Cubbison, and Flossie E. Cubbison, both of P.O. Box 322, Canyonville, Oreg. 97417
Filed Mar. 10, 1981, Ser. No. 176,066
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—147

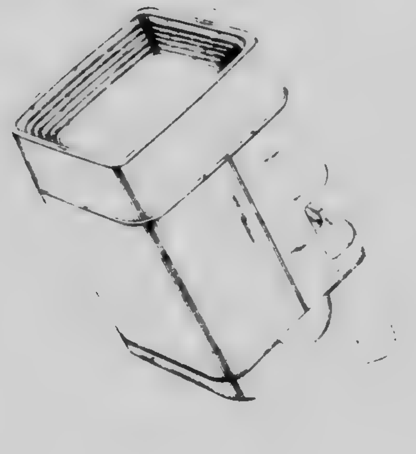
268,589
SLIDE VIEWER
Paul D. Miller, and Martin Thaler, both of New York, N.Y., assignors to View-Master International Group, Portland, Oreg.
Filed Jan. 23, 1981, Ser. No. 227,869
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—17



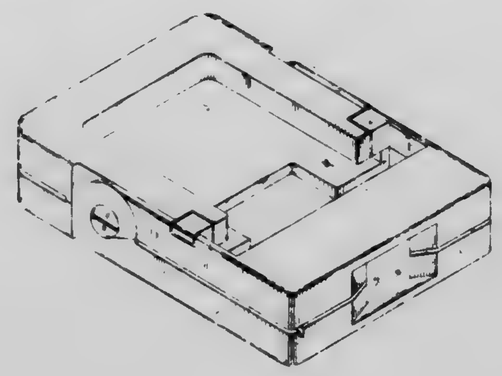
268,590
TABLETOP SLIDE VIEWER
Paul D. Miller, and Martin Thaler, both of New York, N.Y., assignors to View-Master International Group, Portland, Oreg.
Filed Feb. 20, 1981, Ser. No. 236,094
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—17



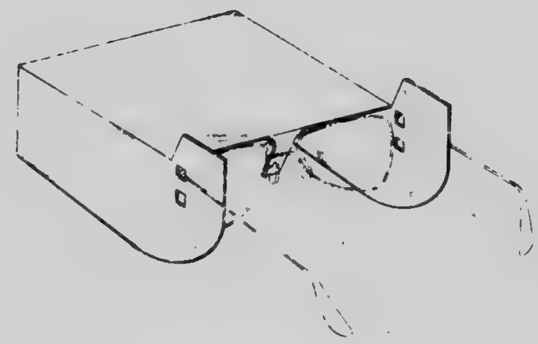
268,591
TRANSPARENCY VIEWER
Paul D. Miller, New York, N.Y., and Richard M. Joffe, North Bergen, N.J., assignors to View-Master International Group, Portland, Oreg.
Filed Feb. 20, 1981, Ser. No. 236,095
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—17



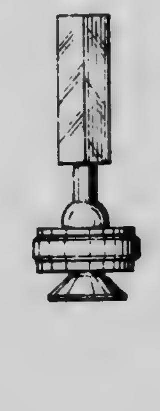
268,592
FOLDING TRANSPARENCY VIEWER
Paul D. Miller, New York, N.Y., and Richard M. Joffe, North Bergen, N.J., assignors to View-Master International Group, Portland, Oreg.
Filed Jan. 26, 1981, Ser. No. 228,639
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—18



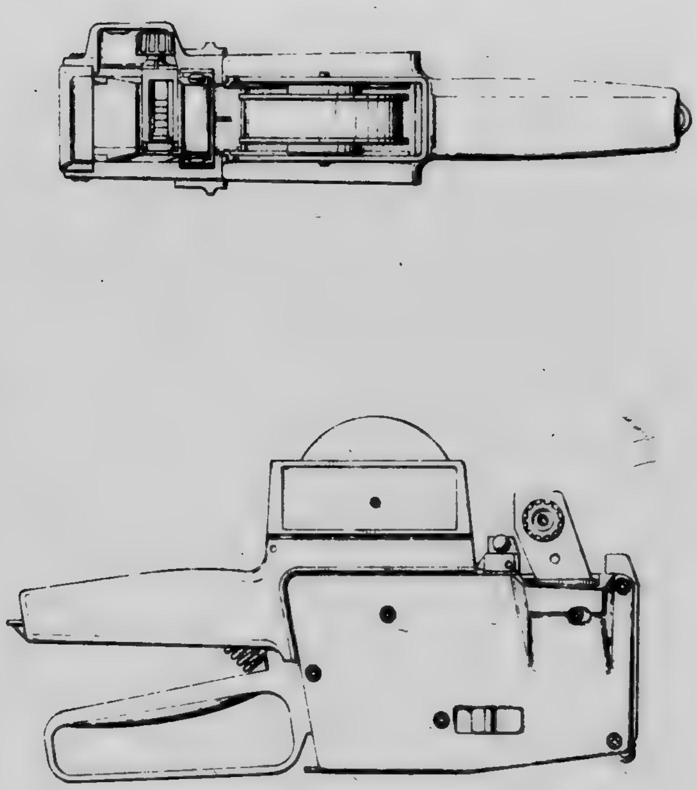
268,593
HOOD FOR INSTRUMENT FLIGHT TRAINING
C. Cameron Harper, 3644 Nobscott Ct., Apt. 1A, Indianapolis, Ind. 46222
Filed Sep. 8, 1980, Ser. No. 185,260
Term of patent 14 years
Int. Cl. D2—*3*; D16—*06*
U.S. Cl. D16—123



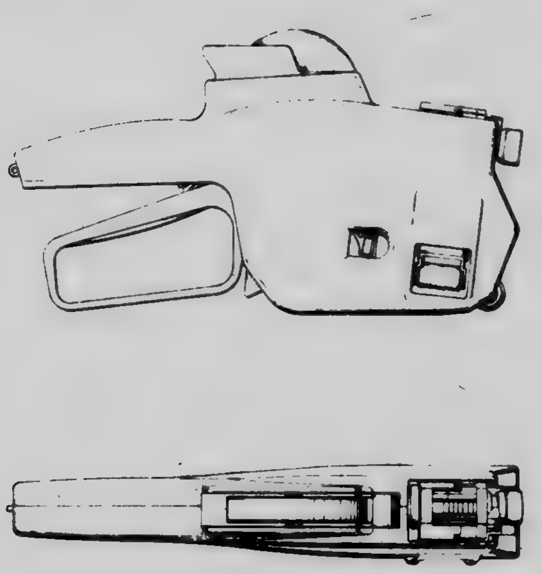
268,594
LIGHT DISPERSING PRISM ATTACHABLE TO A WINDOW, OR SIMILAR ARTICLE
Ronald L. Chyba, 3770 Monroe St., Riverside, Calif. 92504
Filed Sep. 22, 1980, Ser. No. 189,786
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D16—137



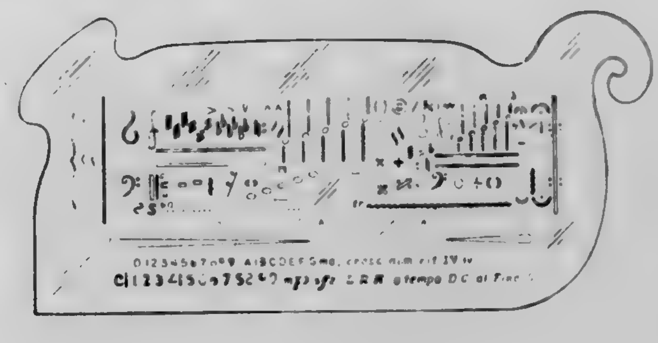
268,595
LABELING MACHINE
Eugene W. Beers, Lafayette, Calif., assignor to Esselte Pendaflex Corp., Garden City, N.Y.
Filed Dec. 12, 1980, Ser. No. 215,698
Term of patent 14 years
Int. Cl. D18—*99*
U.S. Cl. D18—19



268,596
LABELING MACHINE
Eugene W. Beers, Lafayette, Calif., assignor to Esselte Pendaflex Corp., Garden City, N.Y.
Filed Feb. 4, 1981, Ser. No. 231,360
Term of patent 14 years
Int. Cl. D18—*99*
U.S. Cl. D18—19



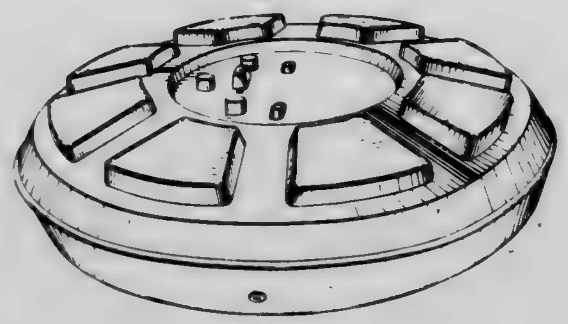
268,597
DRAWING TEMPLATE
David Spence, Granada Hills, Calif., assignor to Berol Corporation, Danbury, Conn.
Filed Jul. 24, 1980, Ser. No. 171,844
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—39



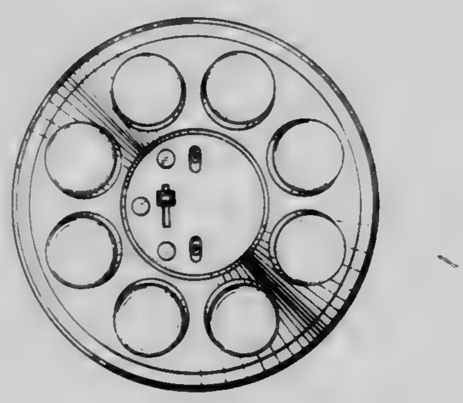
268,598
FELT PEN
Takeshi Mizutani, Kuwana, and Makoto Mizuno, Nagoya, both of Japan, assignors to Shachihata Industrial Co., Ltd., Aichi, Japan
Filed Nov. 14, 1980, Ser. No. 206,978
Claims priority, application Japan, May 15, 1980, 55-19092
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—43

268,599
PAPERWEIGHT
Michael F. Cox, 1311 Dixie Hwy., Pompano Beach, Fla. 33060
Filed Oct. 24, 1980, Ser. No. 200,525
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—96

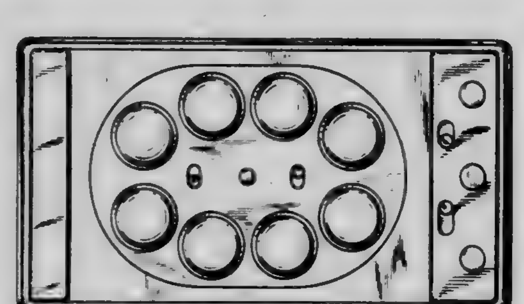
268,600
ELECTRONIC MEMORY GAME HOUSING
Lap Lee, Hong Hong, Hong Kong, assignor to Applied Industrial Company Limited, Hong Kong, Hong Kong
Filed Oct. 14, 1980, Ser. No. 196,463
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



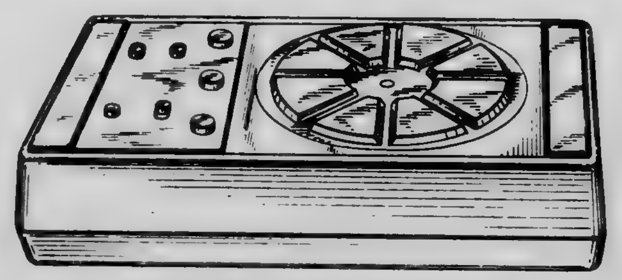
268,601
ELECTRONIC MEMORY GAME HOUSING
Lap Lee, Hong Kong, Hong Kong, assignor to Applied Industrial Company Limited, Hong Kong, Hong Kong
Filed Oct. 14, 1980, Ser. No. 196,464
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



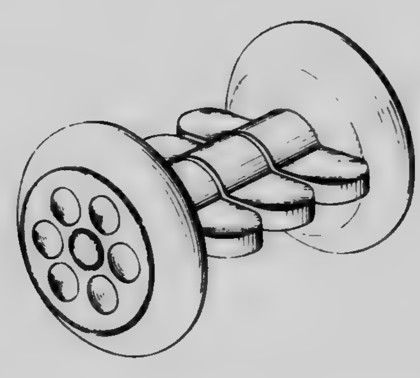
268,602
ELECTRONIC MEMORY GAME HOUSING
Lap Lee, Hong Kong, Hong Kong, assignor to Applied Industrial Company Limited, Hong Kong, Hong Kong
Filed Oct. 14, 1980, Ser. No. 196,465
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



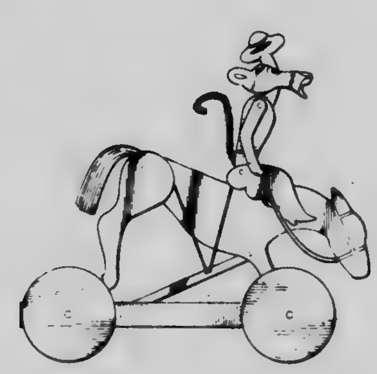
268,603
ELECTRONIC MEMORY GAME HOUSING
Lap Lee, Hong Kong, Hong Kong, assignor to Applied Industrial Company Limited, Hong Kong, Hong Kong
Filed Oct. 14, 1980, Ser. No. 196,466
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



268,604
SPINNING TOY
Richard A. Chase, Baltimore; Lawrence B. Grubb, Monkton, both of Md., and David M. Williams, New York, N.Y., assignors to Johnson & Johnson Baby Products Company, New Brunswick, N.J.
Filed Oct. 30, 1980, Ser. No. 202,387
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—92

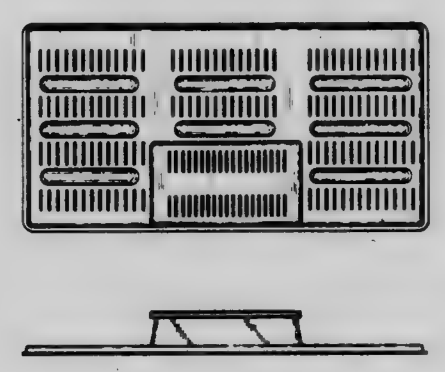


268,605
PULL TOY
Ralph A. Randolph, Box 36, Bushnell, Nebr. 69128
Filed Nov. 28, 1980, Ser. No. 211,236
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—165

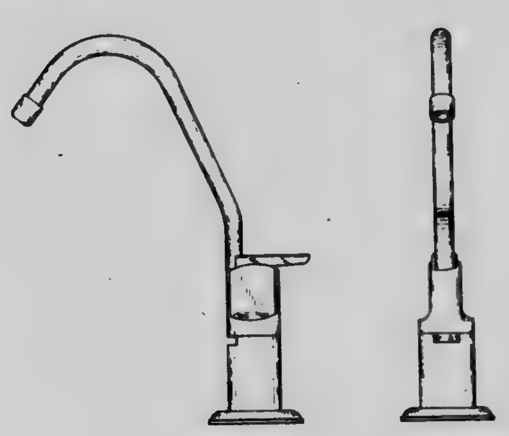


268,606
STUFFED BEAR WITH SIMULATED PROSTHETIC LIMB
Margaret K. Gibbons, 418 Walker St., Lowell, Mass. 01851
Filed Mar. 20, 1981, Ser. No. 245,911
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—159

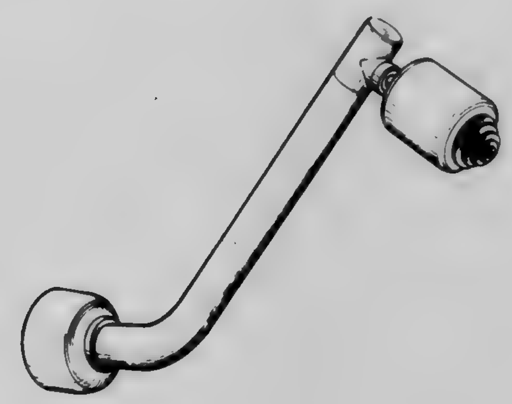
268,607
AQUARIUM FILTER
Richard J. Malik, 2721 Morin Grove, Erie, Mich. 48133
Filed Dec. 1, 1980, Ser. No. 211,515
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—4



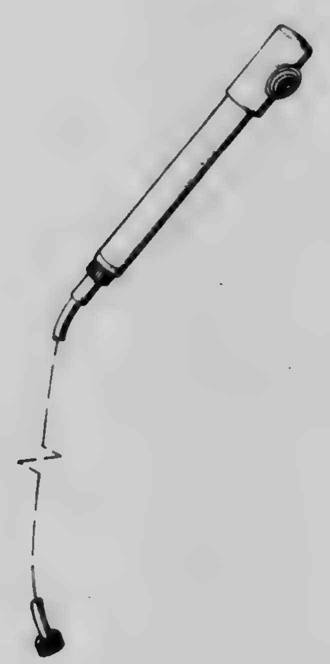
268,608
FAUCET
Anthony C. Wilcock, 75 E. Palm Ave., Burbank, Calif. 91502
Filed Oct. 14, 1980, Ser. No. 197,144
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—23



268,609
SHOWER HEAD
Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia
Filed Apr. 20, 1981, Ser. No. 255,530
Claims priority, application Australia, Dec. 18, 1980, 82,864
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—35

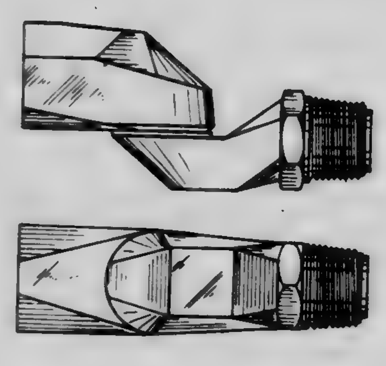


268,610
HAND SHOWER
Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia
Filed Apr. 20, 1981, Ser. No. 255,538
Claims priority, application Australia, Jan. 5, 1981, 82,979
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—35

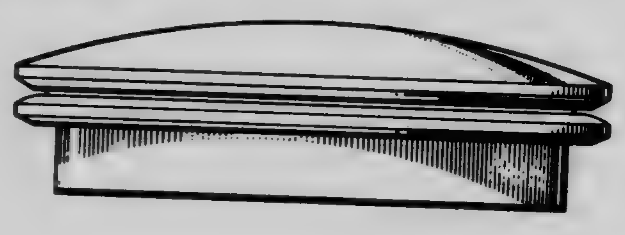


268,611
HAND SHOWER
Odo Klose, Wuppertal, Fed. Rep. of Germany, assignor to Friedrich Grohe Armaturenfabrik GmbH & Co., Hemer, Fed. Rep. of Germany
Filed Aug. 27, 1981, Ser. No. 296,623
Claims priority, application Fed. Rep. of Germany, Mar. 16, 1981, MR 7136
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—35

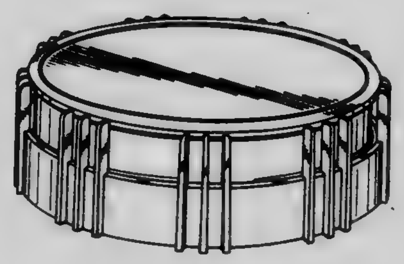
268,612
SWIVEL CONNECTOR FOR HOSE OR THE LIKE
Grenville G. Sutcliffe, Villa Ridge, Mo., assignor to Husky Corporation, Pacific, Mo.
Filed Jun. 16, 1980, Ser. No. 160,088
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—43



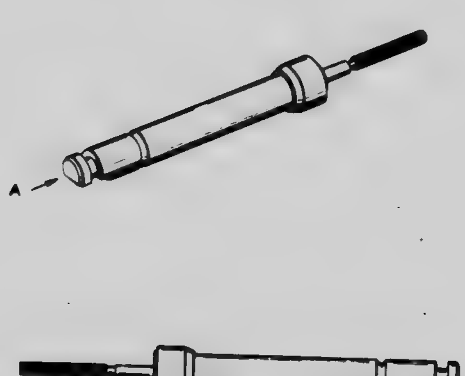
268,613
CONTAINER FOR AIR FRESHENER
Robert C. Beacham, Pleasanton, Calif., assignor to The Clorox Company, Oakland, Calif.
Filed Nov. 3, 1980, Ser. No. 203,190
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—150



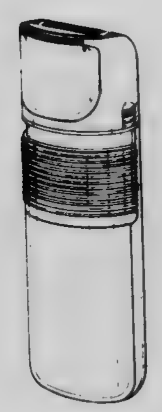
268,614
AIR FRESHENER OR SIMILAR ARTICLE
Fritz von Philipp, Neuburg, and Georg Schimanski, Hagen, both of Fed. Rep. of Germany, assignors to Globol-Werk GmbH, Neuburg, Fed. Rep. of Germany
Filed Dec. 22, 1980, Ser. No. 219,152
Claims priority, application Fed. Rep. of Germany, Jun. 24, 1980, MR435
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—150



268,615
COMBINED DENTAL PIN AND CHUCK
Anthony J. Biggs, 9 Westdown, Great Brookham, Surrey, England
Filed Aug. 29, 1980, Ser. No. 182,653
Claims priority, application United Kingdom, Apr. 24, 1980, 994605
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—10

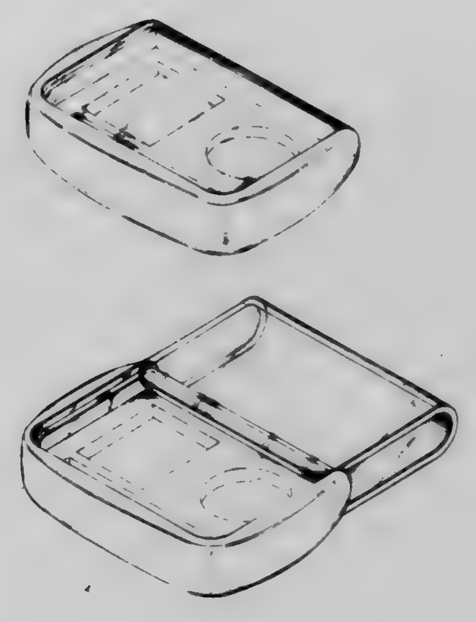


268,616
ELECTRIC SHAVER
Roland Ullmann, Offenbach-Rumpenheim, Fed. Rep. of Germany, assignor to Braun Aktiengesellschaft, Kronberg, Fed. Rep. of Germany
Filed Feb. 23, 1981, Ser. No. 237,036
Claims priority, application Fed. Rep. of Germany, Sep. 15, 1980, 73 MR 8917
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—49

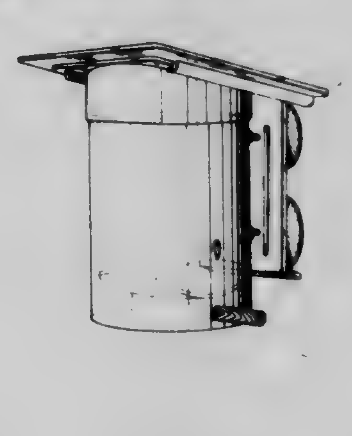


268,617
ELECTRIC SHAVER
Florian Seiffert, Grüenwald, Fed. Rep. of Germany, and Noboru Abe, Kadoma, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan
Filed Dec. 30, 1980, Ser. No. 221,689
Claims priority, application Japan, Jul. 7, 1980, 55-27247
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—51

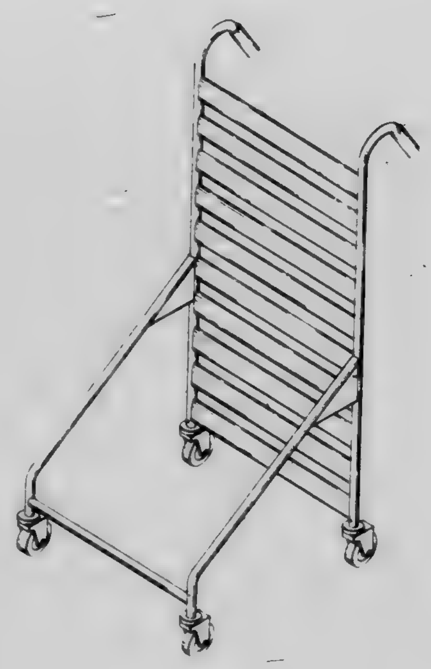
268,618
COMPACT
Andrew Napolitane, 350 E. 52nd St., New York, N.Y. 10022
Filed Feb. 12, 1981, Ser. No. 233,984
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—78



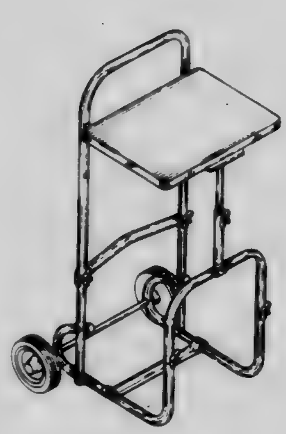
268,619
BIRD FEEDER
Morton L. Blasbalg, 26 Sandro Dr., Warwick, R.I. 02886
Filed Oct. 10, 1978, Ser. No. 949,813
The portion of the term of this patent subsequent to Apr. 12, 1995, has been disclaimed.
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—15



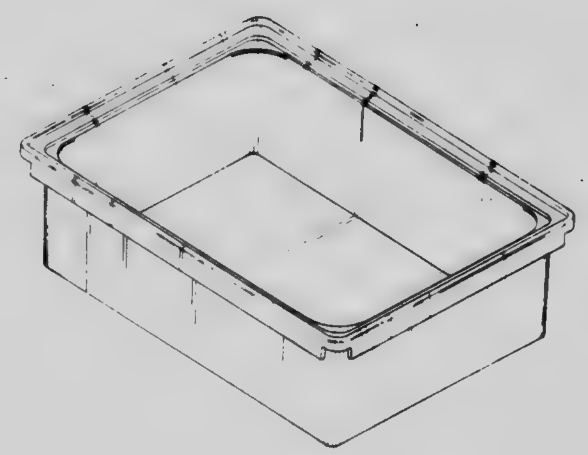
268,620
MATERIALS HANDLING CART
Charles P. Schreiner, Saugatuck, Mich., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Dec. 4, 1980, Ser. No. 212,947
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D34—21



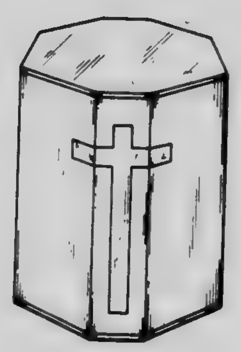
268,621
CART FOR HOLDING REFUSE BAG
Louis G. Marini, and Thomas O. Marini, both of P.O. Box 6, Blackwood, N.J. 08012
Filed Jul. 21, 1980, Ser. No. 171,018
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D34—26



268,622
MATERIAL HANDLING TOTE TRAY
Richard H. Wolters; William C. Anderson, both of Grand Rapids; Charles R. Tyke, Ada, and Charles P. Schreiner, Saugatuck, all of Mich., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Dec. 4, 1980, Ser. No. 212,948
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D34—40



268,623
CREMAIN VAULT
Gerald A. Dercks, and Michael J. Dercks, both of 4228 Park Ave. S., Minneapolos, Minn. 55407
Filed Dec. 12, 1980, Ser. No. 216,021
Term of patent 14 years
Int. Cl. D31—*00*
U.S. Cl. D99—5



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TO WHOM

PATENTS WERE ISSUED ON THE 12TH DAY OF APRIL, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. B. Dick Company: *See—*
Halm, James M., 4,379,823, Cl. 430-83.000.
Abbott Laboratories: *See—*
Cooper, Billy H., 4,379,841, Cl. 435-34.000.
Abidin, Anwar: *See—*
Bianchi, Valerio; Abidin, Anwar; and Thonnessen, Dieter, 4,379,770, Cl. 261-142.000.
ACF Industries, Incorporated: *See—*
Saka, Hamid J., 4,379,557, Cl. 277-59.000.
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Adell, Robert, to U.S. Product Development Company. Edge guard. 4,379,377, Cl. 49-462.000.
Adler, David: *See—*
Yang, Chi C.; Madan, Arun; Ovshinsky, Stanford R.; and Adler, David, 4,379,943, Cl. 136-249.000.
AG Industries International, Ltd.: *See—*
Thedford, Dale E.; and Wilson, Gil C., 4,379,440, Cl. 119-159.000.
Agfa-Gevaert Aktiengesellschaft: *See—*
Dedden, Hubert; and Pfingst, Jurgen, 4,379,632, Cl. 355-68.000.
Helling, Gunter; Ohlschlager, Hans; Himmelmann, Wolfgang; and Beck, Manfred, 4,379,838, Cl. 430-518.000.
Krafft, Werner; Helling, Gunter; Matschke, Guunther; and Boie, Immo, 4,379,829, Cl. 430-215.000.
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Schnoring, Hildegard; Schranz, Karl-Wilhelm; and Koepke, Gunther, 4,379,836, Cl. 430-377.000.
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Ahrens, Paul W., to Miracle Recreation Equipment Company. Playground tube slide. 4,379,551, Cl. 272-56.50R.
Air Products and Chemicals, Inc.: *See—*
Dalton, Augustine I., Jr.; and Skinner, Ronald W., 4,379,778, Cl. 423-584.000.
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Fickel, Walter; and Ries, Gerhard, 4,379,860, Cl. 521-61.000.
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Alex Friedmann Kommanditgesellschaft: *See—*
Tomsu, Peter, 4,379,520, Cl. 236-49.000.
Alexander, Lee J.; Vanberg, Harold E.; and King, Clyde E., to Horticultural Printers/Carscallen Nursery Label Company. Plant tag. 4,379,372, Cl. 40-10.00C.
Alexanian, Vazken A.; Forgione, Peter S.; and Chang, Laurence W., to American Cyanamid Company. Manufacture of isocyanates. 4,379,767, Cl. 260-453.00P.
Allen, Donald P.: *See—*
Long, Ernest L.; Duvall, William S.; and Allen, Donald P., 4,380,009, Cl. 340-825.550.
Allen, George R.: *See—*
Taylor, Merrick W.; Allen, George R.; and Strong, Terence, 4,379,583, Cl. 296-1.00S.
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Shaw, Michael J., 4,379,822, Cl. 430-62.000.
Allison, Robert, to Mac Equipment, Inc. Vacuum sequencing system with weight controlled material draw cycle. 4,379,663, Cl. 406-23.000.
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Hildeman, Gregory J.; and Sanders, Robert E., Jr., 4,379,719, Cl. 419-60.000.
ALZA Corporation: *See—*
Campbell, Patricia S.; and Chandrasekaran, Santosh K., 4,379,454, Cl. 604-897.000.
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Alexanian, Vazken A.; Forgione, Peter S.; and Chang, Laurence W., 4,379,767, Cl. 260-453.00P.
Parekh, Girish G.; Blank, Werner J.; and Schirmann, Peter J., 4,379,911, Cl. 528-245.000.
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Corso, Anthony J.; Colavito, Kathleen M.; and Phillips, Thomas S., 4,379,937, Cl. 546-155.000.
Ong, Helen H.; and Profitt, James A., 4,379,932, Cl. 546-17.000.
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Rao, Pemmaraju N.; Purdy, Robert H.; and Moore, Perry H., Jr., 4,379,779, Cl. 436-543.000.
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Amimoto, Yoshio; and Tatemoto, Masayoshi, to Daikin Kogyo Co., Ltd. Polyfluoroallyl ethers and their production and use. 4,379,901, Cl. 526-247.000.
AMP Incorporated: *See—*
Clark, Richard P.; Frantz, Robert H.; Hawk, Gary W.; and Root, John A., 4,379,606, Cl. 339-17.0CF.
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Andersen, Heinz-Erhardt; Brebels, Jaek J.; Matschke, Klaus; and Scheier, Franz, to Hoechst Aktiengesellschaft. Process for the production of biaxially stretched and embossed film composed of vinyl chloride polymers. 4,379,774, Cl. 264-284.000.
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Andoh, Sadanari; Maeda, Junji; Fukushima, Kiyoshi; Yoneda, Hiroichi; and Jinushi, Naotomo, to Sanyo Denki Kabushiki Kaisha. Ink droplet projecting device and an ink jet printer. 4,380,018, Cl. 346-140.00R.
Andrews, Richard J., to Lucas Industries Limited. Fuel injection nozzles. 4,379,524, Cl. 239-533.800.
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Nakatsukasa, Masashi; and Takahashi, Nobuyuki, 4,379,743, Cl. 204-298.000.
Angelo, Eugene V.; and Pratap, Prem, to Elliott Turbomachinery Company, Inc. Turbine trip valve mechanism. 4,379,544, Cl. 251-74.000.
Angelucci, Joseph L.: *See—*
Angelucci, Thomas L., Sr.; and Angelucci, Joseph L., 4,380,042, Cl. 361-421.000.
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Anzai, Makoto, to Nissan Motor Company, Limited. System for controlling the air-fuel ratio in a combustion engine. 4,379,441, Cl. 123-440.000.
Appelen, John T.: *See—*
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Arbuthnot, Gerald R.: *See—*
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Anderson, Larry C.; Lausch, Robert C.; and Sydorko, Peter J., 4,379,730, Cl. 156-324.000.
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Yoshimura, Isao; Hata, Hideo; and Kaneko, Takashi, 4,379,888, Cl. 525-211.000.

Asahi Glass Company, Ltd.: *See—*
Yamabe, Masaaki; Munekata, Seiji; Kumai, Seisaku; and Kaneko, Isamu, 4,379,768, Cl. 260-544.00F.

Asano, Makoto; Tanabe, Yoshimitu; and Murakami, Hisamichi, to Mitsui Toatsu Chemicals, Inc. Color-developer for pressure-sensitive sheets. 4,379,897, Cl. 525-506.000.

Asano, Shunji: *See—*
Takanashi, Yukio; Yakabe, Tooru; and Asano, Shunji, 4,379,980, Cl. 313-446.000.

Asari, Akira; Noyori, Tatsuhiko; and Takehata, Tetsuro, to Kabushiki Kaisha Kobe Seiko Sho. Pull-back type indirect extrusion press. 4,379,398, Cl. 72-273.500.

Ashitaka, Hidetomo; Oizumi, Kyohei; Jinda, Kazuya; and Inaishi, Kazutoshi, to Ube Industries, Ltd. Process for producing polybutadine rubber with enhanced mechanical strength. 4,379,889, Cl. 525-247.000.

Atlantic Richfield Company: *See—*
Younes, Usama E., 4,379,877, Cl. 524-123.000.

Aubert, Gilles, to Commissariat a l'Energie Atomique. Nuclear boiler with dismountable water box. 4,380,084, Cl. 376-204.000.

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Rion, Claude; and Ruckheim, Winfried, 4,379,539, Cl. 248-371.000.

Austel, Volkhard: *See—*
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Walser, Glenn E., 4,379,795, Cl. 426-304.000.

Ayerst, McKenna & Harrison Ltd.: *See—*
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Bacrania, Kantilal, to Burroughs Corporation. Disc-drive head positioning systems. 4,380,033, Cl. 360-77.000.

Baerst, Christian: *See—*
Woock, Jean P.; and Baerst, Christian, 4,379,419, Cl. 83-875.000.

Bailey, Fay W., to Phillips Petroleum Company. Copolymer blend of improved impact resistance. 4,379,884, Cl. 525-96.000.

Bailey, Paul F., Jr. Facility for conducting ophthalmological examinations. 4,379,626, Cl. 351-200.000.

Bakken, Gordon J., to Fern Engineering. Turbine seal. 4,379,560, Cl. 277-236.000.

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Baldwin, Floyd G.; and Evans, Donald E., to McDonnell Douglas Corporation. Pallet restrain system. 4,379,535, Cl. 244-137.00R.

Baldwin Piano & Organ Company: *See—*
Munch, Walter; and Uetrecht, Dale M., 4,379,422, Cl. 84-1.190.

Ball Corporation: *See—*
Deane, David W., 4,380,025, Cl. 358-106.000.

Ball, Harold M.; and Beach, Robert G., to Ramsey Winch Company. Winch clutch. 4,379,502, Cl. 192-71.000.

Bando, Hideharu: *See—*
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Henry, Francis W., Jr.; and Banerjee, Subrata, 4,379,866, Cl. 523-140.000.

Barlogis, Rene, to Societe Francaise d'Agrafage Industriel - Sofragraf. Device for dispensing fused materials such as thermoplastic adhesives. 4,379,516, Cl. 222-146.0HE.

Barnes, David I.: *See—*
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Barnet, Barry M.: *See—*
Fisher, Warren H., Jr.; and Barnet, Barry M., 4,379,485, Cl. 165-110.000.

Baron, Howard C. Infusion system with self-generating pressure assembly. 4,379,453, Cl. 604-145.000.

Barry, William L., to Vapor Corporation. Ambient air timing device. 4,379,680, Cl. 417-46.000.

Bartz, Wilfried: *See—*
Konietzny, Alfred; and Bartz, Wilfried, 4,379,890, Cl. 525-332.800.

BASF Aktiengesellschaft: *See—*
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Weitz, Hans-Martin; and Fischer, Rolf, 4,379,756, Cl. 252-411.00R.

Baskent, Feyyaz O.; and Sandner, Michael R., to Union Carbide Corporation. Tertiary amine catalyst mixtures useful in cellular polyurethane formation. 4,379,757, Cl. 252-426.000.

Basterfield, Ernest P.; and Basterfield, Llewellyn P., to Chern Developments (Proprietary) Limited. Pressure vessel fastening means. 4,379,513, Cl. 220-325.000.

Basterfield, Llewellyn P.: *See—*
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Bauer, Barney J.: *See—*
Kaltz, Milton C.; Chojnowski, Edward M.; Garascia, David C.; Bauer, Barney J.; and George, Richard D., 4,379,586, Cl. 296-222.000.

Bauer, Siegfried; and Boebel, Manfred, to Richard Wolf GmbH. Trocar sleeves having a ball valve. 4,379,458, Cl. 604-264.000.

Bauman, Ronald M., to United States of America, Navy. Feed-forward amplifier. 4,379,994, Cl. 330-149.000.

Baur, Robert P. Animal feeder. 4,379,439, Cl. 119-52.00B.

Bausch & Lomb Incorporated: *See—*
Dounce, George H.; and Moore, John A., 4,379,965, Cl. 219-521.000.

Baxter, Donald J.; and Childress, Hugh L., Jr., to Marquette Metal Products Co. Stall sensing circuit for shaded pole motors. 4,379,986, Cl. 318-434.000.

Baxter Travenol Laboratories, Inc.: *See—*
Cunningham, Joel, 4,379,472, Cl. 138-89.000.
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Bayer Aktiengesellschaft: *See—*
Haas, Peter; and Freitag, Hans-Albrecht, 4,379,861, Cl. 521-115.000.
Samaritter, Reinhard; Schoberth, Winfried; and Volland, Robert, 4,379,856, Cl. 521-51.000.
Stemmler, Ingo; Muller, Hanns P.; and Wagner, Kuno, 4,379,905, Cl. 528-73.000.
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Bayerische Motoren Werke A.G.: *See—*
Hauslein, Siegfried; Steinberger, Hans; Heigl, Willibald; Scheichl, Georg; and Kauderer, Erwin, 4,379,352, Cl. 5-471.000.

Bayly Engineering Limited: *See—*
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Beach, Robert G.: *See—*
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Beardsley, Brent C.; and Brailey, Allen C., to International Business Machines Corporation. Error control in a hierarchical system. 4,380,067, Cl. 371-11.000.

Beck, Manfred: *See—*
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Beckman Instruments, Inc.: *See—*
Harman, John N., III, 4,379,402, Cl. 73-23.000.

Beer, Gary L.; and Chemtob, Elie, to Occidental Research Corporation. Process for reducing aluminum and fluorine in phosphoric acids. 4,379,776, Cl. 423-321.00R.

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Bell, Ronald L.: *See—*
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Bell Telephone Laboratories, Incorporated: *See—*
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Kohl, Paul A., 4,379,738, Cl. 204-55.00R.

Bellows, Richard J.: *See—*
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Bendix Corporation, The: *See—*
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Beneke, Wolfgang; and Jager, Walter, to Trutzschlar GmbH & Co. KG. Method and apparatus for separating waste from a fiber-and-waste mixture. 4,379,357, Cl. 19-105.000.

Bennewitz, Matt C.: *See—*
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Bennewitz, Paul F.; and Bennewitz, Matt C. Relative humidity detector systems and method of increasing the calibration period of relative humidity detector systems. 4,379,406, Cl. 73-336.500.

Berge, Charles T.: *See—*
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Berry, Larry R., to Sun Studs, Inc. Veneer lathe log charger system having enhanced accuracy and rate of production. 4,379,476, Cl. 144-357.000.

Bethune, Donald S., to International Business Machines Corporation. Apparatus for four side transverse irradiation of a region. 4,380,076, Cl. 372-54.000.

Bevan, David; Yee, James S.; and Pruyn, Richard R., to Boeing Company, The. Radome for aircraft. 4,380,012, Cl. 343-705.000.

BFG Glassgroup: *See—*
Posset, Robert, 4,380,040, Cl. 361-280.000.

Bianchi, Valerio; Abidin, Anwar; and Thonnessen, Dieter, to Bosch & Pierburg System ohG. Carburettors for internal combustion engines. 4,379,770, Cl. 261-142.000.

Bickel, Wolf; Kaule, Walter; and Primbsch, Erik, to Krautkramer-Branson, Inc. Apparatus for maintaining adjustment of coincidence and relative phase relationship of light beams in an interferometer. 4,379,633, Cl. 356-359.000.

Bickel, Wolf: *See—*
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Blaine, Edward H., to Merck & Co., Inc. Anti-inflammatory composition. 4,379,792, Cl. 424-270.000.

Blake, Charles E.: *See—*
Otis, Harold R.; and Blake, Charles E., 4,379,807, Cl. 428-383.000.

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Blank, Werner J.: *See—*
Parekh, Girish G.; Blank, Werner J.; and Schirmann, Peter J., 4,379,911, Cl. 528-245.000.

Blatter, Johann; and Schaad, Walter, to Sprecher & Schuh AG. Gas-blast switch. 4,379,958, Cl. 200-148.00A.
Block, Siegmar, to Thyssen Industrie AG. Control device for an advancing support in underground mining. 4,379,662, Cl. 405-302.000.
Bloom, Arnold L.: *See—*
  Fischer, Dennis G.; and Bloom, Arnold L., 4,379,622, Cl. 350-394.000.
Bloomfield Manufacturing Co., Inc.: *See—*
  McIntosh, Thomas K., 4,379,546, Cl. 254-111.000.
Blough, LeVone A.; and Gregory, David L. Sliding closure security system. 4,379,576, Cl. 292-205.000.
Bode, Elwood J., to BTI Computer Systems. Data recording format and method and apparatus for producing same. 4,380,029, Cl. 360-48.000.
Boden, Richard M., to International Flavors & Fragrances Inc. Aliphatic branched olefin dioxolanes, dithiolanes, and oxathiolanes and uses thereof in augmenting or enhancing the aroma and/or taste of consumable materials. 4,379,754, Cl. 252-174.110.
Boebel, Manfred: *See—*
  Bauer, Siegfried; and Boebel, Manfred, 4,379,458, Cl. 604-264.000.
Boeing Company, The: *See—*
  Bevan, David; Yee, James S.; and Pruyn, Richard R., 4,380,012, Cl. 343-705.000.
  King, Charles H., 4,380,039, Cl. 361-218.000.
Bohle, Lorenz. High efficiency sorting apparatus. 4,379,509, Cl. 209-598.000.
Bohman, Nils-Erik, to Forsheda Gummifabrik AB. Pipe sealing device. 4,379,559, Cl. 277-207.00A.
Boie, Immo: *See—*
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Boleda Vila, Antonio: *See—*
  Calzada Badia, Jose-Maria; Boleda Vila, Antonio; Sabater Sanmartin, Jose; and Villazon Meneses, Maria J., 4,379,793, Cl. 424-274.000.
Bolich, Raymond E., Jr., to Procter & Gamble Company, The. Hair care compositions. 4,379,753, Cl. 252-106.000.
Borden, Peter G.; Bell, Ronald L.; and Hyder, Syed B., to Varian Associates, Inc. Grooved solar cell for deployment at set angle. 4,379,944, Cl. 136-259.000.
Borisov, Vladimir S.; and Korovin, Vyacheslav V. Linear interpolator. 4,380,006, Cl. 340-347.0CC.
Borkan, William N.; Savino, Frank M.; and Waltz, Joseph M., to Neuromed, Inc. Multi-electrode catheter assembly for spinal cord stimulation. 4,379,462, Cl. 128-786.000.
Boruschweitz, Manfred: *See—*
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Bosch & Pierburg System ohG: *See—*
  Bianchi, Valerio; Abidin, Anwar; and Thonnessen, Dieter, 4,379,770, Cl. 261-142.000.
Boshoven, Billy, to Estel Hoogovens BV. Exhaust system especially for use in the cast house of a blast furnace. 4,379,548, Cl. 266-158.000.
Bottum, Edward W. Ice-making evaporator. 4,379,390, Cl. 62-354.000.
Boulos, Maher I., to Universite de Sherbrooke. Purification of metallurgical grade silicon. 4,379,777, Cl. 423-348.000.
Bowden, Wade R., Jr., to Slater Electric Inc. Shuttered receptacle. 4,379,607, Cl. 339-40.000.
Bowers, Donald P.: *See—*
  Brammer, Michael A.; and Bowers, Donald P., 4,379,413, Cl. 74-710.500.
Boyd, George M. Astrology chart apparatus. 4,379,698, Cl. 434-106.000.
BP Chemicals Limited: *See—*
  Marsh, Christopher R., 4,379,899, Cl. 526-144.000.
Brailey, Allen C.: *See—*
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Brain Dust Patents Establishment: *See—*
  Kuchler, Fritz, 4,379,416, Cl. 83-23.000.
Brammer, Michael A.; and Bowers, Donald P., to Dana Corporation. Angle drive unit. 4,379,413, Cl. 74-710.500.
Brandstetr, Jiri; Huleja, Josef; and Kupec, Josef, to Vysoke udeni technicke. Apparatus for thermochemical quantitative analysis. 4,379,775, Cl. 422-51.000.
Brandt, Lothar; and Holst, Arno, to Hoechst Aktiengesellschaft. Process for preparing water-soluble phosphonomethyl ethers of cellulose. 4,379,918, Cl. 536-62.000.
BRD Company Limited: *See—*
  Fisher, Leslie G., 4,379,707, Cl. 464-162.000.
Brebels, Jaek J.: *See—*
  Andersen, Heinz-Erhardt; Brebels, Jaek J.; Matschke, Klaus; and Scheier, Franz, 4,379,774, Cl. 264-284.000.
Breckenridge, Roger A.: *See—*
  Fripp, Archibald L.; Robertson, James B.; and Breckenridge, Roger A., 4,379,970, Cl. 250-338.000.
Bridgeman, David R.: *See—*
  Grasselli, Robert K.; Suresh, Dev D.; and Bridgeman, David R., 4,379,925, Cl. 544-102.000.
British Petroleum Company Limited, The: *See—*
  Wilson, Douglas, 4,379,873, Cl. 524-7.000.
Britz, Arne J. Fire hydrant cap with recessed valve. 4,379,469, Cl. 137-296.000.
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Brost, Robert L.; and Gagle, Duane W., to Phillips Petroleum Company. Process and apparatus for laying a subterranean film. 4,379,655, Cl. 405-176.000.
Brown, David; Giles, Anthony F.; Cramer, Howard W.; Noble, H. Mary; Nisbet, Louis J.; Bushell, Michael E.; Weare, Glenis; and Caldwell, Ian Y., to Glaxo Group Limited. Cephalosporins. 4,379,920, Cl. 542-427.000.
Brown, Robert L., to White Consolidated Industries, Inc. Asphalt paver with telescoping screed. 4,379,653, Cl. 404-118.000.
Brownscombe, Thomas F., to Shell Oil Company. Rapid curing epoxy-unsaturated monomer compositions. 4,379,908, Cl. 528-91.000.
Brunner, Josef: *See—*
  Rock, Erich; and Brunner, Josef, 4,379,604, Cl. 312-330.00R.
Bruynes, Cornelis A.; and Jurriens, Theodorus K., to Gist-Brocades N.V. Preparation of 7-acylamino-3-(thio-substituted)-methyl 3-cephem-4-carboxylic acid-1-oxide derivatives. 4,379,923, Cl. 544-26.000.
Brydolf, Robert: *See—*
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Bubnick, Gerald F., to Union Carbide Corporation. Cell having mixed solid cathode materials for controlling cell expansion on discharge. 4,379,815, Cl. 429-66.000.
Buchmann, Heinz; Mayer, Bruno; and Szybowicz, Wolfgang, to Thyssen Industrie AG. Closed one-piece roller frame for vibrator rollers. 4,379,652, Cl. 404-117.000.
Burke Company, The: *See—*
  Frankenfield, David J., 4,379,650, Cl. 403-316.000.
Burlington Industries, Inc.: *See—*
  Harris, William D., 4,380,037, Cl. 361-214.000.
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  Ely, Richard I.; and Nelson, Edward I., 4,379,968, Cl. 250-229.000.
  Schmulian, David E., 4,379,428, Cl. 101-93.090.
  Shima, George T., 4,380,052, Cl. 364-900.000.
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C. R. Bard, Inc.: *See—*
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Caldwell, Edward W.; and Smethers, Rollo G., Jr., to Lockheed Corporation. Transport airplane. 4,379,533, Cl. 244-118.100.
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Calvino, Ben J., to Westinghouse Electric Corp. Modular "Y"-type enclosure elements for gas insulated substations. 4,379,957, Cl. 200-145.000.
Calzada Badia, Jose-Maria; Boleda Vila, Antonio; Sabater Sanmartin, Jose; and Villazon Meneses, Maria J., to Calzada y Cia, S.R.C. Process for synthesis of esters of N-(4′-hydroxyphenyl)acetamide with derivatives of 5-benzoil-1-methyl pyrrole-2-acetic acids. 4,379,793, Cl. 424-274.000.
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Campbell, Patricia S.; and Chandrasekaran, Santosh K., to ALZA Corporation. Dosage for coadministering drug and percutaneous absorption enhancer. 4,379,454, Cl. 604-897.000.
Canavello, Benjamin J.; and Hatzakis, Michael, to International Business Machines Corporation. Self-aligned photoresist process. 4,379,833, Cl. 430-325.000.
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  Matsuoka, Kazuhiko; and Minoura, Kazuo, 4,379,612, Cl. 350-6.800.
  Mitushashi, Yasuo, 4,379,825, Cl. 430-111.000.
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Canyon Corporation: *See—*
  Tada, Tetsuya; and Morishita, Yutaka, 4,379,685, Cl. 425-183.000.
Capetola, Robert J.; and McGuire, John L., to Ortho Pharmaceutical Corporation. Analgesic composition. 4,379,789, Cl. 424-260.000.
Capolupo, David F.; and Donnelly, James J., to Timex Corporation. Timepiece case/dial plate assembly. 4,379,644, Cl. 368-314.000.

Carl Still GmbH & Co. KG, Firma: *See—*
Weber, Heinrich; Lorenz, Kurt; and Dungs, Horst, 4,379,692, Cl. 432-18.000.
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Salicini, Sandro, 4,379,504, Cl. 198-455.000.
Carlock, Gaylord W.; Garner, Jimmy G.; Gatlin, Charles M.; Guinn, Kenneth F.; and Reyes, Peter A., to Textron, Inc. Individual blade control. 4,379,678, Cl. 416-98.000.
Carmel, Yuval; and Eylon, Shmuel, to State of Israel, Rafael Armament Development Authority, Ministry of Defense. Space-discharge electronic device particularly useful as a flash X-ray tube. 4,379,977, Cl. 378-136.000.
Carney, James E., Jr.: *See—*
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Muntjanoff, John R.; and Day, Dennis M., 4,379,675, Cl. 414-734.000.
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Centis, Sergio, to Arioli & C.S.r.l. Apparatus for steaming printed fabrics. 4,379,392, Cl. 68-5.00C.
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Juracka, Frantisek; and Hudecek, Slavko, 4,379,868, Cl. 523-201.000.
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Chambers, Robert W.; McNeely, Michael L.; and Torrington, Leslie A., to RCA Corporation. Apparatus for molding a recorded disc. 4,379,686, Cl. 425-290.000.
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Chandrasekaran, Santosh K.: *See—*
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Chaparral Communications, Inc.: *See—*
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Chemtob, Elie: *See—*
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Chen, Yeunung; and McLaughlin, Michael J., to Motorola, Inc. Method of and means for variable-rate coding of LPC parameters. 4,379,949, Cl. 179-15.55R.
Chem Developments (Proprietary) Limited: *See—*
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Chevron Research Company: *See—*
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Chiyoda, Hironobu; Yamazaki, Hisayuki; and Takabe, Reiichiro, to Hitachi Powdered Metals Company, Ltd. Method of producing picture tube coating compositions. 4,379,762, Cl. 252-507.000.
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Ciba-Geigy Corporation: *See—*
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Clark, Richard P.; Frantz, Robert H.; Hawk, Gary W.; and Root, John A., to AMP Incorporated. Cartridge holder and connector system. 4,379,606, Cl. 339-17.0CF.
Clarke, Robert L. G., to Sterling Drug Inc. Nortropane derivatives. 4,379,936, Cl. 546-91.000.
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Cleaveland, Charles M.; and Kowalik, Peter M., 4,379,956, Cl. 200-48.00A.
Clemens, Lawrence M.; and Gasper, Alton J., to Minnesota Mining and Manufacturing Company. Waste water treatment by chelation-gelation. 4,379,763, Cl. 252-628.000.
Clement, Joseph J., to Mead Corporation, The. Shelving assembly. 4,379,431, Cl. 108-111.000.
Clikeman, Richard R.; Jones, Donald H.; Shortridge, Thomas J.; and Troy, Edward J., to Rohm and Haas Company. Methyl methacrylate-butadiene-styrene impact modifier polymers, polyvinyl chloride, compositions and methods. 4,379,876, Cl. 524-109.000.
Coal Industry (Patents) Limited: *See—*
Robinson, Joseph G.; Barnes, David I.; and Carswell, Angela M., 4,379,896, Cl. 525-472.000.
Coats, Montgomery R.; and Janssen, Gwen V. Emergency sound detector device. 4,380,004, Cl. 340-34.000.
Cobb, Harold W.; and Fotland, Richard A., to Dennison Manufacturing Company. Corona charging apparatus. 4,379,969, Cl. 250-324.000.
Coburn, John F., to Exxon Research and Engineering Co. Solar energy collector. 4,379,613, Cl. 350-96.100.
Cochran, Donald D., to National Can Corporation. Synchronized bottle unloading system. 4,379,671, Cl. 414-331.000.
Cocks, Michael H.; and Evans, Gary A., to Hobart Corporation. Weighing scale with low susceptibility to vibration. 4,379,495, Cl. 177-1.000.
Coherent, Inc.: *See—*
Fischer, Dennis G.; and Bloom, Arnold L., 4,379,622, Cl. 350-394.000.
Cohn, David E.; and Conley, Eugene E. Gas laser preionization device. 4,380,079, Cl. 372-87.000.
Colavito, Kathleen M.: *See—*
Corso, Anthony J.; Colavito, Kathleen M.; and Phillips, Thomas S., 4,379,937, Cl. 546-155.000.
Cole, Bernard M. Automatically expanding pop-up decoration. 4,379,797, Cl. 428-9.000.
Cole, John N.; and Hettel, David A., to Mead Corporation, The. Sheet type forming board and formed board products. 4,379,808, Cl. 428-438.000.
Coleman, Charles: *See—*
Smith, Peter R.; and Coleman, Charles, 4,379,971, Cl. 250-342.000.
Coleman Company, Inc., The: *See—*
Farley, Scott R., 4,379,483, Cl. 165-2.000.
Collins, Stanley B., to Minnesota Mining and Manufacturing Company. Developer compositions having layer of a pigment on the surface thereof. 4,379,824, Cl. 430-106.600.
Color Communications, Inc.: *See—*
Lerner, Stanley, 4,379,696, Cl. 434-98.000.
Columbia University in the City of New York, The Trustees of: *See—*
Spiegelman, Sol, 4,379,839, Cl. 435-5.000.
Comerford, John, to Oak Industries, Inc. Sealed rotary switch. 4,379,955, Cl. 200-11.0DA.
Commissariat a l'Energie Atomique: *See—*
Aubert, Gilles, 4,380,084, Cl. 376-204.000.
Compagnie Generale d'Automatisme CGA Alcatel: *See—*
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Cohn, David E.; and Conley, Eugene E., 4,380,079, Cl. 372-87.000.
Conoco Inc.: *See—*
Mack, Mark P.; and Berge, Charles T., 4,379,766, Cl. 260-413.000.
Widiner, Karl J.; and Goldsmith, Riley G., 4,379,657, Cl. 405-195.000.
Conrad, Robert A.; and White, William A., to Eli Lilly and Company. 4(1H)-Oxocinnoline-3-carboxylic acid derivatives. 4,379,929, Cl. 544-234.000.
Conradty GmbH Co. Metallelektroden KG: *See—*
Rathjen, Hans-Carl; and Koziol, Konrad, 4,379,742, Cl. 204-286.000.
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Lindley, Donald C., 4,379,374, Cl. 43-61.000.
Cook Paint and Varnish Company: *See—*
Hansen, Douglas E.; Johnson, Steven D.; and Motko, Richard L., 4,379,857, Cl. 521-54.000.

Cooper, Billy H., to Abbott Laboratories. Assimilation test for identifying yeasts. 4,379,841, Cl. 435-34.000.
Coppola, Vincent G., to Pitney Bowes Inc. Bipolar driver with illegal code detector. 4,379,985, Cl. 318-293.000.
Coq, Francois. Process for producing a filtering structure in particular for cigarette filters. 4,379,465, Cl. 131-332.000.
Corbacho, Carlos J., to Joyal Products, Inc. Indexing apparatus. 4,379,562, Cl. 279-5.000.
Cordier, Walter: *See*—
  Pieper, Paul; and Cordier, Walter, 4,379,417, Cl. 83-27.000.
Coren, Gerald. Clip-on protector. 4,380,036, Cl. 361-119.000.
Cornell, William D.; and Evans, Carnot, to Sherwood Medical Company. Lancet injector. 4,379,456, Cl. 128-314.000.
Corning Glass Works: *See*—
  Danielson, Paul S.; Mattison, Ronald P.; and Werner, Albert J., 4,379,851, Cl. 501-66.000.
  Lock, William E.; and Snyder, Edward A., 4,379,818, Cl. 430-5.000.
Corso, Anthony J.; Colavito, Kathleen M.; and Phillips, Thomas S., to American Hoechst Corporation. Selective acylation of hydroxyamino-arylsulfonic acids. 4,379,937, Cl. 546-155.000.
Corvus Systems, Inc.: *See*—
  Eisenhard, Bruce T.; and Hahn, Mark C., 4,380,047, Cl. 364-200.000.
Cosden Technology, Inc.: *See*—
  Kendall, Debra L.; Watson, James M.; and Wright, Danny P., 4,379,736, Cl. 203-9.000.
Cragoe, Edward J., Jr.; Rooney, Clarence S.; and Williams, Haydn W. R., to Merck & Co., Inc. 4-(Substituted thiazolyl)-3-hydroxy-3-pyrroline-2,5-dione inhibitors of glycolic acid oxidase. 4,379,791, Cl. 424-270.000.
Cramer, Howard W.: *See*—
  Brown, David; Giles, Anthony F.; Cramer, Howard W.; Noble, H. Mary; Nisbet, Louis J.; Bushell, Michael E.; Weare, Glenis; and Caldwell, Ian Y., 4,379,920, Cl. 542-427.000.
Creative Motion Industries, Inc.: *See*—
  Titcomb, Steven E., 4,379,566, Cl. 280-251.000.
Cross, Sydney H., to Tarmac Industrial Holdings Limited. Method and apparatus for the production of composite sheet material and a sheet material produced thereby. 4,379,729, Cl. 156-73.600.
Crounse, Nathan N., to Sterling Drug Inc. Novel compositions and processes. 4,379,710, Cl. 8-527.000.
Cselt - Centro Studi e Laboratori Telecomunicazioni S.p.A.: *See*—
  Di Tria, Paolo, 4,380,081, Cl. 375-82.000.
Cunningham, Joel, to Baxter Travenol Laboratories, Inc. Maintaining the dimensional integrity of thermoplastic tubing ends for receiving a luer. 4,379,472, Cl. 138-89.000.
Czajkowski, Albert J.: *See*—
  Schafer, David E.; and Czajkowski, Albert J., 4,379,716, Cl. 71-87.000.
Dahlberg, Arthur J.: *See*—
  Rosenthal, Joel W.; and Dahlberg, Arthur J., 4,379,744, Cl. 208-10.000.
Daicel Chemical Industries, Ltd.: *See*—
  Nishikawa, Kazuyuki; and Hirao, Katsumi, 4,379,865, Cl. 523-139.000.
  Watanabe, Shoji; Miho, Takuya; and Fujii, Tatsumi, 4,379,915, Cl. 528-357.000.
Daikin Kogyo Co., Ltd.: *See*—
  Amimoto, Yoshio; and Tatemoto, Masayoshi, 4,379,901, Cl. 526-247.000.
Daitoku, Koichi, to Nippon Kogaku K.K. Apparatus for controlling film advancement in a camera. 4,379,629, Cl. 354-173.000.
Dalal, Hormazdyar M.; and Lowney, John J., to International Business Machines Corporation. Method for making low barrier Schottky devices of the electron beam evaporation of reactive metals. 4,379,832, Cl. 430-315.000.
d'Alayer de Costemore d'Arc, Stephane M. A., to Staar S.A. Control for bidirectional drive responsive to gaps in recorded sound. 4,380,031, Cl. 360-74.100.
Dalton, Augustine I., Jr.; and Skinner, Ronald W., to Air Products and Chemicals, Inc. Hydrogen peroxide synthesis. 4,379,778, Cl. 423-584.000.
Dana Corporation: *See*—
  Brammer, Michael A.; and Bowers, Donald P., 4,379,413, Cl. 74-710.500.
Danfoss A/S: *See*—
  Nicolaisen, Holger, 4,380,000, Cl. 336-192.000.
  Schmidt, Jorn M., 4,379,961, Cl. 219-78.010.
Danielson, Paul S.; Mattison, Ronald P.; and Werner, Albert J., to Corning Glass Works. Tinted borosilicate glasses. 4,379,851, Cl. 501-66.000.
Dannatt, Hugh St. L., to Pitney Bowes Inc. High ratio speed reducer. 4,379,414, Cl. 74-805.000.
Danzik, Mitchell; and Carpenter, J. Ronald, to Chevron Research Company. Process for wet spinning nylon 4. 4,379,773, Cl. 264-184.000.
Darling, Phillip H. Buoyancy control valve for scuba diving vests. 4,379,656, Cl. 405-186.000.
Datakey, Inc.: *See*—
  Flies, William P., 4,379,966, Cl. 235-443.000.
David, Constant V. Buoyant apparatus propelled by a human operator. 4,379,701, Cl. 440-21.000.
Davidson, Alan C. Catheter assembly. 4,379,506, Cl. 206-364.000.
Davy-Loewy Limited: *See*—
  Hope, Thomas; and Hewitt, Ewan C., 4,379,396, Cl. 72-13.000.
Day, Dennis M.: *See*—
  Muntjanoff, John R.; and Day, Dennis M., 4,379,675, Cl. 414-734.000.
Dayton-Walther Corporation: *See*—
  Walther, William D., 4,379,597, Cl. 301-12.00R.
Dean, Carl J. Puzzle-game. 4,379,555, Cl. 273-236.000.
Deane, David W., to Ball Corporation. Auxiliary blanking and auxiliary simulated video line generator unit for a video inspection system. 4,380,025, Cl. 358-106.000.
Deaton, David W. Medical receptacle with disposable liner assembly. 4,379,455, Cl. 604-320.000.
Deaton, Thomas: *See*—
  Miller, Daniel R.; Deaton, Thomas; and Royer, Robert, 4,379,508, Cl. 206-507.000.
Debord, Pierre; and Marijon, Jean-Louis, to International Business Machines Corp. Dynamic zero offset compensating circuit for A/D converter. 4,380,005, Cl. 340-347.0AD.
De Carlo, Alfred F.: *See*—
  Gravener, Roy D.; De Carlo, Alfred F.; and Noiles, Douglas G., 4,379,457, Cl. 128-334.00R.
de Couasnon, Tristan, to Thomson-CSF. Test unit for a high-rate multitrack digital recorder. 4,380,068, Cl. 371-24.000.
Dedden, Hubert; and Pfingst, Jurgen, to Agfa-Gevaert Aktiengesellschaft. Method and apparatus for previewing exposed photographic films or the like. 4,379,632, Cl. 355-68.000.
Deere & Company: *See*—
  Elliott, Marion D.; and Reece, Wendell D., 4,379,522, Cl. 239-167.000.
  Hirst, Richard W., 4,379,962, Cl. 219-121.00P.
  Riewerts, Paul R.; and Hillman, Stephen M., 4,379,491, Cl. 172-328.000.
del Fabro, Mario F., to Fiora del Fabro Y Cia. Ltda. Device for drawing liquids from containers. 4,379,511, Cl. 215-1.00A.
Dennison Manufacturing Company: *See*—
  Cobb, Harold W.; and Fotland, Richard A., 4,379,969, Cl. 250-324.000.
Deutsch, Albert S.; Lyons, Christopher F.; and Piller, Robert, to Polychrome Corporation. Developer for positive photolithographic articles. 4,379,830, Cl. 430-309.000.
Deutsch, Ralph, to Kawai Musical Instrument Mfg. Co., Ltd. Adaptive strum keying for a keyboard electronic musical instrument. 4,379,420, Cl. 84-1.030.
Deutsche Gold- und Silber-Scheideanstalt Vormals Roessler: *See*—
  Werle, Peter; Graf, Hans; and Walter, Erwin, 4,379,871, Cl. 523-331.000.
DeVries, James H., to Baxter Travenol Laboratories, Inc. Prepackaged, self-contained fluid circuit module. 4,379,452, Cl. 604-6.000.
Diamond Shamrock Corporation: *See*—
  O'Malley, Mary A.; and Drake, Nancy J., 4,379,893, Cl. 525-386.000.
  Solomon, Frank; and Grun, Charles, 4,379,772, Cl. 264-49.000.
  Waitkus, Calvin J., 4,379,913, Cl. 528-300.000.
Dickerson, Richard C., to Ecolochem, Inc. Vinyl acetate purification process. 4,379,940, Cl. 560-248.000.
Diesel Kiki Co., Ltd.: *See*—
  Ishizuka, Yutaka, 4,379,425, Cl. 92-71.000.
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  Ricci, Antonio, 4,379,850, Cl. 436-517.000.
Digital Equipment Corporation: *See*—
  Lipcon, Jesse B., 4,380,088, Cl. 455-67.000.
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  Klein, Merv V.; Kelm, Dan W.; and Din, Salah U., 4,379,664, Cl. 406-68.000.
Director-General of the Agency of Industrial Science and Technology: *See*—
  Watanabe, Tadahiko; and Kono, Shinichi, 4,379,852, Cl. 501-87.000.
Dirscherl, Teresa A.: *See*—
  Tessler, Martin M.; Wurzburg, Otto B.; and Dirscherl, Teresa A., 4,379,919, Cl. 536-108.000.
Di Tria, Paolo, to Cselt - Centro Studi e Laboratori Telecomunicazioni S.p.A. Digital receiver for four-phase-modulated carrier. 4,380,081, Cl. 375-82.000.
Dmitrowsky, Igor. Aircraft attachable to the body of a pilot. 4,379,532, Cl. 244-4.00A.
Dochev, Raycho V.: *See*—
  Stoev, Stoycho M.; Dshendova, Shtelyana D.; Stoyanov, Kiril N.; Dochev, Raycho V.; and Krestev, Tzvetan P., 4,379,714, Cl. 65-19.000.
Dr. Karl Thomae Gesellschaft mit beschrankter Haftung: *See*—
  Heider, Joachim; Austel, Volkhard; Eberlein, Wolfgang; Kadatz, Rudolf; and Lillie, Christian, 4,379,788, Cl. 424-251.000.
  Maier, Roland; Wetzel, Bernd; Woitun, Eberhard; Reuter, Wolfgang; Lechner, Uwe; and Goeth, Hanns, 4,379,784, Cl. 424-229.000.
Dodds, William E. Ore mill and metal separating device. 4,379,526, Cl. 241-79.100.
Doninger, Joseph E.; and Hanson, George D., to International Minerals & Chemical Corp. Olivine bedding material for soaking pits. 4,379,691, Cl. 432-3.000.
Donnelly, James J.: *See*—
  Capolupo, David F.; and Donnelly, James J., 4,379,644, Cl. 368-314.000.
Douke, Harumi: *See*—
  Iwata, Masayosi; Douke, Harumi; Hayashi, Yoshikazu; Yokoyama, Tadashi; and Mizuta, Yukio, 4,379,954, Cl. 200-4.000.

Dounce, George H.; and Moore, John A., to Bausch & Lomb Incorporated. Contact lens disinfecting apparatus. 4,379,965, Cl. 219-521.000.
Dow Chemical Company, The: *See—*
Pews, Richard G., 4,379,930, Cl. 544-298.000.
Shipley, Randall S.; Lowery, Kirby, Jr.; and Gibbs, Ronald L., 4,379,760, Cl. 252-429.00B.
Dow Corning Corporation: *See—*
Plueddemann, Edwin P., 4,379,931, Cl. 546-14.000.
Down, Peter E.; and Tomlinson, Walter J., Jr., to Ecodyne Corporation. Method of ion exchange regeneration. 4,379,855, Cl. 521-26.000.
Downing, Gerald T.; and Savagian, Michael D., to W. H. Brady Co. Graphics-bearing element and fluid line marking tape. 4,379,805, Cl. 428-346.000.
Drake, Nancy J.: *See—*
O'Malley, Mary A.; and Drake, Nancy J., 4,379,893, Cl. 525-386.000.
Dresser Industries, Inc.: *See—*
Kerkman, Thomas W., 4,379,568, Cl. 280-400.000.
Dshendova, Shtelyana D.: *See—*
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Duncan, Leo D. Seat structure. 4,379,587, Cl. 297-192.000.
Dungs, Horst: *See—*
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Du Pont de Nemours, E. I., and Company: *See—*
Levitt, George; and Weigel, Russell C., Jr., 4,379,717, Cl. 71-92.000.
Levitt, George, 4,379,769, Cl. 260-545.00R.
McLaughlin, Joseph E.; and Strickland, George A., 4,379,886, Cl. 525-162.000.
Duvall, William S.: *See—*
Long, Ernest L.; Duvall, William S.; and Allen, Donald P., 4,380,009, Cl. 340-825.550.
Dyer, Keith: *See—*
Rose, John A.; and Dyer, Keith, 4,379,666, Cl. 409-110.000.
Eastman Kodak Company: *See—*
Lu, Chen-i, 4,379,912, Cl. 528-274.000.
Mir, Jose M.; Varner, Jerry R.; and Kurtz, Clark N., 4,380,023, Cl. 358-75.000.
Weaver, James C.; and Seymour, Robert W., 4,379,801, Cl. 428-220.000.
Weaver, James C.; and Seymour, Robert W., 4,379,802, Cl. 428-220.000.
Yeaw, David C., 4,379,848, Cl. 436-84.000.
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Eberlein, Wolfgang: *See—*
Heider, Joachim; Austel, Volkhard; Eberlein, Wolfgang; Kadatz, Rudolf; and Lillie, Christian, 4,379,788, Cl. 424-251.000.
Ecodyne Corporation: *See—*
Down, Peter E.; and Tomlinson, Walter J., Jr., 4,379,855, Cl. 521-26.000.
Ecolochem, Inc.: *See—*
Dickerson, Richard C., 4,379,940, Cl. 560-248.000.
Economy, James; Gritter, Roy J.; and Hiraoka, Hiroyuki, to International Business Machines Corporation. Positive electron beam resists of ortho chloro substituted phenol or cresol condensed with formaldehyde. 4,379,826, Cl. 430-141.000.
Eder, Ulrich: *See—*
Horowski, Reinhard; Kehr, Wolfgang; Sauer, Gerhard; Eder, Ulrich; and Lorenz, Hans P., 4,379,790, Cl. 424-261.000.
Eggenstein, Friedrich: *See—*
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Ehrlich, Benjamin S.; and Oertel, Richard W., III, to Upjohn Company, The. Novel polyurethane product. 4,379,904, Cl. 528-65.000.
Eisele, John F.; and Mercer, Elizabeth A., to Minnesota Mining and Manufacturing Company. Liquid sorbent materials. 4,379,804, Cl. 428-332.000.
Eisenberg, Arnold J., to Owens-Corning Fiberglas Corporation. Method and apparatus for forming glass fibers. 4,379,713, Cl. 65-1.000.
Eisenberg, Steven K.; and Hancock, Mark W., to Whittaker Corporation. Hydroponic growing system and method. 4,379,375, Cl. 47-65.000.
Eisenhard, Bruce T.; and Hahn, Mark C., to Corvus Systems, Inc. Interface apparatus employing a video tape drive to back-up a disc drive and including error detecting and correcting circuitry. 4,380,047, Cl. 364-200.000.
Elevator GmbH: *See—*
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Conrad, Robert A.; and White, William A., 4,379,929, Cl. 544-234.000.
Hall, David A., 4,379,739, Cl. 204-72.000.
Hull, Robert N.; and Gordee, Robert S., 4,379,781, Cl. 424-114.000.
Kirst, Herbert A., 4,379,917, Cl. 536-16.800.
Lunn, William H. W.; and Wheeler, William J., 4,379,787, Cl. 424-246.000.
Elliott, Marion D.; and Reece, Wendell D., to Deere & Company. Folding spray boom assembly. 4,379,522, Cl. 239-167.000.
Elliott Turbomachinery Company, Inc.: *See—*
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Elter, Claus: *See—*
Schoening, Josef; Schwiers, Hans-Georg; Elter, Claus; Stracke, Wilfried; and Mauersberger, Reinhard, 4,380,085, Cl. 376-381.000.
Ely, Richard I.; and Nelson, Edward I., to Burroughs Corp. Photo-optical keyboard having light attenuating means. 4,379,968, Cl. 250-229.000.
Ema, Hideaki: *See—*
Nakamura, Hitoshi; Nishizima, Hideyo; Ema, Hideaki; Harigaya, Makoto; and Otomura, Satoshi, 4,379,820, Cl. 430-58.000.
Endres, Lothar: *See—*
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Energy Conversion Devices, Inc.: *See—*
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Yang, Chi C.; Madan, Arun; Ovshinsky, Stanford R.; and Adler, David, 4,379,943, Cl. 136-249.000.
Engeler, Paul; Sonderegger, Hans C.; and Wolfer, Peter, to Kistler Instrumente AG. Force transducer, particularly for ballistic pressure measuring. 4,379,405, Cl. 73-167.000.
Erickson, Kent E., to Keuffel & Esser Company. Light modulator employing electrooptic crystals. 4,379,620, Cl. 350-387.000.
Erie Technological Products, Inc.: *See—*
Soong, Jakob C. K., 4,379,854, Cl. 501-138.000.
ESAB Aktiebolag: *See—*
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Esmil International B.V.: *See—*
Hoogendoorn, Arie, 4,379,748, Cl. 209-11.000.
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Boshoven, Billy, 4,379,548, Cl. 266-158.000.
Middel, Jan; and Gorter, Cornelis A., 4,379,427, Cl. 101-35.000.
Ethyl Development Corporation: *See—*
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Evans, Carnot: *See—*
Cornell, William D.; and Evans, Carnot, 4,379,456, Cl. 128-314.000.
Evans, Donald E.: *See—*
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Evans, Gary A.: *See—*
Cocks, Michael H.; and Evans, Gary A., 4,379,495, Cl. 177-1.000.
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Exxon Research and Engineering Co.: *See—*
Coburn, John F., 4,379,613, Cl. 350-96.100.
Lundberg, Robert D., 4,379,914, Cl. 528-354.000.
Polizzotti, Richard S.; and Krutenat, Richard C., 4,379,745, Cl. 208-132.000.
Tsien, Hsue C.; Newby, Kenneth R.; Grimes, Patrick G.; and Bellows, Richard J., 4,379,814, Cl. 429-42.000.
Eylon, Shmuel: *See—*
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FAG Kugelfischer Georg Schafer & Co.: *See—*
Muller, Armin, 4,379,600, Cl. 308-187.100.
Fah, Hansjakob; and Grieder, Alfred, to Ciba-Geigy Corporation. Process for producing 2,3,5-trichloropyridine. 4,379,938, Cl. 546-345.000.
Fairchild, Wayne K. Bonding applicator for producing flexible tubing. 4,379,732, Cl. 156-428.000.
Falkenburg, Hans R.; Krause, Siegfried; and McGuiness, Robert C., to Hermann Wiederhold GmbH Corp.; and Imperial Chemical Industries PLC. Coating compositions. 4,379,909, Cl. 528-94.000.
Farley, Scott R., to Coleman Company, Inc., The. Method of controlling heating and cooling sources. 4,379,483, Cl. 165-2.000.
Farr, Evelyn: *See—*
Meier, Robert H.; and Farr, Evelyn, 4,379,463, Cl. 128-80.00C.
Fern Engineering: *See—*
Bakken, Gordon J., 4,379,560, Cl. 277-236.000.
Fette, Bruce A., to Motorola, Inc. High speed digital divider having normalizing circuitry. 4,380,051, Cl. 364-766.000.
Fickel, Walter; and Ries, Gerhard, to Akzo NV. Porous, powdery polypropylene. 4,379,860, Cl. 521-61.000.
Field, George F.; Fryer, Rodney I.; Trybulski, Eugene J.; and Walser, Armin, to Hoffmann-La Roche Inc. Pyrazolobenzazepines. 4,379,765, Cl. 260-245.600.
Fiora del Fabro Y Cia. Ltda.: *See—*
del Fabro, Mario F., 4,379,511, Cl. 215-1.00A.
Fischer, Dennis G.; and Bloom, Arnold L., to Coherent, Inc. Broad band phase shift system. 4,379,622, Cl. 350-394.000.
Fischer, Rolf: *See—*
Weitz, Hans-Martin; and Fischer, Rolf, 4,379,756, Cl. 252-411.00R.
Fish, Ivan L. Artist's freehand sketching device. 4,379,364, Cl. 33-277.000.
Fisher, Leslie G., to BRD Company Limited. Splined joints. 4,379,707, Cl. 464-162.000.
Fisher, Warren H., Jr.; and Barnet, Barry M., to Foster Wheeler Energy Corporation. Wet/dry steam condenser. 4,379,485, Cl. 165-110.000.
Fleming, James W., Jr.; and Shiever, John W., to Bell Telephone Laboratories, Incorporated. Aluminum metaphosphate optical fibers. 4,379,616, Cl. 350-96.340.
Fletcher, Christopher L.: *See—*
Parrish, William J.; and Fletcher, Christopher L., 4,380,056, Cl. 365-183.000.

Flies, William P., to Datakey, Inc. Receptacle for electronic information key. 4,379,966, Cl. 235-443.000.
Flowers, Ralph G., to General Electric Company. Method for coprecipitating wire coating enamel composition. 4,379,916, Cl. 528-494.000.
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Tschentscher, Alfred, 4,379,528, Cl. 242-43.00R.
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Godat, Jean; and Paget, Jean, 4,379,496, Cl. 177-25.000.
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Chattha, Mohinder S., 4,379,906, Cl. 528-75.000.
Simko, Aladar O., 4,379,442, Cl. 123-458.000.
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Forsheda Gummifabrik AB: *See*—
Bohman, Nils-Erik, 4,379,559, Cl. 277-207.00A.
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Hannoosh, James G.; Harvey, Andrew C.; Harding, John C.; and Chandrasekhar, Ram, 4,379,670, Cl. 414-217.000.
Foster Wheeler Energy Corporation: *See*—
Fisher, Warren H., Jr.; and Barnet, Barry M., 4,379,485, Cl. 165-110.000.
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Vakhnin, Gennady I.; Verty, Vladimir G.; Voronin, Pavel G.; Gurov, Evgeny I.; Isaikin, Vladimir G.; Mishakov, Vladimir N.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Tabakov, Vladimir P.; Tjunkin, Boris A.; and Fotieva, Ljudmila I., 4,379,592, Cl. 299-2.000.
Fotland, Richard A.: *See*—
Cobb, Harold W.; and Fotland, Richard A., 4,379,969, Cl. 250-324.000.
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Frankenfield, David J., to Burke Company, The. Anchoring means for wall braces. 4,379,650, Cl. 403-316.000.
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Schott, Roger A.; and Schott, Lawrence A., 4,379,393, Cl. 70-234.000.
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Haas, Peter; and Freitag, Hans-Albrecht, 4,379,861, Cl. 521-115.000.
French, Gordon B.; Mills, Eugene A.; and Miall, David E., to Occidental Oil Shale, Inc. Ventilation air and process air distribution for in situ oil shale retorts. 4,379,590, Cl. 299-2.000.
French, John A. W., to WIPAC Group Sales Limited. Adjustable support devices for swivel chairs. 4,379,540, Cl. 248-406.000.
Frerking, Harlan W., Jr.; and Kelley, Mellis M., to Goodyear Tire & Rubber Company, The. Acid-capped polyester resins. 4,379,895, Cl. 525-437.000.
Frias, Robert, to Ingram Corporation. Pipe handling system. 4,379,676, Cl. 414-748.000.
Fripp, Archibald L.; Robertson, James B.; and Breckenridge, Roger A., to United States of America, National Aeronautics and Space Administration. Pyroelectric detector arrays. 4,379,970, Cl. 250-338.000.
Fritts, David H.; and Leonard, John F., to United States of America, Air Force. Battery electrode fatigue simulator. 4,379,410, Cl. 73-809.000.
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Fryberg, Mario: *See*—
Lenoir, John; Jan, Gerald; and Fryberg, Mario, 4,379,819, Cl. 430-17.000.
Fryer, Rodney I.: *See*—
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Kurihara, Tetsuo, 4,379,486, Cl. 165-153.000.
Fuji Koeki Corporation: *See*—
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Fuji Photo Film Co., Ltd.: *See*—
Matsufuji, Akihiro; Ishiguro, Tadashi; and Tsuji, Nobuo, 4,379,809, Cl. 428-470.000.
Fujii, Setsuro; Sugimito, Mamoru; and Yaegashi, Takashi, to Torii & Co. Ltd. Phenylalanylarginine derivatives, process for producing same and method for measuring activity of enzymes using same. 4,379,764, Cl. 260-112.50R.
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Fujioka, Yoshiki: *See*—
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Fujisawa Pharmaceutical Co., Ltd.: *See*—
Ueda, Ikuo; Takaya, Takao; Kobayashi, Masakazu; Masugi, Takashi; Takasugi, Hisashi; Kochi, Hiromu; and Kitaguchi, Tadashi, 4,379,922, Cl. 544-16.000.
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Fujitsu Limited: *See*—
Ishikawa, Hiroshi; Kojima, Takuhito; and Minamitani, Eiji, 4,380,064, Cl. 370-63.000.
Fujiwara, Akiko; Miyamoto, Chikara; and Okuda, Toru, to Hoffmann-La Roche Inc. Process for the manufacture of 1α-hydroxydehydroepiandrosterone. 4,379,842, Cl. 435-58.000.
Fukushima, Kiyoshi: *See*—
Andoh, Sadanari; Maeda, Junji; Fukushima, Kiyoshi; Yoneda, Hiroichi; and Jinushi, Naotomo, 4,380,018, Cl. 346-140.00R.
Funaki, Yuji; Tanaka, Shizuya; and Matsuo, Noritada, to Sumitomo Chemical Company, Limited. Production of triazolylvinyl ketones. 4,379,921, Cl. 542-458.000.
Funakoshi, Yasutomo; and Wakahata, Tamotsu, to Matsushita Electric Industrial Company, Limited. Rear projection screen for a color television projector. 4,379,617, Cl. 350-126.000.
Fung, Lai-Wo: *See*—
United States of America, National Aeronautics and Space Administration; and Fung, Lai-Wo, 4,380,046, Cl. 364-200.000.
Furuya, Katusuke, to Laurel Bank Machine Co., Ltd. Counting device for coin sorting and counting machine. 4,379,466, Cl. 133-3.00C.
Gabr, Saad Z. M. Electro-acoustic transducer means. 4,379,951, Cl. 179-101.000.
Gagle, Duane W.: *See*—
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Gallop, Paul M.; and Korb, Donald R., to Syntex (U.S.A.) Inc. Polymeric compositions and hydrogels formed therefrom. 4,379,864, Cl. 523-106.000.
Garascia, David C.: *See*—
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Kempel, John J.; and Otto, Ronald F., 4,379,480, Cl. 160-232.000.
Garner, Jimmy G.: *See*—
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Garza, Elio M., to Investigacion Fic Fideicomiso. Gob distributor for glass or other material. 4,379,715, Cl. 65-225.000.
Gasper, Alton J.: *See*—
Clemens, Lawrence M.; and Gasper, Alton J., 4,379,763, Cl. 252-628.000.
Gast, Theodor: *See*—
Hamisch, Hans J.; Boruschweitz, Manfred; and Gast, Theodor, 4,379,404, Cl. 73-35.000.
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Gauthier, Jean A.; and Jirkovsky, Ivo, to Ayerst, McKenna & Harrison Ltd. 1,4,5,6-Tetrahydropyrimidine derivatives. 4,379,926, Cl. 544-122.000.
Geisel, Donald J., to General Electric Company. Printed circuit board electronic tester. 4,379,992, Cl. 324-158.00F.
Geisen, Karl: *See*—
Weyer, Rudi; Hitzel, Volker; Geisen, Karl; and Regitz, Gunter, 4,379,785, Cl. 424-244.000.
Geissbuhler, Hans, to C. Hoegger & Cie, A.G. Method and apparatus for producing skinless sausages. 4,379,356, Cl. 17-45.000.
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Slysh, Paul, 4,380,013, Cl. 343-753.000.
General Electric: *See*—
Merrill, Duane F., 4,379,902, Cl. 528-18.000.
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Flowers, Ralph G., 4,379,916, Cl. 528-494.000.
Geisel, Donald J., 4,379,992, Cl. 324-158.00F.
Kelly, Peter B., 4,379,553, Cl. 273-51.000.
Mark, Victor; and Hedges, Charles V., 4,379,910, Cl. 528-202.000.
Mullersman, Ferdinand H.; and Blake, Charles R., 4,379,816, Cl. 429-91.000.
General Foods Corporation: *See*—
Staub, Herbert W.; Schanbacher, Larry M.; Zencheck, Jack D.; and Young, Cynthia L., 4,379,782, Cl. 424-180.000.
General Refractories Company: *See*—
Henry, Francis W., Jr.; and Banerjee, Subrata, 4,379,866, Cl. 523-140.000.
George, Kathleen F.: *See*—
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George, Richard D.: *See*—
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Gerdau, Herbert: *See*—
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Gervais, Michel: *See*—
  Walling, Jong-Hein; Arbuthnot, Gerald R.; and Gervais, Michel, 4,379,435, Cl. 118-643.000.
Getscher, Philip E. Intramedullary hip pin and cortical plate. 4,379,451, Cl. 128-92.0CA.
Getts, Sidney A. Motion conversion mechanism. 4,379,362, Cl. 30-393.000.
Gewerkschaft Eisenhutte Westfalia: *See*—
  Rosenberg, Harry; Plester, Karl-Heinz; Eggenstein, Friedrich; and Terhorst, Gunter, 4,379,424, Cl. 92-13.410.
  Wojaczek, Egon; Soliman, Mustafa; and Schulte, Juergen, 4,379,661, Cl. 405-299.000.
Gibbs, Ronald L.: *See*—
  Shipley, Randall S.; Lowery, Kirby, Jr.; and Gibbs, Ronald L., 4,379,760, Cl. 252-429.00B.
Gibson-Egan Company: *See*—
  Alemanni, James C., 4,379,505, Cl. 206-329.000.
Giles, Anthony F.: *See*—
  Brown, David; Giles, Anthony F.; Cramer, Howard W.; Noble, H. Mary; Nisbet, Louis J.; Bushell, Michael E.; Weare, Glenis; and Caldwell, Ian Y., 4,379,920, Cl. 542-427.000.
Gist-Brocades N.V.: *See*—
  Bruynes, Cornelis A.; and Jurriens, Theodorus K., 4,379,923, Cl. 544-26.000.
Glaxo Group Limited: *See*—
  Brown, David; Giles, Anthony F.; Cramer, Howard W.; Noble, H. Mary; Nisbet, Louis J.; Bushell, Michael E.; Weare, Glenis; and Caldwell, Ian Y., 4,379,920, Cl. 542-427.000.
Godat, Jean; and Paget, Jean, to Fonderie & Ateliers des Sablons. Weight measuring balance. 4,379,496, Cl. 177-25.000.
Goeke, George L.; Wagner, Burkhard E.; and Karol, Frederick J., to Union Carbide Corporation. Impregnated polymerization catalyst, process for preparing, and use for ethylene copolymerization. 4,379,759, Cl. 252-429.00B.
Goeke, George L.: *See*—
  Wagner, Burkhard E.; Goeke, George L.; Karol, Frederick J.; and George, Kathleen F., 4,379,758, Cl. 252-429.00B.
Goeth, Hanns: *See*—
  Maier, Roland; Wetzel, Bernd; Woitun, Eberhard; Reuter, Wolfgang; Lechner, Uwe; and Goeth, Hanns, 4,379,784, Cl. 424-229.000.
Goldammer, Georg; and Schmitt, Ludwig, to Schubert & Salzer. Apparatus for interrupting the sliver supply in open-end spinning apparatus. 4,379,386, Cl. 57-405.000.
Goldowsky, Michael P., to North American Philips Corporation. Magnetic bearing. 4,379,598, Cl. 308-10.000.
Goldsmith, Riley G.: *See*—
  Widiner, Karl J.; and Goldsmith, Riley G., 4,379,657, Cl. 405-195.000.
Goodwin, Robert J.: *See*—
  Amundsen, Joseph; Goodwin, Robert J.; and Wetzel, William H., 4,379,810, Cl. 428-541.000.
Goodyear Tire & Rubber Company, The: *See*—
  Frerking, Harlan W., Jr.; and Kelley, Mellis M., 4,379,895, Cl. 525-437.000.
Gordee, Robert S.: *See*—
  Hull, Robert N.; and Gordee, Robert S., 4,379,781, Cl. 424-114.000.
Gorka, Gunther; and Stinshoff, Klaus, to C. H. Boehringer Sohn. Quantitative analysis of uric acid. 4,379,840, Cl. 435-10.000.
Gorter, Cornelis A.: *See*—
  Middel, Jan; and Gorter, Cornelis A., 4,379,427, Cl. 101-35.000.
Goss, Gary J.: *See*—
  Hirtle, Allen C.; and Goss, Gary J., 4,380,065, Cl. 370-96.000.
Goto, Hitoshi: *See*—
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Goudy, Paul R., Jr., to Goudy, Paul R., Jr.; Landis, Bruce J.; and Landis, Kenneth J. Fluid pump with dual diaphragm check valves. 4,379,681, Cl. 417-560.000.
Graef, John N., to Realist, Inc. Folding transparency (microfiche) viewer. 4,379,628, Cl. 353-73.000.
Graf, Hans: *See*—
  Werle, Peter; Graf, Hans; and Walter, Erwin, 4,379,871, Cl. 523-331.000.
Granger, Charles C. Intake manifold mounted air and fuel mixture heater. 4,379,443, Cl. 123-549.000.
Grantham, LeRoy F.; and Johanson, James G., to Rockwell International Corporation. Process for separating solid particulates from a melt. 4,379,718, Cl. 75-24.000.
Graser, Fritz; and Seybold, Guenther, to BASF Aktiengesellschaft. Process for two-dimensionally concentrating light, and novel perylene-3,4,9,10-tetracarboxylic acid diimides. 4,379,934, Cl. 546-37.000.
Grasselli, Robert K.; Suresh, Dev D.; and Bridgeman, David R., to Standard Oil Co., The. Liquid phase ammoxidation of cyclohexanone and/or cyclohexanol. 4,379,925, Cl. 544-102.000.
Gravener, Roy D.; De Carlo, Alfred F.; and Noiles, Douglas G., to United States Surgical Corporation. Indicator for surgical stapler. 4,379,457, Cl. 128-334.00R.
Gray, James J.: *See*—
  Gray, Joseph L.; and Gray, James J., 4,379,545, Cl. 254-8.00B.
Gray, Joseph L.; and Gray, James J., to Gray Manufacturing Co. Inc. Side lift jack for unibody automobiles. 4,379,545, Cl. 254-8.00B.
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  Gray, Joseph L.; and Gray, James J., 4,379,545, Cl. 254-8.00B.
Green, Bernard J.; and Chorosevic, Jerome J., to Speed Clip Manufacturing Corp. Superpositioned vehicle wheel balance weights and method. 4,379,596, Cl. 301-5.00B.
Greene, Richard F.: *See*—
  Thomas, Richard E.; and Greene, Richard F., 4,379,979, Cl. 313-346.00R.
Gregory, David L.: *See*—
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Grieder, Alfred: *See*—
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Grimes, Patrick G.: *See*—
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Gritter, Roy J.: *See*—
  Economy, James; Gritter, Roy J.; and Hiraoka, Hiroyuki, 4,379,826, Cl. 430-141.000.
Groetschel, Karl M. Method of and apparatus for applying mat to the roof of a mine working. 4,379,660, Cl. 405-288.000.
Gross, David R., to J. M. Smucker Company, The. Method of concentrating fresh fruits. 4,379,796, Cl. 426-486.000.
Grossman, Robert D. Article display stand. 4,379,432, Cl. 108-153.000.
Grun, Charles: *See*—
  Solomon, Frank; and Grun, Charles, 4,379,772, Cl. 264-49.000.
Grunewalder, Valentine J.: *See*—
  Miller, John D.; and Grunewalder, Valentine J., 4,379,885, Cl. 525-108.000.
GTE Automatic Electric Labs Inc.: *See*—
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GTE Laboratories Incorporated: *See*—
  McColl, James R., 4,379,635, Cl. 356-387.000.
  Proud, Joseph M., 4,379,982, Cl. 315-73.000.
GTE Products Corporation: *See*—
  Kling, Michael R.; and Kackenmeister, Carl F., 4,379,690, Cl. 431-359.000.
  Weir, Colin B., 4,380,089, Cl. 455-127.000.
Gubbe, Bernd; Krause, Klaus-Dieter; Neidhardt, Rudolf; and Schonemann, Otto, to Triumph-Adler A.G. Height and inclination adjustable support shelf. 4,379,429, Cl. 108-5.000.
Guile, Roy N., to United Technologies Corporation. Supersonic/supersonic fluid ejector. 4,379,679, Cl. 417-54.000.
Guinn, Kenneth F.: *See*—
  Carlock, Gaylord W.; Garner, Jimmy G.; Gatlin, Charles M.; Guinn, Kenneth F.; and Reyes, Peter A., 4,379,678, Cl. 416-98.000.
Gurov, Evgeny I.: *See*—
  Vakhnin, Gennady I.; Verty, Vladimir G.; Voronin, Pavel G.; Gurov, Evgeny I.; Isaikin, Vladimir G.; Mishakov, Vladimir N.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Tabakov, Vladimir P.; Tjunkin, Boris A.; and Fotieva, Ljudmila I., 4,379,592, Cl. 299-2.000.
Haas, David J.: *See*—
  Juner, Adolph; Haas, David J.; and Rudd, Chester D., 4,379,481, Cl. 160-310.000.
Haas, Peter; and Freitag, Hans-Albrecht, to Bayer Aktiengesellschaft. Process for the production of polyurethanes using morpholine compounds as catalysts. 4,379,861, Cl. 521-115.000.
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Hahn, Mark C.: *See*—
  Eisenhard, Bruce T.; and Hahn, Mark C., 4,380,047, Cl. 364-200.000.
Hahn, Norbert; and Hipp, Steven J., to Rite-Hite Corporation. Releasable locking device. 4,379,354, Cl. 14-71.300.
Hainsworth, Thomas E.; and Houskamp, Robert W., to Bell & Howell, Company. Vehicle collision avoidance system. 4,379,497, Cl. 180-168.000.
Hajime Industries Ltd.: *See*—
  Yoshida, Hajime, 4,379,636, Cl. 356-407.000.
Halicho, James J., to Timex Corporation. Timepiece case/backcover assembly. 4,379,643, Cl. 368-309.000.
Hall, David A., to Eli Lilly and Company. Electrolytic reduction of cephalosporin p-nitrobenzyl esters. 4,379,739, Cl. 204-72.000.
Hall, William F.: *See*—
  Ho, William W.; and Hall, William F., 4,379,991, Cl. 324-58.50C.
Hallinger, Claude C.; and Kervistin, Robert, to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.". Device for adjusting the clearance between moving turbine blades and the turbine ring. 4,379,677, Cl. 415-175.000.
Hallman, Robert W., to Energy Conversion Devices, Inc. Imaging structure with tellurium metal film and energy sensitive material thereon. 4,379,827, Cl. 430-166.000.
Halm, James M., to A. B. Dick Company. Composition for forming photoconductive coating containing a photoconductive donor and an acceptor-sensitizer. 4,379,823, Cl. 430-83.000.
Hamerdinger, Randolph W.: *See*—
  Wang, Shing C.; and Hamerdinger, Randolph W., 4,380,078, Cl. 372-62.000.
Hamisch, Hans J.; Boruschweitz, Manfred; and Gast, Theodor, to Robert Bosch GmbH. Piezoelectric engine-knock sensor. 4,379,404, Cl. 73-35.000.
Hamm, Eddie J., to Otis Engineering Corporation. Latch for well tool. 4,379,488, Cl. 166-217.000.
Hancock, Mark W.: *See*—
  Eisenberg, Steven K.; and Hancock, Mark W., 4,379,375, Cl. 47-65.000.

Handler, Laurence H.: *See*—
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Hannoosh, James G.; Harvey, Andrew C.; Harding, John C.; and Chandrasekhar, Ram, to Foster-Miller Associates, Inc. Linear pocket letdown device. 4,379,670, Cl. 414-217.000.
Hansen, Douglas E.; Johnson, Steven D.; and Motko, Richard L., to Cook Paint and Varnish Company. Insulation composition. 4,379,857, Cl. 521-54.000.
Hansen, Howard H.; Lasky, Jerome B.; and Silverman, Ronald R., to International Business Machines Corporation. Method of laser annealing of subsurface ion implanted regions. 4,379,727, Cl. 148-1.500.
Hanson, George D.: *See*—
Doninger, Joseph E.; and Hanson, George D., 4,379,691, Cl. 432-3.000.
Harada, Hiroshi: *See*—
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Hardesty, Edwin C., to Western Electric Company, Inc. Modular cord coupler jack having a disconnection encumbrance. 4,379,609, Cl. 339-91.00R.
Harding, John C.: *See*—
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Harigaya, Makoto: *See*—
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Harman, John N., III, to Beckman Instruments, Inc. Gas analysis instrument having flow rate compensation. 4,379,402, Cl. 73-23.000.
Harris, Stephen E., to Stanford University. XUV Laser and method. 4,380,072, Cl. 372-5.000.
Harris, William D., to Burlington Industries, Inc. Electrostatic treatment of paper. 4,380,037, Cl. 361-214.000.
Hartmann, Rudolf: *See*—
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Harvey, Andrew C.: *See*—
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Harvey Hubbell Incorporated: *See*—
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Hashizume, Shin: *See*—
Miyakawa, Seii; Ikeda, Manabu; Hashizume, Shin; and Iijima, Kazunori, 4,379,517, Cl. 226-189.000.
Hata, Hideo: *See*—
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Hattori, Tadashi; Yamaguchi, Hiroaki; and Ootsuka, Yoshinori, to Nippon Soken, Inc. Knock detecting apparatus for internal combustion engines. 4,379,403, Cl. 73-35.000.
Hatzakis, Michael: *See*—
Canavello, Benjamin J.; and Hatzakis, Michael, 4,379,833, Cl. 430-325.000.
Hauser, William G., to Singer Company, The. Sewing machine cradle safety interlock. 4,379,601, Cl. 312-21.000.
Hauslein, Siegfried; Steinberger, Hans; Heigl, Willibald; Scheichl, Georg; and Kauderer, Erwin, to Bayerische Motoren Werke A.G. Motor vehicle seat and process relating thereto. 4,379,352, Cl. 5-471.000.
Hawk, Gary W.: *See*—
Clark, Richard P.; Frantz, Robert H.; Hawk, Gary W.; and Root, John A., 4,379,606, Cl. 339-17.0CF.
Hayama, Masashi: *See*—
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Hayashi, Yoshikazu: *See*—
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Haynes, George R., to Shell Oil Company. Multifunctional coupling agent. 4,379,891, Cl. 525-342.000.
Hedenberg, William E. Universal air suspension system. 4,379,572, Cl. 280-711.000.
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Ho, William W.; and Hall, William F., to Rockwell International Corporation. Apparatus for accurately measuring the volume of a meter prover. 4,379,991, Cl. 324-58.50C.
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Brandt, Lothar; and Holst, Arno, 4,379,918, Cl. 536-62.000.
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Parrish, William J.; and Fletcher, Christopher L., 4,380,056, Cl. 365-183.000.
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Hull, Robert N.; and Gordee, Robert S., to Eli Lilly and Company. Antibiotic compositions. 4,379,781, Cl. 424-114.000.
Hunter, Roy D. Combination handling and conveying apparatus. 4,379,672, Cl. 414-565.000.
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Parr, Andrew F., 4,380,044, Cl. 363-21.000.
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Beardsley, Brent C.; and Brailey, Allen C., 4,380,067, Cl. 371-11.000.
Bethune, Donald S., 4,380,076, Cl. 372-54.000.
Canavello, Benjamin J.; and Hatzakis, Michael, 4,379,833, Cl. 430-325.000.
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Debord, Pierre; and Marijon, Jean-Louis, 4,380,005, Cl. 340-347.0AD.
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Kotecha, Harish N.; Noble, Wendell P., Jr.; and Wiedman, Francis W., III, 4,380,057, Cl. 365-185.000.
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International Minerals & Chemical Corp.: *See—*
Doninger, Joseph E.; and Hanson, George D., 4,379,691, Cl. 432-3.000.
International Petroleum Engineering Corporation: *See—*
Sheshtawy, Adel, 4,379,494, Cl. 175-325.000.
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Ahmed, Fahim, 4,379,950, Cl. 179-18.0ES.
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Ishikawa, Hiroshi; Kojima, Takuhito; and Minamitani, Eiji, to Fujitsu Limited. Digital audio signal control system for a timedivision switching system. 4,380,064, Cl. 370-63.000.
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J. M. Smucker Company, The: *See*—
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Joffe, Edward J., to Strauss, Howard, a part interest. Blade holder and dispenser. 4,379,514, Cl. 221-279.000.
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Johnson, John R.; and Brydolf, Robert, to Acme General Corporation. Drawer with removable handle. 4,379,603, Cl. 312-320.000.
Johnson & Johnson: *See*—
Korpman, Ralf, 4,379,806, Cl. 428-354.000.
Johnson, Michael R.: *See*—
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Johnson, Steven D.: *See*—
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Jones, Donald H.: *See*—
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Corbacho, Carlos J., 4,379,562, Cl. 279-5.000.
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Kaltz, Milton C.; Chojnowski, Edward M.; Garascia, David C.; Bauer, Barney J.; and George, Richard D., to American Sunroof Corporation. Sliding roof panel assembly. 4,379,586, Cl. 296-222.000.
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Kanazawa, Takato; Mori, Keijiro; Kusunoki, Shigeru; Nishii, Kazunari; and Nobue, Tomotaka, to Matsushita Electric Industrial Co., Ltd. Method of food heating control by detecting liberated gas or vapor and temperature of food. 4,379,964, Cl. 219-492.000.
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Krakow, Kalman. Intermeshing passage manifold. 4,379,487, Cl. 165-165.000.
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Krusmark, Richard H. Safety device for ladders. 4,379,498, Cl. 182-107.000.
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Langr, Oldrich, to Sigma concern. Apparatus having shaping jaws for manufacturing bodies of spindle-type shapes. 4,379,397, Cl. 72-95.000.
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Larson, Betty D. Sun-out face shield. 4,379,349, Cl. 2-9.000.
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Leichtl, Ludwig, to Ex-Cell-O Corporation. Radiator assembly (bayonet lock). 4,379,574, Cl. 285-211.000.
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Lin, Shiow C., to W. R. Grace & Co. Cyanourea compounds or polymers thereof as epoxy resin curing agents. 4,379,728, Cl. 156-307.300.
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Lindley, Donald C., to Contectrol Incorporated. Rodent trap. 4,379,374, Cl. 43-61.000.
Linvill, John G., to Stanford University. Stimulator array. 4,379,697, Cl. 434-114.000.
Lipcon, Jesse B., to Digital Equipment Corporation. Tester for collision-detect circuitry. 4,380,088, Cl. 455-67.000.
Llabres, Raymond, to Thomson-CSF. Optical disk cassette. 4,379,507, Cl. 206-444.000.
Lobach, Ernst, to Censor Patent- und Versuchs-Anstalt. Process for transferring a pattern onto a semiconductor disk. 4,379,831, Cl. 430-311.000.
LoBiondo, Vincent. Rubber band rifle. 4,379,445, Cl. 124-19.000.
Lock, William E.; and Snyder, Edward A., to Corning Glass Works. Artwork alignment for decorating machine. 4,379,818, Cl. 430-5.000.
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Long, Ernest L.; Duvall, William S.; and Allen, Donald P., to Amtel Systems Corporation. Message communication system. 4,380,009, Cl. 340-825.550.
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Lutz, Manfred; and Reimer, Bernd, to Licentia Patent-Verwaltungs-GmbH. Electrophotographic recording material with $As_2Se_{3-x}Te_x$ charge generating layer. 4,379,821, Cl. 430-58.000.

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Deutsch, Albert S.; Lyons, Christopher F.; and Piller, Robert, 4,379,830, Cl. 430-309.000.
M&T Chemicals Inc.: *See—*
Larkin, William A., 4,379,878, Cl. 524-181.000.
Mac Equipment, Inc.: *See—*
Allison, Robert, 4,379,663, Cl. 406-23.000.
MacBean, Donald G., to JWI Ltd. Three-layer forming fabric. 4,379,735, Cl. 162-348.000.
Mack, Mark P.; and Berge, Charles T., to Conoco Inc. Silyl esters of carboxylic acids by phase transfer catalysts. 4,379,766, Cl. 260-413.000.
Madan, Arun: *See—*
Yang, Chi C.; Madan, Arun; Ovshinsky, Stanford R.; and Adler, David, 4,379,943, Cl. 136-249.000.
Maeda, Junji: *See—*
Andoh, Sadanari; Maeda, Junji; Fukushima, Kiyoshi; Yoneda, Hiroichi; and Jinushi, Naotomo, 4,380,018, Cl. 346-140.00R.
Maeda, Katsutoshi, to Kabushiki Kaisha Daini Seikosha. Paper feed roll rotated by print head carrier movement. 4,379,646, Cl. 400-636.000.
Maezawa, Shuji; and Murata, Masami, to Kabushiki Kaisha Suwa Seikosha. Multi-alarm electronic watch. 4,379,641, Cl. 368-74.000.
Magna, Henriette: *See—*
Lehureau, Jean-Claude; Magna, Henriette; and Thirouard, Michel, 4,380,016, Cl. 346-135.100.
Magnetic Peripherals Inc.: *See—*
Krake, Guss L., 4,380,034, Cl. 360-77.000.
Mahan, Richard S.; Tritt, Paul G.; and Ward, James H., Jr., to B. F. Goodrich Company, The. Automatic locking and ejecting hook assembly. 4,379,579, Cl. 294-83.00R.
Maier, Richard K.: *See—*
Schuyler, Andreas D.; and Maier, Richard K., 4,379,554, Cl. 273-67.00R.
Maier, Roland; Wetzel, Bernd; Woitun, Eberhard; Reuter, Wolfgang; Lechner, Uwe; and Goeth, Hanns, to Dr. Karl Thomae Gesellschaft mit beschrankter Haftung. Pyrimidinyl ureido penicillins. 4,379,784, Cl. 424-229.000.
Makinen, Heimo, to Elevator GmbH. Method and apparatus for stopping an elevator. 4,380,049, Cl. 364-426.000.
Manis, John R. Projectile. 4,379,531, Cl. 244-3.230.
Margold, Franz, to Riedel de Haen Aktiengesellschaft. Process for disinfecting and preserving hides and skins. 4,379,709, Cl. 8-94.180.
Marijon, Jean-Louis: *See—*
Debord, Pierre; and Marijon, Jean-Louis, 4,380,005, Cl. 340-347.0AD.
Marino, Mario H. S., to Interieur Forma S.A. Reclinable chair. 4,379,589, Cl. 297-299.000.
Mark, Victor; and Hedges, Charles V., to General Electric Co. Flame retardant aromatic polycarbonate compositions made from fluorinated diphenols. 4,379,910, Cl. 528-202.000.
Marker-Patentverwertungsgesellschaft mbH.: *See—*
Sedlmair, Gerhard, 4,379,570, Cl. 280-605.000.
Marko Materials, Inc.: *See—*
Ray, Ranjan; and Panchanathan, Viswanathan, 4,379,720, Cl. 75-251.000.
Marlowe, Frank J.: *See—*
Reitmeier, Glenn A.; and Marlowe, Frank J., 4,380,069, Cl. 371-31.000.
Marquette Metal Products Co.: *See—*
Baxter, Donald J.; and Childress, Hugh L., Jr., 4,379,986, Cl. 318-434.000.
Marsh, Christopher R., to BP Chemicals Limited. Process for producing polyisobutenes. 4,379,899, Cl. 526-144.000.
Martin, Charles L., to Raychem Corporation. Composite coupling. 4,379,575, Cl. 285-369.000.
Martin, Robert P., Jr. Safety boot for punch or the like. 4,379,418, Cl. 83-544.000.
Maruyama, Takashi: *See—*
Ueno, Katsuzi; Maruyama, Takashi; Suzuki, Haruo; and Saito, Teruo, 4,379,892, Cl. 525-439.000.
Masse, Lucien; Medlin, William L.; and Sexton, James H., to Mobil Oil Corporation. System for conducting resonance measurements of rock materials under confining pressure. 4,379,407, Cl. 73-579.000.
Masugi, Takashi: *See—*
Ueda, Ikuo; Takaya, Takao; Kobayashi, Masakazu; Masugi, Takashi; Takasugi, Hisashi; Kochi, Hiromu; and Kitaguchi, Tadashi, 4,379,922, Cl. 544-16.000.
Mateika, Dieter; and Laurien, Rolf, to U.S. Philips Corporation. Magnetic device having a monocrystalline garnet substrate bearing a magnetic layer. 4,379,853, Cl. 501-135.000.
Mathias Bauerle GmbH: *See—*
Purr, Horst, 4,379,467, Cl. 134-111.000.
Matschke, Guunther: *See—*
Krafft, Werner; Helling, Gunter; Matschke, Guunther; and Boie, Immo, 4,379,829, Cl. 430-215.000.
Matschke, Klaus: *See—*
Andersen, Heinz-Erhardt; Brebels, Jaek J.; Matschke, Klaus; and Scheier, Franz, 4,379,774, Cl. 264-284.000.
Matsufuji, Akihiro; Ishiguro, Tadashi; and Tsuji, Nobuo, to Fuji Photo Film Co., Ltd. Magnetic recording medium. 4,379,809, Cl. 428-470.000.
Matsumaru, Hiroshi: *See—*
Mori, Kinji; Ihara, Hirokazu; and Matsumaru, Hiroshi, 4,380,061, Cl. 370-16.000.
Matsumoto, Hisashi, to Mitsui Petrochemical Industries, Ltd. Reinforcing material for hydraulic substances and method for the production thereof. 4,379,870, Cl. 523-221.000.
Matsumoto, Muneaki: *See—*
Kuno, Akira; Matsumoto, Muneaki; and Numata, Koji, 4,379,366, Cl. 33-361.000.
Matsuo, Noritada: *See—*
Funaki, Yuji; Tanaka, Shizuyä; and Matsuo, Noritada, 4,379,921, Cl. 542-458.000.
Matsuoka, Kazuhiko; and Minoura, Kazuo, to Canon Kabushiki Kaisha. Scanning optical system having a fall-down correcting function. 4,379,612, Cl. 350-6.800.
Matsushita Electric Industrial Company, Limited: *See—*
Funakoshi, Yasutomo; and Wakahata, Tamotsu, 4,379,617, Cl. 350-126.000.
Ikedo, Masaru; Watari, Masafumi; Yasuno, Yoshitake; and Yamashita, Tadaoki, 4,379,621, Cl. 350-392.000.
Kanazawa, Takato; Mori, Keijiro; Kusunoki, Shigeru; Nishii, Kazunari; and Nobue, Tomotaka, 4,379,964, Cl. 219-492.000.
Matsuyama, Mitsuo; Ohhinata, Ichiro; and Kitano, Junjiro, to Hitachi, Ltd. Semiconductor integrated circuit. 4,380,021, Cl. 357-15.000.
Mattatall, Patricio. Molded hearing aid and battery charger. 4,379,988, Cl. 320-4.000.
Mattison, Ronald P.: *See—*
Danielson, Paul S.; Mattison, Ronald P.; and Werner, Albert J., 4,379,851, Cl. 501-66.000.
Mauersberger, Reinhard: *See—*
Schoening, Josef; Schwiers, Hans-Georg; Elter, Claus; Stracke, Wilfried; and Mauersberger, Reinhard, 4,380,085, Cl. 376-381.000.
Mayer, Bruno: *See—*
Buchmann, Heinz; Mayer, Bruno; and Szybowicz, Wolfgang, 4,379,652, Cl. 404-117.000.
McColl, James R., to GTE Laboratories Incorporated. Automatic aperture size measurement apparatus and process. 4,379,635, Cl. 356-387.000.
McDonnell Douglas Corporation: *See—*
Allen, Louis B., Jr.; and Koenig, Herbert G., Jr., 4,380,075, Cl. 372-44.000.
Baldwin, Floyd G.; and Evans, Donald E., 4,379,535, Cl. 244-137.00R.
Palmer, Raymond J.; and Micheaux, Dominique, 4,379,798, Cl. 428-113.000.
McGuiness, Robert C.: *See—*
Falkenburg, Hans R.; Krause, Siegfried; and McGuiness, Robert C., 4,379,909, Cl. 528-94.000.
McGuire, John L.: *See—*
Capetola, Robert J.; and McGuire, John L., 4,379,789, Cl. 424-260.000.
McIntosh, Thomas K., to Bloomfield Manufacturing Co., Inc. Lifting jack. 4,379,546, Cl. 254-111.000.
McIntyre, John A. Fiber optic matrix coding method and apparatus for radiation image amplifier. 4,379,967, Cl. 250-227.000.
McLaughlin, Joseph E.; and Strickland, George A., to Du Pont de Nemours, E. I., and Company. Liquid coating composition having a reactive catalyst. 4,379,886, Cl. 525-162.000.
McLaughlin, Michael J.: *See—*
Chen, Yeunung; and McLaughlin, Michael J., 4,379,949, Cl. 179-15.55R.
McMahan, Norman C. Auditorium convertible floor. 4,379,378, Cl. 52-9.000.
McMahan, William H., to American Laser Corporation. Segmented ceramic bore laser. 4,380,077, Cl. 372-62.000.
McNeely, Michael L.: *See—*
Chambers, Robert W.; McNeely, Michael L.; and Torrington, Leslie A., 4,379,686, Cl. 425-290.000.
McNeilab, Inc.: *See—*
Rasmussen, Chris R., 4,379,786, Cl. 424-244.000.
McPike, Brian C.: *See—*
Long, Geoffrey A. D.; and McPike, Brian C., 4,379,731, Cl. 156-356.000.
Mead Corporation, The: *See—*
Clement, Joseph J., 4,379,431, Cl. 108-111.000.
Cole, John N.; and Hettel, David A., 4,379,808, Cl. 428-438.000.
Mearig, Stephen G., to Armstrong World Industries, Inc. Method to make a built up area rotary printing screen. 4,379,737, Cl. 204-11.000.
Medlin, William L.: *See—*
Masse, Lucien; Medlin, William L.; and Sexton, James H., 4,379,407, Cl. 73-579.000.
Medtronic, Inc.: *See—*
Stein, Marc T., 4,379,459, Cl. 128-419.0PG.
Meier, Robert H.; and Farr, Evelyn, to Camp International, Inc. Multicentric knee cage. 4,379,463, Cl. 128-80.00C.
Meisel, Thomas C., Jr.; and Price, Robert J., to Caterpillar Tractor Co. Load skidding vehicle having a positionally biased grapple. 4,379,674, Cl. 414-699.000.
Melvin, Lawrence S., Jr.; and Johnson, Michael R., to Pfizer Inc. Trialkylsilicon-containing phenylcycloalkane analgesics. 4,379,783, Cl. 424-184.000.
Mercer, Elizabeth A.: *See—*
Eisele, John F.; and Mercer, Elizabeth A., 4,379,804, Cl. 428-332.000.
Merck & Co., Inc.: *See—*
Blaine, Edward H., 4,379,792, Cl. 424-270.000.
Cragoe, Edward J., Jr.; Rooney, Clarence S.; and Williams, Haydn W. R., 4,379,791, Cl. 424-270.000.

Merrill, Duane F., to General Electric. Process for producing a low viscosity silicone resin. 4,379,902, Cl. 528-18.000.
Meyrat, Clement, to Ebauches, S.A. Apparatus for the selection or correction of data in an electronic watch. 4,379,642, Cl. 368-188.000.
Miall, David E.: *See—*
 French, Gordon B.; Mills, Eugene A.; and Miall, David E., 4,379,590, Cl. 299-2.000.
Micheaux, Dominique: *See—*
 Palmer, Raymond J.; and Micheaux, Dominique, 4,379,798, Cl. 428-113.000.
Mickelson, Dan: *See—*
 Wilson, Robert E.; and Mickelson, Dan, 4,379,687, Cl. 425-388.000.
Middel, Jan; and Gorter, Cornelis A., to Estel Hoogovens B.V. Apparatus for applying marks to a product e.g. a coil of rolled steel. 4,379,427, Cl. 101-35.000.
Miho, Takuya: *See—*
 Watanabe, Shoji; Miho, Takuya; and Fujii, Tatsumi, 4,379,915, Cl. 528-357.000.
Miller, Daniel R.; Deaton, Thomas; and Royer, Robert, to Nestier Corporation. Nesting tray with stacking keyed interlock. 4,379,508, Cl. 206-507.000.
Miller, John D.; and Grunewalder, Valentine J., to PPG Industries, Inc. Fluorocarbon coating compositions. 4,379,885, Cl. 525-108.000.
Miller, Ralph A.; and White, Randall F., to United States of America, Navy. Cargo lift system. 4,379,534, Cl. 244-137.00R.
Miller, Samuel A.; and Jeffris, Larry L., to United States of America, Navy. Laser beam steering device. 4,379,624, Cl. 350-486.000.
Mills, Eugene A.: *See—*
 French, Gordon B.; Mills, Eugene A.; and Miall, David E., 4,379,590, Cl. 299-2.000.
Mills, Thomas G.: *See—*
 Yuan, Lloyd T.; Chang, Yu-Wen; and Mills, Thomas G., 4,380,020, Cl. 357-3.000.
Mimamida, Isao: *See—*
 Numata, Mitsuo; Mimamida, Isao; Yamaoka, Masayoshi; Shiraishi, Mitsura; and Miyawaki, Toshio, 4,379,924, Cl. 544-27.000.
Mimoun, Hubert; Charpentier, Robert; and Roussel, Michel, to Institut Francais du Petrole. Process for manufacturing methyl ketones by oxidation of terminal olefins. 4,379,942, Cl. 568-385.000.
Minamitani, Eiji: *See—*
 Ishikawa, Hiroshi; Kojima, Takuhito; and Minamitani, Eiji, 4,380,064, Cl. 370-63.000.
Minnesota Mining and Manufacturing Company: *See—*
 Clemens, Lawrence M.; and Gasper, Alton J., 4,379,763, Cl. 252-628.000.
 Collins, Stanley B., 4,379,824, Cl. 430-106.600.
 Eisele, John F.; and Mercer, Elizabeth A., 4,379,804, Cl. 428-332.000.
 Lowrey, Robert D.; Nelson, Howard D.; and Van Dyke Tiers, George, 4,379,835, Cl. 430-338.000.
Minoura, Kazuo: *See—*
 Matsuoka, Kazuhiko; and Minoura, Kazuo, 4,379,612, Cl. 350-6.800
Mir, Jose M.; Varner, Jerry R.; and Kurtz, Clark N., to Eastman Kodak Company. Electronic imaging apparatus with light valve area arrays. 4,380,023, Cl. 358-75.000.
Miracle Recreation Equipment Company: *See—*
 Ahrens, Paul W., 4,379,551, Cl. 272-56.50R.
Mishakov, Vladimir N.: *See—*
 Vakhnin, Gennady I.; Verty, Vladimir G.; Voronin, Pavel G.; Gurov, Evgeny I.; Isaikin, Vladimir G.; Mishakov, Vladimir N.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Tabakov, Vladimir P.; Tjunkin, Boris A.; and Fotieva, Ljudmila I., 4,379,592, Cl. 299-2.000.
Mitsubishi Denki Kabushiki Kaisha: *See—*
 Ishii, Toshiaki, 4,380,045, Cl. 363-54.000.
 Ito, Osamu; and Watanabe, Isao, 4,380,015, Cl. 346-108.000.
 Iwaki, Yoshiyuki; and Goto, Hitoshi, 4,380,003, Cl. 338-315.000.
 Kimura, Minoru; and Ina, Teruo, 4,379,999, Cl. 336-84.00C.
Mitsui Petrochemical Industries, Ltd.: *See—*
 Matsumoto, Hisashi, 4,379,870, Cl. 523-221.000.
Mitsui Toatsu Chemicals, Inc.: *See—*
 Asano, Makoto; Tanabe, Yoshimitu; and Murakami, Hisamichi, 4,379,897, Cl. 525-506.000.
Mitushashi, Yasuo, to Canon Kabushiki Kaisha. Porous electrophotographic toner and preparation process of making. 4,379,825, Cl. 430-111.000.
Miwa, Tsutomu. Device for improving aerodynamic and safety characteristics of automotive vehicles. 4,379,582, Cl. 296-1.00S.
Miyakawa, Seii; Ikeda, Manabu; Hashizume, Shin; and Iijima, Kazunori, to Hitachi, Ltd. Magnetic tape running system. 4,379,517, Cl. 226-189.000.
Miyamoto, Chikara: *See—*
 Fujiwara, Akiko; Miyamoto, Chikara; and Okuda, Toru, 4,379,842, Cl. 435-58.000.
Miyamura, Kou: *See—*
 Suzuki, Hiroo; Yamamoto, Koichi; Ohno, Yasuhide; and Miyamura, Kou, 4,379,482, Cl. 164-485.000.
Miyata, Shigeo, to Kyowa Chemical Industry Co., Ltd. Halogen-containing polyolefin composition, and method for inactivating halogens therein. 4,379,882, Cl. 524-436.000.
Miyawaki, Toshio: *See—*
 Numata, Mitsuo; Mimamida, Isao; Yamaoka, Masayoshi; Shiraishi, Mitsura; and Miyawaki, Toshio, 4,379,924, Cl. 544-27.000.
Mizell, Emerson H.: *See—*
 Holcombe, J. L., 4,379,381, Cl. 52-404.000.
Mizell, James A., to California Fin Systems. Apparatus for securing fins to a surfboard. 4,379,703, Cl. 441-79.000.
Mizuguchi, Ryuzo: *See—*
 Ishikura, Shin-Ichi; Kanda, Kazunori; and Mizuguchi, Ryuzo, 4,379,872, Cl. 523-406.000.
Mizuma, Kenichi, to Ricoh Company, Ltd. Sheet paper stacking apparatus. 4,379,549, Cl. 271-3.100.
Mizuno, Toshiro; and Imai, Kazuo, to Nippon Telegraph & Telephone Public Corporation. Signalling system and signal control equipment for multi-address calling. 4,379,946, Cl. 178-3.000.
Mizuno, Yoshiro; and Kitamura, Akihiko, to Kojima Puresu Kogyo Kabushiki Kaisha. Means for retaining a rod-shaped material. 4,379,536, Cl. 248-73.000.
Mizuta, Yukio: *See—*
 Iwata, Masayosi; Douke, Harumi; Hayashi, Yoshikazu; Yokoyama, Tadashi; and Mizuta, Yukio, 4,379,954, Cl. 200-4.000.
Mobil Oil Corporation: *See—*
 Masse, Lucien; Medlin, William L.; and Sexton, James H., 4,379,407, Cl. 73-579.000.
 Olson, David H.; and Rodewald, Paul G., 4,379,761, Cl. 252-435.000.
 Rollmann, Louis D., 4,379,489, Cl. 166-266.000.
 Ruehle, William H., 4,380,059, Cl. 367-46.000.
 Yan, Tsoung Y., 4,379,747, Cl. 208-251.00H.
Mochizuki, Teruji: *See—*
 Ooishi, Minoru; Mochizuki, Teruji; and Suzuki, Yutaka, 4,379,997, Cl. 330-298.000.
Moehlenpah Industries, Inc.: *See—*
 Thompson, James L.; and Hornkohl, Owen T., 4,379,426, Cl. 100-100.000.
Moll, Franz: *See—*
 Lapp, Otto; von Rintelen, Harald; Moll, Franz; and Endres, Lothar, 4,379,837, Cl. 430-434.000.
Mono Pumps Limited: *See—*
 Nelson, Hugh D., 4,379,561, Cl. 277-237.00R.
Monsanto Company: *See—*
 Schafer, David E.; and Czajkowski, Albert J., 4,379,716, Cl. 71-87.000.
Moore, Damon E.: *See—*
 Wiggins, John W.; and Moore, Damon E., 4,379,449, Cl. 126-449.000.
Moore, John A.: *See—*
 Dounce, George H.; and Moore, John A., 4,379,965, Cl. 219-521.000.
Moore, Perry H., Jr.: *See—*
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Mora, Paolo C.: *See—*
 Paracchini, Silvano; and Mora, Paolo C., 4,379,935, Cl. 546-51.000.
Mora, Paolo Corvi: *See—*
 Paracchini, Silvano; and Mora, Paolo C., 4,379,935, Cl. 546-51.000.
Morck, Charles W., Jr., to Selas Corporation of America. Dual fuel burner. 4,379,689, Cl. 431-284.000.
Morgan, Robert L.: *See—*
 Webb, Ronald W.; and Morgan, Robert L., 4,379,552, Cl. 272-67.000.
Mori, Keijiro: *See—*
 Kanazawa, Takato; Mori, Keijiro; Kusunoki, Shigeru; Nishii, Kazunari; and Nobue, Tomotaka, 4,379,964, Cl. 219-492.000.
Mori, Kinji; Ihara, Hirokazu; and Matsumaru, Hiroshi, to Hitachi, Ltd. Loop transmission system with improved bypass routing arrangement. 4,380,061, Cl. 370-16.000.
Morimoto, Shoji: *See—*
 Ohmi, Hidehiko; Kitagawa, Katsuhisa; Morimoto, Shoji; Kubo, Tateo; Ohno, Misao; and Takahashi, Seitaro, 4,379,512, Cl. 215-327.000.
Morishita, Yutaka: *See—*
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Moriya, Mitsumasa: *See—*
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Morooka, Yasuo: *See—*
 Konishi, Seizi; Tashiro, Kazuyuki; Kamigane, Yoshihiro; Sakurai, Takakazu; Tanifuji, Shinya; and Morooka, Yasuo, 4,379,395, Cl. 72-8.000.
Mortonson, Robert W.: *See—*
 Sievers, Kirk A.; and Mortonson, Robert W., 4,379,990, Cl. 322-99.000.
Mostek Corporation: *See—*
 Larson, David N., 4,380,055, Cl. 365-154.000.
 Plachno, Robert S., 4,379,974, Cl. 307-269.000.
Motko, Richard L.: *See—*
 Hansen, Douglas E.; Johnson, Steven D.; and Motko, Richard L., 4,379,857, Cl. 521-54.000.
Motor Panels (Coventry) Limited: *See—*
 Taylor, Merrick W.; Allen, George R.; and Strong, Terence, 4,379,583, Cl. 296-1.00S.
Motorola, Inc.: *See—*
 Chen, Yeunung; and McLaughlin, Michael J., 4,379,949, Cl. 179-15.55R.
 Fette, Bruce A., 4,380,051, Cl. 364-766.000.
 Ho, Roland K., 4,380,041, Cl. 361-283.000.
 Sievers, Kirk A.; and Mortonson, Robert W., 4,379,990, Cl. 322-99.000.

Weber, Howard, 4,379,444, Cl. 123-609.000.
Mueller, Otto, to Staeubli Ltd. Heddle frame actuating mechanism located between a dobby and the heddle frames of a weaving machine. 4,379,474, Cl. 139-21.000.
Mueller-Westerhoff, Ulrich T.: *See—*
Nazzal, Adel I.; and Mueller-Westerhoff, Ulrich T., 4,379,740, Cl. 204-129.000.
Muller, Armin, to FAG Kugelfischer Georg Schafer & Co. Journal bearing with dust seal. 4,379,600, Cl. 308-187.100.
Muller, Hanns P.: *See—*
Stemmler, Ingo; Muller, Hanns P.; and Wagner, Kuno, 4,379,905, Cl. 528-73.000.
Muller, Hans R.: *See—*
Janson, Philippe A.; Muller, Hans R.; and Rothauser, Ernst H., 4,380,063, Cl. 370-60.000.
Muller, Rolf, to Papst-Motoren GmbH & Co. KG. Brushless DC motor driven by complementary type transistors. 4,379,984, Cl. 318-254.000.
Mullersman, Ferdinand H.; and Blake, Charles R., to General Electric Company. Indicator of full charge for secondary cell or battery thereof. 4,379,816, Cl. 429-91.000.
Multi Mineral Corporation: *See—*
Weichman, Bernard E., 4,379,593, Cl. 299-2.000.
Multikunst Legepladser I/S: *See—*
Petersen, Tom L., 4,379,550, Cl. 272-52.000.
Munch, Walter; and Uetrecht, Dale M., to Baldwin Piano & Organ Company. Polyphonic electronic music system. 4,379,422, Cl. 84-1.190.
Munekata, Seiji: *See—*
Yamabe, Masaaki; Munekata, Seiji; Kumai, Seisaku; and Kaneko, Isamu, 4,379,768, Cl. 260-544.00F.
Munny, Gunter. Prosthetic joint for knee and above-knee amputees. 4,379,350, Cl. 3-22.000.
Muntjanoff, John R.; and Day, Dennis M., to Caterpillar Tractor Co. Dampened fully pivotal hanger for a grapple. 4,379,675, Cl. 414-734.000.
Murakami, Hisamichi: *See—*
Asano, Makoto; Tanabe, Yoshimitu; and Murakami, Hisamichi, 4,379,897, Cl. 525-506.000.
Murata, Masami: *See—*
Maezawa, Shuji; and Murata, Masami, 4,379,641, Cl. 368-74.000.
Nabisco Brands, Inc.: *See—*
Ripka, Michael S., 4,379,845, Cl. 435-255.000.
Nael, Albert, to Compagnie Generale d'Automatisme CGA Alcatel. Tray for storing and classifying slides and a viewer for slides disposed in such trays. 4,379,627, Cl. 353-27.00A.
Nagae, Yoshiharu: *See—*
Kawakami, Hideaki; Kitazima, Masaaki; Izaki, Naoyuki; and Nagae, Yoshiharu, 4,380,008, Cl. 340-784.000.
Nagashima, Masaya. Method for releasably rigidly fastening two intersected overlapping metal profiles and means therefor. 4,379,651, Cl. 403-387.000.
Nakamura, Hitoshi; Nishizima, Hideyo; Ema, Hideaki; Harigaya, Makoto; and Otomura, Satoshi, to Ricoh Company, Ltd. Electrophotographic photoconductor of halogen-doped Se-Te alloy layers. 4,379,820, Cl. 430-58.000.
Nakao, Makoto: *See—*
Takamatsu, Mashiro; Nakao, Makoto; and Ogawa, Isao, 4,380,043, Cl. 362-26.000.
Nakatsukasa, Masashi; and Takahashi, Nobuyuki, to Anelva Corporation. Sputtering apparatus comprising control means for preventing impurity gases from entering a sputtering chamber. 4,379,743, Cl. 204-298.000.
Namiki, Junji, to Nippon Electric Co., Ltd. Digital signal receiver with FM interference elimination capability. 4,380,082, Cl. 375-102.000.
Natale, Peter J.; and Lombardo, Igino, to Ortho Diagnostics, Inc. Reaction apparatus for the formation of microspheres or microcapsules. 4,379,682, Cl. 425-10.000.
National Can Corporation: *See—*
Cochran, Donald D., 4,379,671, Cl. 414-331.000.
National Starch and Chemical Corporation: *See—*
Tessler, Martin M.; Wurzburg, Otto B.; and Dirscherl, Teresa A., 4,379,919, Cl. 536-108.000.
Nazzal, Adel I.; and Mueller-Westerhoff, Ulrich T., to International Business Machines Corporation. Photoassisted generation of hydrogen from water. 4,379,740, Cl. 204-129.000.
NcNeil Corporation: *See—*
Rademacher, Thomas P., 4,379,704, Cl. 441-88.000.
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Riess, Guido, 4,379,694, Cl. 433-201.000.
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Borkan, William N.; Savino, Frank M.; and Waltz, Joseph M., 4,379,462, Cl. 128-786.000.
Newby, Kenneth R.: *See—*
Tsien, Hsue C.; Newby, Kenneth R.; Grimes, Patrick G.; and Bellows, Richard J., 4,379,814, Cl. 429-42.000.
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Pfost, R. Fred, 4,380,032, Cl. 360-74.600.
Newnham, John H. Propellers and windmills. 4,379,813, Cl. 428-587.000.
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Nielsen, Hans B. Tube for yarn bobbin. 4,379,529, Cl. 242-118.110.
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Nippon Paint Co., Ltd.: *See—*
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Nippon Soken, Inc.: *See—*
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Nippondenso Co., Ltd.: *See—*
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Nishikawa, Masao, to Takatori Machinery Works Ltd. Method and apparatus for automatically packaging stockings. 4,379,384, Cl. 53-415.000.
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Nissan Motor Company, Limited: *See—*
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Hagiwara, Yutaka; Takada, Toshiaki; and Yamazaki, Tetu, 4,379,501, Cl. 188-218.0XL.
Iizuka, Haruhiko; and Sugasawa, Fukashi, 4,379,387, Cl. 60-277.000.
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Nobue, Tomotaka: *See—*
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Nokes, Ronald W. Wedging apparatus useful for log splitting. 4,379,475, Cl. 144-193.00C.
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Balbinot, Renzo, 4,379,370, Cl. 36-121.000.
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 Goldowsky, Michael P., 4,379,598, Cl. 308-10.000.
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 Walling, Jong-Hein; Arbuthnot, Gerald R.; and Gervais, Michel, 4,379,435, Cl. 118-643.000.
Nosaka, Kenkichi: *See—*
 Takahashi, Sadayuki; Komeda, Yorio; Tachibana, Matsuo; and Nosaka, Kenkichi, 4,379,673, Cl. 414-686.000.
Nowak, Frederick H., to Otis Elevator Company. Emergency power elevator recovery and service system. 4,379,499, Cl. 187-29.00R.
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Nunan, Kevin N. G. Electrical pickups. 4,379,421, Cl. 84-1.150.
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Odaka, Kentarou, to Sony Corporation. Method and apparatus for preventing errors in PCM signal processing apparatus. 4,380,071, Cl. 371-40.000.
Oertel, Richard W., III: *See—*
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Ohmi, Hidehiko; Kitagawa, Katsuhisa; Morimoto, Shoji; Kubo, Tateo; Ohno, Misao; and Takahashi, Seitaro, to Toyo Seikan Kaisha, Ltd. Closure having an improved liner. 4,379,512, Cl. 215-327.000.
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Okamura Corporation: *See—*
 Iemura, Takusuke; Goto, Takeshi; and Komaki, Hiroshi, 4,379,602, Cl. 312-268.000.
Okuda, Toru: *See—*
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Olofsson, Hasse E. O. Airborne vehicle referenced (outside world) recording device utilizing an electro-optical camera and an electronic alignment procedure. 4,380,024, Cl. 358-93.000.
Olson, David H.; and Rodewald, Paul G., to Mobil Oil Corporation. Catalyst and process for making said catalyst. 4,379,761, Cl. 252-435.000.
Olsson, Billy E.; and Kam, Lit-Yan, to AMP Incorporated. Flat cable to planar circuit connector. 4,379,608, Cl. 339-75.0MP.
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 Suzuki, Yoshiro, 4,379,630, Cl. 355-3.0TR.
O'Malley, Mary A.; and Drake, Nancy J., to Diamond Shamrock Corporation. Surface-treated soft contact lenses. 4,379,893, Cl. 525-386.000.
Ong, Helen H.; and Profitt, James A., to American Hoechst Corporation. Process for preparing spiro[indoline-3,4'-piperidine]s. 4,379,932, Cl. 546-17.000.
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Ooishi, Minoru; Mochizuki, Teruji; and Suzuki, Yutaka, to Tokyo Shibaura Denki Kabushiki Kaisha. Power amplifier. 4,379,997, Cl. 330-298.000.
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 Hattori, Tadashi; Yamaguchi, Hiroaki; and Ootsuka, Yoshinori, 4,379,403, Cl. 73-35.000.
Orlowski, Jan A.; Butler, David V.; and Kidd, Patrick D., to Scientific Pharmaceuticals, Inc. Dental material comprising dimethyacrylate adducts of glycidyl methacrylate with diesters of bis(hydroxymethyl) tricyclo[5.2.1.$0^{2,6}$]decane and dicarboxylic acids. 4,379,695, Cl. 433-217.000.
Ort, Donald L., to Xerox Corporation. Method for ink jet printing. 4,380,017, Cl. 346-140.00R.
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 Natale, Peter J.; and Lombardo, Igino, 4,379,682, Cl. 425-10.000.
Ortho Pharmaceutical Corporation: *See—*
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Ota, Hiroshi; Horigome, Eiji; and Azegami, Hitoshi, to TDK Electronics Co., Ltd. Magnetic tape cassette. 4,380,035, Cl. 360-130.330.
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 Hamm, Eddie J., 4,379,488, Cl. 166-217.000.
Otis, Harold R.; and Blake, Charles E., to Rea Magnet Wire Co., Inc. Magnet wire for hermetic motors. 4,379,807, Cl. 428-383.000.
Otomura, Satoshi: *See—*
 Nakamura, Hitoshi; Nishizima, Hideyo; Ema, Hideaki; Harigaya, Makoto; and Otomura, Satoshi, 4,379,820, Cl. 430-58.000.
Otsuka, Nobuyuki; and Hirai, Seiichi, to Honda Giken Kogyo Kabushiki Kaisha. Slidable-type constant velocity universal joint. 4,379,706, Cl. 464-111.000.
Otto, Ronald F.: *See—*
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Overbergh, Noel M. M., to Raychem Corporation. Adhesive composition. 4,379,887, Cl. 525-184.000.
Ovshinsky, Stanford R.: *See—*
 Yang, Chi C.; Madan, Arun; Ovshinsky, Stanford R.; and Adler, David, 4,379,943, Cl. 136-249.000.
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Owens-Illinois, Inc.: *See—*
 Nowicki, Casimir W.; and Jaffee, Alan M., 4,379,525, Cl. 241-20.000.
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 Taylor, Edwin C., Sr., 4,379,518, Cl. 229-15.000.
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Papsdorf, John, to Liberty Hardware Manufacturing Corp. Method of making a hinge with an integral pintle. 4,379,360, Cl. 29-11.000.
Papst-Motoren GmbH & Co. KG: *See—*
 Muller, Rolf, 4,379,984, Cl. 318-254.000.
Paracchini, Silvano; and Mora, Paolo C., to Mora, Paolo Corvi. Process for the synthesis of vincamine and related indole alkaloids. 4,379,935, Cl. 546-51.000.
Parekh, Girish G.; Blank, Werner J.; and Schirmann, Peter J., to American Cyanamid Company. Cross-linking agents for cationic polymers. 4,379,911, Cl. 528-245.000.
Parr, Andrew F., to Imperial Chemical Industries PLC. D.C. to d.c. converter with plural feedback loops. 4,380,044, Cl. 363-21.000.
Parrish, William J.; and Fletcher, Christopher L., to Hughes Aircraft Company. Charge coupled device focal plane with serial register having interdigitated electrodes. 4,380,056, Cl. 365-183.000.
Pastor, Antonio C.; Pastor, Ricardo C.; and Arita, Kaneto, to Hughes Aircraft Company. Bicameral mode crystal growth apparatus and process. 4,379,733, Cl. 156-616.00R.
Pastor, Ricardo C.: *See—*
 Pastor, Antonio C.; Pastor, Ricardo C.; and Arita, Kaneto, 4,379,733, Cl. 156-616.00R.
Peardon, Richard. Horse spa. 4,379,438, Cl. 119-29.000.
Peck, Roger F., to Smith and Nephew Associated Companies Limited. Adhesive suitable for application to skin. 4,379,881, Cl. 524-315.000.
Peerless Electronics Research Corp.: *See—*
 Schmid, Carl J., 4,379,637, Cl. 356-411.000.
Pelletier Exploitation: *See—*
 Pelletier, Robert, 4,379,668, Cl. 410-77.000.
Pelletier, Robert, to Pelletier Exploitation; and Siren. Locking device for securing cargo in a vehicle. 4,379,668, Cl. 410-77.000.
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 Liebe, Werner; Lohmer, Karl; and Pelz, Willibald, 4,379,828, Cl. 430-212.000.
Pepin, Christian; and Trahand, Jean P., to Thomson-CSF. Television camera equipped with an anti-blooming device. 4,380,028, Cl. 358-219.000.

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Perrault, Raymond E.: *See—*
Perrault, Frederick; and Perrault, Raymond E., 4,379,537, Cl. 248-74.00R.
Perrot, Alexander: *See—*
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Perrot-Regnerbau GmbH & Co.: *See—*
Schanz, Friedrich; Schucker, Emil; and Perrot, Alexander, 4,379,523, Cl. 239-222.000.
Perry, Jack I., to Owens-Illinois, Inc. Take-out tong assembly. 4,379,581, Cl. 294-115.000.
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Pfingst, Jurgen: *See—*
Dedden, Hubert; and Pfingst, Jurgen, 4,379,632, Cl. 355-68.000.
Pfizer Inc.: *See—*
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Pfost, R. Fred, to Newell Research Corporation. Tape system with optically contrasting data marks. 4,380,032, Cl. 360-74.600.
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Satchell, Donald P., Jr., 4,379,711, Cl. 436-82.000.
Philip Morris Incorporated: *See—*
Wu, D. Louise; and Swain, James W., 4,379,464, Cl. 131-275.000.
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Phillips Petroleum Company: *See—*
Bailey, Fay W., 4,379,884, Cl. 525-96.000.
Brost, Robert L.; and Gagle, Duane W., 4,379,655, Cl. 405-176.000.
Selman, Charles M.; and Fodor, Lawrence M., 4,379,898, Cl. 526-124.000.
Phillips, Thomas S.: *See—*
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Picker Corporation: *See—*
Vagi, Robert J., 4,380,086, Cl. 378-155.000.
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Piller, Robert: *See—*
Deutsch, Albert S.; Lyons, Christopher F.; and Piller, Robert, 4,379,830, Cl. 430-309.000.
Pippert, Fred B., to Utex Industries, Inc. Anti-extrusion packing member. 4,379,558, Cl. 277-188.00A.
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Pitney Bowes Inc.: *See—*
Adamoski, William; and Hotchkiss, Alan B., 4,379,383, Cl. 53-266.00A.
Coppola, Vincent G., 4,379,985, Cl. 318-293.000.
Dannatt, Hugh St. L., 4,379,414, Cl. 74-805.000.
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Plachno, Robert S., to Mostek Corporation. Delay stage for a clock generator. 4,379,974, Cl. 307-269.000.
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Steinegger, Walther, 4,380,007, Cl. 340-365.00C.
Plester, Karl-Heinz: *See—*
Rosenberg, Harry; Plester, Karl-Heinz; Eggenstein, Friedrich; and Terhorst, Gunter, 4,379,424, Cl. 92-13.410.
Plueddemann, Edwin P., to Dow Corning Corporation. Metal extraction from solution and novel compounds used therefor. 4,379,931, Cl. 546-14.000.
Polizzotti, Richard S.; and Krutenat, Richard C., to Exxon Research and Engineering Co. Carburization resistance of austenitic stainless steel tubes. 4,379,745, Cl. 208-132.000.
Pollock, Clyde. Multiplication/division tutorial game. 4,379,700, Cl. 434-208.000.
Polychrome Corporation: *See—*
Deutsch, Albert S.; Lyons, Christopher F.; and Piller, Robert, 4,379,830, Cl. 430-309.000.
Porter, Donald G. Fan accessory for heater. 4,379,446, Cl. 126-110.00B.
Posset, Robert, to BFG Glassgroup. Capacitive systems for touch control switching. 4,380,040, Cl. 361-280.000.
Powell Manufacturing Company, Inc.: *See—*
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PPG Industries, Inc.: *See—*
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Prasco Super Seeder Ltd.: *See—*
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Pratap, Prem: *See—*
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Price, Robert J.: *See—*
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Primbsch, Erik; and Bickel, Wolf, to Krautkramer-Branson, Inc. Apparatus for producing ultrasonic waves in a workpiece. 4,379,409, Cl. 73-643.000.
Primbsch, Erik: *See—*
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Proud, Joseph M., to GTE Laboratories Incorporated. Low energy starting aid for high intensity discharge lamps. 4,379,982, Cl. 315-73.000.
Prudhon, Francois J.; and Scicluna, Augustin L., to Rhone-Poulenc Industries. Device for putting into contact substances existing in at least two different phases. 4,379,638, Cl. 366-149.000.
Pruyn, Richard R.: *See—*
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Purdy, Robert H.: *See—*
Rao, Pemmaraju N.; Purdy, Robert H.; and Moore, Perry H., Jr., 4,379,779, Cl. 436-543.000.
Purr, Horst, to Mathias Bauerle GmbH. Washing unit for an offset duplicating machine. 4,379,467, Cl. 134-111.000.
Puschner, Manfred; and Gerdau, Herbert, to ESAB Aktiebolag. Tubular filler wire for fusion welding. 4,379,811, Cl. 428-555.000.
Qualitz, Marion; and Krupp, Viktor A., to Spezial-Papiermaschinenfabrik August Alfred Krupp GmbH & Co. Pressure sensitive recording materials. 4,379,721, Cl. 106-21.000.
Radel, Robert J.; and Sullivan, Jack M., to Tennessee Valley Authority. Preparation of nitrogen fertilizers from oxalate esters prepared by the oxidative carbonylation of alcohols over noble metal catalysts utilizing regenerable 2,5-cyclohexadiene-1,4-dione oxidants. 4,379,939, Cl. 560-193.000.
Rademacher, Thomas P., to NcNeil Corporation. Leg buoy for training swimmers. 4,379,704, Cl. 441-88.000.
Railway Track-Work Company: *See—*
Jenkins, Allan D.; Appelen, John T.; and Lind, Nils, 4,379,371, Cl. 37-104.000.
Rain Bird Sprinkler Mfg. Corp.: *See—*
Pitchford, Edward J.; and Troup, Edward M., 4,379,976, Cl. 310-83.000.
Raj Technology Partnership: *See—*
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Rattlingourd, Glen D., to Sperry Corporation. Tri-level differential line receiver. 4,380,080, Cl. 375-17.000.
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Martin, Charles L., 4,379,575, Cl. 285-369.000.
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Chambers, Robert W.; McNeely, Michael L.; and Torrington, Leslie A., 4,379,686, Cl. 425-290.000.
Torres, Rafael; and Woodward, Oakley M., 4,380,011, Cl. 343-702.000.
Ziegel, Douglas H., 4,379,510, Cl. 209-643.000.
Rea Magnet Wire Co., Inc.: *See—*
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Reaves, V. Randon, to Valinco, Inc. Vane type valve actuator. 4,379,543, Cl. 251-59.000.
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Amundsen, Joseph; Goodwin, Robert J.; and Wetzel, William H., 4,379,810, Cl. 428-541.000.
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Reitmeier, Glenn A.; and Marlowe, Frank J. Digital error detection using bracketing. 4,380,069, Cl. 371-31.000.
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Rhee, Jae W. Refrigerator. 4,379,391, Cl. 62-408.000.
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Ricci, Antonio, to Diesse Diagnostica Senese S.r.l. Hemolytic method for the kinetic determination of antistreptolysin O antibodies in blood or serum samples, using oxidized streptolysin O. 4,379,850, Cl. 436-517.000.
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Bauer, Siegfried; and Boebel, Manfred, 4,379,458, Cl. 604-264.000.
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Mizuma, Kenichi, 4,379,549, Cl. 271-3.100.
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Riess, Guido, to Neodontics, Inc. Dental implant. 4,379,694, Cl. 433-201.000.
Riethmuller, Heinz; Sindlinger, Rainer; and Schultz, Peter, to TELDIX GmbH. Gyrocompass. 4,379,365, Cl. 33-316.000.
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Rion, Claude; and Ruckheim, Winfried, to Audi Nsu Auto Union Aktiengesellschaft. Power seat adjuster. 4,379,539, Cl. 248-371.000.
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Stuart, Richard L.; and Killmeyer, Fred C., 4,380,062, Cl. 370-20.000.
Robert Bosch GmbH: *See*—
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Kurz, Wolfgang; and Leunig, Rainer, 4,379,989, Cl. 320-26.000.
Robertson, Gene V. Latch bolt strike lock. 4,379,577, Cl. 292-341.150.
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Robinson, Joseph G.; Barnes, David I.; and Carswell, Angela M., to Coal Industry (Patents) Limited. Keto/polycarboxy containing resin. 4,379,896, Cl. 525-472.000.
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Grantham, LeRoy F.; and Johanson, James G., 4,379,718, Cl. 75-24.000.
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Weber, Robert J., 4,379,996, Cl. 330-296.000.
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Rodgers, Stuart N.; and Voycheshin, Sidney J. Concrete forming apparatus. 4,379,683, Cl. 425-62.000.
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Rollmann, Louis D., to Mobil Oil Corporation. Method for production of heavy oil from tar sands. 4,379,489, Cl. 166-266.000.
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Rose, John A.; and Dyer, Keith, to AMF Incorporated. Apparatus for manufacture of jigs. 4,379,666, Cl. 409-110.000.
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Rosenthal, Joel W.; and Dahlberg, Arthur J., to Chevron Research Company. Coal liquefaction process. 4,379,744, Cl. 208-10.000.
Rosenthal, Moshe. Method and device for detecting birefringent substances in liquids. 4,379,634, Cl. 356-365.000.
Rotator, Ltd.: *See*—
Webb, Ronald W.; and Morgan, Robert L., 4,379,552, Cl. 272-67.000.
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Roudeau, Maurice. Overvoltage protective module. 4,380,038, Cl. 361-119.000.
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Roussin, Michael A.; Jones, Steven D.; and Woody, Albert L., to Caterpillar Tractor Co. Ripper with offset impacting means and slotted shank. 4,379,595, Cl. 299-37.000.
Rovelli, Giuseppe, to Industrie Pirelli S.p.A. Device for keeping a lining-layer in contact with the walls of a civil-engineering works. 4,379,654, Cl. 405-53.000.
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Ruehle, William H., to Mobil Oil Corporation. F-K Filtering of multiple reflections from a seismic section. 4,380,059, Cl. 367-46.000.
Rundell, Herbert A.; and Horton, Eugene B., Jr., to Texaco Inc. Stripping gland for multicables with connector. 4,379,556, Cl. 277-12.000.
Rusch, Larry P., to Westinghouse Electric Corp. Fluorescent lamp having improved barrier layer. 4,379,981, Cl. 313-489.000.
Ruschitzka, Friedrich. Clamp-bolt shelving. 4,379,430, Cl. 108-107.000.
Rybicki, Edward B., to Warner Lambert Technologies, Inc. 40x Microscope objective. 4,379,623, Cl. 350-414.000.
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Samaritter, Reinhard; Schoberth, Winfried; and Volland, Robert, to Bayer Aktiengesellschaft. Polyurethane foam molding with zones of different indentation hardness and a process for its production. 4,379,856, Cl. 521-51.000.
Samuels, Kenneth E.; and Wiggins, Wayne T., to Standard Oil Company, The. Coalescing aid for high nitrile copolymer latex coatings. 4,379,875, Cl. 524-104.000.
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Sandner, Michael R.: *See—*
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Sanmatsu Kogyo Co., Ltd.: *See—*
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San Miguel, Anthony, to United States of America, Army. System for measuring plate deformation produced by explosive shock waves, and motion-sensing accelerometer transducer used therein. 4,379,401, Cl. 73-12.000.
Sano, Hiromi; and Suzuki, Masatoshi, to Nippondenso Co., Ltd. Oxygen concentration sensor. 4,379,741, Cl. 204-424.000.
Sanyo Denki Kabushiki Kaisha: *See—*
Andoh, Sadanari; Maeda, Junji; Fukushima, Kiyoshi; Yoneda, Hiroichi; and Jinushi, Naotomo, 4,380,018, Cl. 346-140.00R.
Saotome, Hikoji. Life belt. 4,379,705, Cl. 441-94.000.
Sara, Raymond V., to Union Carbide Corporation. Stress relieved metal/ceramic abradable seals and deformable metal substrate therefor. 4,379,812, Cl. 428-577.000.
Satchell, Donald P., Jr., to Phelps Dodge Corporation. Apparatus and method for visually monitoring an ion exchange fluidized bed. 4,379,711, Cl. 436-82.000.
Sato, Nobuhiro, to TDK Electronics Co., Ltd. Cleaning tape for magnetic recording apparatus. 4,379,800, Cl. 428-148.000.
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Sauder, Robert A., to Sauder Industries, Inc. Method and apparatus for insulating a furnace having a corrosive atmosphere. 4,379,382, Cl. 52-506.000.
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Schall, William L., to Occidental Chemical Corporation. Vinyl halide polymer of enhanced plasticizer uptake. 4,379,880, Cl. 524-297.000.
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Scheinpflug, Gunter, to Triumph-Adler A.G. fur Buro-und Informationstechnik. Large format paper handling assembly for typewriters or like business machines. 4,379,645, Cl. 400-623.000.
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Schiel, Christian, to J. M. Voith GmbH. Drying cylinder for machines for making paper and a method for making the drying cylinder. 4,379,369, Cl. 34-110.000.
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Schmednecht, Fred C., to Thatcher Engineering Corporation. Method and apparatus for constructing slurry walls. 4,379,658, Cl. 405-267.000.
Schmid, Carl J., to Peerless Electronics Research Corp. Radiation measuring apparatus. 4,379,637, Cl. 356-411.000.
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Schuyler, Andreas D.; and Maier, Richard K., to Skymar Corporation. Platform tennis paddle. 4,379,554, Cl. 273-67.00R.
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Scientific Pharmaceuticals, Inc.: *See—*
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Scott, Paul R., to Shell Oil Company. Pipeline gel plug. 4,379,722, Cl. 106-287.170.
Sedlmair, Gerhard, to Marker-Patentverwertungsgesellschaft mbH. Ski stopper. 4,379,570, Cl. 280-605.000.
Selas Corporation of America: *See—*
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Selman, Charles M.; and Fodor, Lawrence M., to Phillips Petroleum Company. Polymerization catalysts. 4,379,898, Cl. 526-124.000.
Sengoku, Ikuo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Device for fixing a window molding onto a windowpane. 4,379,379, Cl. 52-208.000.
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Sharp, Shelby P., to Standard Oil Company (Indiana). Method for removal of asphaltene depositions with amine-activated disulfide oil. 4,379,490, Cl. 166-304.000.
Shaw, Michael J., to Allied Paper, Incorporated. Conductive barrier coat for electrostatic masters. 4,379,822, Cl. 430-62.000.
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Sherwood, Tom W., to Unique Products Company, Inc. Paper bag stiffener. 4,379,519, Cl. 229-55.000.
Sheshtawy, Adel, to International Petroleum Engineering Corporation. Replaceable drill stabilizer sleeve. 4,379,494, Cl. 175-325.000.
Shiba, Haruo, to TDK Electronics Co., Ltd. Magnetic tape cassette. 4,380,030, Cl. 360-132.000.

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Shima, George T., to Burroughs Corporation. Single transmission bus data network employing a daisy-chained bus data assignment control line which can bypass non-operating stations. 4,380,052, Cl. 364-900.000.
Shimada, Sumio: *See*—
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Shimbashi, Ichiro; Ikegami, Hiroshi; and Bando, Hideharu, to Nippon Steel Corporation. Continuous cold rolling and annealing apparatus for steel strip. 4,379,547, Cl. 266-103.000.
Shinto Kogio, Ltd.: *See*—
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Shiraishi, Mitsura: *See*—
  Numata, Mitsuo; Mimamida, Isao; Yamaoka, Masayoshi; Shiraishi, Mitsura; and Miyawaki, Toshio, 4,379,924, Cl. 544-27.000.
Shkidchenko, Alexandr N.; Nesterov, Boris F.; Sharov, Vyacheslav G.; and Smolin, Boris I. Fermentation apparatus. 4,379,846, Cl. 435-316.000.
Shockley, Richard C., to Standard Oil Company, The. Acoustic degenerate four-wave mixing phase-conjugate reflector. 4,379,998, Cl. 333-150.000.
Shortridge, Thomas J.: *See*—
  Clikeman, Richard R.; Jones, Donald H.; Shortridge, Thomas J.; and Troy, Edward J., 4,379,876, Cl. 524-109.000.
Shrum, Kenneth L., to Sun Studs, Inc. Veneer lathe log charger system having enhanced accuracy and rate of production. 4,379,477, Cl. 144-357.000.
Shulman, Lawrence M.: *See*—
  Leventer, William; and Shulman, Lawrence M., 4,380,027, Cl. 358-147.000.
Siadat, Bahram; and Raksis, Joseph W., to W. R. Grace & Co. Cationic latices and their electrodeposition. 4,379,869, Cl. 523-206.000.
Siemens Aktiengesellschaft: *See*—
  Kunze, Dieter, 4,379,473, Cl. 138-167.000.
  Liertz, Heinrich, 4,379,614, Cl. 350-96.210.
  Steinberger, Wolfgang; and Stempfl, Gerhard, 4,380,019, Cl. 346-140.00R.
  Wilhelm, Wilhelm, 4,380,060, Cl. 370-5.000.
Sievers, Kirk A.; and Mortonson, Robert W., to Motorola Inc. Fault detection and diagnostic system for automotive battery charging systems. 4,379,990, Cl. 322-99.000.
Sigma concern: *See*—
  Langr, Oldrich, 4,379,397, Cl. 72-95.000.
Sikora, Helga: *See*—
  Herwig, Walter; Klupfel, Kurt; Sikora, Helga; and Sprengel, Heide, 4,379,834, Cl. 430-329.000.
Silverman, Ronald R.: *See*—
  Hansen, Howard H.; Lasky, Jerome B.; and Silverman, Ronald R., 4,379,727, Cl. 148-1.500.
Simko, Aladar O., to Ford Motor Company. Electromagnetically controlled fuel injection pump. 4,379,442, Cl. 123-458.000.
Simmons, Lovel R. Trailer with adjustable wheels. 4,379,571, Cl. 280-656.000.
Sindlinger, Rainer: *See*—
  Riethmuller, Heinz; Sindlinger, Rainer; and Schultz, Peter, 4,379,365, Cl. 33-316.000.
Singer Company, The: *See*—
  Hauser, William G., 4,379,601, Cl. 312-21.000.
Siren: *See*—
  Pelletier, Robert, 4,379,668, Cl. 410-77.000.
Sjolinder, Per-Olof. Traction benches. 4,379,450, Cl. 128-74.000.
SKF Industries, Inc.: *See*—
  Sundqvist, Yngve, 4,379,599, Cl. 308-187.000.
Skinner, Ronald W.: *See*—
  Dalton, Augustine I., Jr.; and Skinner, Ronald W., 4,379,778, Cl. 423-584.000.
Skistimas, Donald V.: *See*—
  Holmes, Rory A.; and Skistimas, Donald V., 4,379,799, Cl. 428-131.000.
Skymar Corporation: *See*—
  Schuyler, Andreas D.; and Maier, Richard K., 4,379,554, Cl. 273-67.00R.
Slater Electric Inc.: *See*—
  Bowden, Wade R., Jr., 4,379,607, Cl. 339-40.000.
Slysh, Paul, to General Dynamics Corp./Convair Division. Expandable panel and truss system/antenna/solar panel. 4,380,013, Cl. 343-753.000.
Smethers, Rollo G., Jr.: *See*—
  Caldwell, Edward W.; and Smethers, Rollo G., Jr., 4,379,533, Cl. 244-118.100.
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  Peck, Roger F., 4,379,881, Cl. 524-315.000.
Smith, Peter R.; and Coleman, Charles, to Statitrol, Inc. Pyroelectric sensor. 4,379,971, Cl. 250-342.000.
Smolin, Boris I.: *See*—
  Shkidchenko, Alexandr N.; Nesterov, Boris F.; Sharov, Vyacheslav G.; and Smolin, Boris I., 4,379,846, Cl. 435-316.000.
Snyder, Donald Q., to Western Electric Company, Inc. Methods of and apparatus for terminating a lightguide fiber ribbon. 4,379,771, Cl. 264-1.500.
Snyder, Edward A.: *See*—
  Lock, William E.; and Snyder, Edward A., 4,379,818, Cl. 430-5.000.
Snyder, Martin, to C. R. Bard, Inc. Copolymer composition and delivery system for providing a protective barrier film for the skin. 4,379,863, Cl. 523-105.000.
Societe Francaise d'Agrafage Industriel - Sofragraf: *See*—
  Barlogis, Rene, 4,379,516, Cl. 222-146.0HE.
Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.": *See*—
  Hallinger, Claude C.; and Kervistin, Robert, 4,379,677, Cl. 415-175.000.
Soliman, Mustafa: *See*—
  Wojaczek, Egon; Soliman, Mustafa; and Schulte, Juergen, 4,379,661, Cl. 405-299.000.
Solomon, Frank; and Grun, Charles, to Diamond Shamrock Corporation. Method for forming an electrode active layer or sheet. 4,379,772, Cl. 264-49.000.
Sonderegger, Hans C.: *See*—
  Engeler, Paul; Sonderegger, Hans C.; and Wolfer, Peter, 4,379,405, Cl. 73-167.000.
Sony Corporation: *See*—
  Odaka, Kentarou, 4,380,071, Cl. 371-40.000.
Soong, Jakob C. K., to Erie Technological Products, Inc. Low temperature firing (1800°-2100° F.) of barium titanate with flux (lead titanate-bismuth titanate-zinc oxide and boron oxide). 4,379,854, Cl. 501-138.000.
Sosa, Daniel T.: *See*—
  Sosa, Thomas J.; and Sosa, Daniel T., 4,379,972, Cl. 290-44.000.
Sosa, Thomas J.; and Sosa, Daniel T., to Sosa, Daniel T. Turbine ventilator. 4,379,972, Cl. 290-44.000.
Speed Clip Manufacturing Corp.: *See*—
  Green, Bernard J.; and Chorosevic, Jerome J., 4,379,596, Cl. 301-5.00B.
Speice, Donald G. Revolving solar lounger. 4,379,588, Cl. 297-217.000.
Spencer, David H.; Steiner, Marvin E.; and Lang, Donald H., to Burroughs Corporation. Defect tolerant memory. 4,380,066, Cl. 371-10.000.
Sperr, Charles J., Jr.; and Sperr, Douglas C. Evaporative cooler. 4,379,712, Cl. 55-257.00R.
Sperr, Douglas C.: *See*—
  Sperr, Charles J., Jr.; and Sperr, Douglas C., 4,379,712, Cl. 55-257.00R.
Sperry Corporation: *See*—
  Rattlingourd, Glen D., 4,380,080, Cl. 375-17.000.
Spezial-Papiermaschinenfabrik August Alfred Krupp GmbH & Co.: *See*—
  Qualitz, Marion; and Krupp, Viktor A., 4,379,721, Cl. 106-21.000.
Spiegelman, Sol, to Columbia University in the City of New York, The Trustees of. Method for detecting cancer. 4,379,839, Cl. 435-5.000.
Sprecher & Schuh AG: *See*—
  Blatter, Johann; and Schaad, Walter, 4,379,958, Cl. 200-148.00A.
Sprengel, Heide: *See*—
  Herwig, Walter; Klupfel, Kurt; Sikora, Helga; and Sprengel, Heide, 4,379,834, Cl. 430-329.000.
Staar S.A.: *See*—
  d'Alayer de Costemore d'Arc, Stephane M. A., 4,380,031, Cl. 360-74.100.
Staempfli, Jackie, to Valinor, S.A. Grapnel. 4,379,580, Cl. 294-86.00R.
Staeubli Ltd.: *See*—
  Mueller, Otto, 4,379,474, Cl. 139-21.000.
Standard Oil Co., The: *See*—
  Grasselli, Robert K.; Suresh, Dev D.; and Bridgeman, David R., 4,379,925, Cl. 544-102.000.
  Samuels, Kenneth E.; and Wiggins, Wayne T., 4,379,875, Cl. 524-104.000.
  Shockley, Richard C., 4,379,998, Cl. 333-150.000.
Standard Oil Company (Indiana): *See*—
  Sharp, Shelby P., 4,379,490, Cl. 166-304.000.
Stanford University: *See*—
  Harris, Stephen E., 4,380,072, Cl. 372-5.000.
  Linvill, John G., 4,379,697, Cl. 434-114.000.
Stanley Electric Co. Ltd.: *See*—
  Kubota, Yutaka, 4,380,026, Cl. 358-106.000.
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  Carmel, Yuval; and Eylon, Shmuel, 4,379,977, Cl. 378-136.000.
Statitrol, Inc.: *See*—
  Smith, Peter R.; and Coleman, Charles, 4,379,971, Cl. 250-342.000.
Staub, Herbert W.; Schanbacher, Larry M.; Zencheck, Jack D.; and Young, Cynthia L., to General Foods Corporation. Low-calorie foods. 4,379,782, Cl. 424-180.000.
Stein, Marc T., to Medtronic, Inc. Cardiac pacemaker sense amplifier. 4,379,459, Cl. 128-419.0PG.
Steinberger, Hans: *See*—
  Hauslein, Siegfried; Steinberger, Hans; Heigl, Willibald; Scheichl, Georg; and Kauderer, Erwin, 4,379,352, Cl. 5-471.000.
Steinberger, Wolfgang; and Stempfl, Gerhard, to Siemens Aktiengesellschaft. Device for monitoring the supply of printing fluid in ink printing devices. 4,380,019, Cl. 346-140.00R.
Steinegger, Walther, to Playmont AG. Proximity switch. 4,380,007, Cl. 340-365.00C.
Steiner, Alfred, to Steiner Silidur A.G. Building blocks. 4,379,659, Cl. 405-284.000.

Steiner, Marvin E.: *See*—
Spencer, David H.; Steiner, Marvin E.; and Lang, Donald H., 4,380,066, Cl. 371-10.000.
Steiner Silidur A.G.: *See*—
Steiner, Alfred, 4,379,659, Cl. 405-284.000.
Steiner, William G., to Lockheed Corporation. Automatic circuit identifier. 4,380,070, Cl. 371-20.000.
Stemmler, Ingo; Muller, Hanns P.; and Wagner, Kuno, to Bayer Aktiengesellschaft. Process for the preparation of polyisocyanates containing isocyanurate groups and their use in the production of polyurethanes. 4,379,905, Cl. 528-73.000.
Stempfl, Gerhard: *See*—
Steinberger, Wolfgang; and Stempfl, Gerhard, 4,380,019, Cl. 346-140.00R.
Stephens, Eugene. Alarm watch with remote sonic amplifier. 4,379,639, Cl. 368-12.000.
Sterling Drug Inc.: *See*—
Clarke, Robert L. G., 4,379,936, Cl. 546-91.000.
Crounse, Nathan N., 4,379,710, Cl. 8-527.000.
Stewart, Gary E.: *See*—
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Stinshoff, Klaus: *See*—
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Stoev, Stoycho M.; Dshendova, Shtelyana D.; Stoyanov, Kiril N.; Dochev, Raycho V.; and Krestev, Tzvetan P., to Vish-Minnogeoloshki Institute. Method for regulating the granulometric characteristic of the components in metallurgical slags. 4,379,714, Cl. 65-19.000.
Storrs, Charles M.: *See*—
Hendershot, Homer; and Storrs, Charles M., 4,379,665, Cl. 408-204.000.
Stoy, Vladimir A. Polymer composition comprising polyacrylonitrile polymer and multi-block copolymer. 4,379,874, Cl. 524-27.000.
Stoyanov, Kiril N.: *See*—
Stoev, Stoycho M.; Dshendova, Shtelyana D.; Stoyanov, Kiril N.; Dochev, Raycho V.; and Krestev, Tzvetan P., 4,379,714, Cl. 65-19.000.
Stracke, Wilfried: *See*—
Schoening, Josef; Schwiers, Hans-Georg; Elter, Claus; Stracke, Wilfried; and Mauersberger, Reinhard, 4,380,085, Cl. 376-381.000.
Strauss, Howard: *See*—
Joffe, Edward J., 4,379,514, Cl. 221-279.000.
Strick, Leonard. External door for vehicles. 4,379,585, Cl. 296-146.000.
Strickland, George A.: *See*—
McLaughlin, Joseph E.; and Strickland, George A., 4,379,886, Cl. 525-162.000.
Strong, Terence: *See*—
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Stuart, Richard L.; and Killmeyer, Fred C., to Rixon, Inc. Communication system providing simultaneous two-way transmission. 4,380,062, Cl. 370-20.000.
Suga, Shuji: *See*—
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Sugawara, Tsutomu: *See*—
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Sugimito, Mamoru: *See*—
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Sukrushev, Vitaly S.: *See*—
Vakhnin, Gennady I.; Verty, Vladimir G.; Voronin, Pavel G.; Gurov, Evgeny I.; Isaikin, Vladimir G.; Mishakov, Vladimir N.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Tabakov, Vladimir P.; Tjunkin, Boris A.; and Fotieva, Ljudmila I., 4,379,592, Cl. 299-2.000.
Sullivan, Jack M.: *See*—
Radel, Robert J.; and Sullivan, Jack M., 4,379,939, Cl. 560-193.000.
Sulzbach, Reinhard A., to Hoechst Aktiengesellschaft. Raw polymer powder of a modified tetrafluoroethylene polymer having a high bulk density and a good powder flow index and also a process for the manufacture and use thereof. 4,379,900, Cl. 526-247.000.
Sumitomo Chemical Company, Limited: *See*—
Funaki, Yuji; Tanaka, Shizuya; and Matsuo, Noritada, 4,379,921, Cl. 542-458.000.
Ueno, Katsuzi; Maruyama, Takashi; Suzuki, Haruo; and Saito, Teruo, 4,379,892, Cl. 525-439.000.
Sumitomo Electric Industries, Ltd.: *See*—
Toda, Yuichi; Yano, Kohji; and Sakamoto, Katsuji, 4,379,615, Cl. 350-96.230.
Sun-Ohio, Inc.: *See*—
Norman, Oscar L.; and Handler, Laurence H., 4,379,746, Cl. 208-262.000.
Norman, Oscar L., 4,379,752, Cl. 210-712.000.
Sun Studs, Inc.: *See*—
Berry, Larry R., 4,379,476, Cl. 144-357.000.
Shrum, Kenneth L., 4,379,477, Cl. 144-357.000.
Sundqvist, Yngve, to SKF Industries, Inc. Bearing inner ring. 4,379,599, Cl. 308-187.000.
Suresh, Dev D.: *See*—
Grasselli, Robert K.; Suresh, Dev D.; and Bridgeman, David R., 4,379,925, Cl. 544-102.000.
Suzuki, Haruo: *See*—
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Suzuki, Hiroo; Yamamoto, Koichi; Ohno, Yasuhide; and Miyamura, Kou, to Nippon Steel Corporation. Prevention of cracking of continuously cast steel slabs containing boron. 4,379,482, Cl. 164-485.000.
Suzuki, Hirosuke. Foamed plastics. 4,379,858, Cl. 521-54.000.
Suzuki, Masatoshi: *See*—
Sano, Hiromi; and Suzuki, Masatoshi, 4,379,741, Cl. 204-424.000.
Suzuki, Tadashi: *See*—
Kishi, Norimasa; and Suzuki, Tadashi, 4,380,048, Cl. 364-424.100.
Suzuki, Yoshiro, to Olympus Optical Company Limited. Transfer roller for electrophotographic apparatus. 4,379,630, Cl. 355-3.0TR.
Suzuki, Yutaka: *See*—
Ooishi, Minoru; Mochizuki, Teruji; and Suzuki, Yutaka, 4,379,997, Cl. 330-298.000.
Swain, James W.: *See*—
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Sydorko, Peter J.: *See*—
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Syntex (U.S.A.) Inc.: *See*—
Gallop, Paul M.; and Korb, Donald R., 4,379,864, Cl. 523-106.000.
Szukhent, Steve, Jr., to Tex-All Company, Inc. Ventilator apparatus for a flexible sheet. 4,379,468, Cl. 135-88.000.
Szybowicz, Wolfgang: *See*—
Buchmann, Heinz; Mayer, Bruno; and Szybowicz, Wolfgang, 4,379,652, Cl. 404-117.000.
Tabakov, Vladimir P.: *See*—
Vakhnin, Gennady I.; Verty, Vladimir G.; Voronin, Pavel G.; Gurov, Evgeny I.; Isaikin, Vladimir G.; Mishakov, Vladimir N.; Obrezkov, Alexandr I.; Sukrushev, Vitaly S.; Tabakov, Vladimir P.; Tjunkin, Boris A.; and Fotieva, Ljudmila I., 4,379,592, Cl. 299-2.000.
Tabata, Yujin: *See*—
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Tachibana, Matsuo: *See*—
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Tada, Tetsuya; and Morishita, Yutaka, to Canyon Corporation. Injection molding machine. 4,379,685, Cl. 425-183.000.
Taiyo Denko Kabushiki Kaisha: *See*—
Kashiwagi, Hidehiro, 4,379,724, Cl. 134-1.000.
Takabe, Reiichiro: *See*—
Chiyoda, Hironobu; Yamazaki, Hisayuki; and Takabe, Reiichiro, 4,379,762, Cl. 252-507.000.
Takada, Toshiaki: *See*—
Hagiwara, Yutaka; Takada, Toshiaki; and Yamazaki, Tetu, 4,379,501, Cl. 188-218.0XL.
Takada, Yukimitsu; Harada, Hiroshi; and Takubo, Shuji, to Yamaha Hatsudoki Kabushiki Kaisha. Intake duct for an outboard engine. 4,379,702, Cl. 440-77.000.
Takahashi, Hiroshi, to Canon Kabushiki Kaisha. Memory addressing system for sequentially accessing all memory addresses in a memory area. 4,380,053, Cl. 364-900.000.
Takahashi, Nobuyuki: *See*—
Nakatsukasa, Masashi; and Takahashi, Nobuyuki, 4,379,743, Cl. 204-298.000.
Takahashi, Sadayuki; Komeda, Yorio; Tachibana, Matsuo; and Nosaka, Kenkichi, to Kubota Ltd. Arrangement for attaching working implements to vehicle. 4,379,673, Cl. 414-686.000.
Takahashi, Seitaro: *See*—
Ohmi, Hidehiko; Kitagawa, Katsuhisa; Morimoto, Shoji; Kubo, Tateo; Ohno, Misao; and Takahashi, Seitaro, 4,379,512, Cl. 215-327.000.
Takamatsu, Mashiro; Nakao, Makoto; and Ogawa, Isao, to Toyota Jidosha Kogyo Kabushiki Kaisha; and Jeco Co., Ltd. Apparatus for illuminating instrument pointers. 4,380,043, Cl. 362-26.000.
Takamura, Takuo: *See*—
Yoshimoto, Hisanari; Tonomura, Taka; and Takamura, Takuo, 4,379,667, Cl. 409-234.000.
Takanashi, Yukio; Yakabe, Tooru; and Asano, Shunji, to Tokyo Shibaura Denki Kabushiki Kaisha. Quick operating cathode. 4,379,980, Cl. 313-446.000.
Takasugi, Hisashi: *See*—
Ueda, Ikuo; Takaya, Takao; Kobayashi, Masakazu; Masugi, Takashi; Takasugi, Hisashi; Kochi, Hiromu; and Kitaguchi, Tadashi, 4,379,922, Cl. 544-16.000.
Takatori Machinery Works Ltd.: *See*—
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Takaya, Takao: *See*—
Ueda, Ikuo; Takaya, Takao; Kobayashi, Masakazu; Masugi, Takashi; Takasugi, Hisashi; Kochi, Hiromu; and Kitaguchi, Tadashi, 4,379,922, Cl. 544-16.000.
Takechi, Sadatoshi: *See*—
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Takeda Chemical Industries, Ltd.: *See*—
Numata, Mitsuo; Mimamida, Isao; Yamaoka, Masayoshi; Shiraishi, Mitsura; and Miyawaki, Toshio, 4,379,924, Cl. 544-27.000.
Takehata, Tetsuro: *See*—
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Takematsu, Yoshiyuki, to Fuji Koeki Corporation. Electric flash device. 4,379,983, Cl. 315-151.000.

Takubo, Shuji: *See—*
Takada, Yukimitsu; Harada, Hiroshi; and Takubo, Shuji, 4,379,702, Cl. 440-77.000.
Tall, Marion A. Magnifier viewer and stand. 4,379,618, Cl. 350-239.000.
Tamai, Kiminori; and Hayama, Masashi, to TDK Electronics Co., Ltd. Magnetic recording medium. 4,379,803, Cl. 428-328.000.
Tanabe, Akira: *See—*
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Tanabe, Yoshimitu: *See—*
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Tanaka, Shinken; and Yuda, Takuo, to Nissan Motor Co., Ltd.; and Nifco Inc. Fixing structure for radiator grille. 4,379,648, Cl. 403-24.000.
Tanaka, Shizuya: *See—*
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Tanaka, Tsuneo, to Tokyo Shibaura Denki Kabushiki Kaisha. X-ray film cassette. 4,380,087, Cl. 378-186.000.
Tanifuji, Shinya: *See—*
Konishi, Seizi; Tashiro, Kazuyuki; Kamigane, Yoshihiro; Sakurai, Takakazu; Tanifuji, Shinya; and Morooka, Yasuo, 4,379,395, Cl. 72-8.000.
Tanner, Jesse H. Aircraft location and collision avoidance system. 4,380,050, Cl. 364-461.000.
Tarmac Industrial Holdings Limited: *See—*
Cross, Sydney H., 4,379,729, Cl. 156-73.600.
Tashiro, Kazuyuki: *See—*
Konishi, Seizi; Tashiro, Kazuyuki; Kamigane, Yoshihiro; Sakurai, Takakazu; Tanifuji, Shinya; and Morooka, Yasuo, 4,379,395, Cl. 72-8.000.
Tassoney, Joseph P., to Occidental Oil Shale, Inc. Two-stage oil shale retorting process and disposal of spent oil shale. 4,379,591, Cl. 299-2.000.
Tate, Dennis J.; and Trevino, Henry, to Ethyl Development Corporation. Oriented injection blow molded container production. 4,379,688, Cl. 425-526.000.
Tatemoto, Masayoshi: *See—*
Amimoto, Yoshio; and Tatemoto, Masayoshi, 4,379,901, Cl. 526-247.000.
Taylor, Edwin C., Sr., to Owens-Illinois, Inc. Three cell divider for carton. 4,379,518, Cl. 229-15.000.
Taylor, Merrick W.; Allen, George R.; and Strong, Terence, to Motor Panels (Coventry) Limited. Vehicle cabs having airflow deflectors on their roofs. 4,379,583, Cl. 296-1.00S.
TDK Electronics Co., Ltd.: *See—*
Ota, Hiroshi; Horigome, Eiji; and Azegami, Hiroshi, 4,380,035, Cl. 360-130.330.
Sato, Nobuhiro, 4,379,800, Cl. 428-148.000.
Shiba, Haruo, 4,380,030, Cl. 360-132.000.
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TELDIX GmbH: *See—*
Riethmuller, Heinz; Sindlinger, Rainer; and Schultz, Peter, 4,379,365, Cl. 33-316.000.
Telefonaktiebolaget L M Ericsson: *See—*
Andersson, Karl A. I.; and Roos, Sture G., 4,380,083, Cl. 375-120.000.
Teleprompter Corporation: *See—*
Warner, Paul, 4,379,947, Cl. 179-1.0GD.
Tennessee Valley Authority: *See—*
Radel, Robert J.; and Sullivan, Jack M., 4,379,939, Cl. 560-193.000.
Terhorst, Gunter: *See—*
Rosenberg, Harry; Plester, Karl-Heinz; Eggenstein, Friedrich; and Terhorst, Gunter, 4,379,424, Cl. 92-13.410.
Tessler, Martin M.; Wurzburg, Otto B.; and Dirscherl, Teresa A., to National Starch and Chemical Corporation. Starch sulfomaleate half-esters, a method for their preparation and their use to prepare starch disulfosuccinate half-esters. 4,379,919, Cl. 536-108.000.
Tex-All Company, Inc.: *See—*
Szukhent, Steve, Jr., 4,379,468, Cl. 135-88.000.
Texaco Inc.: *See—*
Rundell, Herbert A.; and Horton, Eugene B., Jr., 4,379,556, Cl. 277-12.000.
Textron, Inc.: *See—*
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Thatcher Engineering Corporation: *See—*
Schmednecht, Fred C., 4,379,658, Cl. 405-267.000.
Thedford, Dale E.; and Wilson, Gil C., to AG Industries International, Ltd. Livestock spray apparatus. 4,379,440, Cl. 119-159.000.
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Whiting, Lauren C., 4,379,479, Cl. 160-201.000.

Whitney, Daniel E., to Charles Stark Draper Laboratory, Inc., The. Damped remote center compliance device. 4,379,363, Cl. 33-169.00C.

Whittaker Corporation: *See*—
Eisenberg, Steven K.; and Hancock, Mark W., 4,379,375, Cl. 47-65.000.

Wibrow, Guter, to ITW-ATECO GmbH. Cord adjusters. 4,379,358, Cl. 24-136.00R.

Widiner, Karl J.; and Goldsmith, Riley G., to Conoco Inc. Riser tensioner. 4,379,657, Cl. 405-195.000.

Wiedman, Francis W., III: *See*—
Kotecha, Harish N.; Noble, Wendell P., Jr.; and Wiedman, Francis W., III, 4,380,057, Cl. 365-185.000.

Wiggins, John W.; and Moore, Damon E. Solar hot air system. 4,379,449, Cl. 126-449.000.

Wiggins, Wayne T.: *See*—
Samuels, Kenneth E.; and Wiggins, Wayne T., 4,379,875, Cl. 524-104.000.

Wilhelm, Wilhelm, to Siemens Aktiengesellschaft. Device for push-pull transmission. 4,380,060, Cl. 370-5.000.

Willey, Barry A. Motorcycle safety windshields. 4,379,584, Cl. 296-78.100.

Williams, Haydn W. R.: *See*—
Cragoe, Edward J., Jr.; Rooney, Clarence S.; and Williams, Haydn W. R., 4,379,791, Cl. 424-270.000.

Williamson, Betty: *See*—
Williamson, Byrl L.; and Williamson, Betty, 4,379,388, Cl. 60-398.000.

Williamson, Byrl L.; and Williamson, Betty. Ocean raft energy generator. 4,379,388, Cl. 60-398.000.

Wilson, Douglas, to British Petroleum Company Limited, The. Process for setting a latex of a film forming polymer. 4,379,873, Cl. 524-7.000.

Wilson, Gil C.: *See*—
Thedford, Dale E.; and Wilson, Gil C., 4,379,440, Cl. 119-159.000.

Wilson, Robert E.; and Mickelson, Dan. Mold apparatus. 4,379,687, Cl. 425-388.000.
Wilson, Robert W., to Powell Manufacturing Company, Inc. Tobacco handling apparatus. 4,379,669, Cl. 414-21.000.
WIPAC Group Sales Limited: *See*—
French, John A. W., 4,379,540, Cl. 248-406.000.
Witucki, Edward F.: *See*—
Frankel, Milton B.; Witucki, Edward F.; and Woolery, Dean O., II, 4,379,894, Cl. 525-403.000.
Woitun, Eberhard: *See*—
Maier, Roland; Wetzel, Bernd; Woitun, Eberhard; Reuter, Wolfgang; Lechner, Uwe; and Goeth, Hanns, 4,379,784, Cl. 424-229.000.
Wojaczek, Egon; Soliman, Mustafa; and Schulte, Juergen, to Gewerkschaft Eisenhutte Westfalia. Advance mechanism for a mine roof support unit. 4,379,661, Cl. 405-299.000.
Wolfer, Peter: *See*—
Engeler, Paul; Sonderegger, Hans C.; and Wolfer, Peter, 4,379,405, Cl. 73-167.000.
Woock, Jean P.; and Baerst, Christian. Panel grooving apparatus. 4,379,419, Cl. 83-875.000.
Wood, Richard D., to Bendix Corporation, The. Sampling probe for stack gas monitoring system. 4,379,412, Cl. 73-863.240.
Woods Wire Products, Inc.: *See*—
Upchurch, James E., 4,379,610, Cl. 339-184.00R.
Woodward, Oakley M.: *See*—
Torres, Rafael; and Woodward, Oakley M., 4,380,011, Cl. 343-702.000.
Woody, Albert L.: *See*—
Roussin, Michael A.; Jones, Steven D.; and Woody, Albert L., 4,379,595, Cl. 299-37.000.
Woolery, Dean O., II: *See*—
Frankel, Milton B.; Witucki, Edward F.; and Woolery, Dean O., II, 4,379,894, Cl. 525-403.000.
Wright, Danny P.: *See*—
Kendall, Debra L.; Watson, James M.; and Wright, Danny P., 4,379,736, Cl. 203-9.000.
Wrulich, Herwig: *See*—
Zitz, Alfred; Schetina, Otto; Wrulich, Herwig; and Kissich, Arnulf, 4,379,594, Cl. 299-10.000.
Wu, D. Louise; and Swain, James W., to Philip Morris Incorporated. Cooked flavors for smoking products. 4,379,464, Cl. 131-275.000.
Wurzburg, Otto B.: *See*—
Tessler, Martin M.; Wurzburg, Otto B.; and Dirscherl, Teresa A., 4,379,919, Cl. 536-108.000.
Xerox Corporation: *See*—
Ort, Donald L., 4,380,017, Cl. 346-140.00R.
Wang, Shing C.; and Hamerdinger, Randolph W., 4,380,078, Cl. 372-62.000.
Yaegashi, Takashi: *See*—
Fujii, Setsuro; Sugimito, Mamoru; and Yaegashi, Takashi, 4,379,764, Cl. 260-112.50R.
Yakabe, Tooru: *See*—
Takanashi, Yukio; Yakabe, Tooru; and Asano, Shunji, 4,379,980, Cl. 313-446.000.
Yamabe, Masaaki; Munekata, Seiji; Kumai, Seisaku; and Kaneko, Isamu, to Asahi Glass Company, Ltd. Process for producing perfluorosuccinyl fluoride. 4,379,768, Cl. 260-544.00F.
Yamada, Hisashi; and Sugawara, Tsutomu, to Tokyo Shibaura Denki Kabushiki Kaisha. Gain controlled amplifier. 4,379,995, Cl. 330-254.000.
Yamada, Mikio; and Tabata, Yujin, to Nihon Surfactant Industry Co., Ltd. Gelatinizing agent composition, and gel and aqueous emulsion prepared therefrom. 4,379,755, Cl. 252-312.000.
Yamaguchi, Hiroaki: *See*—
Hattori, Tadashi; Yamaguchi, Hiroaki; and Ootsuka, Yoshinori, 4,379,403, Cl. 73-35.000.
Yamaha Hatsudoki Kabushiki Kaisha: *See*—
Takada, Yukimitsu; Harada, Hiroshi; and Takubo, Shuji, 4,379,702, Cl. 440-77.000.
Yamamoto, Koichi: *See*—
Suzuki, Hiroo; Yamamoto, Koichi; Ohno, Yasuhide; and Miyamura, Kou, 4,379,482, Cl. 164-485.000.
Yamaoka, Masayoshi: *See*—
Numata, Mitsuo; Mimamida, Isao; Yamaoka, Masayoshi; Shiraishi, Mitsura; and Miyawaki, Toshio, 4,379,924, Cl. 544-27.000.
Yamashita, Tadaoki: *See*—
Ikedo, Masaru; Watari, Masafumi; Yasuno, Yoshitake; and Yamashita, Tadaoki, 4,379,621, Cl. 350-392.000.
Yamazaki, Hisayuki: *See*—
Chiyoda, Hironobu; Yamazaki, Hisayuki; and Takabe, Reiichiro, 4,379,762, Cl. 252-507.000.
Yamazaki, Tetu: *See*—
Hagiwara, Yutaka; Takada, Toshiaki; and Yamazaki, Tetu, 4,379,501, Cl. 188-218.0XL.
Yan, Tsoung Y., to Mobil Oil Corporation. Demetalation of heavy hydrocarbon oils. 4,379,747, Cl. 208-251.00H.
Yang, Chi C.; Madan, Arun; Ovshinsky, Stanford R.; and Adler, David, to Energy Conversion Devices, Inc. Current enhanced photovoltaic device. 4,379,943, Cl. 136-249.000.
Yano, Kohji: *See*—
Toda, Yuichi; Yano, Kohji; and Sakamoto, Katsuji, 4,379,615, Cl. 350-96.230.
Yano, Kohzo: *See*—
Kuwagaki, Hiroshi; Yano, Kohzo; and Takechi, Sadatoshi, 4,379,619, Cl. 350-357.000.
Yasuno, Yoshitake: *See*—
Ikedo, Masaru; Watari, Masafumi; Yasuno, Yoshitake; and Yamashita, Tadaoki, 4,379,621, Cl. 350-392.000.
Yeaw, David C., to Eastman Kodak Company. Method of analyzing an aqueous liquid for hexacyanoferrates. 4,379,848, Cl. 436-84.000.
Yee, James S.: *See*—
Bevan, David; Yee, James S.; and Pruyn, Richard R., 4,380,012, Cl. 343-705.000.
Yoder, Max N., to United States of America, Navy. Monolithic fully integrated class B push-pull microwave GaAs MESFET with differential inputs and outputs with reduced Miller effect. 4,380,022, Cl. 357-22.000.
Yokoyama, Tadashi: *See*—
Iwata, Masayosi; Douke, Harumi; Hayashi, Yoshikazu; Yokoyama, Tadashi; and Mizuta, Yukio, 4,379,954, Cl. 200-4.000.
Yoneda, Hiroichi: *See*—
Andoh, Sadanari; Maeda, Junji; Fukushima, Kiyoshi; Yoneda, Hiroichi; and Jinushi, Naotomo, 4,380,018, Cl. 346-140.00R.
Yonezawa, Toshio: *See*—
Kumamaru, Kuniaki; Hiraki, Shunichi; and Yonezawa, Toshio, 4,379,726, Cl. 148-175.000.
Yoritomi, Kenzaburo; Kezuka, Teruo; and Moriya, Mitsumasa, to Sanmatsu Kogyo Co., Ltd. Method for the chromatographic separation of soluble components in feed solution. 4,379,751, Cl. 210-659.000.
Yoshida, Hajime, to Hajime Industries Ltd. Inspection device. 4,379,636, Cl. 356-407.000.
Yoshimoto, Hisanari; Tonomura, Taka; and Takamura, Takuo, to Kabushiki Kaisha Fujikoshi. Chuck for machine tools. 4,379,667, Cl. 409-234.000.
Yoshimura, Isao; Hata, Hideo; and Kaneko, Takashi, to Asahi-Dow Limited. Composition for drawn film, cold drawn film made of said composition and process for manufacture of said film. 4,379,888, Cl. 525-211.000.
Yoshizuka Seiki Co., Ltd.: *See*—
Katagiri, Takeshi; and Tsuchifuji, Takakazu, 4,379,684, Cl. 425-78.000.
Younes, Usama E., to Atlantic Richfield Company. Fire retardant thermoplastic molding compositions. 4,379,877, Cl. 524-123.000.
Young, Cynthia L.: *See*—
Staub, Herbert W.; Schanbacher, Larry M.; Zencheck, Jack D.; and Young, Cynthia L., 4,379,782, Cl. 424-180.000.
Young, Donald L. Positive lock hose clamp. 4,379,359, Cl. 24-273.000.
Young, Hartley F.; Verhoef, Hendrikus M., deceased (by Verhoef, Edmund M., executor); and Remes, Wally A., to Ralph McKay Limited. Spring rail fastening system. 4,379,521, Cl. 238-349.000.
Young, Murray M., to University of Waterloo. Bioconversion of industrial cellulosic pulp materials to protein enriched product. 4,379,844, Cl. 435-251.000.
Yuan, Lloyd T.; Chang, Yu-Wen; and Mills, Thomas G., to TRW Inc. Active high frequency semiconductor device with integral waveguide. 4,380,020, Cl. 357-3.000.
Yuda, Takuo: *See*—
Tanaka, Shinken; and Yuda, Takuo, 4,379,648, Cl. 403-24.000.
Zecher, David C., to Hercules Incorporated. Chemically-initiated inverse emulsion polymerization with Na, Li/Cl, Br salt. 4,379,883, Cl. 524-801.000.
Zencheck, Jack D.: *See*—
Staub, Herbert W.; Schanbacher, Larry M.; Zencheck, Jack D.; and Young, Cynthia L., 4,379,782, Cl. 424-180.000.
Zenith Radio Corporation: *See*—
Hockenbrock, Richard L., 4,379,978, Cl. 313-318.000.
Zetterquist, Staffan G.: *See*—
Nilsson, Erling S.; and Zetterquist, Staffan G., 4,379,461, Cl. 128-736.000.
Ziegel, Douglas H., to RCA Corporation. Method and apparatus for sorting stones. 4,379,510, Cl. 209-643.000.
Zitz, Alfred; Schetina, Otto; Wrulich, Herwig; and Kissich, Arnulf, to Voest-Alpine Aktiengesellschaft. Process for sinking of shafts. 4,379,594, Cl. 299-10.000.
Zollner geb. Moller, Christine, to C. Conradty Nurnberg GmbH & Co. KG. Method of removing electrocatalytically active protective coatings from electrodes with metal cores, and the use of the method. 4,379,723, Cl. 134-2.000.
Zwillich, Alexander, to Westinghouse Electric Corp. Adjustable insulator attachment for isolated phase bus switch. 4,379,945, Cl. 174-99.00B.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 12TH DAY OF APRIL, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Ahlgren, Nils H. Method of lowering and raising loads by means of a jack assembly and lifting element. Re. 31,206, Cl. 254-1.000.

Auburn Research Foundation: *See*—
Goodling, John S.; McDaniel, Gayner R.; and Steadham, Richard A., Re. 31,202, Cl. 128-303.140.

Canon Kabushiki Kaisha: *See*—
Tsunekawa, Tokuichi; and Taguchi, Tetsuya, Re. 31,207, Cl. 250-214.00R.

Cleamax Limited: *See*—
Jackson, John M., Re. 31,203, Cl. 134-48.000.

Donn Products Incorporated: *See*—
Sauer, Gale E., Re. 31,201, Cl. 52-667.000.

Goodling, John S.; McDaniel, Gayner R.; and Steadham, Richard A., to Auburn Research Foundation. Poultry beak remover. Re. 31,202, Cl. 128-303.140.

Jackson, John M., to Cleamax Limited. Apparatus for cleaning inside and outside surfaces of containers. Re. 31,203, Cl. 134-48.000.

Jalbert, Domina C. Aerial sled. Re. 31,205, Cl. 244-145.000.

McDaniel, Gayner R.: *See*—
Goodling, John S.; McDaniel, Gayner R.; and Steadham, Richard A., Re. 31,202, Cl. 128-303.140.

Sanner, George E. Sprinkler flow control systems. Re. 31,204, Cl. 137-78.300.

Sauer, Gale E., to Donn Products Incorporated. Locking connection for supporting grid systems. Re. 31,201, Cl. 52-667.000.

Steadham, Richard A.: *See*—
Goodling, John S.; McDaniel, Gayner R.; and Steadham, Richard A., Re. 31,202, Cl. 128-303.140.

Taguchi, Tetsuya: *See*—
Tsunekawa, Tokuichi; and Taguchi, Tetsuya, Re. 31,207, Cl. 250-214.00R.

Tsunekawa, Tokuichi; and Taguchi, Tetsuya, to Canon Kabushiki Kaisha. Leak current suppressing printed circuit board. Re. 31,207, Cl. 250-214.00R.

Unimation, Inc.: *See*—
Watanabe, Takehiko, Re. 31,208, Cl. 318-568.000.

Watanabe, Takehiko, to Unimation, Inc. Signal modification device for memory controlled manipulator apparatus. Re. 31,208, Cl. 318-568.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Reinhold, Donald F.; and Sletzinger, Meyer, to Merck & Co., Inc. Treatment of hypertension with L-alpha-methyl-3,4-dihydroxyphenylalanine. B1 3,344,023, Cl. 424—319.

Merck & Co., Inc.: *See*—
Reinhold, Donald F.; and Sletzinger, Meyer. B1 3,344,023, Cl. 424—319.

Dauser, Jr., William C., to Lloyd A. Heneveld, trustee. Wire connector. B1 4,295,004, Cl. 174/87.

Lloyd, A. Heneveld, trustee: *See*—
Dauser, Jr., William C. B1 4,295,004, Cl. 174—87.

Kato, Tetuo, to Tokico Ltd. Hydraulic damper. B1 4,189,034, Cl. 188—318.

Tokico Ltd.: *See*—
Kato, Tetuo. B1 4,189,034, Cl. 188—318.

LIST OF DESIGN PATENTEES

Abe, Noboru: *See*—
Seiffert, Florian; and Abe, Noboru, 268,617, Cl. D28-51.000.

Allibert S.A.: *See*—
Cornou, Jean, 268,559, Cl. D7-77.000.

Amba Marketing Systems, Inc.: *See*—
Schimmel, Otto K., 268,548, Cl. D3-48.000.

Anderson, William C.: *See*—
Wolters, Richard H.; Anderson, William C.; Tyke, Charles R.; and Schreiner, Charles P., 268,622, Cl. D34-40.000.

Apple Computer, Inc.: *See*—
Jobs, Steven P.; Manock, Jerrold C.; Hovey, Dean A.; and Kelley, David M., 268,584, Cl. D14-106.000.

Applied Industrial Company Limited: *See*—
Lee, Lap, 268,600, Cl. D21-13.000.
Lee, Lap, 268,601, Cl. D21-13.000.
Lee, Lap, 268,602, Cl. D21-13.000.
Lee, Lap, 268,603, Cl. D21-13.000.

Babock & Wilcox Company, The: *See*—
Whaley, George S.; and Willmott, Thomas L., 268,583, Cl. D14-103.000.

Baum, Rolf, to Mathis System-Technik GmbH. Mortar mixer. 268,586, 4-12-83, Cl. D15-19.000.

Beacham, Robert C., to Clorox Company, The. Container for air freshener. 268,613, 4-12-83, Cl. D23-150.000.

Beers, Eugene W., to Esselte Pendaflex Corp. Labeling machine. 268,595, 4-12-83, Cl. D18-19.000.

Beers, Eugene W., to Esselte Pendaflex Corp. Labeling machine. 268,596, 4-12-83, Cl. D18-19.000.

Beier, Hanns W. Key hanger. 268,553, 4-12-83, Cl. D6-113.000.

Berol Corporation: *See*—
Spence, David, 268,597, Cl. D19-39.000.

Biggs, Anthony J. Combined dental pin and chuck. 268,615, 4-12-83, Cl. D24-10.000.

Blasbalg, Morton L. Bird feeder. 268,619, 4-12-83, Cl. D30-15.000.

Braun Aktiengesellschaft: *See*—
Ullmann, Roland, 268,616, Cl. D28-49.000.

Bretschneider, Walter. Shoe base. 268,543, 4-12-83, Cl. D2-320.000.

Bright, John E. Vegetable cutter. 268,562, 4-12-83, Cl. D7-381.000.

Campion, Stanley F., executor: *See*—
Jensen, George B., deceased; and Campion, Stanley F., executor, 268,557, Cl. D7-20.000.

Canon Kabushiki Kaisha: *See*—
Kikuchi, Nobuo, 268,581, Cl. D14-94.000.
Kikuchi, Nobuo, 268,582, Cl. D14-94.000.

Chase, Richard A.; Grubb, Lawrence B.; and Williams, David M., to Johnson & Johnson Baby Products Company. Spinning toy. 268,604, 4-12-83, Cl. D21-92.000.

Chyba, Ronald L. Light dispersing prism attachable to a window, or similar article. 268,594, 4-12-83, Cl. D16-137.000.

Clorox Company, The: *See—*
Beacham, Robert C., 268,613, Cl. D23-150.000.
Coggin, J. Thayer, to Thayer Coggin Incorporated. Swivel chair. 268,550, 4-12-83, Cl. D6-36.000.
Compagnie Generale des Etablissements Michelin: *See—*
Grenie, Philippe, 268,573, Cl. D12-147.000.
Converse Inc.: *See—*
Crowley, Kevin J., 268,544, Cl. D2-320.000.
Cornou, Jean, to Allibert S.A. Insulated container. 268,559, 4-12-83, Cl. D7-77.000.
Cox, Michael F. Paperweight. 268,599, 4-12-83, Cl. D19-96.000.
Crowley, Kevin J., to Converse Inc. Outsole for sports shoe. 268,544, 4-12-83, Cl. D2-320.000.
Cubbison, Flossie E.: *See—*
Cubbison, Wilbert H.; and Cubbison, Flossie E., 268,588, Cl. D15-147.000.
Cubbison, Wilbert H.; and Cubbison, Flossie E. Portable ore separating bowl. 268,588, 4-12-83, Cl. D15-147.000.
Daenen, Robert H. C. M.; and De Coster, Pieter K. J., to Dart Industries, Inc. Bread storage container or the like. 268,560, 4-12-83, Cl. D7-82.000.
Dart Industries, Inc.: *See—*
Daenen, Robert H. C. M.; and De Coster, Pieter K. J., 268,560, Cl. D7-82.000.
De Coster, Pieter K. J.: *See—*
Daenen, Robert H. C. M.; and De Coster, Pieter K. J., 268,560, Cl. D7-82.000.
Dercks, Gerald A.; and Dercks, Michael J. Cremain vault. 268,623, 4-12-83, Cl. D99-5.000.
Dercks, Michael J.: *See—*
Dercks, Gerald A.; and Dercks, Michael J., 268,623, Cl. D99-5.000.
Drakulic, John. Water pump housing. 268,585, 4-12-83, Cl. D15-5.000.
Edery, Jean-Pierre. Bicycle cover. 268,546, 4-12-83, Cl. D3-36.000.
Esselte Pendaflex Corp.: *See—*
Beers, Eugene W., 268,595, Cl. D18-19.000.
Beers, Eugene W., 268,596, Cl. D18-19.000.
Frieberg, Bengt O. Reversible lock washer. 268,566, 4-12-83, Cl. D8-399.000.
Friedrich Grohe Armaturenfabrik GmbH & Co.: *See—*
Klose, Odo, 268,611, Cl. D23-35.000.
Fukuchi, Fumio: *See—*
Kono, Michinaga; Matsumoto, Yoshio; Katsumi, Hirosuke; and Fukuchi, Fumio, 268,587, Cl. D15-122.000.
Gagner, Lawrence J. Adjustable and foldable wooden log rack or the like. 268,563, 4-12-83, Cl. D23-138.500.
General Mills, Inc.: *See—*
Wildgen, Leo F., 268,556, Cl. D6-188.000.
Gibbons, Margaret K. Stuffed bear with simulated prosthetic limb. 268,606, 4-12-83, Cl. D21-159.000.
Gillberg, Carl. Paddling catamaran. 268,577, 4-12-83, Cl. D12-304.000.
Globol-Werk GmbH: *See—*
von Philipp, Fritz; and Schimanski, Georg, 268,614, Cl. D23-150.000.
Grenie, Philippe, to Compagnie Generale des Etablissements Michelin. Tire. 268,573, 4-12-83, Cl. D12-147.000.
Grubb, Lawrence B.: *See—*
Chase, Richard A.; Grubb, Lawrence B.; and Williams, David M., 268,604, Cl. D21-92.000.
Hamann, Michael L., to J. R. Simplot Company. Potato product. 268,539, 4-12-83, Cl. D1-1.000.
Hampton, Auborn R. Combined ball hitch and vehicle carrier for golf club carts having vertical mounting coupling. 268,574, 4-12-83, Cl. D12-157.000.
Harper, C. Cameron. Hood for instrument flight training. 268,593, 4-12-83, Cl. D16-123.000.
Hertwole, Wayne C. Jewelry pendant or the like. 268,569, 4-12-83, Cl. D11-81.000.
Hitachi, Ltd.: *See—*
Kono, Michinaga; Matsumoto, Yoshio; Katsumi, Hirosuke; and Fukuchi, Fumio, 268,587, Cl. D15-122.000.
Holden, Morell J., to Mobil Oil Corporation. Meat packaging tray or the like. 268,568, 4-12-83, Cl. D9-425.000.
Hovey, Dean A.: *See—*
Jobs, Steven P.; Manock, Jerrold C.; Hovey, Dean A.; and Kelley, David M., 268,584, Cl. D14-106.000.
Husky Corporation: *See—*
Sutcliffe, Grenville G., 268,612, Cl. D23-43.000.
J. R. Simplot Company: *See—*
Hamann, Michael L., 268,539, Cl. D1-1.000.
Jensen, George B., deceased; and by Campion, Stanley F., executor, to Syracuse China Corporation. Casserole dish or similar article. 268,557, 4-12-83, Cl. D7-20.000.
Jobs, Steven P.; Manock, Jerrold C.; Hovey, Dean A.; and Kelley, David M., to Apple Computer, Inc. Personal computer. 268,584, 4-12-83, Cl. D14-106.000.
Joffe, Richard M.: *See—*
Miller, Paul D.; and Joffe, Richard M., 268,591, Cl. D16-17.000.
Miller, Paul D.; and Joffe, Richard M., 268,592, Cl. D16-18.000.
Johnson, David J. Auxiliary sides for utility trailer. 268,572, 4-12-83, Cl. D12-106.000.
Johnson & Johnson Baby Products Company: *See—*
Chase, Richard A.; Grubb, Lawrence B.; and Williams, David M., 268,604, Cl. D21-92.000.
Johnson, Vicki L. A. Swimming suit. 268,542, 4-12-83, Cl. D2-40.000.
Katsumi, Hirosuke: *See—*
Kono, Michinaga; Matsumoto, Yoshio; Katsumi, Hirosuke; and Fukuchi, Fumio, 268,587, Cl. D15-122.000.
Kelley, David M.: *See—*
Jobs, Steven P.; Manock, Jerrold C.; Hovey, Dean A.; and Kelley, David M., 268,584, Cl. D14-106.000.
Kikuchi, Nobuo, to Canon Kabushiki Kaisha. Facsimile transceiver or the like. 268,581, 4-12-83, Cl. D14-94.000.
Kikuchi, Nobuo, to Canon Kabushiki Kaisha. Facsimile transceiver or the like. 268,582, 4-12-83, Cl. D14-94.000.
Klose, Odo, to Friedrich Grohe Armaturenfabrik GmbH & Co. Hand shower. 268,611, 4-12-83, Cl. D23-35.000.
Kojima, Fumiyo: *See—*
Matsumoto, Nobuki; Yoshihama, Manzo; and Kojima, Fumiyo, 268,580, Cl. D14-94.000.
Kojima, Masao, to Shimano Industrial Company Limited. Bottle. 268,567, 4-12-83, Cl. D9-372.000.
Kono, Michinaga; Matsumoto, Yoshio; Katsumi, Hirosuke; and Fukuchi, Fumio, to Hitachi, Ltd. Industrial robot. 268,587, 4-12-83, Cl. D15-122.000.
Kyotaru Co., Ltd.: *See—*
Uno, Koki, 268,540, Cl. D1-2.000.
Uno, Koki, 268,541, Cl. D1-2.000.
Lee, Lap, to Applied Industrial Company Limited. Electronic memory game housing. 268,600, 4-12-83, Cl. D21-13.000.
Lee, Lap, to Applied Industrial Company Limited. Electronic memory game housing. 268,601, 4-12-83, Cl. D21-13.000.
Lee, Lap, to Applied Industrial Company Limited. Electronic memory game housing. 268,602, 4-12-83, Cl. D21-13.000.
Lee, Lap, to Applied Industrial Company Limited. Electronic memory game housing. 268,603, 4-12-83, Cl. D21-13.000.
Liu, Hsiung-Cheng. Combined table and rockable chair unit. 268,549, 4-12-83, Cl. D6-6.000.
Mack, Sandra L. Combined wall switch and escutcheon therefor. 268,564, 4-12-83, Cl. D8-353.000.
Malik, Richard J. Aquarium filter. 268,607, 4-12-83, Cl. D23-4.000.
Manock, Jerrold C.: *See—*
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Parker-Hannifin Corporation: *See—*
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Roberts, Doreen N., 268,571, Cl. D11-158.000.
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83	4,379,976

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268	4,379,602
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446	4,379,980
489	4,379,981

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151	4,379,983

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293	4,379,985
434	4,379,986
561	4,379,987
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26	4,379,989

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99	4,379,990

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58.5 C	4,379,991
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CLASS 328

120	4,379,993

CLASS 330

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298	4,379,997

CLASS 333

150	4,379,998

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315	4,380,003

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239	4,379,618
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CLASS 358

75	4,380,023
93	4,380,024
106	4,380,025
	4,380,026
147	4,380,027
219	4,380,028

CLASS 360

48	4,380,029
74.1	4,380,031
74.6	4,380,032
77	4,380,033
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132	4,380,030

CLASS 361

119	4,380,036
	4,380,038
214	4,380,037
218	4,380,039
280	4,380,040
283	4,380,041
421	4,380,042

CLASS 362

26	4,380,043

CLASS 363

21	4,380,044
54	4,380,045

CLASS 364

200	4,380,046
	4,380,047
424.1	4,380,048
426	4,380,049
461	4,380,050
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900	4,380,052
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154	4,380,055
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CLASS 366

149	4,379,638

CLASS 367

46	4,380,059

CLASS 368

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63	4,379,640
74	4,379,641
188	4,379,642
309	4,379,643
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CLASS 370

5	4,380,060
16	4,380,061
20	4,380,062
60	4,380,063
63	4,380,064
96	4,380,065

CLASS 371

10	4,380,066
11	4,380,067
20	4,380,070
24	4,380,068
31	4,380,069
40	4,380,071

CLASS 372

5	4,380,072
12	4,380,073
43	4,380,074
44	4,380,075
54	4,380,076
62	4,380,077
	4,380,078
87	4,380,079

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17	4,380,080
82	4,380,081
102	4,380,082
120	4,380,083

CLASS 376

204	4,380,084
381	4,380,085

CLASS 378

136	4,379,977
155	4,380,086
186	4,380,087

CLASS 400

623	4,379,645
636	4,379,646

CLASS 401

262	4,379,647

CLASS 403

24	4,379,648
172	4,379,649
316	4,379,650
387	4,379,651

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117	4,379,652
118	4,379,653

CLASS 405

53	4,379,654
176	4,379,655
186	4,379,656
195	4,379,657
267	4,379,658
284	4,379,659
288	4,379,660
299	4,379,661
302	4,379,662

CLASS 406

23	4,379,663
68	4,379,664

CLASS 408

204	4,379,665

CLASS 409

110	4,379,666
234	4,379,667

CLASS 410

77	4,379,668

CLASS 414

21	4,379,669
217	4,379,670
331	4,379,671
565	4,379,672
686	4,379,673
699	4,379,674
734	4,379,675
748	4,379,676

CLASS 415

175	4,379,677

CLASS 416

98	4,379,678

CLASS 417

46	4,379,680
54	4,379,679
560	4,379,681

CLASS 419

60	4,379,719

CLASS 422

51	4,379,775

CLASS 423

321 R	4,379,776
348	4,379,777
584	4,379,778

CLASS 424

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114	4,379,781
180	4,379,782
184	4,379,783
229	4,379,784
244	4,379,785
	4,379,786
246	4,379,787
251	4,379,788
260	4,379,789
261	4,379,790
270	4,379,791
	4,379,792
274	4,379,793

CLASS 425

10	4,379,682
62	4,379,683
78	4,379,684
183	4,379,685
290	4,379,686
388	4,379,687
526	4,379,688

CLASS 426

266	4,379,794
304	4,379,795
486	4,379,796

CLASS 428

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42	4,379,573
113	4,379,798
131	4,379,799
148	4,379,800
220	4,379,801
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328	4,379,803
332	4,379,804
346	4,379,805
354	4,379,806
383	4,379,807
438	4,379,808
470	4,379,809
541	4,379,810
555	4,379,811
577	4,379,812
587	4,379,813

CLASS 429

42	4,379,814
66	4,379,815
91	4,379,816
224	4,379,817

CLASS 430

5	4,379,818
17	4,379,819
58	4,379,820
	4,379,821
62	4,379,822
83	4,379,823
106.6	4,379,824
111	4,379,825
141	4,379,826
166	4,379,827
212	4,379,828
215	4,379,829
309	4,379,830
311	4,379,831
315	4,379,832
325	4,379,833
329	4,379,834
338	4,379,835
377	4,379,836
434	4,379,837
518	4,379,838

CLASS 431

284	4,379,689
359	4,379,690

CLASS 432

3	4,379,691
18	4,379,692

CLASS 433

7	4,379,693
201	4,379,694
217	4,379,695

CLASS 434

98	4,379,696
106	4,379,698
114	4,379,697
184	4,379,699
208	4,379,700

CLASS 435

5	4,379,839
10	4,379,840
34	4,379,841
58	4,379,842
178	4,379,843
251	4,379,844
255	4,379,845
316	4,379,846

CLASS 436

8	4,379,847
82	4,379,711
84	4,379,848
177	4,379,849
517	4,379,850
543	4,379,779
	4,379,780

CLASS 440

21	4,379,701
77	4,379,702

CLASS 441

79	4,379,703
88	4,379,704
94	4,379,705

CLASS 455

67	4,380,088
127	4,380,089

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111	4,379,706
162	4,379,707

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87	4,379,852
135	4,379,853
138	4,379,854

CLASS 521

26	4,379,855
51	4,379,856
54	4,379,857
	4,379,858
59	4,379,859
61	4,379,860
115	4,379,861
158	4,379,862

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105	4,379,863
106	4,379,864
139	4,379,865
140	4,379,866
161	4,379,867
201	4,379,868
206	4,379,869
221	4,379,870
331	4,379,871
406	4,379,872

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104	4,379,875
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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries see the notice appearing in the Official Gazette at 1017 O.G. 10 on Apr. 13, 1982. For use of the European Patent Office as a Searching Authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the domestic PCT fees have been increased as of Oct. 1, 1982 by a rule change to 37 CFR 1.445 that was published at 1021 O.G. 11 on Aug. 10, 1982. Also note that the international PCT fees have changed as of Jan. 1, 1983 and the Search Fee for the European Patent Office as Searching Authority changed as of Jan. 22, 1983. The notice regarding the change in international fees and the Search Fee for the European Patent Office appeared at 1025 O.G. 27, on 28 Dec. 1982. The current schedule of fees is as follows:

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Search fee	
U.S. Patent and Trademark Office as Searching Authority	
• No corresponding prior U.S. national application filed	500.00
• Corresponding prior U.S. national application filed	250.00
European Patent Office as Searching Authority	
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International Fees	
Basic Fees (first 30 pages)	265.00
Basic Supplemental Fee (for each page over 30)	5.00
Designation fee (for each national or regional office)	65.00

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

Dec. 3, 1982.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,065,070, Re. S.N. 470,701, Filed Feb. 28, 1983, Cl. 242/107.004, DUAL SPOOL RETRACTOR, Regis V. Pilarski, et al., Owner of Record: *The Firestone Tire and Rubber Co., Akron, Ohio,* Attorney or Agent: Jesse B. Grove, Ex. Gp.: 245

4,246,484, Re. S.N. 459,254, Filed Jan. 19, 1983, Cl. 250/455, MEDICAL RADIOGRAPHIC APPARATUS, Richard W. Fetter, Owner of Record: *EMI Medical, Inc., Northbrook, Ill.,* Attorney or Agent: Ivan S. Kavrukov, et al., Ex. Gp.: 256

4,262,390, Re. S.N. 468,988, Filed Feb. 23, 1983, Cl. 19/50, ROLLER GIN AND FEED SYSTEM INCORPORATING THE SAME, Robert R. Einglett, et al., Owner of Record: *Lummus Industries, Inc., Columbus, Ga.,* Attorney or Agent: Hugh P. Carter, et al., Ex. Gp.: 353

4,279,780, Re. S.N. 464,188, Filed Feb. 7, 1983, Cl. 252/452, METHOD OF PREPARING CATALYST SUPPORTS, Robert A. Dombro, Owner of Record: *Chemplex Co., Rolling Meadows, Ill.,* Attorney or Agent: Ernest A. Wegner, et al., Ex. Gp.: 116

4,292,180, Re. S.N. 467,465, Filed Feb. 10, 1983, Cl. 210/496, MILK FILTER SOCK, Kenneth R. Zylka, et al., Owner of Record: *Meridian Industries, Inc., Milwaukee, Wis.,* Attorney or Agent: Elwin A. Andrus, et al., Ex. Gp.: 176

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,537,725, Reexam. No. 90/000,341, Requested: Mar. 10, 1983, Cl. 308/187.2, TROUGH-LIKE SEAL FOR ROLLER ASSEMBLY, Ruben E. Frost, Owner of Record: *C.L. Frost & Son, Inc., Grand Rapids, Mich.,* Attorney or Agent: Price, Heneveld, et al., Ex. Gp.: 240, Requester: Jervis B. Webb Co., Farmington Hills, Mich.

3,647,293, Reexam. No. 90/000,339, Requested: Mar. 9, 1983, Cl. 355/15, COPYING SYSTEM FEATURING COMBINED DEVELOPING-CLEANING STATION ALTERNATELY ACTIVATED, Carl A. Queener, Owner of Record: *International Business Machines Corp., Armonk, N.Y.,* Attorney or Agent: Charles E. Rohrer, Ex. Gp.: 210, Requester: Owner

3,905,828, Reexam. No. 90/000,344, Requested: Mar. 15, 1983, Cl. 429/218, ELECTROLYTIC PROCESSES AND ELECTRODES THEREFOR, Anthony Clifford Barber, Owner of Record: *Imperial Metal Industries (Kynoch), Ltd., Warwickshire, England,* Attorney or Agent: Cushman, Darby & Cushman, Ex. Gp.: 112, Requester: Anomet Products, Inc., Natick, Mass.

4,193,247, Reexam. No. 90/000,346, Requested: Mar. 22, 1983, Cl. 52/713, PANEL MOUNTING CLIP, Robert E. Heckelsberg, Owner of Record: *AMCA International Corp., Hanover, N.H.,* Attorney or Agent: Harness, Dickey & Pierce, Ex. Gp.: 354, Requester: Butler Manufacturing Co., Grandview, Mo.

4,213,282, Reexam. No. 90/000,342, Requested: Mar. 16, 1983, Cl. 52/404, METAL PANEL ROOFING STRUCTURE, Robert E. Heckelsberg, Owner of Record: *AMCA International Corp., Hanover, N.H.,* Attorney or Agent: Harness, Dickey & Pierce, Ex. Gp.: 354, Requester: Butler Manufacturing Co., Grandview, Mo.

4,263,819, Reexam. No. 90/000,347, Requested: Mar. 22, 1983, Cl. 74/573, INERTIAL METHOD OF CENTERING A CONSTANTLY CIRCULAR RIM ON ITS HUB AND CORRESPONDING ROTARY DEVICE, Pierre Poubeau, Owner of Record: *Societe Nationale Industrielle Aerospatiale, Paris, France,* Attorney or Agent: Karl W. Flocks, Assoc., Ex. Gp.: 350, Requester: Owner

4,296,581, Reexam. No. 90/000,345, Requested: Mar. 18, 1983, Cl. 52/520, ROOFING STRUCTURE, Robert E. Heckelsberg, Owner of Record: *AMCA International Corp., Hanover, N.H.,* Attorney or Agent: Harness, Dickey & Pierce, Ex. Gp.: 350, Requester: Butler Manufacturing Co., Grandview, Mo.

4,371,576, Reexam. No. 90/000,343, Requested: Mar. 17, 1983, Cl. 428/92, HOT MELT ADHESIVE BONDED PILE FABRICS, Greville Machell, Owner of Record: *Milliken Research Corp., Spartanburg, S.C.*, Attorney or Agent: Terry T. Moyer, Ex. Gp.: 160, Requester: Owner

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U.S. DEPARTMENT OF AGRICULTURE

SN 6-337,045 (4,362,527). RADIATION-RESISTANT FLUOROAROMATIC CELLULOSIC ETHERS.

SN 6-229,217 (4,365,464). APPARATUS TO UNIFORMLY CONTROL WRAPPING A FILAMENT AROUND THE SURFACE OF A SPUN CORE YARN DURING RING SPINNING.

SN 6-270,676 (4,365,504). METHOD AND APPARATUS FOR FIELD TESTING OF ANEMOMETERS.

SN 6-302,008 (4,365,966). PROCESS FOR MODIFYING CELLULOSIC FABRICS FOR IMPROVED HEAT TRANSFER PRINTING.

SN 6-326,996 (4,374,850). METHOD OF CONTROLLING PARASITIC TICKS.

SN 6-326,995 (4,374,851). METHOD OF CONTROLLING PARASITIC TICKS.

U.S. DEPARTMENT OF THE AIR FORCE

SN 6-310,689 (4,362,570). SOLVENT MIXTURE FOR REMOVING POLYSULFIDE AND SILICONE RUBBER COATINGS.

SN 6-304,126 (4,365,034). ACETYLENE-TERMINATED POLYIMIDE COMPOSITIONS.

SN 6-318,653 (4,365,109). COAXIAL CABLE DESIGN.

SN 6-256,881 (4,365,173). PHASE SHIFTER ADJUSTMENT APPARATUS.

SN 6-343,000 (4,366,323). POLYMERIZATION OF ARYLENE BIS-SILANOLS.

SN 6-274,697 (4,374,715). METHOD FOR THE PREPARATION OF POLY (CARBONOYL FLUORIDE) OLIGOMERS.

U.S. DEPARTMENT OF THE ARMY

SN 6-235,060 (4,360,954). METHOD OF MAKING CAST-IN-PLACE SABOTS.

SN 6-300,533 (4,361,011). CRYOGENIC COOLING SYSTEM.

SN 6-216,416 (4,361,040). INTEGRATING ANGULAR ACCELEROMETER.

SN 6-213,522 (4,361,054). HOT-WIRE ANEMOMETER GYRO PICKOFF.

SN 6-189,980 (4,361,071). FIRE CONTROL MECHANISM.

SN 6-163,542 (4,361,384). HIGH LUMINANCE MINATURE DISPLAY.

SN 6-272,859 (4,361,526). THERMOPLASTIC COMPOSITE ROCKET PROPELLANT.

SN 6-201,678 (4,361,760). TWO-DEGREE-OF-FREEDOM GYRO WITH RADIANT ENERGY PICKOFFS.

SN 6-174,293 (4,361,886). SATELLITE COMMUNICATION SYSTEM.

SN 6-266,025 (4,361,911). LASER RETROREFLECTOR SYSTEM FOR IDENTIFICATION OF FRIEND OR FOE.

SN 6-154,557 (4,362,085). FLIGHT CONTROL SYSTEM.

SN 6-142,548 (4,362,106). FLOW DEFLECTOR FOR AIR DRIVEN POWER SUPPLY.

SN 6-230,922 (4,362,326). DISCONNECTABLE COUPLING.

SN 6-297,643 (4,362,588). METHOD OF FABRICATING A DUCTED BLANKET FOR A ROTOR SPAR.

SN 6-206,913 (4,362,938). INFRARED VIEWING SYSTEM.

SN 6-220,321 (4,362,965). COMPOSITE/LAMINATED WINDOW FOR ELECTRON BEAM GUNS.

SN 6-136,124 (4,364,300). COMPOSITE CORED COMBAT VEHICLE ARMOR.

SN 6-275,531 (4,364,775). AQUEOUS OXIDATIVE SCRUBBER SYSTEMS FOR REMOVAL OF MERCURY.

SN 6-289,438 (4,365,059). NITRATION OF CELLULOSE.

SN 6-174,093 (4,365,149). MORTAR FIRE CONTROL SYSTEM.

SN 6-196,508 (4,365,182). METHOD OF FABRICATING ACCELERATION RESISTANT CRYSTAL RESONATORS AND ACCELERATION RESISTANT CRYSTAL RESONATORS SO FORMED.

SN 6-196,957 (4,365,481). METHOD AND APPARATUS FOR REMOVAL OF SODIUM CARBONATE FROM CYANIDE PLATING BATHS.

SN 6-194,314 (4,365,556). METHOD AND SYSTEM FOR PREVENTING BASE SEPARATION OF CAST EXPLOSIVES IN PROJECTILES.

SN 6-335,925 (4,365,982). CRYOGENIC REFRIGERATOR.

SN 6-318,766 (4,366,229). METHOD OF MAKING COLD SHIELD FOR INFRARED DETECTOR ARRAY.

U.S. DEPARTMENT OF COMMERCE

SN 6-293,783 (4,361,630). ULTRA-BLACK COATING DUE TO SURFACE MORPHOLOGY.

U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES

SN 6-329,590 (4,362,510). CEMENTITIOUS DENTAL COMPOSITIONS WHICH DO NOT INHIBIT POLYMERIZATION.

SN 6-341,572. RICIN AND MODECCIN REAGENTS EFFECTIVE AS TUMOR SUPPRESSIVE CYTOTOXIC REAGENTS.

SN 6-343,026. HEAT TREATMENT OF A NON-A, NON-B HEPATITIS AGENT TO PREPARE A VACCINE.

SN 6-440,728. PROCESS AND DEVICE FOR X-RAY SYSTEM QUALITY ASSURANCE.

SN 6-446,408. ULTRASONIC THERAPY APPLICATOR THAT MEASURES DOSAGE.

SN 6-456,401. IMPROVED PROTOCOL FOR THE TREATMENT OF GRAFT VERSUS HOST DISEASE.

SN 6-458,312. MEDICATION COMPLIANCE MONITORING DEVICE.

SN 6-459,251. ADAPTABLE BLOOD PRESSURE CUFF FOR HUMANS AND ANIMALS.

SN 6-461,954. IMPROVED HELICAL COIL FOR DIATHERMY APPARATUS.

U.S. DEPARTMENT OF THE INTERIOR

SN 6-258,075 (4,362,557). PURIFYING TITANIUM-BEARING SLAG BY PROMOTED SULFATION.

SN 6-311,487 (4,362,615). FROTH FLOTATION OF RUTILE.

Availability of Patent and Trademark Rules

The Office is publishing a consolidation of the patent rules presently in effect and a revised index to assist patent practitioners.

Individual copies at $5.00 per copy can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 on or after April 19, 1983.

PATENT NOTICES

Certificates of Correction for the Week of Apr. 19, 1983

D. 268,003	4,336,852	4,356,790	4,368,124
4,157,789	4,336,853	4,357,003	4,368,672
4,189,621	4,338,342	4,357,747	4,368,691
4,224,263	4,338,351	4,357,929	4,368,785
4,226,342	4,339,248	4,358,442	4,368,966
4,238,356	4,340,171	4,358,487	4,369,622
4,243,579	4,342,820	4,359,327	4,369,859
4,250,216	4,343,403	4,359,653	4,370,721
4,253,609	4,346,455	4,359,785	4,370,842
4,269,627	4,346,456	4,360,525	4,371,022
4,280,016	4,346,958	4,360,558	4,371,417
4,281,086	4,348,747	4,360,768	4,371,607
4,294,826	4,349,395	4,360,892	4,372,060
4,297,490	4,349,568	4,361,183	4,372,088
4,300,465	4,349,616	4,361,268	4,372,521
4,304,830	4,350,022	4,361,656	4,372,652
4,305,421	4,350,719	4,361,932	4,372,912
4,307,986	4,351,769	4,362,454	4,372,932
4,319,043	4,353,226	4,362,667	4,372,963
4,320,377	4,353,268	4,362,819	4,373,206
4,324,280	4,353,741	4,362,866	4,373,540
4,324,433	4,354,273	4,363,485	4,373,685
4,324,779	4,354,897	4,363,654	4,373,745
4,324,852	4,355,280	4,363,849	4,373,834
4,329,968	4,355,329	4,364,334	4,373,838
4,332,132	4,355,388	4,364,817	4,374,109
4,332,208	4,355,449	4,366,306	4,374,252
4,333,099	4,355,754	4,366,371	4,374,985
4,333,795	4,356,261	4,367,507	

Disclaimers

Des. 247,744.—*Marcel Duchamp,* Chamalieres, France. TIRE. Patent dated Apr. 18, 1978. Disclaimer filed Feb. 4, 1983, by the assignee, *Compagnie Generale Des Etablissements Michelin.*

Hereby enters this disclaimer to the sole claim of said patent.

Des. 251,188.—*Jean Pommier,* Clermont-Ferrand, France. TIRE. Patent dated Feb. 27, 1973. Disclaimer filed Feb. 4, 1983, by the assignee, *Compagnie Generale Des Etablissements Michelin.*

Hereby enters this disclaimer to the sole claim of said patent.

Des. 256,802.—*Jacobus E. Hazenbroek,* Numansdorp, Netherlands. EVISCERATOR TOOL. Patent dated Sept. 9, 1980. Disclaimer filed Jan. 20, 1983, by the assignee, *Cagle's, Inc.*

Hereby enters this disclaimer to the claim of said patent.

3,520,861.—*John E. Thomson,* and *George E. Waples, Jr.,* Lake Jackson, Tex. COPOLYMERS OF ETHYLENE. Patent dated July 21, 1970. Disclaimer filed Jan. 31, 1983, by the assignee, *The Dow Chemical Co.*

Hereby enters this disclaimer to claims 1 through 8 and 10 of said patent.

3,802,744.—*Charles E. Grawey,* Peoria; *Keith E. Koch,* Tremont; and *Robert W. Untz,* Hanna City, Ill. SPLIT RIM ASSEMBLY FOR EARTHWORKING VEHICLES. Patent dated Apr. 9, 1974. Disclaimer filed Feb. 22, 1983, by the assignee, *Caterpillar Tractor Co.*

Hereby enters this disclaimer to claims 1–4 of said patent.

4,010,146.—*David D. Russell,* Atwater; and *George Shkapenko,* Akron, Ohio. POLYOL BLENDS AND POLYURETHANE PREPARED THEREFROM. Patent dated Mar. 1, 1977. Disclaimer filed Sept. 27, 1982, by the assignee, *Eaton Corp.*

Hereby enters this disclaimer to claim 3 of said patent.

4,238,896.—*William E. Lanz,* Joliet and *Visvaldis A. Stepe,* Willow Springs, Ill. CUTTING EDGE ASSEMBLY FOR A LOADER BUCKET. Patent dated Dec. 16, 1980. Disclaimer filed Feb. 22, 1983, by the assignee, *Caterpillar Tractor Co.*

Hereby enters this disclaimer to all claims of said patent.

4,314,612.—*David L. Thomas* and *Donald J. Hackman,* Columbus, Ohio. HYDRAULIC LINEAR IMPACT TOOL. Patent dated Feb. 9, 1982. Disclaimer filed Jan. 31, 1983, by the assignee, *Battelle Development Corp.*

Hereby enters this disclaimer to all claims of said patent.

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	Milwaukee Public Library	(414) 278-3043

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PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF February 19, 1983

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director	1-16-81
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director	11-20-81
Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director	7-14-81
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director	1-20-82
Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director	11-12-81
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director	4-7-81
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director	3-12-81
Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	
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Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director	1-07-81
Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	
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Industrial Arts; Household, Personal and Fine Arts.	
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MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director	5-18-81
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director	2-13-80
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	
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Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director	9-12-80
Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	

Expiration of patents: The patents within the range of numbers indicated below expire during February 1983, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents .... Numbers 3,231,896 to 3,237,200, inclusive
Plant Patents .... Numbers 2,591 to 2,605 inclusive

REEXAMINATIONS

APRIL 19, 1983

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1, 3,953,309 (74th)

POLYMERIZATION COMPOSITIONS AND PROCESSES HAVING POLYMERIC BINDING AGENTS

Michael N. Gilano, Fullerton, Calif.; Richard E. Beaupre, West Barrington, R.I.; Melvin A. Lipson, Fullerton, Calif., assignors to Dynachem Corporation, Santa Fe Springs, Calif.

Reexamination Request No. 90/000,018, Jul. 2, 1981.
Reexamination Certificate for Patent No. 3,953,309, issued Apr. 27, 1976, Ser. No. 529,062, Dec. 3, 1974.
Division of Ser. No. 315,153, Dec. 14, 1972, Pat. No. 3,887,450, which is a continuation of Ser. No. 112,797, Feb. 4, 1971, abandoned.
U.S. Cl. 204/159.16 **Int. Cl.^{3} C08F** *2/48, 2/46*

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 1, 7-10, 17, 21, 25, 30, 31, 34 and 37 are determined to be patentable as amended.

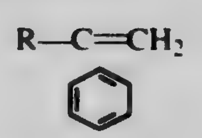
Claims 2-6, 11-15, 16, 18-20, 22-24, 26-29, 32, 33, 35, 36 and 38 dependent on amended claims, are determined to be patentable.

New claims, 39-42 are added and determined to be patentable.

1. A process for making a photoresist which comprises: preparing a photopolymerizable layer *characterized by being used as a photoresist in the form of a storable sheet or roll on a peelable film support* [comprising] *consisting essentially of:*

A. from 10 to 60 parts by weight of an addition polymerizable material consisting essentially of and being solely one or more non-gaseous compounds, containing at least two terminal ethylenic groups, having a boiling point above 100°C. and being selected from the group consisting of an unsaturated ester of a polyol, an unsaturated amide, and a vinyl ester;
B. from 0.001 to 10 parts by weight of a photoinitiated free-radical generating addition polymerizing initiating system;
C. from 0.001 to 5 parts by weight of a thermal-addition polymerization inhibitor; and
D. from 40 to 90 parts by weight of a preformed macromolecular polymeric binding agent which is a polymer of:

a first monomeric material which contains one or more non-acidic vinyl compounds selected from the group having the general formula:



wherein R is hydrogen, and alkyl group having from 1 to 6 carbon atoms or a halo group; and a second monomeric material which consists essentially of one or more alpha,beta-*ethylenically unsaturated* [carboxyl] *carboxylic acid- or anhydride-*containing monomers having from 3 to 15 carbon atoms;

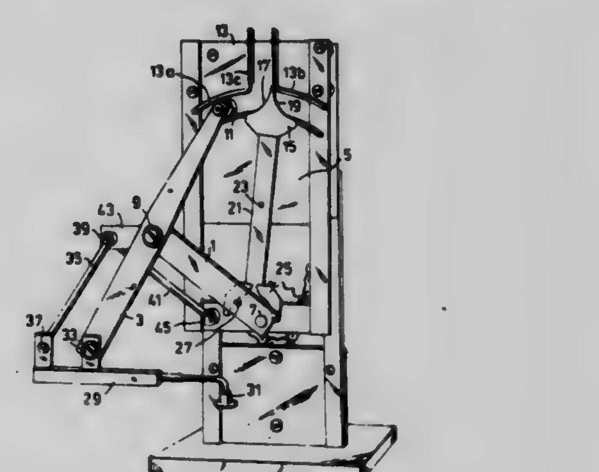
wherein the ratio of the first monomeric material to the second monomeric material is sufficient to render *substantially all of* the binding agent soluble in a dilute *substantially wholly* aqueous solution containing [from 00.1 to 10 percent of a water-soluble base]; *2% sodium carbonate* exposing a portion of said photopolymerizable layer to actinic light; and washing said layer with a dilute *substantially wholly* aqueous alkaline solution to dissolve the unexposed portion of the photopolymerizable layer *wherein the exposed portion of the layer is unaffected by sequential contact first with said dilute aqueous solution containing 2% sodium carbonate and subsequently followed by a 45° Baumé solution of ferric chloride and further wherein the photopolymerized portion of the composition is removable from a substrate by a heated solution containing 3% sodium hydroxide.*

B1 3,902,606 (75th)

HANDLING APPARATUS

Arne Ingbert Rönbeck, Olofstrom, Sweden, assignor to AB Volvo, Goteborg, Sweden

Reexamination Request No. 90/000,262, Sep. 28, 1982.
Reexamination Certificate for Patent No. 3,902,606, issued Sep. 2, 1975, Ser. No. 498,703, Aug. 19, 1974.
Claims priority, application Sweden, Aug. 23, 1973, 731/487
U.S. Cl. 414/733 **Int. Cl.^{3} B23Q** *7/04*



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1-8 is confirmed.

1. A handling apparatus for reciprocatingly moving a working member (29) in a substantially rectilinear, relatively long first movement path (BC) and in a substantially rectilinear, relatively short second movement path (CD) which is connected to and is normal to said first movement path, said apparatus being particularly intended as a feed apparatus arranged to effect a horizontal feed movement and a vertical raising and lowering movement, wherein said working member (29) is mounted on a first end (E) of a rod (3), the other end (F) of which is guided by guide means (13) mounted on a support to follow a predetermined movement path (KJHJL) when said rod is driven by a oscillatingly pivotable crank arm (1) which is pivotally connected at one end to said rod centrally between the ends thereof, the other end of the crank arm being mounted on the support and characterized in that the geometric extension of the pivot axis (O) of the crank arm (1) intersects the path (BC) travelled by said first end (E) of said rod (3) during the movement of said end along said first movement path, the length (*a*) of

said arm (1) being half the length (2*a*) of the rod (3); in that the path travelled by said other (F) end of said rod (3) during a portion of the movement of said first end (E) along said first movement path (BC) is a straight line (JFH) which extends normal to the movement path (BC) of said first rod end (E) and the extension of which intersects the axis (O) of the crank arm (1): and in that the path (JL) travelled by said other end (F) of said rod (3) during movement of said first rod end (E) along said second movement path (CD) is substantially circle-arcuate in shape, the centre of which circle lies on said extension of said straight line (JH).

B1 4,271,149 (76th)
GERMICIDAL IODINE COMPOSITIONS WITH ENHANCED IODINE STABILITY

Murray W. Winicov, Woodside, N.Y.; Michael Oberlander, Kansas City, Mo., assignors to West Agro-Chemical, Inc., Westwood, Kans.

Reexamination Request No. 90/000,179, Mar. 26, 1982.
Reexamination Certificate for Patent No. 4,271,149, issued Jun. 2, 1981, Ser. No. 77,787, Sep. 21, 1979.
U.S. Cl. 424/150 **Int. Cl.^{3} A01N** *59/12;* **A61K** *31/74*

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1-10 is confirmed.

1. A germicidal iodine composition comprising an aqueous solution of elemental iodine in a germicidally effective amount not exceeding about 1.0% and at least one organic substance which slowly reacts with iodine selected from the group consisting of iodine complexing polymers, surface active agents, alcohols, polyols and water soluble solvents, said organic substance constituting 1 to 50% by weight of said composition, wherein iodine loss during extended storage due to such reaction is controlled by providing in said composition balanced sources of iodide ion in the range of about 0.025% to 0.5% and iodate ion in the range of about 0.005% to 0.2% while maintaining a pH within the range of pH 5-7.

Patent and Trademark Office Rules

The Office is publishing below a consolidation of the patent rules presently in effect and a revised index to assist patent practitioners.

3/10/83

Date

Gerald J. Mossinghoff

Commissioner of Patents and Trademarks

CHAPTER I—PATENT AND TRADEMARK OFFICE, DEPARTMENT OF COMMERCE

EDITORIAL NOTE: Chapter I—Patent and Trademark Office, Department of Commerce, Subchapter A—General, contains patent and trademark regulations. Subchapter A has been restructured to allow parts pertaining to patent regulations and trademark regulations to be grouped separately.

SUBCHAPTER A—GENERAL

PATENTS

SUBCHAPTER A—GENERAL

*Rule changed since July 1, 1982

PATENTS

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AUTHORITY: 35 U.S.C. 6, unless otherwise noted.

Subpart A—General Provisions

General Information and Correspondence

§ 1.1 All communications to be addressed to Commissioner of Patents and Trademarks.

(a) All letters and other communications intended for the Patent and Trademark Office must be addressed to "Commissioner of Patents and Trademarks," Washington, D.C. 20231. When appropriate, a letter should also be marked for the attention of a particular officer or individual.

(b) Letters and other communications relating to international applications during the international stage and prior to the assignment of a national serial number should be additionally marked "Box PCT."

(c) Requests for reexamination should be additionally marked "Box Reexam."

Note: Sections 1.1 to 1.26 are applicable to trademark cases as well as to national and international patent cases except for provisions specifically directed to patent cases. See § 1.9 for definitions of "national application" and "international application."

(Pub. L. 94-131, 89 Stat. 685)

[46 FR 29181, May 29, 1981]

§ 1.2 Business to be transacted in writing.

All business with the Patent and Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

§ 1.3 Business to be conducted with decorum and courtesy.

Applicants and their attorneys or agents are required to conduct their business with the Patent and Trademark Office with decorum and courtesy. Papers presented in violation of this requirement will be submitted to the Commissioner and will be returned by his direct order. Complaints against examiners and other employees must be made in communications separate from other papers.

§ 1.4 Nature of correspondence.

(a) Correspondence with the Patent and Trademark Office comprises: (1) correspondence relating to services and facilities of the Office, such as general inquiries, requests for publications supplied by the Office, orders for printed copies of patents or trademark registrations, orders for copies of records, transmission of assignments for recording, and the like, and (2) correspondence in and relating to a particular application or other proceeding in the Office. See particularly the rules relating to the filing, processing, or other proceedings of national applications in Subpart B, §§ 1.31 to 1.352; of international applications in Subpart C, §§ 1.401 to 1.482; of reexamination of patents in Subpart D, §§ 1.501 to 1.570; and of trademark applications, §§ 2.11 to 2.189.

(b) Since each application file should be complete in itself, a separate copy of every paper to be filed in an application should be furnished for each application to which the paper pertains, even though the contents of the papers filed in two or more applications may be identical.

(c) Since different matters may be considered by different branches or sections of the Patent and Trademark Office, each distinct subject, inquiry or order should be contained in a separate letter to avoid confusion and delay in answering letters dealing with different subjects.

(Pub. L. 94-131, 89 Stat. 685)

[24 FR 10332, Dec. 22, 1959, as amended at 43 FR 20461, May 11, 1978; 48 FR 2696, Jan. 20, 1983; effective Feb. 27, 1983]

§ 1.5 Identification of application, patent or registration.

(a) When a letter concerns an application for patent, it should state the name of the applicant, the title of the invention, the serial number or international application number of the application, the date of filing the same, and, if known, the group art unit and name of the examiner to which it has been assigned (see § 1.55).

(b) When the letter concerns a patent, it should state the number and date of issue of the patent, the name of the patentee, and the title of the invention.

(c) A letter relating to a trademark application should identify it as such and by the name of the applicant and the serial number and filing date of the application. A letter relating to a registered trademark should identify it by the name of the registrant and by the number and date of the certificate.

(d) A letter relating to a reexamination proceeding should identify it as such by the number of the patent undergoing reexamination, the reexamination request control number assigned to such proceeding and, if known, the group art unit and name of the examiner to which it has been assigned.

(Pub. L. 94-131, 89 Stat. 685; 35 U.S.C. 6)

[24 FR 10332, Dec. 22, 1959, as amended at 34 FR 18857, Nov. 26, 1969; 43 FR 20461, May 11, 1978; 46 FR 29181, May 29, 1981]

§ 1.6 Receipt of letters and papers.

(a) Letters and other papers received in the Patent and Trademark Office are stamped with the date of receipt. No papers are received in the Patent and Trade-

mark Office on Saturdays, Sundays or federal holidays within the District of Columbia.

(b) Mail placed in the Patent and Trademark Office pouch up to midnight on weekdays, excepting Saturdays and federal holidays, by the post office at Washington, D.C., serving the Patent and Trademark Office, is considered as having been received in the Patent and Trademark Office on the day it was so placed in the pouch.

(c) In addition to being mailed or delivered by hand during office hours, letters and other papers may be deposited up to midnight in a box provided at the guard's desk at the lobby of building 3 of the Patent and Trademark Office at Crystal Plaza, Arlington, Virginia and at the main entrance (14th Street) of the Department of Commerce Building, Washington, D.C., on weekdays except Saturdays and federal holidays, and all papers deposited therein are considered as received in the Patent and Trademark Office on the day of deposit.

(d) If interruptions or emergencies in the United States Postal Service which have been so designated by the Commissioner occur, the Patent and Trademark Office will consider as filed on a particular date in the Office any paper or fee which is (1) promptly filed after the ending of the designated interruption or emergency and (2) accompanied by a statement indicating that such paper or fee would have been filed on that particular date if it were not for the designated interruption or emergency in the United States Postal Service. Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office.

[24 FR 10332, Dec. 22, 1959, as amended at 34 FR 18857, Nov. 26, 1969; 48 FR 2696, Jan. 20, 1983; effective Feb. 27, 1983]

§ 1.7 Times for taking action: Expiration on Saturday, Sunday or federal holiday.

Whenever periods of time are specified in this part in days, calendar days are intended. When the day, or the last day fixed by statute or by or under this part for taking any action or paying any fee in the Patent and Trademark Office falls on Saturday, Sunday, or on a federal holiday within the District of Columbia, the action may be taken, or the fee paid, on the next succeeding day which is not a Saturday, Sunday, or a federal holiday. See § 1.304 for time for appeal or for commencing civil action.

[48 FR 2696, Jan. 20, 1983; effective Feb. 27, 1983]

§ 1.8 Certificate of mailing.

(a) Except in the cases enumerated below, papers and fees required to be filed in the Patent and Trademark Office within a set period of time will be considered as being timely filed if: (1) they are addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231, and deposited with the U.S. Postal Service with sufficient postage as first class mail prior to expiration of the set period, and (2) they also include a certificate for each paper or fee stating the date of deposit. The person signing the certificate should have reasonable basis to expect that the correspondence would be mailed on or before the date indicated. The actual date of receipt of the paper or fee will be used for all other purposes. This procedure does not apply to the following:

(i) The filing of a national patent application specification and drawing or other papers for the purpose of obtaining an application filing date;

(ii) The filing of trademark applications;

(iii) The filing of agreements between parties to an interference under 35 U.S.C. 135(c);

(iv) The filing of an affidavit showing that a mark is still in use or containing an excuse for nonuse under section 8 (a) or (b) or section 12(c) of the Trademark Act, 15 U.S.C. 1058(a), 1058(b), 1062(c);

(v) The filing of an application for renewal of a mark registration under section 9 of the Trademark Act, 15 U.S.C. 1059;

(vi) The filing of a petition to cancel a registration of a mark under section 14 (a) or (b) of the Trademark Act, 15 U.S.C. 1064(a), 1064(b);

(vii) The filing of an affidavit under section 15, subsection (3) of the Trademark Act, 15 U.S.C. 1065;

(viii) The filing of a notice of election to proceed by civil action in an inter partes proceeding under 35 U.S.C. 141 or section 21(a)(1) of the Trademark Act, 15 U.S.C. 1071(a)(1), in response to another party's appeal to the Court of Appeals for the Federal Circuit.

(ix) The filing of a notice and reasons of appeal under 35 U.S.C. 142 or a notice of appeal under section 21(a)(2) of the Trademark Act, 15 U.S.C. 1071(a)(2);

(x) The filing of a statement under 42 U.S.C. 2182 or 42 U.S.C. 2457(c); and

(xi) The filing of international applications for patent and papers relating thereto.

(b) In the event that correspondence or fees are timely filed in accordance with paragraph (a) of this section, but not received in the Patent and Trademark Office, and the application is held to be abandoned or the proceeding dismissed, terminated, or decided with prejudice, the correspondence or fee will be considered timely if the party who forwarded such correspondence or fee (1) informs the Office of the previous mailing of the correspondence or fee promptly after becoming aware of the Office action, (2) supplies an additional copy of the previously mailed correspondence or fee and certificate, and (3) includes a declaration under § 1.68 or § 2.20 which attests on a

personal knowledge basis or to the satisfaction of the Commissioner to the previous timely mailing.

(Pub. L. 94-131, 89 Stat. 685)

[41 FR 43721, Oct. 4, 1976, as amended at 43 FR 20461, May 11, 1978; 47 FR 47380, Oct. 26, 1982, paragraphs (a)(2), and (a)(2)(viii) revised effective Oct. 26, 1982; 48 FR 2696, Jan. 20, 1983, paragraph (a)(i) revised effective Feb. 27, 1983]

§ 1.9 Definitions.

(a) A national application as used in this chapter means a U.S. national application for patent which was either filed in the Office under 35 U.S.C. 111 or which resulted from an international application after compliance with 35 U.S.C. 371.

(b) An international application as used in this chapter means an international application for patent filed under the Patent Cooperation Treaty prior to entering national processing at the Designated Office stage.

(c) An independent inventor as used in this chapter means any inventor who (1) has not assigned, granted, conveyed, or licensed, and (2) is under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who could not likewise be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as a small business concern or a nonprofit organization under this section.

(d) A small business concern as used in this chapter means any business concern as defined by the Small Business Administration in 13 CFR 121.3-18, published on September 30, 1982 at 47 FR 43273. For the convenience of the users of these regulations, that definition states:

§ 121.3-18 Definition of small business for paying reduced patent fees under Title 35, U.S. Code

(a) Pursuant to Pub. L. 97-247, a small business concern for purposes of paying reduced fees under 35 U.S. Code 41 (a) and (b) to the Patent and Trademark Office means any business concern (1) whose number of employees, including those of its affiliates, does not exceed 500 persons and (2) which has not assigned, granted, conveyed, or licensed, and is under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as a small business concern or a nonprofit organization under this section. For the purpose of this section concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both. The number of employees of the business concern is the average over the fiscal year of the persons employed during each of the pay periods of the fiscal year. Employees are those persons employed on a full-time, part-time or temporary basis during the previous fiscal year of the concern.

(b) If the Patent and Trademark Office determines that a concern is not eligible as a small business concern within this section, the concern shall have a right to appeal that determination to the Small Business Administration. The Patent and Trademark Office shall transmit its written decision and the pertinent size determination file to the SBA in the event of such adverse determination and size appeal. Such appeals by concerns should be submitted to the SBA at 1441 L Street, NW., Washington, D.C. 20416 (Attention: SBA Office of General Counsel). The appeal should state the basis upon which it is claimed that the Patent and Trademark Office initial size determination on the concern was in error; and the facts and arguments supporting the concern's claimed status as a small business concern under this section.

(e) A nonprofit organization as used in this chapter means (1) a university or other institution of higher education located in any country; (2) an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)(3)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)); (3) any nonprofit scientific or educational organization qualified under a nonprofit organization statute of a state of this country (35 U.S.C. 201(i)); or (4) any nonprofit organization located in a foreign country which would qualify as a nonprofit organization under paragraphs (e)(2) or (3) of this section if it were located in this country.

(f) A small entity as used in this chapter means an independent inventor, a small business concern or a nonprofit organization.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20461, May 11, 1978; 47 FR 40134, Sept. 10, 1982; 47 FR 43272, Sept. 30, 1982; effective Oct. 1, 1982]

§ 1.10 Filing of papers and fees by "Express Mail" with certificate.

(a) Any paper or fee to be filed in the Patent and Trademark Office can be filed utilizing the "Express Mail Post Office to Addressee" service of the United States Postal Service and be considered as having been filed in the Office on the date the paper or fee is shown to have been deposited as "Express Mail" with the United States Postal Service.

(b) Any paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing, be addressed to the Commissioner of Patents and Trademarks,

Washington, D.C. 20231, and any such paper or fee must also include a certificate of mailing by "Express Mail" which states the date of mailing by "Express Mail" and is signed by the person mailing the paper or fee.

(c) The Patent and Trademark Office will accept the certificate of mailing by "Express Mail" and accord the paper or fee the certificate date under 35 U.S.C. 21(a) without further proof of the date on which the mailing by "Express Mail" occurred unless a question is present regarding the date of mailing. If more than a reasonable time has elapsed between the certificate date and the Patent and Trademark Office receipt date or if other questions regarding the date of mailing are present, the person mailing the paper or fee may be required to file a copy of the "Express Mail" receipt showing the actual date of mailing and a statement from the person who mailed the paper or fee averring to the fact that the mailing occurred on the date certified. Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office.

[48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

Records and Files of the Patent and Trademark Office

§ 1.11 Files open to the public.

(a) After a patent has been issued, the specification, drawings, and all papers relating to the case in the file of the patent are open to inspection by the general public, and copies may be obtained upon paying the fee therefor. After an award of priority by the Board of Patent Interferences as to all parties, of after termination if no such award is made, the file of any interference which involved a patent, or an application on which a patent has issued, is similarly open to public inspection and procurement of copies. See § 2.27 for trademark files.

(b) All reissue applications and all applications in which the Office has accepted a request filed under § 1.139, and related papers in the application file, are open to inspection by the general public, and copies may be furnished upon paying the fee therefor. The filing of reissue applications will be announced in the *Official Gazette*. The announcement shall include at least the filing date, reissue application and original patent numbers, title, class and subclass, name of the inventor, name of the owner of record, name of the attorney or agent of record, and examining group to which the reissue application is assigned.

(c) All requests for reexamination for which the fee under § 1.20(c) has been paid, will be announced in the *Official Gazette*. Any reexaminations at the initiative of the Commissioner pursuant to § 1.520 will also be announced in the *Official Gazette*. The announcement shall include at least the date of the request, if any, the reexamination request control number or the Commissioner initiated order control number, patent number, title, class and subclass, name of the inventor, name of the patent owner of record, and the examining group to which the reexamination is assigned.

(d) All papers or copies thereof relating to a reexamination proceeding which have been entered of record in the patent or reexamination file are open to inspection by the general public, and copies may be furnished upon paying the fee therefor.

[42 FR 5593, Jan. 28, 1977, as amended at 43 FR 28477, June 30, 1978; 46 FR 29181, May 29, 1981; 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.12 Assignment records open to public inspection.

(a) The assignment records, relating to original or reissue patents, including digests and indexes, and assignment records relating to pending or abandoned trademark applications and to trademark registrations, are open to public inspection and copies of any instrument recorded may be obtained upon request and payment of the fee set forth in § 1.19(a)(5).

(b) Assignment records, digests, and indexes, relating to any pending or abandoned patent application are not available to the public. Copies of any such assignment records and information with respect thereto shall be obtainable only upon written authority of the applicant or applicant's assignee or attorney or agent or upon a showing that the person seeking such information is a bona fide prospective or actual purchaser, mortgagee, or licensee of such application, unless it shall be necessary to the proper conduct of business before the Office or as provided by these rules.

(c) Any request by a member of the public seeking copies of any assignment records of any pending or abandoned patent application preserved in secrecy under § 1.14, or any information with respect thereto, must (1) be in the form of a petition accompanied by the petition fee set forth in § 1.17(i) or (2) include written authority granting access to the member of the public to the particular assignment records from the applicant or applicant's assignee or attorney or agent of record.

(d) An order for a copy of an assignment should give the identification of the record. If identified only by the name of the patentee and number of the patent, or in the case of a trademark registration by the name of the registrant and number of the registration, or by name of the applicant and serial number or international application number of the application, an extra charge as set forth in § 1.21(f) will be made for the time consumed in making a search for such assignment.

[47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.13 Copies and certified copies.

(a) Copies of patents and trademark registrations and of any records, books, papers, or drawings belonging to the Patent and Trademark Office and open to the public, will be furnished by the Patent and Trademark Office to any person, and copies of other records or papers will be furnished to persons entitled thereto, upon payment of the fee therefor.

(b) Such copies will be authenticated by the seal of the Patent and Trademark Office and certified by the Commissioner, or in his name attested by an officer of the Patent and Trademark Office authorized by the Commissioner, upon payment of the fee for the authentication certificate in addition to the fee for the copies.

(35 U.S.C. 10)

§ 1.14 Patent applications preserved in secrecy.

(a) Except as provided in § 1.11(b) pending patent applications are preserved in secrecy. No information will be given by the Office respecting the filing by any particular person of an application for a patent, the pendency of any particular case before it, or the subject matter of any particular application, nor will access be given to or copies furnished of any pending application or papers relating thereto, without written authority in that particular application from the applicant or his assignee or attorney or agent of record, unless the application has been identified by serial number in a published patent document or the United States of America has been indicated as a Designated State in a published international application, in which case status information such as whether it is pending, abandoned or patented may be supplied, or unless it shall be necessary to the proper conduct of business before the Office or as provided by this part. Where an application has been patented, the patent number and issue date may also be supplied.

(b) Except as provided in § 1.11(b) abandoned applications are likewise not open to public inspection, except that if an application referred to in a U.S. patent, or in an application which is open to inspection pursuant to § 1.139, is abandoned and is available, it may be inspected or copies obtained by any person on written request, without notice to the applicant. Abandoned applications may be destroyed after 20 years from their filing date, except those to which particular attention has been called and which have been marked for preservation. Abandoned applications will not be returned.

(c) Applications for patents which disclose, or which appear to disclose, or which purport to disclose, inventions or discoveries relating to atomic energy are reported to the Department of Energy, which Department will be given access to such applications, but such reporting does not constitute a determination that the subject matter of each application so reported is in fact useful or an invention or discovery or that such application in fact discloses subject matter in categories specified by sections 151(c) and 151(d) of the Atomic Energy Act of 1954, 68 Stat. 919; 42 U.S.C. 2181 (c) and (d).

(d) Any decision of the Board of Appeals or the Board of Patent Interferences, or any decision of the Commissioner on petition, not otherwise open to public inspection shall be published or made available for public inspection if: (1) The Commissioner believes the decision involves an interpretation of patent laws or regulations that would be of important precedent value; and (2) the applicant, or any party involved in the interference, does not within two months after being notified of the intention to make the decision public, object in writing on the ground that the decision discloses a trade secret or other confidential information. If a decision discloses such information, the applicant or party shall identify the deletions in the text of the decision considered necessary to protect the information. If it is considered the entire decision must be withheld from the public to protect such information, the applicant or party must explain why. Applicants or parties will be given time, not less than twenty days, to request reconsideration and seek court review before any portions of decisions are made public over their objection. See § 2.27 for trademark applications.

(e) Any request by a member of the public seeking access to, or copies of, any pending or abandoned application preserved in secrecy pursuant to paragraphs (a) and (b) of this section, or of any papers relating thereto, must (1) be in the form of a petition and be accompanied by the petition fee set forth in § 1.17(i) or (2) include written authority granting access to the member of the public in that particular application from the applicant or the applicant's assignee or attorney or agent of record.

(Pub. L. 94-131, 89 Stat. 685)

[24 FR 10332, Dec. 22, 1959, as amended at 42 FR 5593, Jan. 28, 1977; 43 FR 20462, May 11, 1978; 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.15 Requests for identifiable records.

(a) Requests for records not disclosed to the public as part of the regular informational activity of the Patent and Trademark Office and which are not otherwise dealt with in the rules in this part may be made by completing Form CD-244, "Application to Inspect Department Records," and submitting this form, in person or by mail, to the Commissioner of Patents and Trademarks, Washington, D.C. 20231. A nonrefundable application fee of $2 must accompany each application.

Copies of Form CD-244 are available in the Central Reference and Records Inspection Facility, Room 2122, Department of Commerce Building, Washington, D.C. 20230, the search room of the Patent Reference Branch of the Patent and Trademark Office, the search room of the Trademark Examining Operation, and in many public information offices and field offices of the Department of Commerce. If the requested record is identifiable, the request will be reviewed by the appropriate official authorized to make an initial determination of the availability of the record. If it is determined that the material is not to be made available to the requesting person, said person shall be notified in writing of that fact and the reasons why the record will not be disclosed. If the record is to be made available, inspection will be permitted in the appropriate Patent and Trademark Office search room. Fees for copies of records and for searches and related services are payable in accordance with the schedule of fees and charges established in § 4.8 of Title 15, Code of Federal Regulations.

(b) Any person whose application to inspect a record has been refused may request a reconsideration of the initial denial by completing and submitting the appropriate section of the Form CD-244. The request for reconsideration should be made within 30 days of the date of the original denial. In submitting such request the party should include any written argument he desires to support his belief that the record requested should be made available. No personal appearance, oral argument, or hearing shall be permitted. The decision upon such request shall be made by the Commissioner of Patents and Trademarks and shall be based upon the original request, the denial, and any written argument submitted by the person seeking access to the record. The decision upon review shall be promptly made in writing and communicated to the person seeking access. If the decision is wholly or partly in favor of availability, the requested record to such extent shall be made available for inspection as described in paragraph (a) of this section. To the extent that the decision is adverse to the request, the reasons for the denial shall be stated. A decision upon review completed as provided herein shall constitute the final decision and action of the Patent and Trademark Office as to the availability of a requested record, except as may be required by court proceedings initiated pursuant to 5 U.S.C. 552(a)(3). Reconsiderations resulting in final decisions as prescribed herein shall be indexed and made available in the search room of the Patent Reference Branch.

(c) Procedures applicable in the event of a subpoena, order, or other compulsory process or demand of a court or other authority shall be those set forth in section 7 of Department Order 64 (32 FR 9734, July 4, 1967).

(Sec. 1, 66 Stat. 793, 81 Stat. 54; 5 U.S.C. 552, 35 U.S.C. 6)

[32 FR 13812, Oct. 4, 1967, as amended at 34 FR 18857, Nov. 26, 1969]

§ 1.16 National application filing fees.

(a) Basic fee for filing each application for an original patent, except design or plant cases:
By a small entity (§ 1.9(f)) $ 150.00
By other than a small entity . . . . $ 300.00

(b) In addition to the basic filing fee in an original application, for filing or later presentation of each independent claim in excess of 3:
By a small entity (§ 1.9(f)) $ 15.00
By other than a small entity . . . . $ 30.00

(c) In addition to the basic filing fee in an original application, for filing or later presentation of each claim (whether independent or dependent) in excess of 20 (Note that § 1.75(c) indicates how multiple dependent claims are considered for fee calculation purposes.):
By a small entity (§ 1.9(f)) $ 5.00
By other than a small entity . . . . $ 10.00

(d) In addition to the basic filing fee in an original application, if the application contains, or is amended to contain, a multiple dependent claim(s), per application:
By a small entity (§ 1.9(f)) $ 50.00
By other than a small entity . . . . $ 100.00
(If the additional fees required by paragraphs (b), (c) and (d) are not paid on filing or on later presentation of the claims for which the additional fees are due, they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Office in any notice of fee deficiency.)

(e) Surcharge for filing the basic filing fee or oath or declaration on a date later than the filing date of the application:
By a small entity (§ 1.9(f)) $ 50.00
By other than a small entity . . . . $ 100.00

(f) For filing each design application:
By a small entity (§ 1.9(f)) $ 62.50
By other than a small entity . . . . $ 125.00

(g) Basic fee for filing each plant application:
By a small entity (§ 1.9(f)) $ 100.00
By other than a small entity . . . . $ 200.00

(h) Basic fee for filing each reissue application:
By a small entity (§ 1.9(f)) $ 150.00
By other than a small entity . . . . $ 300.00

(i) In addition to the basic filing fee in a reissue application, for filing or later presentation for each independent claim which is in excess of the number of independent claims in the original patent:
By a small entity (§ 1.9(f)) $ 15.00
By other than a small entity . . . . $ 30.00

(j) In addition to the basic filing fee in a reissue application, for filing or later presentation of each claim (whether independent or dependent) in excess of 20 and also in excess of the number of claims in the original patent, (Note that § 1.75(c) indicates how multiple dependent claims are considered for fee purposes.):
By a small entity (§ 1.9(f)) $ 5.00
By other than a small entity . . . . $ 10.00
(Note, see § 1.445 for international application filing and processing fees.).

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.17 Patent application processing fees.

(a) Extension fee for response within first month pursuant to § 1.136(a):
By a small entity (§ 1.9(f)) $ 25.00
By other than a small entity . . . . $ 50.00

(b) Extension fee for response within second month pursuant to § 1.136(a):
By a small entity (§ 1.9(f)) $ 75.00
By other than a small entity . . . . $ 150.00

(c) Extension fee for response within third month pursuant to § 1.136(a):
By a small entity (§ 1.9(f)) $ 175.00
By other than a small entity . . . . $ 350.00

(d) Extension fee for response within fourth month pursuant to § 1.136(a):
By a small entity (§ 1.9(f)) $ 275.00
By other than a small entity . . . . $ 550.00

(e) For filing a notice of appeal from the examiner to the Board of Appeals:
By a small entity (§ 1.9(f)) $ 57.50
By other than a small entity . . . . $ 115.00

(f) In addition to the fee for filing a notice of appeal, for
filing a brief in support of an appeal:
By a small entity (§ 1.9(f)) $ 57.50
By other than a small entity . . . . $ 115.00

(g) For filing a request for an oral hearing before the Board of Appeals:
By a small entity (§ 1.9(f)) $ 50.00
By other than a small entity . . . . $ 100.00

(h) For filing a petition to the Commissioner under a section of this part listed below which refers to this paragraph . . . . $ 120.00
— § 1.47—for filing by other than all the inventors or a person not the inventor
— § 1.48—for correction of inventorship
— § 1.182—for decision on questions not specifically provided for
— § 1.183—to suspend the rules
— § 1.268—for late filing of interference settlement agreement

(i) For filing a petition to the Commissioner under a section of this part listed below which refers to this paragraph . . . . $ 60.00
— § 1.12—for access to an assignment record
— § 1.14—for access to an application
— § 1.55—for entry of late priority papers
— § 1.102—to make application special
— § 1.103—to suspend action in application
— § 1.177—for divisional reissues to issue separately
— § 1.268—for access to interference settlement agreement
— § 1.312—for amendment after payment of issue fee

	— § 1.313—to withdraw an application from issue	
	— § 1.314—to defer issuance of a patent	
	— § 1.334—for patent to issue to assignee, assignment recorded late	
(j)	For filing a petition to institute a public use proceeding under § 1.292	$ 750.00
(k)	For processing an application filed with a specification in a non-English language (§ 1.52(d))	$ 20.00
(l)	For filing a petition (1) for the revival of an abandoned application under 35 U.S.C. 133, or (2) for delayed payment of the issue fee under 35 U.S.C. 151:	
	By a small entity (§ 1.9(f))	$ 25.00
	By other than a small entity	$ 50.00
(m)	For filing a petition (1) for revival of an unintentionally abandoned application or (2) for the unintentionally delayed payment of the fee for issuing a patent:	
	By a small entity (§ 1.9(f))	$ 250.00
	By other than a small entity	$ 500.00

[47 FR 33086, July 30, 1982, paragraphs (a)–(m) added effective Oct. 1, 1982; 48 FR 2696, Jan. 20, 1983, paragraph (h) revised effective Feb. 27, 1983]

§ 1.18 Patent issue fees.

(a)	Issue fee for issuing each original or reissue patent, except a design or plant patent:	
	By a small entity (§ 1.9(f))	$ 250.00
	By other than a small entity	$ 500.00
(b)	Issue fee for issuing a design patent:	
	By a small entity (§ 1.9(f))	$ 87.50
	By other than a small entity	$ 175.00
(c)	Issue fee for issuing a plant patent:	
	By a small entity (§ 1.9(f))	$ 125.00
	By other than a small entity	$ 250.00

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.19 Document supply fees.

The Patent and Trademark Office will supply copies of the following documents upon payment of the fees indicated:

(a)	Uncertified copies of Office documents:	
	(1) Printed copy of a patent, including a design patent, or defensive publication document, except color plant patent	$ 1.00
	(2) Printed copy of a plant patent in color	$ 8.00
	(3) Copy of patent application as filed, each 50 pages or fraction thereof	$ 18.00
	(4) Copy of patent file wrapper and contents, each 100 pages or fraction thereof	$ 30.00
	(5) Copy of Office records, except as provided in paragraphs (a)(1) through (4) of this section, per page	$ 0.30
	(6) Microfiche copy of microfiche, per microfiche	$ 2.00
(b)	Certified copies of Office documents:	
	(1) For certifying Office records, per certificate	$ 3.50
	(2) For a search of assignment records, abstract of title and certification, per patent	$ 12.00
	(3) For comparing copies not prepared by the Office with the original, prior to certification of the copies, per page	$ 0.10
(c)	Subscription services:	
	(1) Subscription orders for printed copies of patents as issued, annual service charge for entry of order and one subclass	$ 4.00
	(2) For annual subscription to each additional subclass in addition to the one covered by the fee under paragraph (c)(1) of this section, per subclass	$ 0.40
(d)	Library service (35 U.S.C. 13):	
	For providing to libraries copies of all patents issued annually, per annum	$ 50.00
(e)	Lists of patents in subclass:	
	(1) For list of all United States patents in a subclass, per 100 patent numbers or fraction thereof	$ 2.00
	(2) For list of United States patents in a subclass limited by date or patent number, per 50 patent numbers or fraction thereof	$ 2.00

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.20 Post-issuance fees.

(a)	For providing a certificate of correction of applicant's mistake (§ 1.323)	$ 40.00
(b)	Petition for correction of inventorship in patent (§ 1.324)	$ 120.00
(c)	For filing a request for reexamination (§ 1.510(a))	$1,500.00
(d)	For filing each statutory disclaimer (§ 1.321):	
	By a small entity (§ 1.9(f))	$ 25.00
	By other than a small entity	$ 50.00
(e)	For maintaining an original or reissue patent, except a design patent, based on an application filed on or after December 12, 1980 and before August 27, 1982, in force beyond 4 years; the fee is due by three years and six months after the original grant	$ 200.00
(f)	For maintaining an original or reissue patent, except a design patent, based on an application filed on or after December 12, 1980 and before August 27, 1982, in force beyond 8 years; the fee is due by seven years and six months after the original grant	$ 400.00
(g)	For maintaining an original or reissue patent, except a design patent, based on an application filed on or after December 12, 1980 and before August 27, 1982, in force beyond 12 years; the fee is due by eleven years and six months after the original grant	$ 600.00
(h)	For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after August 27, 1982, in force beyond 4 years; the fee is due by three years and six months after the original grant:	
	By a small entity (§ 1.9(f))	$ 200.00
	By other than a small entity	$ 400.00
(i)	For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after August 27, 1982, in force beyond 8 years; the fee is due by seven years and six months after the original grant:	
	By a small entity (§ 1.9(f))	$ 400.00
	By other than a small entity	$ 800.00
(j)	For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after August 27, 1982, in force beyond 12 years; the fee is due by eleven years and six months after the original grant:	
	By a small entity (§ 1.9(f))	$ 600.00
	By other than a small entity	$1,200.00

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.21 Miscellaneous fees and charges.

The Patent and Trademark Office has established the following fees for the services indicated:

(a)	Registration of attorneys and agents:	
	(1) For admission to examination for registration to practice, fee payable upon application	$ 75.00
	(2) On registration to practice	$ 50.00
	(3) For reinstatement to practice	$ 25.00
	(4) For certificate of good standing as an attorney or agent	$ 10.00
(b)	Deposit accounts:	
	(1) For establishing or reinstating a deposit account	$ 10.00
	(2) Service charge for each month when the balance at the end of the month is below $ 40.00	$ 2.00
(c)	Disclosure document:	
	For filing a disclosure document	$ 10.00
(d)	Delivery box:	
	Local delivery box rental, per annum	$ 24.00
(e)	International-type search reports:	
	For preparing an international-type search report of an international-type search made at the time of the first action on the merits in a national patent application	$ 25.00
(f)	Search of Office records:	
	For searching Patent and Trademark Office records for purposes not otherwise specified, per one-half hour or fraction thereof	$ 10.00

(g) Copy machine tokens:
Token for copying machine, each .... $ 0.20

(h) Recording of documents:

(1) For recording each assignment, agreement or other paper relating to the property in a patent or application ... $ 20.00

(2) Where a document to be recorded under paragraph (h) (1) of this section refers to more than one patent or application, for each additional patent or application . $ 5.00

(i) Publication in *Official Gazette*:
For publication in the *Official Gazette* of a notice of the availability of an application or a patent for licensing or sale, each application or patent .... $ 6.00

(j) For a duplicate or replacement of a permanent Office user pass (There is no charge for the first permanent user pass). .... $ 5.00

(k) For items and services, that the Commissioner finds may be supplied, for which fees are not specified by statute or by this section, such charges as may be determined by the Commissioner with respect to each such item or service .... actual cost

[47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.22 Fees payable in advance.

(a) Patent and trademark fees and charges payable to the Patent and Trademark Office are required to be paid in advance, that is, at the time of requesting any action by the Office for which a fee or charge is payable with the exception that under § 1.53 applications for patent may be assigned a filing date without payment of the basic filing fee.

(b) All patent and trademark fees paid to the Patent and Trademark Office should be itemized in each individual application, patent or other proceeding in such a manner that it is clear for which purpose the fees are paid.

(Pub. L. 94-131, 89 Stat. 685) [43 FR 20462, May 11, 1978]; 48 FR 2696, Jan. 20, 1983; effective Feb. 27, 1983]

§ 1.23 Method of payment.

All payments of money required for Patent and Trademark Office fees, including fees for the processing of international applications (§ 1.445), should be made in U.S. specie, Treasury notes, national bank notes, post office money orders, or by certified check. If sent in any other form, the Office may delay or cancel the credit until collection is made. Money orders and checks must be made payable to the Commissioner of Patents and Trademarks. Remittances from foreign countries must be payable and immediately negotiable in the United States for the full amount of the fee required. Money sent by mail to the Patent and Trademark Office will be at the risk of the sender; letters containing money should be registered.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20462, May 11, 1978]

§ 1.24 Coupons.

Coupons in denominations of one dollar are sold by the Patent and Trademark Office for the convenience of regular purchasers of U.S. patents and trademark registrations; these coupons may not be used for any other purpose. The one dollar coupons are sold individually and in books of 50 with stubs for record for $50. These coupons are good until used; they may be transferred but cannot be redeemed.

[30 FR 12844, Oct. 8, 1965, as amended at 34 FR 18857, Nov. 26, 1969, 47 FR 33086, July 30, 1982, effective Oct. 1, 1982; 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.25 Deposit accounts.

(a) For the convenience of attorneys, agents, and the general public in paying any fees due, in ordering services offered by the Office, copies of records, etc., deposit accounts may be established in the Patent and Trademark Office upon payment of the fee for establishing a deposit account (§ 1.21(b)(1)). A minimum deposit of $50 or more, depending on the activity of the individual account, is required. At the close of each month's business, a statement will be rendered. A remittance must be made promptly upon receipt of the statement to cover the value of items or services charged to the account and thus restore the account to its established normal deposit value. An amount sufficient to cover all services, copies, etc., requested must always be on deposit. A service charge (§ 1.21(b)(2)) will be assessed for each month that the balance at the end of the month is below $40.

(b) Filing, issue, appeal, international-type search report, international application processing, petition, and post-issuance fees may be charged against these accounts. A general authorization to charge all fees, or only certain fees, set forth in §§ 1.16 to 1.18 to a deposit account may be filed in an individual application, either for the entire pendency of the application or with respect to a particular paper filed. An authorization to charge to a deposit account the fee for a request for reexamination pursuant to § 1.510 and any other

fees required in a reexamination proceeding in a patent may also be filed with the request for reexamination.

(Pub. L. 94-131, 89 Stat. 685)

[40 FR 57359, Dec. 9, 1975, 43 FR 20462, May 11, 1978; and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.26 Refunds.

(a) Money paid by actual mistake or in excess, such as a payment not required by law, will be refunded, but a mere change of purpose after the payment of money, as when a party desires to withdraw an application, an appeal, or a request for oral hearing, will not entitle a party to demand such a return. Amounts of one dollar or less will not be returned unless specifically demanded within a reasonable time, nor will the payer be notified of such amount; amounts over one dollar may be returned by check or, if requested, by credit to a deposit account.

(b) [Reserved]

(c) If the Commissioner decides not to institute a reexamination proceeding, a refund of $1,200.00 will be made to the requester of the proceeding. Reexamination requesters should indicate whether any refund should be made by check or by credit to a deposit account.

(35 U.S.C. 6 and 41)

[46 FR 24179, Apr. 30, 1981 and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.27 Statement of status as small entity.

(a) Any person seeking to establish status as a small entity (§ 1.9(f) of this part) for purposes of paying fees in an application or a patent must file a verified statement in the application or patent prior to or with the first fee paid as a small entity. Such a verified statement need only be filed once in an application or patent and remains in effect until changed.

(b) Any verified statement filed pursuant to paragraph (a) of this section on behalf of an independent inventor must be signed by the independent inventor except as provided in §§ 1.42, 1.43, or 1.47 of this part, and must aver that the inventor qualifies as an independent inventor in accordance with § 1.9(c) of this part. Where there are joint inventors in an application, each inventor must file a verified statement establishing status as an independent inventor in order to qualify as a small entity. Where any rights have been assigned, granted, conveyed, or licensed, or there is an obligation to assign, grant, convey, or license, any rights to a small business concern, a nonprofit organization, or any other individual, a verified statement must be filed by the individual, the owner of the small business concern, or an official of the small business concern or nonprofit organization empowered to act on behalf of the small business concern or nonprofit organization averring to their status.

(c) Any verified statement filed pursuant to paragraph (a) of this section on behalf of a small business concern must (1) be signed by the owner or an official of the small business concern empowered to act on behalf of the concern; (2) aver that the concern qualifies as a small business concern as defined in § 1.9(d); and (3) aver that exclusive rights to the invention have been conveyed to and remain with the small business concern, or if the rights are not exclusive, that all other rights belong to small entities as defined in § 1.9. Where the rights of the small business concern as a small entity are not exclusive, a verified statement must also be filed by the other small entities having rights averring to their status as such.

(d) Any verified statement filed pursuant to paragraph (a) of this section on behalf of a nonprofit organization must (1) be signed by an official of the nonprofit organization empowered to act on behalf of the organization; (2) aver that the organization qualifies as a nonprofit organization as defined in § 1.9(e) of this part specifying under which one of § 1.9(e)(1), (e)(2), (e)(3), or (e)(4) of this part the organization qualifies; and (3) aver that exclusive rights to the invention have been conveyed to and remain with the organization or if the rights are not exclusive, that all other rights belong to small entities as defined in § 1.9 of this part. Where the rights of the nonprofit organization as a small entity are not exclusive, a verified statement must also be filed by the other small entities having rights averring to their status as such.

[47 FR 40134, Sept. 10, 1982 and 47 FR 43272, Sept. 30, 1982, effective Oct. 1, 1982]

§ 1.28 Effect on fees of failure to establish status, or change status, as a small entity.

(a) The failure to establish status as a small entity (§§ 1.9(f) and 1.27 of this part) in any application or patent prior to paying, or at the time of paying, any fee (1) precludes payment of the fee in the amount established for small entities; and (2) precludes a refund pursuant to § 1.26 of this part of any portions of fees paid prior to establishing status as a small entity. Status as a small entity is waived for any fee by the failure to establish the status prior to paying, or at the time of paying the fee. Status as a small entity must be specifically established by a verified statement filed in each application or patent in which the status is available and desired, except those applications filed under § 1.60 of this part where the status as a small entity has been established in a parent application and is still proper. Once status as a small entity has been established in an application or patent, the status remains in that application or patent without the filing of a further verified statement pursuant to § 1.27 of this part unless the Office is notified of a

change in status. Status as a small entity in one application or patent does not affect any other application or patent, including applications or patents which are directly or indirectly dependent upon the application or patent in which the status has been established, except those filed under § 1.60 of this part. Applications filed under § 1.60 of this part must include a reference to a verified statement in a parent application if status as a small entity is still proper and desired.

(b) Once status as a small entity has been established in an application or patent, fees as a small entity may thereafter be paid in that application or patent without regard to a change in status until the issue fee is due or any maintenance fee is due. Notification of any change in status resulting in loss of entitlement to small entity status must be filed in the application or patent prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate pursuant to § 1.9 of this part. The notification of change in status may be signed by the applicant, any person authorized to sign on behalf of the assignee, or an attorney or agent of record or acting in a representative capacity pursuant to § 1.34(a) of this part.

(c) If status as a small entity is established in good faith, and fees as a small entity are paid in good faith, in any application or patent, and it is later discovered that such status as a small entity was established in error or that through error the Office was not notified of a change in status as required by paragraph (b) of this section, the error will be excused (1) if any deficiency between the amount paid and the amount due is paid within three months after the date the error occurred or (2) if any deficiency between the amount paid and the amount due is paid more than three months after the date the error occurred and the payment is accompanied by a verified statement explaining how the error in good faith occurred and how and when it was discovered.

(d)(1) Any attempt to fraudulently (i) establish status as a small entity or (ii) pay fees as a small entity shall be considered as a fraud practiced or attempted on the Office. (2) Improperly and through gross negligence (i) establishing status as a small entity or (ii) paying fees as a small entity shall be considered as a fraud practiced or attempted on the Office. See §§ 1.56(d) and 1.555 of this part.

[47 FR 40134, Sept. 10, 1982, effective Oct. 1, 1982]

Subpart B—National Processing Provisions

PROSECUTION OF APPLICATION AND APPOINTMENT OF ATTORNEY OR AGENT

§ 1.31 Applicants may be represented by an attorney or agent.

An applicant for patent may file and prosecute his own case, or he may be represented by an attorney or agent authorized to practice before the Patent and Trademark Office in patent cases. The Patent and Trademark Office cannot aid in the selection of an attorney or agent.

§ 1.32 Prosecution by assignee.

The assignee of record of the entire interest in an application for patent is entitled to conduct the prosecution of the application to the exclusion of the inventor.

§ 1.33 Correspondence respecting patent applications, reexamination proceedings, and other proceedings.

(a) The residence and post office address of the applicant must appear in the oath or declaration if not stated elsewhere in the application. The applicant may also specify and an attorney or agent of record may specify a correspondence address to which communications about the application are to be directed. All notices, official letters, and other communications in the case will be directed to the correspondence address or, if no such correspondence address is specified, to an attorney or agent of record (see § 1.34(b)), or, if no attorney or agent is of record, to the applicant, or to any assignee of record of the entire interest if the applicant or such assignee so requests, or to an assignee of an undivided part if the applicant so requests, at the post office address of which the Office has been notified in the case. Amendments and other papers filed in the application must be signed: (1) By the applicant, or (2) if there is an assignee of record of an undivided part interest, by the applicant and such assignee, or (3) if there is an assignee of record of the entire interest, by such assignee, or (4) by an attorney or agent of record, or (5) by a registered attorney or agent not of record who acts in a representative capacity under the provisions of § 1.34(a). Double correspondence with an applicant and his attorney or agent, or with more than one attorney or agent, will not be undertaken. If more than one attorney or agent be made of record and a correspondence address has not been specified, correspondence will be held with the one last made of record.

(b) An applicant who has not made of record a registered attorney or agent may be required to state whether he received assistance in the preparation or prosecution of his application, for which any compensation or consideration was given or charged, and if so, to disclose the name or names of the person or persons providing such assistance. This includes the preparation for the applicant of the specification and amendments or other papers to be filed in the Patent and Trademark Office, as well as other assistance in such matters, but does not include merely mak-

ing drawings by draftsmen or stenographic services in typing papers.

(c) All notices, official letters, and other communications for the patent owner or owners in a reexamination proceeding will be directed to the attorney or agent of record (see § 1.34(b)) in the patent file at the address listed on the register of patent attorneys and agents maintained pursuant to §§ 1.341 and 1.347 or, if no attorney or agent is of record, to the patent owner or owners at the address or addresses of record. Amendments and other papers filed in a reexamination proceeding on behalf of the patent owner must be signed by the patent owner, or if there is more than one owner by all the owners, or by an attorney or agent of record in the patent file, or by a registered attorney or agent not of record who acts in a representative capacity under the provisions of § 1.34(a). Double correspondence with the patent owner or owners and the patent owner's attorney or agent, or with more than one attorney or agent, will not be undertaken. If more than one attorney or agent is of record and a correspondence address has not been specified, correspondence will be held with the last attorney or agent made of record.

[36 FR 12617, July 2, 1971, as amended at 46 FR 29181, May 29, 1981]

§ 1.34 Recognition for representation.

(a) When a registered attorney or agent acting in a representative capacity appears in person or signs a paper in practice before the Patent and Trademark Office in a patent case, his or her personal appearance or signature shall constitute a representation to the Patent and Trademark Office that under the provisions of this part and the law, he or she is authorized to represent the particular party in whose behalf he or she acts. In filing such a paper, the attorney or agent should specify his or her registration number with his or her signature. Further proof of authority to act in a representative capacity may be required.

(b) When an attorney or agent shall have filed his or her power of attorney, or authorization, duly executed by the person or persons entitled to prosecute an application or a patent involved in a reexamination proceeding, he or she is a principal attorney of record in the case. A principal attorney or agent, so appointed, may appoint an associate attorney or agent who shall also then be of record.

[46 FR 29181, May 29, 1981]

§ 1.36 Revocation of power of attorney or authorization; withdrawal of attorney or agent.

A power of attorney or authorization of agent may be revoked at any stage in the proceedings of a case, and an attorney or agent may withdraw, upon application to and approval by the Commissioner. An attorney or agent, except an associate attorney or agent whose address is the same as that of the principal attorney or agent, will be notified of the revocation of his or her power of attorney or authorization, and the applicant or patent owner will be notified of the withdrawal of the attorney or agent. An assignment will not of itself operate as a revocation of a power or authorization previously given, but the assignee of the entire interest may revoke previous powers and be represented by an attorney or agent of his or her own selection.

[46 FR 29182, May 29, 1981]

WHO MAY APPLY FOR A PATENT

AUTHORITY: Secs. 1.41 to 1.47 also issued under 35 U.S.C. 111, 116, 117, 118.

§ 1.41 Applicant for patent.

(a) A patent must be applied for in the name of the actual inventor or inventors. Full names must be stated, including the family name and at least one given name without abbreviation together with any other given name or initial.

(b) Unless the contrary is indicated the word "applicant" when used in these sections refers to the inventor or joint inventors who are applying for a patent, or to the person mentioned in §§ 1.42, 1.43, or 1.47 who is applying for a patent in place of the inventor.

(c) Any person authorized by the applicant may file an application for patent on behalf of the inventor or inventors, but an oath or declaration for the application (§ 1.63) can only be made in accordance with § 1.64.

(d) A showing may be required from the person filing the application that the filing was authorized where such authorization comes into question.

[24 FR 10332, Dec. 22, 1959, 36 FR 12690, July 3, 1971; and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.42 When the inventor is dead.

In case of the death of the inventor, the legal representative (executor, administrator, etc.) of the deceased inventor may make the necessary oath or declaration, and apply for and obtain the patent. Where the inventor dies during the time intervening between the filing of the application and the granting of a patent thereon, the letters patent may be issued to the legal representative upon proper intervention.

[24 FR 10332, Dec. 22, 1959; 29 FR 18503, Dec. 29, 1964 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.43 When the inventor is insane or legally incapacitated.

In case an inventor is insane or otherwise legally incapacitated, the legal representative (guardian, conservator, etc.) of

such inventor may make the necessary oath or declaration, and apply for and obtain the patent.

[24 FR 10332, Dec. 22, 1959; 29 FR 18503, Dec. 29, 1964; and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.44 Proof of authority.

In the cases mentioned in §§ 1.42 and 1.43, proof of the power or authority of the legal representative must be recorded in the Patent and Trademark Office or filed in the application before the grant of a patent.

§ 1.45 Joint inventors.

Joint inventors must apply for a patent jointly and each must make the required oath or declaration: neither of them alone, nor less than the entire number, can apply for a patent for an invention invented by them jointly, except as provided in § 1.47.

[24 FR 10332, Dec. 22, 1959; 29 FR 18503, Dec. 29, 1964; 47 FR 33086, July 30, 1982 and 48 FR 2696, Jan. 20, 1983; effective Feb. 27, 1983]

§ 1.46 Assigned inventions and patents.

In case the whole or a part interest in the invention or in the patent to be issued is assigned, the application must still be made or authorized to be made, and an oath or declaration signed, by the inventor or one of the persons mentioned in §§ 1.42, 1.43, or 1.47. However, the patent may be issued to the assignee or jointly to the inventor and the assignee as provided in § 1.334.

[48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.47 Filing when an inventor refuses to sign or cannot be reached.

(a) If a joint inventor refuses to join in an application for patent or cannot be found or reached after diligent effort, the application may be made by the other inventor on behalf of himself or herself and the omitted inventor. The oath or declaration in such an application must be accompanied by a petition including proof of the pertinent facts and by the required fee (§ 1.17(h)) and must state the last known address of the omitted inventor. The Patent and Trademark Office shall forward notice of the filing of the application to the omitted inventor at said address. Should such notice be returned to the Office undelivered, or should the address of the omitted inventor be unknown, notice of the filing of the application shall be published in the *Official Gazette*. The omitted inventor may subsequently join in the application on filing an oath or declaration of the character required by § 1.63. A patent may be granted to the inventor making the application, upon a showing satisfactory to the Commissioner, subject to the same rights which the omitted inventor would have had if he or she had been joined.

(b) Whenever an inventor refuses to execute an application for patent, or cannot be found or reached after diligent effort, a person to whom the inventor has assigned or agreed in writing to assign the invention or who otherwise shows sufficient proprietary interest in the matter justifying such action may make application for patent on behalf of and as agent for the inventor. The oath or declaration in such an application must be accompanied by a petition including proof of the pertinent facts and a showing that such action is necessary to preserve the rights of the parties or to prevent irreparable damage, and by the required fee (§ 1.17(h)) and must state the last known address of the inventor. The assignment, written agreement to assign or other evidence of proprietary interest, or a verified copy thereof, must be filed in the Patent and Trademark Office. The Office shall forward notice of the filing of the application to the inventor at the address stated in the application. Should such notice be returned to the Office undelivered, or should the address of the inventor be unknown, notice of the filing of the application shall be published in the *Official Gazette*. The inventor may subsequently join in the application on filing an oath or declaration of the character required by § 1.63. A patent may be granted to the inventor upon a showing satisfactory to the Commissioner.

[24 FR 10332, Dec. 22, 1959; 29 FR 18503, Dec. 29, 1964; 34 FR 18857, Nov. 26, 1969; 47 FR 33086, July 30, 1982; 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.48 Correction of inventorship.

If the correct inventor or inventors are not named in an application for patent through error without any deceptive intention on the part of the actual inventor or inventors, the application may be amended to name only the actual inventor or inventors. Such amendment must be diligently made and must be accompanied by (1) a petition including a statement of facts verified by the original named inventor or inventors establishing when the error without deceptive intention was discovered and how it occurred; (2) an oath or declaration by each actual inventor or inventors as required by § 1.63; (3) the fee set forth in § 1.17(h); and (4) the written consent of any assignee.

[48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

The Application

§ 1.51 General requisites of an application.

(a) Applications for patents must be made to the Commissioner of Patents and Trademarks. A complete application comprises:

(1) A specification, including a claim or claims, see §§ 1.71 to 1.77.

(2) An oath or declaration, see §§ 1.63 and 1.68.

(3) Drawings, when necessary, see §§ 1.81 to 1.88.

(4) The prescribed filing fee, see § 1.16.

(b) Applicants are encouraged to file an information disclosure statement. See §§ 1.97 through 1.99.

(c) Applicants may desire and are permitted to file with, or in, the application an authorization to charge, at any time during the pendency of the application, any fees required under any of §§ 1.16 to 1.18 to a deposit account established and maintained in accordance with § 1.25.

[42 FR 5593, Jan. 28, 1977; 47 FR 33086, July 30, 1982, revised paragraph (a) (4) and added paragraph (c) effective Oct. 1, 1982; 48 FR 2696, Jan. 20, 1983, revised paragraphs (a) (2) and (b) effective Feb. 27, 1983]

§ 1.52 Language, paper, writing, margins.

(a) The application, any amendments or corrections thereto, and the oath or declaration must be in the English language except as provided for in § 1.69 and paragraph (d) of this section, or be accompanied by a verified translation of the application and a translation of any corrections or amendments into the English language. All papers which are to become a part of the permanent records of the Patent and Trademark Office must be legibly written, typed, or printed in permanent ink or its equivalent in quality. All of the application papers must be presented in a form having sufficient clarity and contrast between the paper and the writing, typing, or printing thereon to permit the direct reproduction of readily legible copies in any number by use of photographic, electrostatic, photo-offset, and microfilming processes. If the papers are not of the required quality, substitute typewritten or printed papers of suitable quality may be required.

(b) The application papers (specification, including claims, abstract, oath or declaration, and papers as provided for in §§ 1.42, 1.43, 1.47, etc.) and also papers subsequently filed, must be plainly written on but one side of the paper. The size of all sheets of paper should be 8 to 8½ by 10½ to 13 inches (20.3 to 21.6 cm. by 26.6 to 33.0 cm.). A margin of at least approximately one inch (2.5 cm.) must be reserved on the left-hand of each page. The top of each page of the application, including claims must have a margin of at least approximately ¾ inch (2 cm.). The lines of text must not be crowded too closely together; typewritten lines should be 1½ or double spaced. The pages of the application, including claims and abstract, should be numbered consecutively, starting with 1, the numbers being centrally located above or preferably, below, the text.

(c) Any interlineation, erasure, cancellation or other alteration of the application papers filed must be made before the signing of any accompanying oath or declaration pursuant to § 1.63 referring to those application papers and should be dated and initialed or signed by the applicant on the same sheet of paper. No such alterations in the application papers are permissible after the signing of an oath or declaration referring to those application papers (§ 1.56(c)). After the signing of the oath or declaration referring to the application papers, amendments may only be made in the manner provided by §§ 1.121 and 1.123–1.125.

(d) An application including a signed oath or declaration may be filed in a language other than English if it is accompanied by the fee set forth in § 1.17(k). A verified English translation of the non-English language application is required to be filed with the application or within such time as may be set by the Office.

(Pub. L. 94-131, 89 Stat. 685)

[37 FR 21994, Oct. 18, 1972; 43 FR 20462, May 11, 1978; 47 FR 33086, July 30, 1982, revised paragraph (a) and added paragraph (d), effective Oct. 1, 1982; 48 FR 2696, Jan. 20, 1983, revised paragraph (c), effective Feb. 27, 1983]

§ 1.53 Serial number, filing date, and completion of application.

(a) Any application for a patent received in the Patent and Trademark Office will be assigned a serial number for identification purposes.

(b) The filing date of an application for patent is the date on which (1) a specification containing a description pursuant to § 1.71 and at least one claim pursuant to § 1.75, and (2) any drawing required by § 1.81(a), are filed in the Patent and Trademark Office. No new matter may be introduced into an application after its filing date (§ 1.118).

(c) If any application is filed without the specification or drawing required by paragraph (b) of this section, applicant will be so notified and given a time period within which to submit the omitted specification or drawing in order to obtain a filing date as of the date of filing of such submission. If the omission is not corrected within the time period set, the application will be returned or otherwise disposed of; the fee, if submitted, will be refunded less a $50.00 handling fee.

(d) If an application which has been accorded a filing date pursuant to paragraph (b) of this section does not include the appropriate filing fee or an oath or declaration by the applicant, applicant will be so notified and given a period of time within which to file the fee, oath, or declaration and to pay the surcharge as set forth in § 1.16(e) in order to prevent abandonment of the application. The notification pursuant to this paragraph may be made simultaneously with any notifica-

tion pursuant to paragraph (c) of this section.

(e) An application for a patent will not be placed upon the files for examination until all its required parts, complying with the rules relating thereto, are received, except that certain minor informalities may be waived subject to subsequent correction whenever required.

(f) The filing date of an international application designating the United States of America shall be treated as the filing date in the United States of America under PCT Article 11(3), except as provided in 35 U.S.C. 102(e).

[48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.54 Parts of application to be filed together; filing receipt.

(a) It is desirable that all parts of the complete application be deposited in the Office together; otherwise a letter must accompany each part, accurately and clearly connecting it with the other parts of the application. See § 1.53 with regard to completion of an application.

(b) Applicant will be informed of the application serial number and filing date by a filing receipt.

[48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.55 Claim for foreign priority.

(a) An applicant may claim the benefit of the filing date of a prior foreign application under the conditions specified in 35 U.S.C. 119 and 172. The claim to priority need be in no special form and may be made by the attorney or agent if the foreign application is referred to in the oath or declaration as required by § 1.63. The claim for priority and the certified copy of the foreign application specified in the second paragraph of 35 U.S.C. 119 must be filed in the case of interference (§ 1.224); when necessary to overcome the date of a reference relied upon by the examiner; or when specifically required by the examiner; and in all other cases they must be filed not later than the date the issue fee is paid. If the papers filed are not in the English language, a translation need not be filed except in the three particular instances specified in the preceding sentence, in which event a sworn translation or a translation certified as accurate by a sworn or official translator must be filed. If the priority papers are submitted after the date the issue fee is paid, they must be accompanied by a petition requesting their entry and the fee set forth in § 1.17(i).

(b) An applicant may under certain circumstances claim priority on the basis of an application for an inventor's certificate in a country granting both inventor's certificates and patents. When an applicant wishes to claim the right of priority as to a claim or claims of the application on the basis of an application for an inventor's certificate in such a country under 35 U.S.C. 119, last paragraph (as amended July 28, 1972), the applicant or his attorney or agent, when submitting a claim for such right as specified in paragraph (b) of this section, shall include an affidavit or declaration including a specific statement that, upon an investigation, he or she has satisfied himself or herself that to the best of his or her knowledge the applicant, when filing his or her application for the inventor's certificate, had the option to file an application either for a patent or an inventor's certificate as to the subject matter of the identified claim or claims forming the basis for the claim of priority.

(35 U.S.C. 119; Pub. L. 94-131, 89 Stat. 685)

[24 FR 10332, Dec. 22, 1959; 34 FR 12629, Aug. 2, 1969; 34 FR 18857, Nov. 26, 1969; 38 FR 9297, Apr. 13, 1973; 43 FR 20463, May 11, 1978; 47 FR 33086, July 30, 1982; 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.56 Duty of disclosure; fraud; striking or rejection of applications.

(a) A duty of candor and good faith toward the Patent and Trademark Office rests on the inventor, on each attorney or agent who prepares or prosecutes the application and on every other individual who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application. All such individuals have a duty to disclose to the Office information they are aware of which is material to the examination of the application. Such information is material where there is substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent. The duty is commensurate with the degree of involvement in the preparation or prosecution of the application.

(b) Disclosures pursuant to this section may be made to the Office through an attorney or agent having responsibility for the preparation or prosecution of the application or through an inventor who is acting in his own behalf. Disclosure to such an attorney, agent or inventor shall satisfy the duty, with respect to the information disclosed, of any other individual. Such an attorney, agent or inventor has no duty to transmit information which is not material to the examination of the application.

(c) Any application may be stricken from the files if:

(1) An oath or declaration pursuant to § 1.63 is signed in blank;

(2) An oath or declaration pursuant to § 1.63 is signed without review thereof by the person making the oath or declaration;

(3) An oath or declaration pursuant to § 1.63 is signed without review of the specification, including the claims, as required by § 1.63(b);

or

(4) The application papers filed in the Office are altered after the signing of an oath or declaration pursuant to § 1.63 referring to those application papers.

(d) No patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or gross negligence. The claims in an application shall be rejected if upon examination pursuant to 35 U.S.C. 131 and 132, it is established by clear and convincing evidence (1) that any fraud was practiced or attempted on the Office in connection with the application, or in connection with any previous application upon which the application relies, or (2) that there was any violation of the duty of disclosure through bad faith or gross negligence in connection with the application, or in connection with any previous application upon which the application relies.

(e) The examination of an application for compliance with paragraph (d) of this section will normally be delayed until such time as (1) all other matters are resolved, or (2) appellant's reply brief pursuant to § 1.193(b) has been received and the application is otherwise prepared for consideration by the Board of Appeals, at which time the appeal will be suspended for examination pursuant to paragraph (d) of this section. The prosecution of the application will be reopened to the extent necessary to conduct the examination pursuant to paragraph (d) of this section including any appeal pursuant to § 1.191. If an appeal has already been filed based on a rejection on other grounds, any further rejection under this section shall be treated in accordance with § 1.193(c).

(f) Any member of the public may seek to have an application stricken from the files pursuant to paragraph (c) of this section by filing a timely petition to strike the application from the files. Any such timely petition and any accompanying papers will be entered in the application file if the petition and accompanying papers (1) specifically identify the application to which the petition is directed, and (2) are either served upon the applicant in accordance with § 1.248, or filed with the Office in duplicate in the event service is not possible. Any such petition filed by an attorney or agent must be in compliance with § 1.346.

(g) A petition to strike an application from the files submitted in accordance with the second sentence of paragraph (f) of this section will be considered by the Office. An acknowledgement of the entry of such a petition in a reissue application file will be sent to the member of the public filing the petition. A member of the public filing such a petition in an application for an original patent will not receive any communications from the Office relating to the petition, other than the return of a self-addressed postcard which the member of the public may include with the petition in order to receive an acknowledgement by the Office that the petition has been received. The Office will communicate with the applicant regarding any such petition entered in the application file and may require the applicant to respond to the Office on matters raised by the petition. The active participation of the member of the public filing a petition pursuant to paragraph (f) of this section ends with the filing of the petition and no further submission on behalf of the petitioner will be acknowledged or considered unless such submission raises new issues which could not have been earlier presented, and thereby constitutes a new petition.

(h) Any member of the public may seek to have the claims in an application rejected pursuant to paragraph (d) of this section by filing a timely protest in accordance with § 1.291. Any such protest filed by an attorney or agent must be in compliance with § 1.346.

(i) The Office may require applicant to supply information pursuant to paragraph (a) of this section in order for the Office to decide any issues relating to paragraphs (c) and (d) of this section which are raised by a petition or a protest, or are otherwise discovered by the Office.

[42 FR 5593, Jan. 28, 1977; FR 21751, May 19, 1982; and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.57 [Removed]

(35 U.S.C. 6, Pub. L. 94-131, 89 Stat. 685)

[43 FR 20463, May 11, 1978; 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.58 Chemical and mathematical formulas and tables.

(a) The specification, including the claims, may contain chemical and mathematical formulas, but shall not contain drawings or flow diagrams. The description portion of the specification may contain tables; claims may contain tables either if necessary to conform to 35 U.S.C. 112 or if otherwise found to be desirable.

(b) All tables and chemical and mathematical formulas in the specification, including claims, and amendments thereto, must be on paper which is flexible, strong, white, smooth, nonshiny, and durable in order to permit use as camera copy when printing any patent which may issue. A good grade of bond paper is acceptable; watermarks should not be prominent. India ink or its equivalent, or solid black typewriter, should be used to secure perfectly black solid lines.

(c) To facilitate camera copying when printing, the width of formulas and tables as presented should be limited normally to 5 inches (12.7 cm.) so that it may appear as a single column in the printed patent. If it is not possible to limit the width

of a formula or table to 5 inches (12.7 cm.), it is permissible to present the formula or table with a maximum width of 10¾ inches (27.3 cm.) and to place it sideways on the sheet. Typewritten characters used in such formulas and tables must be from a block (nonscript) type font or lettering style having capital letters which are at least 0.08 inch (2.1 mm.) high (e.g., elite type). Hand lettering must be neat, clean, and have a minimum character height of 0.08 inch (2.1 mm.). A space at least ¼ inch (6.4 mm.) high should be provided between complex formulas and tables and the text. Tables should have the lines and columns of data closely spaced to conserve space, consistent with high degree of legibility.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20463, May 11, 1978]

§ 1.59 Papers of application with filing date not to be returned.

Papers in an application which has received a filing date pursuant to § 1.53 will not be returned for any purpose whatever. If applicants have not preserved copies of the papers, the Office will furnish copies at the usual cost.

[36 FR 9775, May 28, 1971; 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.60 Continuation or divisional application for invention disclosed in a prior application.

A continuation or divisional application (filed under the conditions specified in 35 U.S.C. 120 or 121), which discloses and claims only subject matter disclosed in a prior application may be filed as a separate application before the patenting or abandonment of or termination of proceedings on the prior application. Signing and execution of the application papers by the applicant may be omitted provided the copy is supplied by and accompanied by a statement by, the applicant or his or her attorney or agent that the application papers comprise a true copy of the prior application as filed. Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office. Only amendments reducing the number of claims or adding a reference to the prior application (§ 1.78(a)) will be entered before calculating the filing fee and granting the filing date.

[36 FR 12690, July 3, 1971 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.61 Filing of applications in the United States of America as a Designated Office.

(a) To maintain the benefit of the international filing date and obtain an examination as to the patentability of the invention in the United States, the applicant shall furnish to the U.S. Patent and Trademark Office not later than the expiration of 20 months from the priority date: (1) A copy of the international application with any amendments, unless it has been previously furnished by the International Bureau or unless it was originally filed in the U.S. Patent and Trademark Office; (2) a verified translation of the international application and a translation of any amendments into the English language, if originally filed elsewhere in another language; (3) the national fee (see § 1.445(a)(4)); and (4) an oath or declaration of the inventor (see § 1.70).

(b) Where an International Searching Authority has made a declaration that no international search report will be established because the international application relates to subject matter which it is not required to search, or because the application fails to comply with the prescribed requirements to such an extent that a meaningful search could not be carried out, the time for performing the acts referred to in paragraph (a) of this section is 2 months from the mailing date of the declaration to the applicant.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20463, May 11, 1978]

§ 1.62 File wrapper continuing procedure.

(a) A continuation, continuation-in-part, or divisional application, which uses the specification and drawings from a prior application to be abandoned, may be filed before the payment of the issue fee, abandonment of, or termination of proceedings on a prior application. The filing date of an application filed under this section is the date on which a request is filed for an application under this section including identification of the Serial Number, filing date, and applicant's name of the prior application.

(b) The filing fee for a continuation, continuation-in-part, or divisional application under this section is based on the number of claims remaining in the application after entry of any preliminary amendment and entry of any amendments under § 1.116 unentered in the prior application which applicant has requested to be entered in the continuing application.

(c) In the case of a continuation-in-part application which adds and claims additional disclosure by amendment, an oath or declaration as required by § 1.63 must also be filed. In a continuation or divisional application which discloses and claims only subject matter disclosed in a prior application, no additional oath or declaration is required.

(d) If an application which has been accorded a filing date pursuant to paragraph (a) of this section does not include the appropriate filing fee pursuant to paragraph (b) of this section, or an oath or declaration by the applicant in the case of a continuation-in-part application pursuant to paragraph (c) of this section, ap-

plicant will be so notified and given a period of time within which to file the fee, oath, or declaration and to pay the surcharge as set forth in § 1.16(e) in order to prevent abandonment of the application. The notification pursuant to this paragraph may be made simultaneously with any notification of a defect pursuant to paragraph (a) of this section.

(e) An application filed under this section will utilize the file wrapper and contents of the prior application to constitute the new continuation, continuation-in-part, or divisional application but will be assigned a new application serial number.

(f) The filing of an application under this section will be construed to include a waiver of secrecy by the applicant under 35 U.S.C. 122 to the extent that any member of the public who is entitled under the provisions of 37 CFR 1.14 to access to, or information concerning either the prior application or any continuing application filed under the provisions of this section may be given similar access to, or similar information concerning, the other application(s) in the file wrapper.

(g) The filing of a request for a continuing application under this section will be considered to be a request to expressly abandon the prior application as of the filing date granted the continuing application.

(h) The applicant is urged to furnish the following information relating to the prior application to the best of his or her ability:

(1) Title as originally filed and as last amended;

(2) Name of applicant as originally filed and as last amended;

(3) Current correspondence address of applicant;

(4) Identification of prior foreign application and any priority claim under 35 U.S.C. 119.

(i) Envelopes containing only application papers and fees for filing under this section should be marked "Box FWC".

[47 FR 47242, Oct. 25, 1982 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.63 Oath or declaration.

(a) An oath or declaration filed under § 1.51(a) (2) as a part of an application must:

(1) Be executed in accordance with either § 1.66 or § 1.68;

(2) Identify the specification to which it is directed;

(3) Identify each inventor and the residence and country of citizenship of each inventor; and

(4) State whether the inventor is a sole or joint inventor of the invention claimed.

(b) In addition to meeting the requirements of paragraph (a), the oath or declaration must state that the person making the oath or declaration:

(1) Has reviewed and understands the contents of the specification, including the claims, as amended by any amendment specifically referred to in the oath or declaration;

(2) Believes the named inventor or inventors to be the original and first inventor or inventors of the subject matter which is claimed and for which a patent is sought; and

(3) Acknowledges the duty to disclose information which is material to the examination of the application in accordance with § 1.56(a).

(c) In addition to meeting the requirements of paragraphs (a) and (b) of this section, the oath or declaration in any application in which a claim for foreign priority is made pursuant to § 1.55 must identify the foreign application for patent or inventor's certificate on which priority is claimed, and any foreign application having a filing date before that of the application on which priority is claimed, by specifying the application number, country, day, month and year of its filing.

(d) In any continuation-in-part application filed under the conditions specified in 35 U.S.C. 120 which discloses and claims subject matter in addition to that disclosed in the prior copending application, the oath or declaration must also state that the person making the oath or declaration acknowledges the duty to disclose material information as defined in § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

[48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.64 Person making oath or declaration.

(a) The oath or declaration must be made by all of the actual inventors except as provided for in §§ 1.42, 1.43, or 1.47.

(b) If the person making the oath or declaration is not the inventor (§§ 1.42, 1.43, or 1.47), the oath or declaration shall state the relationship of the person to the inventor and, upon information and belief, the facts which the inventor is required to state.

[48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.65 [Removed]

[29 FR 18503 Dec. 29, 1964, 34 FR 18857, Nov. 26, 1969; 42 FR 5594, Jan. 28, 1977 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.66 Officers authorized to administer oaths.

(a) The oath or affirmation may be made before any person within the United States authorized by law to administer oaths. An oath made in a foreign country may be made before any diplomatic or consular officer of the United States au-

thorized to administer oaths, or before any officer having an official seal and authorized to administer oaths in the foreign country in which the applicant may be, whose authority shall be proved by a certificate of a diplomatic or consular officer of the United States, or by an apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States. The oath shall be attested in all cases in this and other countries, by the proper official seal of the officer before whom the oath or affirmation is made. Such oath or affirmation shall be valid as to execution if it complies with the laws of the State or country where made. When the person before whom the oath or affirmation is made in this country is not provided with a seal, his official character shall be established by competent evidence, as by a certificate from a clerk of a court of record or other proper officer having a seal.

(b) When the oath is taken before an officer in a country foreign to the United States, any accompanying application papers, except the drawings, must be attached together with the oath and a ribbon passed one or more times through all the sheets of the application, except the drawings, and the ends of said ribbon brought together under the seal before the latter is affixed and impressed, or each sheet must be impressed with the official seal of the officer before whom the oath is taken. If the papers as filed are not properly ribboned or each sheet impressed with the seal, the case will be accepted for examination, but before it is allowed, duplicate papers, prepared in compliance with the foregoing sentence, must be filed.

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.67 Supplemental oath or declaration.

(a) A supplemental oath or declaration meeting the requirements of § 1.63 may be required to be filed to correct any deficiencies or inaccuracies present in an earlier filed oath or declaration.

(b) A supplemental oath or declaration meeting the requirements of § 1.63 must be filed (1) when a claim is presented for matter originally shown or described but not substantially embraced in the statement of invention or claims originally presented, and (2) when an oath or declaration submitted in accordance with § 1.53(d) after the filing of the specification and any required drawings specifically and improperly refers to an amendment which includes new matter. No new matter may be introduced into an application after its filing date even if a supplemental oath or declaration is filed (§ 1.53(b); § 1.118). In proper cases the oath or declaration here required may be made on information and belief by an applicant other than inventor.

[24 FR 10332, Dec. 22, 1959, 29 FR 18503, Dec. 29, 1964; 40 FR 6339, Feb. 11, 1975 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.68 Declaration in lieu of oath.

Any document to be filed in the Patent and Trademark Office and which is required by any law, rule, or other regulation to be under oath may be subscribed to by a written declaration with the exception of testimony relating to interferences and other contested cases covered by §§ 1.271 to 1.286. Such declaration may be used in lieu of the oath otherwise required, if, and only if, the declarant is on the same document, warned that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon. The declarant must set forth in the body of the declaration that all statements made of his own knowledge are true and that all statements made on information and belief are believed to be true.

[34 FR 14430, Sept. 16, 1969]

§ 1.69 Foreign language oaths and declarations.

(a) Whenever an individual making an oath or declaration cannot understand English, the oath or declaration must be in a language that such individual can understand and shall state that such individual understands the content of any documents to which the oath or declaration relates.

(b) Unless the text of any oath or declaration in a language other than English is a form provided or approved by the Patent and Trademark Office, it must be accompanied by a verified English translation, except that in the case of an oath or declaration filed under § 1.63, the translation may be filed in the Office no later than two months from the date applicant is notified to file the translation.

[42 FR 5594, Jan. 28, 1977 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.70 Oath or declaration under 35 U.S.C. 371(c) (4).

(a) When an applicant of an international application, if the inventor, desires to enter the national stage under 35 U.S.C. 371, he or she must file an oath or declaration in accordance with § 1.63.

(b) If the international application was made as provided in §§ 1.422, 1.423 or 1.425, the applicant shall state his or her relationship to the inventor and, upon information and belief, the facts which the inventor is required by this section to state.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20463, May 11, 1978 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

SPECIFICATION

AUTHORITY: Secs. 1.71 to 1.79 also issued under 35 U.S.C. 112.

§ 1.71 Detailed description and specification of the invention.

(a) The specification must include a written description of the invention or discovery and of the manner and process of making and using the same, and is required to be in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which the invention or discovery appertains, or with which it is most nearly connected, to make and use the same.

(b) The specification must set forth the precise invention for which a patent is solicited, in such manner as to distinguish it from other inventions and from what is old. It must describe completely a specific embodiment of the process, machine, manufacture, composition of matter or improvement invented, and must explain the mode of operation or principle whenever applicable. The best mode contemplated by the inventor of carrying out his invention must be set forth.

(c) In the case of an improvement, the specification must particularly point out the part or parts of the process, machine, manufacture, or composition of matter to which the improvement relates, and the description should be confined to the specific improvement and to such parts as necessarily cooperate with it or as may be necessary to a complete understanding or description of it.

§ 1.72 Title and abstract.

(a) The title of the invention, which should be as short and specific as possible, should appear as a heading on the first page of the specification, if it does not otherwise appear at the beginning of the application.

(b) A brief abstract of the technical disclosure in the specification must be set forth on a separate sheet, preferably following the claims under the heading "Abstract of the Disclosure." The purpose of the abstract is to enable the Patent and Trademark Office and the public generally to determine quickly from a cursory inspection the nature and gist of the technical disclosure. The abstract shall not be used for interpreting the scope of the claims.

(Pub. L. 94-131, 89 Stat. 685)

[31 FR 12922, Oct. 4, 1966, and 43 FR 20464, May 11, 1978]

§ 1.73 Summary of the invention.

A brief summary of the invention indicating its nature and substance, which may include a statement of the object of the invention, should precede the detailed description. Such summary should, when set forth, be commensurate with the invention as claimed and any object recited should be that of the invention as claimed.

§ 1.74 Reference to drawings.

When there are drawings, there shall be a brief description of the several views of the drawings and the detailed description of the invention shall refer to the different views by specifying the numbers of the figures and to the different parts by use of reference letters or numerals (preferably the latter).

§ 1.75 Claim(s).

(a) The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

(b) More than one claim may be presented provided they differ substantially from each other and are not unduly multiplied.

(c) One or more claims may be presented in dependent form, referring back to and further limiting another claim or claims in the same application. Any dependent claim which refers to more than one other claim ("multiple dependent claim") shall refer to such other claims in the alternative only. A multiple dependent claim shall not serve as a basis for any other multiple dependent claim. For fee calculation purposes under § 1.16, a multiple dependent claim will be considered to be that number of claims to which direct reference is made therein. For fee calculation purposes, also, any claim depending from a multiple dependent claim will be considered to be that number of claims to which direct reference is made in that multiple dependent claim. In addition to the other filing fees, any original application which is filed with, or is amended to include, multiple dependent claims must have paid therein the fee set forth in § 1.16(d). Claims in dependent form shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim. A multiple dependent claim shall be construed to incorporate by reference all the limitations of each of the particular claims in relation to which it is being considered.

(d)(1) The claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description. (See § 1.58(a).)

(2) See §§ 1.141 to 1.146 as to claiming different inventions in one application.

(e) Where the nature of the case admits, as in the case of an improvement, any independent claim should contain in the following order: (1) A preamble comprising a general description of all the elements or steps of the claimed combination

which are conventional or known, (2) a phrase such as "wherein the improvement comprises," and (3) those elements, steps and/or relationships which constitute that portion of the claimed combination which the applicant considers as the new or improved portion.

(f) If there are several claims, they shall be numbered consecutively in Arabic numerals.

(g) All dependent claims should be grouped together with the claim or claims to which they refer to the extent possible.

[31 FR 12922, Oct. 4, 1966, 36 FR 12690, July 3, 1971; 37 FR 21995, Oct. 18, 1972; 43 FR 4015, Jan. 31, 1978 and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.77 Arrangement of application elements.

The elements of the application should appear in the following order:

(a) Title of the invention; or an introductory portion stating the name, citizenship, and residence of the applicant, and the title of the invention may be used.

(b) [Reserved]

(c)(1) Cross-reference to related applications, if any.

(2) Reference to a "microfiche appendix" if any. (See § 1.96(b)). The total number of microfiche and total number of frames should be specified.

(d) Brief summary of the invention.

(e) Brief description of the several views of the drawing, if there are drawings.

(f) Detailed description.

(g) Claim or claims.

(h) Abstract of the disclosure.

(i) Signed oath or declaration.

(j) Drawings.

(Pub. L. 94-131, 89 Stat. 685; 35 U.S.C. 6 and 41)

[43 FR 20464, May 11, 1978, 46 FR 2612, Jan. 12, 1981; 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.78 Cross-references to other applications.

(a) When an applicant files an application claiming an invention disclosed in a prior filed copending national application or international application designating the United States of America of the same applicant, the second application must contain or be amended to contain in the first sentence of the specification following the title a reference to such prior application, identifying it by serial number and filing date or international application number and international filing date and indicating the relationship of the applications, if the benefit of the filing date of such prior application is to be claimed. Cross-references to other related applications may be made when appropriate. (See § 1.14(b)).

(b) Where two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application.

(c) Where two or more applications, or an application and a patent naming different inventors and owned by the same party contain conflicting claims, the assignee may be called upon to state which named inventor is the prior inventor. In addition to making said statement, the assignee may also explain why an interference should be declared or that no conflict exists in fact.

(Pub. L. 94-131, 89 Stat. 685)

[31 FR 12922, Oct. 4, 1966; 36 FR 7312, Apr. 17, 1971; 43 FR 20464, May 11, 1978]

§ 1.79 Reservation clauses not permitted.

A reservation for a future application of subject matter disclosed but not claimed in a pending application will not be permitted in the pending application, but an application disclosing unclaimed subject matter may contain a reference to a later filed application of the same applicant or owned by a common assignee disclosing and claiming that subject matter.

THE DRAWINGS

AUTHORITY: Secs. 1.81 to 1.88 also issued under 35 U.S.C. 113.

§ 1.81 Drawings required.

(a) The applicant for a patent is required to furnish a drawing of his invention where necessary for the understanding of the subject matter sought to be patented; this drawing must be filed with the application.

(b) Drawings may include illustrations which facilitate an understanding of the invention (for example, flow sheets in cases of processes, and diagrammatic views).

(c) Whenever the nature of the subject matter sought to be patented admits of illustration by a drawing without its being necessary for the understanding of the subject matter and the applicant has not furnished such a drawing, the examiner will require its submission within a time period of not less than two months from the date of the sending of a notice thereof.

(d) Drawings submitted after the filing date of the application may not be used to overcome any insufficiency of the specification due to lack of an enabling disclosure or otherwise inadequate disclosure therein, or to supplement the original disclosure thereof for the purpose of interpretation of the scope of any claim.

[43 FR 4015, Jan. 31, 1978]

§ 1.83 Content of drawing.

(a) The drawing must show every

feature of the invention specified in the claims. However, conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation (e.g. a labeled rectangular box).

(b) When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

(c) Where the drawings do not comply with the requirements of paragraphs (a) and (b) of this section, the examiner shall require such additional illustration within a time period of not less than two months from the date of the sending of a notice thereof. Such corrections are subject to the requirements of § 1.81(d).

[31 FR 12923, Oct. 4, 1966 and 43 FR 4015, Jan. 31, 1978]

§ 1.84 Standards for drawings.

(a) *Paper and ink.* Drawings must be made upon paper which is flexible, strong, white, smooth, non-shiny and durable. Two-ply or three-ply bristol board is preferred. The surface of the paper should be calendered and of a quality which will permit erasure and correction with India ink. India ink, or its equivalent in quality, is preferred for pen drawings to secure perfectly black solid lines. The use of white pigment to cover lines is not normally acceptable.

(b) *Size of sheet and margins.* The size of the sheets on which drawings are made may either be exactly 8½ by 14 inches (21.6 by 35.6 cm.) or exactly 21.0 by 29.7 cm. (DIN size A4). All drawing sheets in a particular application must be the same size. One of the shorter sides of the sheet is regarded as its top.

(1) On 8½ by 14 inch drawing sheets, the drawing must include a top margin of 2 inches (5.1 cm.) and bottom and side margins of ¼ inch (6.4 mm.) from the edges, thereby leaving a "sight" precisely 8 by 11¾ inches (20.3 by 29.8 cm.). Margin border lines are not permitted. All work must be included within the "sight". The sheets may be provided with two ¼ inch (6.4 mm.) diameter holes having their centerlines spaced 11/16 inch (17.5 mm.) below the top edge and 2¾ inches (7.0 cm.) apart, said holes being equally spaced from the respective side edges.

(2) On 21.0 by 29.7 cm. drawing sheets, the drawing must include a top margin of at least 2.5 cm., a left side margin of 2.5 cm., a right side margin of 1.5 cm., and a bottom margin of 1.0 cm. Margin border lines are not permitted. All work must be contained within a sight size not to exceed 17 by 26.2 cm.

(c) *Character of lines.* All drawings must be made with drafting instruments or by a process which will give them satisfactory reproduction characteristics. Every line and letter must be durable, black, sufficiently dense and dark, uniformly thick and well defined; the weight of all lines and letters must be heavy enough to permit adequate reproduction. This direction applies to all lines however fine, to shading, and to lines representing cut surfaces in sectional views. All lines must be clean, sharp, and solid. Fine or crowded lines should be avoided. Solid black should not be used for sectional or surface shading. Freehand work should be avoided wherever it is possible to do so.

(d) *Hatching and shading.* (1) Hatching should be made by oblique parallel lines spaced sufficiently apart to enable the lines to be distinguished without difficulty.

(2) Heavy lines on the shade side of objects should preferably be used except where they tend to thicken the work and obscure reference characters. The light should come from the upper left-hand corner at an angle of 45°. Surface delineations should preferably be shown by proper shading, which should be open.

(e) *Scale.* The scale to which a drawing is made ought to be large enough to show the mechanism without crowding when the drawing is reduced in size to two-thirds in reproduction, and views of portions of the mechanism on a larger scale should be used when necessary to show details clearly; two or more sheets should be used if one does not give sufficient room to accomplish this end, but the number of sheets should not be more than is necessary.

(f) *Reference characters.* The different views should be consecutively numbered figures. Reference numerals (and letters, but numerals are preferred) must be plain, legible and carefully formed, and not be encircled. They should, if possible, measure at least one-eighth of an inch (3.2 mm.) in height so that they may bear reduction to one twenty-fourth of an inch (1.1 mm.); and they may be slightly larger when there is sufficient room. They should not be so placed in the close and complex parts of the drawing as to interfere with a thorough comprehension of the same, and therefore should rarely cross or mingle with the lines. When necessarily grouped around a certain part, they should be placed at a little distance, at the closest point where there is available space, and connected by lines with the parts to which they refer. They should not be placed upon hatched or shaded surfaces but when necessary, a blank space may be left in the hatching or shading where the character occurs so that it shall appear perfectly distinct and separate from the work. The same part of an invention appearing in more than one view of the drawing must always be designated by the same character, and the

same character must never be used to designate different parts. Reference signs not mentioned in the description shall not appear in the drawing, and vice versa.

(g) *Symbols, legends.* Graphical drawing symbols and other labeled representations may be used for conventional elements when appropriate, subject to approval by the Office. The elements for which such symbols and labeled representations are used must be adequately identified in the specification. While descriptive matter on drawings is not permitted, suitable legends may be used, or may be required, in proper cases, as in diagrammatic views and flowsheets or to show materials or where labeled representations are employed to illustrate conventional elements. Arrows may be required, in proper cases, to show direction of movement. The lettering should be as large as, or larger than, the reference characters.

(h) [Reserved]

(i) *Views.* The drawing must contain as many figures as may be necessary to show the invention; the figures should be consecutively numbered if possible in the order in which they appear. The figures may be plain, elevation, section, or perspective views, and detail views of portions of elements, on a larger scale if necessary, may also be used. Exploded views, with the separated parts of the same figure embraced by a bracket, to show the relationship or order of assembly of various parts are permissible. When necessary, a view of a large machine or device in its entirety may be broken and extended over several sheets if there is no loss in facility of understanding the view. Where figures on two or more sheets form in effect a single complete figure, the figures on the several sheets should be so arranged that the complete figure can be understood by laying the drawing sheets adjacent to one another. The arrangement should be such that no part of any of the figures appearing on the various sheets are concealed and that the complete figure can be understood even though spaces will occur in the complete figure because of the margins on the drawing sheets. The plane upon which a sectional view is taken should be indicated on the general view by a broken line, the ends of which should be designated by numerals corresponding to the figure number of the sectional view and have arrows applied to indicate the direction in which the view is taken. A moved position may be shown by a broken line superimposed upon a suitable figure if this can be done without crowding, otherwise a separate figure must be used for this purpose. Modified forms of construction can only be shown in separate figures. Views should not be connected by projection lines nor should center lines be used.

(j) *Arrangement of views.* All views on the same sheet should stand in the same direction and, if possible, stand so that they can be read with the sheet held in an upright position. If views longer than the width of the sheet are necessary for the clearest illustration of the invention, the sheet may be turned on its side so that the top of the sheet with the appropriate top margin is on the right-hand side. One figure must not be placed upon another or within the outline of another.

(k) *Figure for Official Gazette.* The drawing should, as far as possible, be so planned that one of the views will be suitable for publication in the *Official Gazette* as the illustration of the invention.

(l) *Extraneous matter.* Identifying indicia (such as the attorney's docket number, inventor's name, number of sheets, etc.) not to exceed 2¾ inches (7.0 cm.) in width may be placed in a centered location between the side edges within three-fourths inch (19.1 mm.) of the top edge. Authorized security markings may be placed on the drawings provided they are outside the illustrations and are removed when the material is declassified. Other extraneous matter will not be permitted upon the face of a drawing.

(m) *Transmission of drawings.* Drawings transmitted to the Office should be sent flat, protected by a sheet of heavy binder's board, or may be rolled for transmission in a suitable mailing tube; but must never be folded. If received creased or mutilated, new drawings will be required.

(See § 1.152 for design drawing, § 1.165 for plant drawings, and § 1.174 for reissue drawings.)

(Pub. L. 94-131, 89 Stat. 685)

[24 FR 10332, Dec. 22, 1959; 31 FR 12923, Oct. 4, 1966; 36 FR 9775, May 28, 1971; 43 FR 20464, May 11, 1978; and 45 FR 73657, Nov. 6, 1980]

§ 1.85 Informal drawings.

The requirements of § 1.84 relating to drawings will be strictly enforced. A drawing not executed in conformity thereto, if suitable for reproduction, may be admitted but in such case the drawing must be corrected or a new one furnished, as required.

[36 FR 9775, May 28, 1971 and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.86 [Removed]

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.88 Use of old drawings.

If the drawings of a new application are to be identical with the drawings of a previous application of the applicant on file in the Office, or with part of such drawings, the old drawings or any sheets thereof may be used if the prior application is, or is about to be, abandoned, or if the sheets to be used are cancelled in the prior application. The new application must be accompanied by a letter requesting the transfer of the drawings, which should be completely identified.

Models, exhibits, Specimens

Authority: Secs. 1.91 to 1.95 also issued under 35 U.S.C. 114.

§ 1.91 Models not generally required as part of application or patent.

Models were once required in all cases admitting a model, as a part of the application, and these models became a part of the record of the patent. Such models are no longer generally required (the description of the invention in the specification, and the drawings, must be sufficiently full and complete, and capable of being understood, to disclose the invention without the aid of a model), and will not be admitted unless specifically called for.

§ 1.92 Model or exhibit may be required.

A model, working model, or other physical exhibit, may be required if deemed necessary for any purpose on examination of the application.

§ 1.93 Specimens.

When the invention relates to a composition of matter, the applicant may be required to furnish specimens of the composition, or of its ingredients or intermediates, for the purpose of inspection or experiment.

§ 1.94 Return of models, exhibits or specimens.

Models, exhibits, or specimens in applications which have become abandoned, and also in other applications on conclusion of the prosecution, may be returned to the applicant upon demand and at his expense, unless it be deemed necessary that they be preserved in the Office. Such physical exhibits in contested cases may be returned to the parties at their expense. If not claimed within a reasonable time, they may be disposed of at the discretion of the Commissioner.

§ 1.95 Copies of exhibits.

Copies of models or other physical exhibits will not ordinarily be furnished by the Office, and any model or exhibit in an application or patent shall not be taken from the Office except in the custody of an employee of the Office specially authorized by the Commissioner.

§ 1.96 Submission of computer program listings.

Descriptions of the operation and general content of computer program listings should appear in the description portion of the specification. A computer program listing for the purpose of these rules is defined as a print-out that lists in appropriate sequence the instructions, routines, and other contents of a program for a computer. The program listing may be either in machine or machine-independent (object or source) language which will cause a computer to perform a desired procedure or task such as solve a problem, regulate the flow of work in a computer, or control or monitor events. Computer program listings may be submitted in patent applications in the following forms:

(a) *Material which will be printed in the patent.* If the computer program listing is contained on 10 printout pages or less, it must be submitted either as drawings or as part of the specification.

(1) *Drawings.* The listing may be submitted in the manner and complying with the requirements for drawings as provided in § 1.84. At least one figure numeral is required on each sheet of drawing.

(2) *Specification.* (i) The listing may be submitted as part of the specification in accordance with the provisions of § 1.52, at the end of the description but before the claims.

(ii) The listing may be submitted as part of the specification in the form of computer printout sheets (commonly 14 by 11 inches in size) for use as "camera ready copy" when a patent is subsequently printed. Such computer printout sheets must be original copies from the computer with dark solid black letters not less than 0.21 cm high, on white, unshaded and unlined paper, the printing on each sheet must be limited to an area 9 inches high by 13 inches wide, and the sheets should be submitted in a protective cover. When printed in patents, such computer printout sheets will appear at the end of the description but before the claims and will usually be reduced about ½ in size with two printout sheets being printed as one patent specification page. Any amendments must be made by way of submission of a substitute sheet if the copy is to be used for camera ready copy.

(b) *As an appendix which will not be printed.* If a computer program listing printout is 11 or more pages long, applicants may submit such listing in the form of microfiche, referred to in the specification (see § 1.77 (c)(2)). Such microfiche filed with a patent application is to be referred to as a "microfiche appendix." The "microfiche appendix" will not be part of the printed patent. Reference in the application to the "microfiche appendix" should be made at the beginning of the specification at the location indicated in § 1.77(c)(2). Any amendments thereto must be made by way of revised microfiche. All computer program listings submitted on paper will be printed as part of the patent.

(1) *Availability of appendix.* Such computer program listings on microfiche will be available to the public for inspection, and paper or microfiche copies thereof will be separately available for purchase, after a patent based on such an application is granted or the application is otherwise made publicly available.

(2) *Submission requirements.* Computer-generated information submitted as an appendix to an application for patent shall be in the form of microfiche in accor-

dance with the standards set forth in the following American National (ANSI) or National Micrographics Association (NMA) Standards (Note: As new editions of these standards are published, the latest shall apply):

ANSI PH 1.28-1976—Specifications for Photographic Film for Archival Records, Silver-Gelatin Type, on Cellulose Ester Base.

ANSI PH 1.41—1976 Specifications for Photographic Film for Archival Records, Silver-Gelatin Type, on Polyester Base.

NMA-MS1 (1971) Quality Standards for Computer Output Microfilm.

ANSI/NMA MS2 (1978) Format and Coding Standards for Computer Output Microfilm.

NMA MS5 (ANSI PH 5.9-1975) Microfiche of Documents.

ANSI PH 2.19 (1959)—Diffuse Transmission Density.

except as modified or clarified below:

(i) Either Computer-Output Microfilm (COM) output or copies of photographed paper copy may be submitted. In the former case, NMA standards MS1 and MS2 apply; in the latter case, standard MS5 applies.

(ii) Film submitted shall be first generation (camera film) negative appearing microfiche (with emulsion on the back side of the film when viewed with the images right reading).

(iii) Reduction ratio of microfiche submitted should be 24:1 or a similar ratio where variation from said ratio is required in order to fit the documents into the image area of the microfiche format used.

(iv) Film submitted shall have a thickness of at least .005 inches (0.13 mm) and not more than .009 inches (0.23 mm) for either cellulose acetate base or polyester base type.

(v) Both microfiche formats A1 (98 frames, 14 columns × 7 rows) and A3 (63 frames, 9 columns × 7 rows) which are described in NMA standard MS2 (A1 is also described in MS5) are acceptable for use in preparation of microfiche submitted.

(vi) At least the left-most ⅓ (50 mm × 12 mm) of the header or title area of each microfiche submitted shall be clear or positive appearing so that the Patent and Trademark Office can apply serial number and filing date thereto in an eye-readable form. The middle portion of the header shall be used by applicant to apply an eye-readable application identification such as the title and/or the first inventor's name. The attorney's docket number may be included. The final right-hand portion of the microfiche shall contain sequence information for the microfiche, such as 1 of 4, 2 of 4, etc.

(vii) Additional requirements which apply specifically to microfiche of filmed paper copy:

(A) The first frame of each microfiche submitted shall contain a standard test target which contains five NBS Micro-copy Resolution Test Charts (No. 1010A), one in the center and one in each corner. See illustration on page 2 of NMA Recommended Practice MS104, Inspection and Quality Control of First Generation Silver Halide Microfilm. See also paragraph 7 of NMA-MS5.

(B) The second frame of each microfiche submitted must contain a fully descriptive title and the inventor's name as filed.

(C) The pages or lines appearing on the microfiche frames should be consecutively numbered.

(D) Pagination of the microfiche frames shall be from left to right and from top to bottom.

(E) At a reduction of 24:1 resolution of the original microfilm shall be at least 120 lines per mm (5.0 target) so that reproduction copies may be expected to comply with provisions of paragraph 7.1.4 of NMA Standard MS5.

(F) Background density of negative appearing camera master microfiche of filmed paper documents shall be within the range 0.9 to 1.2 and line density should be no greater than 0.08. The density shall be visual diffuse density as measured using the method described in ANSI Standard PH 2.19.

(G) An index, when included, should appear in the last frame (lower right hand corner when data is right-reading) of each microfiche. See NMA-MS5, paragraph 6.6.

(viii) Microfiche generated by Computer Output Microfilm (COM).

(A) Background density of negative-appearing COM-generated camera master microfiche shall be within the range of 1.5 to 2.0 and line density should be no greater than 0.2. The density shall be visual diffuse density as described in ANSI PH 2.19.

(B) The first frame of each microfiche submitted should contain a resolution test frame in conformance with NMA standard MS1.

(C) The second frame of each microfiche submitted must contain a fully descriptive title and the inventor's name as filed.

(D) The pages or lines appearing on the microfiche frames should be consecutively numbered.

(E) It is preferred that pagination of the microfiche frames be from left to right and top to bottom but the alternative, i.e., from top to bottom and from left to right, is also acceptable.

(F) An index, when included, should appear on the last frame (lower right hand corner when data is right reading) of each microfiche.

(G) Amendment of microfiche must be made by way of replacement microfiche.

(35 U.S.C. 6 and 41)

[46 FR 2612, Jan. 12, 1981]

INFORMATION DISCLOSURE STATEMENT

§ 1.97 Filing of information disclosure statement.

(a) As a means of complying with the duty of disclosure set forth in § 1.56, applicants are encouraged to file an information disclosure statement at the time of filing the application or within the later of three months after the filing date of the application or two months after applicant receives the filing receipt. If filed separately, the disclosure statement should, in addition to the identification of the application, include the Group Art Unit to which the application is assigned as indicated on the filing receipt. The disclosure statement may either be separate from the specification or may be incorporated therein.

(b) A disclosure statement filed in accordance with paragraph (a) of this section shall not be construed as a representation that a search has been made or that no other material information as defined in § 1.56(a) exists.

[42 FR 5594, Jan. 28, 1977 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.98 Content of information disclosure statement.

(a) Any disclosure statement filed under § 1.97 or § 1.99 shall include: (1) A listing of patents, publications or other information and (2) a concise explanation of the relevance of each listed item. The disclosure statement shall be accompanied by a copy of each listed patent or publication or other item of information in written form or of at least the portions thereof considered by the person filing the disclosure statement to be pertinent. All United States patents listed should be identified by their patent numbers, patent dates and names of the patentees. Each foreign published application or patent should be cited by identifying the country or office which issued it, the document number and publication date indicated on the document. Each printed publication should be identified by author (if any), title of the publication, pages, date and place of publication.

(b) When two or more patents or publications considered material are substantially identical, a copy of a representative one may be included in the statement and others merely listed. A translation of the pertinent portions of foreign language patents or publications considered material should be transmitted if an existing translation is readily available to the applicant.

[42 FR 5594, Jan. 28, 1977 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.99 Updating of information disclosure statement.

If prior to issuance of a patent an applicant, pursuant to his or her duty of disclosure under § 1.56, wishes to bring to the attention of the Office additional patents, publications or other information not previously submitted, the additional information should be submitted to the Office with reasonable promptness. It may be included in a supplemental information disclosure statement or may be incorporated into other communications to be considered by the examiner. Any transmittal of additional information shall be accompanied by explanations of relevance and by copies in accordance with the requirements of § 1.98.

[42 FR 5594, Jan. 28, 1977 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

EXAMINATION OF APPLICATIONS

AUTHORITY: Secs. 1.101 to 1.108 also issued under 35 U.S.C. 131, 132.

§ 1.101 Order of examination.

(a) Applications filed in the Patent and Trademark Office and accepted as complete applications are assigned for examination to the respective examining groups having the classes of inventions to which the applications relate. Applications shall be taken up for examination by the examiner to whom they have been assigned in the order in which they have been filed except for those applications in which examination has been advanced pursuant to § 1.102 and those applications in which the Office has accepted a request for waiver of patent rights under § 1.139. International applications which have complied with the requirements of 35 U.S.C. 371(c) will be taken up for action based on the date on which such requirements were met. However, unless a request has been filed under 35 U.S.C. 371(f), no action may be taken prior to 21 months from the priority date.

(b) Applications which have been acted upon by the examiner, and which have been placed by the applicant in condition for further aetion by the examiner (amended applications) shall be taken up for action in such order as shall be determined by the Commissioner.

[24 FR 10332, Dec. 22, 1959; 29 FR 13470, Sept. 30, 1964; 33 FR 5624, Apr. 11, 1968; 34 FR 18857, Nov. 26, 1969 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.102 Advancement of examination.

(a) Applications will not be advanced out of turn for examination or for further action except as provided by this part, or upon order of the Commissioner to expedite the business of the Office, or upon filing of a request under paragraph (b) of this section or upon filing a petition under paragraphs (c) or (d) of this section with a verified showing which, in the opinion of the Commissioner, will justify so advancing it.

(b) Applications wherein the inventions are deemed of peculiar importance to

some branch of the public service and the head of some department of the Government requests immediate action for that reason, may be advanced for examination.

(c) A petition to make an application special may be filed without a fee if the basis for the petition is the applicant's age or health or that the invention will materially enhance the quality of the environment or materially contribute to the development or conservation of energy resources.

(d) A petition to make an application special on grounds other than those referred to in paragraph (c) of this section must be accompanied by the petition fee set forth in § 1.17(i).

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.103 Suspension of action.

(a) Suspension of action by the Office will be granted for good and sufficient cause and for a reasonable time specified upon petition by the applicant and, if such cause is not the fault of the Office, the payment of the fee set forth in § 1.17(i). Action will not be suspended when a response by the applicant to an Office action is required.

(b) If action by the Office on an application is suspended when not requested by the applicant, the applicant shall be notified of the reasons therefor.

(c) Action by the examiner may be suspended by order of the Commissioner in the case of applications owned by the United States whenever publication of the invention by the granting of a patent thereon might be detrimental to the public safety or defense, at the request of the appropriate department or agency.

(d) Action on applications in which the Office has accepted a request filed under § 1.139 will be suspended for the entire pendency of these applications except for purposes relating to proceedings under § 1.201(b).

[24 FR 10332, Dec. 22, 1959; 33 FR 5624, Apr. 11, 1968 and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.104 Nature of examination; examiner's action.

(a) On taking up an application for examination or a patent in a reexamination proceeding, the examiner shall make a thorough study thereof and shall make a thorough investigation of the available prior art relating to the subject matter of the claimed invention. The examination shall be complete with respect both to compliance of the application or patent under reexamination with the applicable statutes and rules and to the patentability of the invention as claimed, as well as with respect to matters of form, unless otherwise indicated.

(b) The applicant, or in the case of a reexamination proceeding, both the patent owner and the requester, will be notified of the examiner's action. The reasons for any adverse action or any objection or requirement will be stated and such information or references will be given as may be useful in aiding the applicant, or in the case of a reexamination proceeding the patent owner, to judge the propriety of continuing the prosecution.

(c) An international-type search will be made in all national applications filed on and after June 1, 1978.

(d) Any national application may also have an international-type search report prepared thereon at the time of the national examination on the merits, upon specific written request therefor and payment of the international-type search report fee. See § 1.21(e) for amount of fee for preparation of international-type search report.

NOTE: The Patent and Trademark Office does not require that a formal report of an international-type search be prepared in order to obtain a search fee refund in a later filed international application.

(Pub. L. 94-131, 89 Stat. 685; 35 U.S.C. 6)

[24 FR 10332, Dec. 22, 1959; 43 FR 20465, May 11, 1978; 46 FR 29182, May 29, 1981, 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.105 Completeness of examiner's action.

The examiner's action will be complete as to all matters, except that in appropriate circumstances, such as misjoinder of invention, fundamental defects in the application, and the like, the action of the examiner may be limited to such matters before further action is made. However, matters of form need not be raised by the examiner until a claim is found allowable.

§ 1.106 Rejection of claims.

(a) If the invention is not considered patentable, or not considered patentable as claimed, the claims, or those considered unpatentable will be rejected.

(b) In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his command. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.

(c) In rejecting claims the examiner may rely upon admissions by the applicant, or the patent owner in a reexamination proceeding, as to any matter affecting patentability and, insofar as rejections in applications are concerned, may also rely upon facts within his or her knowledge pursuant to § 1.107.

[24 FR 10332, Dec. 22, 1959; 34 FR 18857, Nov. 26, 1969; 47 FR 21752, May 19, 1982]

§ 1.107 Citation of references.

(a) If domestic patents are cited by the examiner, their numbers and dates, and the names of the patentees, and the classes of inventions must be stated. If foreign published applications or patents are cited, their nationality or country, numbers and dates, and the names of the patentees must be stated, and such other data must be furnished as may be necessary to enable the applicant, or in the case of a reexamination proceeding, the patent owner, to identify the published applications or patents cited. In citing foreign published applications or patents, in case only a part of the document is involved, the particular pages and sheets containing the parts relied upon must be identified. If printed publications are cited, the author (if any), title, date, pages or plates, and place of publication, or place where copy can be found, shall be given.

(b) When a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be as specific as possible, and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant and other persons.

[46 FR 29182, May 29, 1981]

§ 1.108 Abandoned applications not cited.

Abandoned applications as such will not be cited as references except those which have become abandoned as a result of the filing and acceptance of a request under § 1.139.

[33 FR 5624, Apr. 11, 1968]

§ 1.109 Reasons for allowance.

If the examiner believes that the record of the prosecution as a whole does not make clear his or her reasons for allowing a claim or claims, the examiner may set forth such reasoning. The reasons shall be incorporated into an Office action rejecting other claims of the application or patent under reexamination or be the subject of a separate communication to the applicant or patent owner. The applicant or patent owner may file a statement commenting on the reasons for allowance within such time as may be specified by the examiner. Failure to file such a statement shall not give rise to any implication that the applicant or patent owner agrees with or acquiesces in the reasoning of the examiner.

[46 FR 29182, May 29, 1981]

ACTION BY APPLICANT AND FURTHER CONSIDERATION

AUTHORITY: Secs. 1.111 to 1.113 also issued under 35 U.S.C. 132.

§ 1.111 Reply by applicant or patent owner.

(a) After the Office action, if adverse in any respect, the applicant or patent owner, if he or she persists in his or her application for a patent or reexamination proceeding, must reply thereto and may request reconsideration or further examination, with or without amendment.

(b) In order to be entitled to reconsideration or further examination, the applicant or patent owner must make request therefor in writing. The reply by the applicant or patent owner must distinctly and specifically point out the supposed errors in the examiner's action and must respond to every ground of objection and rejection in the prior Office action. If the reply is with respect to an application, a request may be made that objections or requirements as to form not necessary to further consideration of the claims be held in abeyance until allowable subject matter is indicated. The applicant's or patent owner's reply must appear throughout to be a bona fide attempt to advance the case to final action. A general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references does not comply with the requirements of this section.

(c) In amending in response to a rejection of claims in an application or patent undergoing reexamination, the applicant or patent owner must clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections. (See §§ 1.135 and 1.136 for time for reply.)

[46 FR 29182, May 29, 1981]

§ 1.112 Reconsideration.

After response by applicant or patent owner (§ 1.111), the application or patent under reexamination will be reconsidered and again examined. The applicant or patent owner will be notified if claims are rejected, or objections or requirements made, in the same manner as after the first examination. Applicant or patent owner may respond to such Office action in the same manner provided in § 1.111, with or without amendment. Any amendments after the second Office action must ordinarily be restricted to the rejection or to the objections or requirements made. The application or patent under reexamination will be again considered, and so on repeatedly, unless the examiner has indicated that the action is final.

[46 FR 29182, May 29, 1981]

§ 1.113 Final rejection or action.

(a) On the second or any subsequent examination or consideration the rejection

or other action may be made final, whereupon applicant's or patent owner's response is limited to appeal in the case of rejection of any claim (§ 1.191), or to amendment as specified in § 1.116. Petition may be taken to the Commissioner in the case of objections or requirements not involved in the rejection of any claim (§ 1.181). Response to a final rejection or action must include cancellation of, or appeal from the rejection of, each rejected claim. If any claim stands allowed, the response to a final rejection or action must comply with any requirements or objection as to form.

(b) In making such final rejection, the examiner shall repeat or state all grounds of rejection then considered applicable to the claims in the case, clearly stating the reasons therefor.

[24 FR 10332, Dec. 22, 1959 and 46 FR 29182, May 29, 1981]

Amendments

Authority: Secs. 1.115 to 1.127 also issued under 35 U.S.C. 132.

§ 1.115 Amendment.

The applicant may amend before or after the first examination and action and also after the second or subsequent examination or reconsideration as specified in § 1.112 or when and as specifically required by the examiner. The patent owner may amend in accordance with §§ 1.510(e) and 1.530(b) prior to reexamination, and during reexamination proceedings in accordance with §§ 1.112 and 1.116.

[46 FR 29183, May 29, 1981]

§ 1.116 Amendments after final action.

(a) After final rejection or action (§ 1.113) amendments may be made cancelling claims or complying with any requirement of form which has been made. Amendments presenting rejected claims in better form for consideration on appeal may be admitted. The admission of, or refusal to admit, any amendment after final rejection, and any proceedings relative thereto, shall not operate to relieve the application or patent under reexamination from its condition as subject to appeal or to save the application from abandonment under § 1.135.

(b) If amendments touching the merits of the application or patent under reexamination are presented after final rejection, or after appeal has been taken, or when such amendment might not otherwise be proper, they may be admitted upon a showing of good and sufficient reasons why they are necessary and were not earlier presented.

(c) No amendment can be made as a matter of right in appealed cases. After decision on appeal, amendments can only be made as provided in § 1.198, or to carry into effect a recommendation under § 1.196.

[24 FR 10332, Dec. 22, 1959 and 46 FR 29183, May 29, 1981]

§ 1.117 Amendment and revision required.

The specification, claims and drawing must be amended and revised when required, to correct inaccuracies of description and definition or unnecessary prolixity, and to secure correspondence between the claims, the specification and the drawing.

§ 1.118 Amendment of disclosure.

(a) No amendment shall introduce new matter into the disclosure of an application after the filing date of the application (§ 1.53(b)). All amendments to the specification, including the claims, and the drawings filed after the filing date of the application must conform to at least one of them as it was at the time of the filing of the application. Matter not found in either, involving a departure from or an addition to the original disclosure, cannot be added to the application after its filing date even though supported by an oath or declaration in accordance with § 1.63 or § 1.67 filed after the filing date of the application.

(b) If it is determined that an amendment filed after the filing date of the application introduces new matter, claims containing new matter will be rejected and deletion of the new matter in the specification and drawings will be required even if the amendment is accompanied by an oath or declaration in accordance with § 1.63 or § 1.67.

[48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.119 Amendment of claims.

The claims may be amended by canceling particular claims, by presenting new claims, or by rewriting particular claims as indicated in § 1.121. The requirements of § 1.111 must be complied with by pointing out the specific distinctions believed to render the claims patentable over the references in presenting arguments in support of new claims and amendments.

[32 FR 13583, Sept. 28, 1967]

§ 1.121 Manner of making amendments.

(a) Erasures, additions, insertions, or alterations of the Office file of papers and records must not be physically entered by the applicant. Amendments to the application (excluding the claims) are made by filing a paper (which should conform to § 1.52), directing or requesting that specified amendments be made. The exact word or words to be stricken out or inserted by said amendment must be specified and the precise point indicated where the deletion or insertion is to be made.

(b) Except as otherwise provided herein, a particular claim may be amended only by directions to cancel or by rewriting such claim with underlining below the word or words added and brackets around the word or words deleted. The rewriting of a claim in this form will be construed as directing the cancellation of the original claim; however, the original claim number followed by the parenthetical word "amended" must be used for the rewritten claim. If a previously rewritten claim is rewritten, underlining and bracketing will be applied in reference to the previously rewritten claim with the parenthetical expression "twice amended," "three times amended," etc., following the original claim number.

(c) A particular claim may be amended in the manner indicated for the application in paragraph (a) of this section to the extent of corrections in spelling, punctuation, and typographical errors. Additional amendments in this manner will be admitted provided the changes are limited to: (1) Deletions and/or (2) the addition of no more than five words in any one claim. Any amendment submitted with instructions to amend particular claims but failing to conform to the provisions of paragraphs (b) and (c) of this section may be considered nonresponsive and treated accordingly.

(d) Where underlining or brackets are intended to appear in the printed patent or are properly part of the claimed material and not intended as symbolic of changes in the particular claim, amendment by rewriting in accordance with paragraph (b) of this section shall be prohibited.

(e) In reissue applications, both the descriptive portion and the claims are to be amended as specified in paragraph (a) of this section.

(f) Proposed amendments presented in patents involved in reexamination proceedings must be presented in the form of a full copy of the text of: (1) Each claim which is amended and (2) each paragraph of the description which is amended. Matter deleted from the patent shall be placed between brackets and matter added shall be underlined. Copies of the printed claims from the patent may be used with any additions being indicated by carets and deleted material being placed between brackets. Claims must not be renumbered and the numbering of the claims added for reexamination must follow the number of the highest numbered patent claim. No amendment may enlarge the scope of the claims of the patent. No new matter may be introduced into the patent.

[32 FR 13583, Sept. 28, 1967 and 46 FR 29183, May 29, 1981]

§ 1.122 Entry and consideration of amendments.

(a) Amendments are "entered" by the Office by making the proposed deletions by drawing a line in red ink through the word or words cancelled, and by making the proposed substitutions or insertions in red ink, small insertions being written in at the designated place and larger insertions being indicated by reference.

(b) Ordinarily all amendments presented in a paper filed while the application is open to amendment are entered and considered, subsequent cancellation or correction being required of improper amendments. Untimely amendatory papers may be refused entry and consideration in whole or in part.

§ 1.123 Amendments to the drawing.

No change in the drawing may be made except by permission of the Office. Permissible changes in the construction shown in any drawing may be made only by bonded draftsmen, at applicant's expense, or by the submission of substitute drawings by applicant. A sketch in permanent ink showing proposed changes, to become part of the record, must be filed for approval by the examiner. The paper requesting amendments to the drawing should be separate from other papers.

[24 FR 10332, Dec. 22, 1959, 36 FR 9775, May 28, 1971 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.124 Amendment of amendments.

When an amendatory clause is to be amended, it should be wholly rewritten and the original insertion canceled, so that no interlineations or deletions shall appear in the clause as finally presented. Matter canceled by amendment can be reinstated only by a subsequent amendment presenting the canceled matter as a new insertion.

§ 1.125 Substitute specification.

If the number or nature of the amendments shall render it difficult to consider the case, or to arrange the papers for printing or copying, the examiner may require the entire specification, including the claims, or any part thereof, to be rewritten. A substitute specification may not be accepted unless it has been required by the examiner or unless it is clear to the examiner that acceptance of a substitute specification would facilitate processing of the application. Any substitute specification filed must be accompanied by a statement that the substitute specification includes no new matter. Such statement must be a verified statement if made by a person not registered to practice before the Office.

[48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.126 Numbering of claims.

The original numbering of the claims must be preserved throughout the prosecution. When claims are canceled, the re-

maining claims must not be renumbered. When claims are added, except when presented in accordance with § 1.121(b), they must be numbered by the applicant consecutively beginning with the number next following the highest numbered claim previously presented (whether entered or not). When the application is ready for allowance, the examiner, if necessary, will renumber the claims consecutively in the order in which they appear or in such order as may have been requested by applicant.

[32 FR 13583, Sept. 28, 1967]

§ 1.127 Petition from refusal to admit amendment.

From the refusal of the primary examiner to admit an amendment, in whole or in part, a petition will lie to the Commissioner under § 1.181.

AFFIDAVITS OVERCOMING REJECTIONS

§ 1.131 Affidavit or declaration of prior invention to overcome cited patent or publication.

(a) When any claim of an application or a patent under reexamination is rejected on reference to a domestic patent which substantially shows or describes but does not claim the rejected invention, or on reference to a foreign patent or to a printed publication, and the applicant or the owner of the patent under reexamination shall make oath or declaration as to facts showing a completion of the invention in this country before the filing date of the application on which the domestic patent issued, or before the date of the foreign patent, or before the date of the printed publication, then the patent or publication cited shall not bar the grant of a patent to the applicant or the confirmation of the patentability of the claims of the patent, unless the date of such patent or printed publication is more than one year prior to the date on which the applicant's or patent owner's application was filed in this country.

(b) The showing of facts shall be such, in character and weight, as to establish reduction to practice prior to the effective date of the reference, or conception of the invention prior to the effective date of the reference coupled with due diligence from said date to a subsequent reduction to practice or to the filing of the application. Original exhibits of drawings or records, or photocopies thereof, must accompany and form part of the affidavit or declaration or their absence satisfactorily explained.

(35 U.S.C. 132)

[24 FR 10332, Dec. 22, 1959; 34 FR 18857, Nov. 26, 1969 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.132 Affidavits or declarations traversing grounds of rejection.

When any claim of an application or a patent under reexamination is rejected on reference to a domestic patent which substantially shows or describes but does not claim the invention, or on reference to a foreign patent, or to a printed publication, or to facts within the personal knowledge of an employee of the Office, or when rejected upon a mode or capability of operation attributed to a reference, or because the alleged invention is held to be inoperative or lacking in utility, or frivolous or injurious to public health or morals, affidavits or declarations traversing these references or objections may be received.

(35 U.S.C. 132)

[24 FR 10332, Dec. 22, 1959, 34 FR 18857, Nov. 26, 1969 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

INTERVIEWS

§ 1.133 Interviews.

(a) Interviews with examiners concerning applications and other matters pending before the Office must be had in the examiners' rooms at such times, within office hours, as the respective examiners may designate. Interviews will not be permitted at any other time or place without the authority of the Commissioner. Interviews for the discussion of the patentability of pending applications will not be had before the first official action thereon. Interviews should be arranged for in advance.

(b) In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for response to Office actions as specified in §§ 1.111, 1.135.

TIME FOR RESPONSE BY APPLICANT; ABANDONMENT OF APPLICATION

AUTHORITY: Secs. 1.135 to 1.138 also issued under 35 U.S.C. 133.

§ 1.134 Time period for response to an Office action.

An Office action will notify the applicant of any non-statutory or shortened statutory time period set for response to an Office action. Unless the applicant is notified in writing that response is required in less than six months, a maximum period of six months is allowed.

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.135 Abandonment for failure to respond within time period.

(a) If an applicant of a patent applica-

tion fails to respond within the time period provided under §§ 1.134 and 1.136, the application will become abandoned unless an Office action indicates otherwise.

(b) Prosecution of an application to save it from abandonment pursuant to paragraph (a) of this section must include such complete and proper action as the condition of the case may require. The admission of an amendment not responsive to the last Office action, or refusal to admit the same, and any proceedings relative thereto, shall not operate to save the application from abandonment.

(c) When action by the applicant is a bona fide attempt to respond and to advance the case to final action, and is substantially a complete response to the Office action, but consideration of some matter or compliance with some requirement has been inadvertently omitted, opportunity to explain and supply the omission may be given before the question of abandonment is considered.

(d) Prompt ratification or filing of a correctly signed copy may be accepted in case of an unsigned or improperly signed paper. (See § 1.7.)

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.136 Filing of timely responses with petition and fee for extension of time and extensions of time for cause.

(a) If an applicant is required to respond within a non-statutory or shortened statutory time period, applicant may respond up to four months after the time period set if a petition for an extension of time and the fee set in § 1.17 are filed prior to or with the response, unless (1) applicant is notified otherwise in an Office action or (2) the application is involved in an interference declared pursuant to § 1.207. The date on which the response, the petition, and the fee have been filed is the date of the response and also the date for purposes of determining the period of extension and the corresponding amount of the fee. The expiration of the time period is determined by the amount of the fee paid. In no case may an applicant respond later than the maximum time period set by statute, or be granted an extension of time under paragraph (b) of this section when the provisions of this paragraph are available.

(b) When a response with petition and fee for extension of time cannot be filed pursuant to paragraph (a) of this section, the time for response will be extended only for sufficient cause, and for a reasonable time specified. Any request for such extension must be filed on or before the day on which action by the applicant is due, but in no case will the mere filing of the request effect any extension. In no case can any extension carry the date on which response to an Office action is due beyond the maximum time period set by statute or be granted when the provisions of paragraph (a) of this section are available. See § 1.245 for extension of time in interference proceedings.

[24 FR 10332, Dec. 22, 1959, 41 FR 757, Jan. 5, 1976 and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.137 Revival of abandoned application.

(a) An application abandoned for failure to prosecute may be revived as a pending application if it is shown to the satisfaction of the Commissioner that the delay was unavoidable. A petition to revive an abandoned application must be promptly filed after the applicant is notified of, or otherwise becomes aware of, the abandonment, and must be accompanied by a showing of the causes of the delay, by the proposed response unless it has been previously filed, and by the petition fee set forth in § 1.17(l). Such showing must be a verified showing if made by a person not registered to practice before the Patent and Trademark Office.

(b) An application unintentionally abandoned for failure to prosecute, except pursuant to § 1.53(d), may be revived as a pending application if the delay was unintentional. A petition to revive an unintentionally abandoned application must be filed within one year of the date on which the application became abandoned or be filed within three months of the date of the first decision on a petition to revive under paragraph (a) of this section which was filed within one year of the date of abandonment of the application. A petition to revive an unintentionally abandoned application must be accompanied by (1) a statement that the abandonment was unintentional, (2) a proposed response unless it has been previously filed, and (3) a petition fee as set forth in § 1.17(m). Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office. The Commissioner may require additional information where there is a question whether the abandonment was unintentional. The three month period set forth in this paragraph may be extended under the provisions of § 1.136(a), but no further extensions under § 1.136(b) will be granted. Petitions to the Commissioner under § 1.183 to waive any time periods for requesting revival of an unintentionally abandoned application will not be considered, but will be returned to the applicant.

(c) Any petition pursuant to paragraph (a) of this section not filed within six months of the date of abandonment must be accompanied by a terminal disclaimer with fee under § 1.321 dedicating to the public a terminal part of the term of any patent granted thereon equivalent to the period of abandonment of the application.

[47 FR 33086, July 30, 1982 and 48 FR 2696, Jan. 20, 1983 revised paragraph (b) effective Feb. 27, 1983]

§ 1.138 Express abandonment.

An application may be expressly abandoned by filing in the Patent and Trademark Office a written declaration of abandonment signed by the applicant himself or herself, and the assignee of record, if any, identifying the application. Except as provided in § 1.62 an application may also be expressly abandoned by filing a written declaration of abandonment signed by the attorney or agent of record. A registered attorney or agent acting under the provision of § 1.34(a), or of record, may also expressly abandon a prior application as of the filing date granted to a continuing application when filing such a continuing application. Express abandonment of the application may not be recognized by the Office unless it is actually received by appropriate officials in time to act thereon before the date of issue.

[34 FR 18857, Nov. 26, 1969 and 47 FR 47243, Oct. 25, 1982, effective Feb. 27, 1983]

§ 1.139 Waiver of patent rights.

An applicant may waive his rights to an enforceable patent based on a pending patent application by filing in the Patent and Trademark Office a written waiver of patent rights, a consent to the publication of an abstract, and authorization to open the complete application to inspection by the general public, and a declaration of abandonment signed by the applicant and the assignee of record or by the attorney or agent of record.

[33 FR 5624, Apr. 11, 1968]

JOINDER OF INVENTIONS IN ONE APPLICATION; RESTRICTION

AUTHORITY: Secs. 1.141 to 1.147 also issued under 35 U.S.C. 121.

§ 1.141 Different inventions in one application.

(a) Two or more independent and distinct inventions, that is, inventions which do not form a single general inventive concept, may not be claimed in one application, except that more than one species of an invention, not to exceed a reasonable number, may be specifically claimed in different claims in one application, provided the application also includes an allowable claim generic to all the claimed species and all the claims to species in excess of one are written in dependent form (§ 1.75) or otherwise include all the limitations of the generic claim.

(b) A group of claims of different categories in an application so linked as to form a single inventive concept are considered to be one invention. In particular any of the following groupings of claims of different categories may be included in the same application:

(1) In addition to a claim for a given product,

(i) A claim for one process specially adapted for the manufacture of the said product, as where the process of making as claimed cannot be used to make other and materially different products;

(ii) A claim for one use of the said product, as where said use as claimed cannot be practiced with another materially different product; or

(iii) Both (b)(1)(i) and (ii);

(2) In addition to a claim for a given process, a claim for one apparatus or means specifically designed for carrying out of the said process, that is, it cannot be used to practice another materially different process.

(c) If the situation of paragraph (b)(1) of this section exists where claims to all three categories, product, process and use, are included, and the product claims are not allowable, the use and process claims are not so linked as to form a single general inventive concept. Where the process and use claims are not so joined by an allowable linking product claim, the applicant will be required to elect either the use or the process for prosecution with the product claim.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20465, May 11, 1978]

§ 1.142 Requirement for restriction.

(a) If two or more independent and distinct inventions are claimed in a single application, the examiner in his action shall require the applicant in his response to that action to elect that invention to which his claim shall be restricted, this official action being called a requirement for restriction (also known as a requirement for division). If the distinctness and independence of the inventions be clear, such requirement will be made before any action on the merits; however, it may be made at any time before final action in the case at the discretion of the examiner.

(b) Claims to the invention or inventions not elected, if not canceled, are nevertheless withdrawn from further consideration by the examiner by the election, subject however to reinstatement in the event the requirement for restriction is withdrawn or overruled.

§ 1.143 Reconsideration of requirement.

If the applicant disagrees with the requirement for restriction, he may request reconsideration and withdrawal or modification of the requirement, giving the reasons therefor. (See § 1.111.) In requesting reconsideration the applicant must indicate a provisional election of one invention for prosecution, which invention shall be the one elected in the event the requirement becomes final. The requirement for restriction will be reconsidered on such a request. If the requirement is repeated and made final the examiner will at the same time act on the claims to the invention elected.

§ 1.144 Petition from requirement for restriction.

After a final requirement for restriction, the applicant, in addition to making any response due on the remainder of the action, may petition the Commissioner to review the requirement. Petition may be deferred until after final action on or allowance of claims to the invention elected, but must be filed not later than appeal. A petition will not be considered if reconsideration of the requirement was not requested. (See § 1.181.)

§ 1.145 Subsequent presentation of claims for different invention.

If, after an office action on an application, the applicant presents claims directed to an invention distinct from and independent of the invention previously claimed, the applicant will be required to restrict the claims to the invention previously claimed if the amendment is entered, subject to reconsideration and review as provided in §§ 1.143 and 1.144.

§ 1.146 Election of species.

In the first action on an application containing a generic claim and claims restricted separately to each of more than one species embraced thereby, the examiner may require the applicant in his response to that action to elect that species of his or her invention to which his or her claim shall be restricted if no generic claim is held allowable. However, if such application contains claims directed to more than a reasonable number of species, the examiner may require restriction of the claims to not more than a reasonable number of species before taking further action in the case.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20465, May 11, 1978]

Design Patents

§ 1.151 Rules applicable.

The rules relating to applications for patents for other inventions or discoveries are also applicable to applications for patents for designs except as otherwise provided. (35 U.S.C. 171)

§ 1.152 Drawing.

The design must be represented by a drawing made in conformity with the rules laid down for drawings of mechanical inventions and must contain a sufficient number of views to constitute a complete disclosure of the appearance of the article. Appropriate surface shading must be used to show the character or contour of the surfaces represented.

(35 U.S.C. 113, 171)

§ 1.153 Title, description and claim, oath or declaration.

(a) The title of the design must designate the particular article. No description, other than a reference to the drawing, is ordinarily required. The claim shall be in formal terms to the ornamental design for the article (specifying name) as shown, or as shown and described. More than one claim is neither required nor permitted.

(b) The oath or declaration required of the applicant must comply with § 1.63.

[24 FR 10332, Dec. 22, 1959, 29 FR 18503, Dec. 29, 1964 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.154 Arrangement of specification.

The following order of arrangement should be observed in framing design specifications:

(a) Preamble, stating name of the applicant and title of the design.

(b) Description of the figure or figures of the drawing.

(c) Description, if any.

(d) Claim.

(e) Signed oath or declaration (See § 1.153(b)).

(35 U.S.C. 171)

[48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.155 Issue and term of design patents.

(a) If, on examination, it shall appear that the applicant is entitled to a design patent under the law, a notice of allowance will be sent to the applicant, or applicant's attorney or agent, calling for the payment of the issue fee (§ 1.18(b)). If this issue fee is not paid within 3 months of the date of the notice of allowance, the application shall be regarded as abandoned.

(b) The Commissioner may accept the payment of the issue fee later than three months after the mailing of the notice of allowance as though no abandonment had ever occurred if upon petition the delay in payment is shown to have been unavoidable. The petition to accept the delayed payment must be promptly filed after the applicant is notified of, or otherwise becomes aware of, the abandonment, and must be accompanied by (1) the issue fee, unless it has been previously submitted, (2) the fee for delayed payment (§ 1.17(1)), and (3) a showing that the delay was unavoidable. Such showing must be a verified showing if made by a person not registered to practice before the Patent and Trademark Office.

(c) The Commissioner may, upon petition, accept the payment of the issue fee later than three months after the mailing of the notice of allowance as though no abandonment had ever occurred if the delay in payment was unintentional. The petition to accept the delayed payment must be filed within one year of the date on

which the application became abandoned or be filed within three months of the date of the first decision on a petition under paragraph (b) of this section which was filed within one year of the date of abandonment of the application. The petition to accept the delayed payment must be accompanied by (1) the issue fee, unless it has been previously submitted, (2) the fee for unintentionally delayed payment (§ 1.17(m)), and (3) a statement that the delay was unintentional. Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office. The Commissioner may require additional information where there is a question whether the abandonment was unintentional. The three-month period from the date of the first decision referred to in this paragraph may be extended under the provisions of § 1.136(a), but no further extensions under § 1.136(b) will be granted. Petitions to the Commissioner under § 1.183 to waive any time periods for requesting revival of an unintentionally abandoned application will not be considered, but will be returned to the applicant.

(d) Any petition pursuant to paragraph (b) of this section not filed within six months of the date of abandonment must be accompanied by a terminal disclaimer with fee under § 1.321 dedicating to the public a terminal part of the term of any patent granted thereon equivalent to the period of abandonment of the application.

[40 FR 44813, Sept. 30, 1975 and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

Plant Patents

§ 1.161 Rules applicable.

The rules relating to applications for patent for other inventions or discoveries are also applicable to applications for patents for plants except as otherwise provided.

§ 1.162 Applicant, oath or declaration.

The applicant for a plant patent must be the person who has invented or discovered and asexually reproduced the new and distinct variety of plant for which a patent is sought (or as provided in §§ 1.42, 1.43, and 1.47). The oath or declaration required of the applicant, in addition to the averments required by § 1.63, must state that he or she has asexually reproduced the plant. Where the plant is a newly found plant the oath or declaration must also state that it was found in a cultivated area.

(35 U.S.C. 161)

[24 FR 10332, Dec. 22, 1959, 29 FR 18503, Dec. 29, 1964 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.163 Specification.

(a) The specification must contain as full and complete a disclosure as possible of the plant and the characteristics thereof that distinguish the same over related known varieties, and its antecedents, and must particularly point out where and in what manner the variety of plant has been asexually reproduced. In the case of a newly found plant, the specification must particularly point out the location and character of the area where the plant was discovered.

(b) Two copies of the specification (including the claim) must be submitted, but only one signed oath or declaration is required. The second copy of the specification may be a legible carbon copy of the original.

[48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.164 Claim.

The claim shall be in formal terms to the new and distinct variety of the specified plant as described and illustrated, and may also recite the principal distinguishing characteristics. More than one claim is not permitted.

(35 U.S.C. 162)

§ 1.165 Drawings.

(a) Plant patent drawings are not mechanical drawings and should be artistically and competently executed. Figure numbers and reference characters need not be employed unless required by the examiner. The drawing must disclose all the distinctive characteristics of the plant capable of visual representation.

(b) The drawing may be in color and when color is a distinguishing characteristic of the new variety, the drawing must be in color. Two copies of color drawings must be submitted. Color drawings may be made either in permanent water color or oil, or in lieu thereof may be photographs made by color photography or properly colored on sensitized paper. Permanently mounted color photographs are acceptable. The paper in any case must correspond in size, weight and quality to the paper required for other drawings. See § 1.84.

(35 U.S.C. 113, 161)

[24 FR 10332, Dec. 22, 1959, 40 FR 57359, Dec. 9, 1975 and 47 FR 33086, July 30, 1982, effective Oct 1, 1982]

§ 1.166 Specimens.

The applicant may be required to furnish specimens of the plant, or its flower or fruit, in a quantity and at a time in its stage of growth as may be designated, for study and inspection. Such specimens, properly packed, must be forwarded in conformity with instructions furnished to the applicant. When it is not possible to

forward such specimens, plants must be made available for official inspection where grown.

(35 U.S.C. 114, 161)

§ 1.167 Examination.

(a) Applications may be submitted by the Patent and Trademark Office to the Department of Agriculture for study and report.

(b) Affidavits or declarations from qualified agricultural or horticultural experts regarding the novelty and distinctiveness of the variety of plant may be received when the need of such affidavits or declarations is indicated.

(35 U.S.C. 161, 164; E.O. 5464, Oct. 17, 1930)

[24 FR 10332, Dec. 22, 1959 and 34 FR 18857, Nov. 26, 1969]

REISSUES

AUTHORITY: Secs. 1.171 to 1.179 also issued under 35 U.S.C. 251.

§ 1.171 Application for reissue.

An application for reissue must contain the same parts required for an application for an original patent, complying with all the rules relating thereto except as otherwise provided, and in addition, must comply with the requirements of the rules relating to reissue applications. The application must be accompanied by a certified copy of an abstract of title or an order for a title report accompanied by the fee set forth in § 1.19(b) (2), to be placed in the file, and by an offer to surrender the original patent (§ 1.178).

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.172 Applicants, assignees.

(a) A reissue oath must be signed and sworn to or declaration made by the inventor or inventors except as otherwise provided (see §§ 1.42, 1.43, 1.47), and must be accompanied by the written assent of all assignees, if any, owning an undivided interest in the patent, but a reissue oath may be made and sworn to or declaration made by the assignee of the entire interest if the application does not seek to enlarge the scope of the claims of the original patent.

(b) A reissue will be granted to the original patentee, his legal representatives or assigns as the interest may appear.

[24 FR 10332, Dec. 22, 1959, 29 FR 10853, Dec. 29, 1964 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.173 Specification.

The specification of the reissue application must include the entire specification and claims of the patent, with the matter to be omitted by reissue enclosed in square brackets; and any additions made by the reissue must be underlined, so that the old and the new specifications and claims may be readily compared. Claims should not be renumbered and the numbering of claims added by reissue should follow the number of the highest numbered patent claim. No new matter shall be introduced into the specification.

§ 1.174 Drawings.

(a) The drawings upon which the original patent was issued may be used in reissue applications if no changes whatsoever are to be made in the drawings. In such cases, when the reissue application is filed, the applicant must submit a temporary drawing which may consist of a copy of the printed drawings of the patent or a photoprint of the original drawings of the size required for original drawing.

(b) Amendments which can be made in a reissue drawing, that is, changes from the drawing of the patent, are restricted.

[48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.175 Reissue oath or declaration.

(a) Applicants for reissue, in addition to complying with the requirements of § 1.63, must also file with their applications a statement under oath or declaration as follows:

(1) When the applicant verily believes the original patent to be wholly or partly inoperative or invalid, stating such belief and the reasons why.

(2) When it is claimed that such patent is so inoperative or invalid "by reason of a defective specification or drawing," particularly specifying such defects.

(3) When it is claimed that such patent is inoperative or invalid "by reason of the patentee claiming more or less than he had the right to claim in the patent," distinctly specifying the excess or insufficiency in the claims.

(4) [Reserved]

(5) Particularly specifying the errors relied upon, and how they arose or occurred.

(6) Stating that said errors arose "without any deceptive intention" on the part of the applicant.

(7) Acknowledging a duty to disclose information applicant is aware of which is material to the examination of the application.

(b) Corroborating affidavits or declarations of others may be filed and the examiner may, in any case, require additional information or affidavits or declarations concerning the application for reissue and its object.

[24 FR 10332, Dec. 22, 1959, 29 FR 18503, Dec. 29, 1964; 34 FR 18857, Nov. 26, 1969; 47 FR 21752, May 19, 1982 and 48 FR 2696, Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.176 Examination of reissue.

An original claim, if re-presented in the

reissue application, is subject to reexamination, and the entire application will be examined in the same manner as original applications, subject to the rules relating thereto, excepting that division will not be required. Applications for reissue will be acted on by the examiner in advance of other applications, but not sooner than two months after announcement of the filing of the reissue application has appeared in the *Official Gazette*.

[42 FR 5595, Jan. 28, 1977]

§ 1.177 Reissue in divisions.

The Commissioner may, in his or her discretion, cause several patents to be issued for distinct and separate parts of the thing patented, upon demand of the applicant, and upon payment of the required fee for each division. Each division of a reissue constitutes the subject of a separate specification descriptive of the part or parts of the invention claimed in such division; and the drawing may represent only such part or parts, subject to the provisions of §§ 1.83 and 1.84. On filing divisional reissue applications, they shall be referred to the Commissioner. Unless otherwise ordered by the Commissioner upon petition and payment of the fee set forth in § 1.17(i), all the divisions of a reissue will issue simultaneously; if there be any controversy as to one division, the others will be withheld from issue until the controversy is ended, unless the Commissioner shall otherwise order.

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.178 Original patent.

The application for a reissue must be accompanied by an offer to surrender the original patent. The application should also be accompanied by the original patent, or if the original is lost or inaccessible, by an affidavit or declaration to that effect. The application may be accepted for examination in the absence of the original patent or the affidavit or declaration, but one or the other must be supplied before the case is allowed. If a reissue be refused, the original patent will be returned to applicant upon his request.

[24 FR 10332, Dec. 22, 1959, 34 FR 18857, Nov. 26, 1969]

§ 1.179 Notice of reissue application.

When an application for a reissue is filed, there will be placed in the file of the original patent a notice stating that an application for reissue has been filed. When the reissue is granted or the reissue application is otherwise terminated, the fact will be added to the notice in the file of the original patent.

Petitions and Action by the Commissioner

§ 1.181 Petition to the Commissioner.

(a) Petition may be taken to the Commissioner: (1) From any action or requirement of any examiner in the ex parte prosecution of an application which is not subject to appeal to the Board of Appeals or to the court; (2) in cases in which a statute or the rules specify that the matter is to be determined directly by or reviewed by the Commissioner; and (3) to invoke the supervisory authority of the Commissioner in appropriate circumstances.

(b) Any such petition must contain a statement of the facts involved and the point or points to be reviewed and the action requested. Briefs or memoranda, if any, in support thereof should accompany or be embodied in the petition; and where facts are to be proven, the proof in the form of affidavits or declarations (and exhibits, if any) must accompany the petition.

(c) When a petition is taken from an action or requirement of an examiner in the ex parte prosecution of an application, it may be required that there have been a proper request for reconsideration (§ 1.111) and a repeated action by the examiner. The examiner may be directed by the Commissioner to furnish a written statement, within a specified time, setting forth the reasons for his decision upon the matters averred in the petition, supplying a copy thereof to the petitioner.

(d) Where a fee is required for a petition to the Commissioner the appropriate section of this part will so indicate. If any required fee does not accompany the petition, the petition will be dismissed.

(e) Oral hearing will not be granted except when considered necessary by the Commissioner.

(f) Except as otherwise provided in these rules, any such petition not filed within 2 months from the action complained of, may be dismissed as untimely. The mere filing of a petition will not stay the period for reply to an Examiner's action which may be running against an application, nor act as a stay of other proceedings.

(g) The Commissioner may delegate to appropriate Patent and Trademark Office officials the determination of petitions.

[24 FR 10332, Dec. 22, 1959, 34 FR 18857, Nov. 26, 1969; 35 FR 4260, Mar. 7, 1970 and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.182 Questions not specifically provided for.

All cases not specifically provided for in the regulations of this part will be decided in accordance with the merits of each case by or under the authority of the Commissioner, and such decision will be communicated to the interested parties in writing. Any petition seeking a decision under this section must be accompanied by the petition fee set forth in § 1.17(h).

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.183 Suspension of rules.

In an extraordinary situation, when justice requires, any requirement of the regulations in this part which is not a requirement of the statutes may be suspended or waived by the Commissioner or the Commissioner's designee, sua sponte, or on petition of the interested party, subject to such other requirements as may be imposed. Any petition under this section must be accompanied by the petition fee set forth in § 1.17(h).

[47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.184 Reconsideration of cases decided by former Commissioners.

Cases which have been decided by one Commissioner will not be reconsidered by his successor except in accordance with the principles which govern the granting of new trials.

Appeal to the Board of Appeals

Authority: Secs. 1.191 to 1.198 also issued under 35 U.S.C. 134.

§ 1.191 Appeal to Board of Appeals.

(a) Every applicant for a patent or for reissue of a patent, or every owner of a patent under reexamination, any of the claims of which have been twice rejected, or who has been given a final rejection (§ 1.113), may, upon the payment of the fee set forth in § 1.17(e), appeal from the decision of the examiner to the Board of Appeals within the time allowed for response.

(b) The appeal in an application must identify the rejected claim or claims appealed, and must be signed by the applicant or duly authorized attorney or agent. An appeal in a reexamination proceeding must identify the rejected claim or claims appealed, and must be signed by the patent owner or duly authorized attorney or agent.

(c) Except as otherwise provided by § 1.206, an appeal when taken must be taken from the rejection of all claims under rejection which the applicant or patent owner proposes to contest. Questions relating to matters not affecting the merits of the invention may be required to be settled before an appeal can be considered.

[46 FR 29183, May 29, 1981 and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.192 Appellant's brief.

(a) The appellant shall, within 2 months from the date of the notice of appeal under § 1.191 in an application, reissue application, or patent under reexamination, or within the time allowed for response to the action appealed from, if such time is later, file a brief in triplicate. The brief must be accompanied by the requisite fee set forth in § 1.17(f) and must set forth the authorities and arguments on which the appellant will rely to maintain the appeal. The brief must include a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved. The time periods set forth herein are subject to the provisions of § 1.136.

(b) On failure to file the brief, accompanied by the requisite fee, within the time allowed, the appeal shall stand dismissed.

[36 FR 5850, Mar. 30, 1971, 46 FR 29183, May 29, 1981, 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.193 Examiner's answer.

(a) The primary examiner may, within such time as may be directed by the Commissioner, furnish a written statement in answer to the appellant's brief including such explanation of the invention claimed and of the references and grounds of rejection as may be necessary, supplying a copy to the appellant. If the primary examiner shall find that the appeal is not regular in form or does not relate to an appealable action, he shall so state and a petition from such decision may be taken to the Commissioner as provided in § 1.181.

(b) The appellant may file a reply brief directed only to such new points of argument as may be raised in the examiner's answer, within twenty days from the date of such answer. However, if the examiner's answer states a new ground of rejection appellant may file a reply thereto within two months from the date of such answer; such reply may include any amendment or material appropriate to the new ground.

(c) Any decision pursuant to § 1.56(d) rejecting claims in an application already under appeal of a rejection based on other grounds shall constitute a supplemental examiner's answer introducing a new ground of rejection and removing the suspension of the appeal introduced pursuant to § 1.56(e), in which case appellant may file a reply thereto within two months from the date of the supplemental examiner's answer. Such reply will be considered and responded to as necessary. Appellant may file a reply brief directed to any such response within one month of the date of the response or within such other time as may be set in the response.

[24 FR 10332, Dec. 22, 1959, as amended at 34 FR 18858, Nov. 26, 1969; 47 FR 21752, May 19, 1982]

§ 1.194 Oral hearing.

(a) An oral hearing should be requested only in those circumstances in which the appellant considers such a hearing necessary or desirable for a proper presentation of his appeal. An appeal decided without an oral hearing will receive the same consideration by the Board of Appeals as appeals decided after oral hearing.

(b) If appellant desires an oral hearing, appellant must file a written request for such hearing accompanied by the fee set forth in § 1.17(g) within one month after the date of the examiner's answer. If appellant requests an oral hearing and submits therewith the fee set forth in § 1.17(g), an oral argument may be presented by, or on behalf of, the primary examiner if considered desirable by either the primary examiner or the Board.

(c) If no request and fee for oral hearing have been timely filed by the appellant, the appeal will be assigned for consideration and decision. If the appellant has requested an oral hearing and has submitted the fee set forth in § 1.17(g), a day of hearing will be set, and due notice thereof given to the appellant and to the primary examiner. Hearing will be held as stated in the notice, and oral argument will be limited to twenty minutes for the appellant and fifteen minutes for the primary examiner unless otherwise ordered before the hearing begins.

[42 FR 5595, Jan. 28, 1977 and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.195 Affidavits or declarations after appeal.

Affidavits, declarations, or exhibits submitted after the case has been appealed will not be admitted without a showing of good and sufficient reasons why they were not earlier presented.

[34 FR 18858, Nov. 26, 1969]

§ 1.196 Decision by the Board of Appeals.

(a) The Board of Appeals, in its decision, may affirm or reverse the decision of the primary examiner in whole or in part on the grounds and on the claims specified by the examiner. The affirmance of the rejection of a claim on any of the grounds specified constitutes a general affirmance of the decision of the primary examiner on that claim, except as to any ground specifically reversed.

(b) Should the Board of Appeals have knowledge of any grounds not involved in the appeal for rejecting any appealed claim, it may include in the decision a statement to that effect with its reasons for so holding, which statement shall constitute a rejection of the claims. The appellant may submit an appropriate amendment of the claims so rejected or a showing of facts, or both, and have the matter reconsidered by the primary examiner. The statement shall be binding upon the primary examiner unless an amendment or showing of facts not previously of record be made which, in the opinion of the primary examiner, avoids the additional ground for rejection stated in the decision. The appellant may waive such reconsideration before the primary examiner and have the case reconsidered by the Board of Appeals upon the same record before them. Where request for such reconsideration is made the Board of Appeals shall, if necessary, render a new decision which shall include all grounds upon which a patent is refused. The appellant may waive reconsideration by the Board of Appeals and treat the decision, including the added grounds for rejection given by the Board of Appeals, as a final decision in the case.

(c) Should the decision of the Board of Appeals include an explicit statement that a claim may be allowed in amended form, appellant shall have the right to amend in conformity with such statement, which shall be binding on the primary examiner in the absence of new references or grounds of rejection.

(d) Although the Board of Appeals normally will confine its decision to a review of rejections made by the primary examiner, should it have knowledge of any grounds for rejecting any allowed claim that it believes should be considered, it may include in its decision a statement to that effect and remand the case to the primary examiner for consideration thereof. In such event, the Board shall set a period, not less than one month, within which the appellant may submit to the primary examiner an appropriate amendment, or a showing of facts or reasons, or both, in order to avoid the grounds set forth in the statement of the Board of Appeals. If the primary examiner rejects the previously allowed claim or claims on the basis of such statement, the appellant may appeal to the Board of Appeals from the rejection. Whenever a decision of the Board of Appeals includes a remand, that decision shall not be considered as a final decision in the case, but the Board of Appeals shall, upon conclusion of the proceedings before the primary examiner on remand, either adopt its decision as final or render a new decision on all of the claims on appeal, as it may deem appropriate.

[24 FR 10332, Dec. 22, 1959, and 46 FR 29183, May 29, 1981]

§ 1.197 Action following decision.

(a) After decision by the Board of Appeals, the case shall be returned to the primary examiner, subject to the appellant's right of appeal or other review, for such further action by the appellant or by the primary examiner, as the condition of the case may require, to carry into effect the decision.

(b) A single request for rehearing or reconsideration, or modification of the decision, may be made if filed within thirty days from the date of the original decision, unless that decision is so modified as to become, in effect, a new decision, and the Board of Appeals so states. Such time may be extended under the provisions of § 1.136.

(c) Proceedings are considered terminated by the dismissal of an appeal or the failure to timely file an appeal to the court

or a civil action (§ 1.304) except: (1) Where claims stand allowed in an application or (2) where the nature of the decision requires further action by the examiner. In such cases, the date of termination of proceedings is the date on which the appeal is dismissed or the date on which the time for appeal to the court or review by civil action (§ 1.304) expires. If an appeal to the court or a civil action has been filed, proceedings are similarly considered terminated when the appeal or civil action is terminated.

[41 FR 757, Jan. 5, 1976, 44 FR 29184, May 29, 1981 and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.198 Reopening after decision.

Cases which have been decided by the Board of Appeals will not be reopened or reconsidered by the primary examiner except under the provisions of § 1.196 without the written authority of the Commissioner, and then only for the consideration of matters not already adjudicated, sufficient cause being shown.

INTERFERENCES: DEFINITION, PREPARATION, DECLARATION

AUTHORITY: Secs. 1.201 to 1.212 also issued under 35 U.S.C. 135.

§ 1.201 Definition, when declared.

(a) An interference is a proceeding instituted for the purpose of determining the question of priority of invention between two or more parties claiming substantially the same patentable invention and may be instituted as soon as it is determined that common patentable subject matter is claimed in a plurality of applications or in an application and a patent.

(b) An interference will be declared between pending applications for patent, or for reissue, of different parties when such applications contain claims for substantially the same invention, which are allowable in the application of each party, and interferences will also be declared between pending applications for patent, or for reissue, and unexpired original or reissued patents, of different parties, when such applications and patents contain claims for substantially the same invention which are allowable in all of the applications involved, in accordance with the provisions of the regulations in this part.

(c) Interferences will not be declared nor continued, between applications or applications and patents owned by the same party unless good cause is shown therefor. The parties shall make known any and all right, title, and interest affecting the ownership of any application or patent involved or essential to the proceedings, not recorded in the Patent and Trademark Office, when an interference is declared, and of changes in such right, title, or interest, made after the declaration of the interference and before the expiration of the time prescribed for seeking review of the decision in the interference.

§ 1.202 Preparation for interference between applications; preliminary inquiry of junior applicant.

In order to ascertain whether any question of priority arises between applications which appear to interfere and are otherwise ready to be prepared for interference, any junior applicant may be called upon to state in writing under oath or declaration the date and the character of the earliest fact or act, susceptible of proof, which can be relied upon to establish conception of the invention under consideration for the purpose of establishing priority of invention. The statement filed in compliance with this section will be retained by the Patent and Trademark Office separate from the application file and if an interference is declared will be opened simultaneously with the preliminary statement of the party filing the same. In case the junior applicant makes no reply within the time specified, not less than thirty days, or if the earliest date alleged is subsequent to the filing date of the senior party, the interference ordinarily will not be declared.

[24 FR 10332, Dec. 22, 1959, and 34 FR 18858, Nov. 26, 1969]

§ 1.203 Preparation for interference between applications; suggestion of claims for interference.

(a) Before the declaration of interference it must be determined by the examiner that there is common subject matter in the cases of the respective parties, patentable to each of the respective parties, subject to the determination of the question of priority. Claims in the same language, to form the counts of the interference, must be present or be presented, in each application; except that, in cases where, owing to the nature of the disclosures in the respective applications, it is not possible for all applications to properly include a claim in identical phraseology to define the common invention, an interference may be declared, with the approval of the Commissioner, using as a count representing the interfering subject matter a claim differing from the corresponding claims of one or more of the interfering applications, by an immaterial limitation or variation.

(b) When the claims of two or more applications differ in phraseology, but relate to substantially the same patentable subject matter, the examiner shall, if it has been determined that an interference should be declared, suggest to the parties such claims as are necessary to cover the common invention in the same language. The parties to whom the claims are suggested will be required to make those claims (i.e., present the suggested claims in their applications by amendment) within a specified time, not less than 30 days,

in order that an interference may be declared. The failure or refusal of any applicant to make any claim suggested within the time specified shall be taken without further action as a disclaimer of the invention covered by that claim unless the time be extended.

(c) The suggestion of claims for purpose of interference will not stay the period for response to an Office action which may be running against an application, unless the claims are made by the applicant within the time specified for making the claims.

(d) When an applicant presents a claim in his application (not suggested by the examiner as specified in this section) which is copied from some other application, either for purpose of interference or otherwise, he must so state, at the time he presents the claim and identify the other application.

[24 FR 10332, Dec. 22, 1959, and 30 FR 6645, May 14, 1965]

§ 1.204 Interference with a patent; affidavit or declaration by junior applicant.

(a) The fact that one of the parties has already obtained a patent will not prevent an interference. Although the Commissioner has no power to cancel a patent, he may grant another patent for the same invention to a person who, in the interference, proves himself to be the prior inventor.

(b) When the effective filing date of an applicant is three months or less subsequent to the effective filing date of a patentee, the applicant, before the interference will be declared, shall file an affidavit or declaration that he made the invention in controversy in this country before the effective filing date of the patentee, or that his acts in this country with respect to the invention were sufficient to establish priority of invention relative to the effective filing date of the patentee.

(c) When the effective filing date of an applicant is more than 3 months subsequent to the effective filing date of the patentee, the applicant, before the interference will be declared, shall file two copies of affidavits or declarations by himself, if possible, and by one or more corroborating witnesses, supported by documentary evidence if available, each setting out a factual description of acts and circumstances performed or observed by the affiant, which collectively would prima facie entitle him to an award of priority with respect to the effective filing date of the patent. This showing must be accompanied by an explanation of the basis on which he believes that the facts set forth would overcome the effective filing date of the patent. Failure to satisfy the provisions of this section may result in summary judgment against the applicant under § 1.228. Upon a showing of sufficient cause, an affidavit or declaration on information and belief as to the expected testimony of a witness whose testimony is necessary to overcome the filing date of the patent may be accepted in lieu of an affidavit or declaration by such witness. If the examiner finds the case to be otherwise in condition for the declaration of an interference he will consider this material only to the extent of determining whether a date prior to the effective filing date of the patent is alleged, and if so, the interference will be declared. (See also § 1.228.)

[24 FR 10332, Dec. 22, 1959, 29 FR 15866, Nov. 26, 1964; 34 FR 12629, Aug. 2, 1969; and 34 FR 18858, Nov. 26, 1969]

§ 1.205 Interference with a patent; copying claims from patent.

(a) Before an interference will be declared with a patent, the applicant must present in his application, copies of all of the claims of the patent which also define his invention and such claims must be patentable in the application. However, an interference may be declared after copying the claims excluding an immaterial limitation or variation if such immaterial limitation or variation is not clearly supported in the application or if the applicant otherwise makes a statisfactory showing in justification thereof.

(b) Where an applicant presents a claim copied or substantially copied from a patent, he must, at the time he presents the claim, identify the patent, give the number of the patented claim, and specifically apply the terms of the copied claim to his own disclosure, unless the claim is copied in response to a suggestion by the Office. The examiner will call to the Commissioner's attention any instance of the filing of an application or the presentation of an amendment copying or substantially copying claims from a patent without calling attention to that fact and identifying the patent.

(c) A notice that one or more claims of a patent have been copied or substantially copied by an applicant will be placed in the file of the patent, and a copy of said notice will be sent to the patentee. However, the identity of the applicant will not be disclosed to the patentee unless an interference is declared. If a final decision is made not to declare an interference, a notice to that effect will also be placed in the file of the patent and sent to the patentee.

[24 FR 10332, Dec. 22, 1959, 30 FR 6645, May 14, 1965; and 43 FR 28478, June 30, 1978]

§ 1.206 Interference with a patent; claims improperly copied.

(a) Where claims are copied from a patent and the examiner is of the opinion that the applicant can make only some of the claims so copied, he shall notify the applicant to that effect, state why he is of the opinion the applicant cannot make the other claims and state further that the in-

terference will be promptly declared. The applicant may proceed under § 1.231 if he desires to further contest his right to make the claims not included in the declaration of the interference.

(b) Where the examiner is of the opinion that none of the claims can be made, he shall reject the copied claims stating in his action why the applicant cannot make the claims and set a time limit, not less than 30 days, for reply. If, after response by the applicant, the rejection is made final, a similar time limit shall be set for appeal. Failure to respond or appeal, as the case may be, within the time fixed will, in the absence of a satisfactory showing, be deemed a disclaimer of the invention claimed.

[30 FR 6645, May 14, 1965]

§ 1.207 Preparation of interference papers and declaration of interference.

(a) When an interference is found to exist and the applications are in condition therefor, the primary examiner shall forward the files to the Board of Patent Interferences together with a statement indicating the claims of each applicant or patentee which are to form the respective counts of the interference and also indicating whether any party is entitled to the benefit of the filing date of any prior application as to the subject matter in issue, and, if so, identifying such application.

(b) A patent interference examiner will institute and declare the interference by forwarding notices to the several parties to the proceeding. Each notice shall include the name and residence of each of the other parties and those of his attorney or agent, and of any assignee, and will identify the application of each opposing party by serial number and filing date, or in the case of a patentee by the number and date of the patent. The notices shall also specify the issue of the interference, which shall be clearly and concisely defined in only as many counts as may be necessary to define the interfering subject matter (but in the case of an interference with a patent all the claims of the patent which can be made by the applicant should constitute the counts), and shall indicate the claim or claims of the respective cases corresponding to the count or counts. If the primary examiner has indicated that the patent or application of any party included in the interference is entitled to the benefit of the filing date of any prior applications as to the subject matter in issue, the notices shall so state and shall specify such prior applications. Except as noted in paragraph (e) of this section, the notices shall also set a schedule of times for taking various actions as follows:

(1) For filing the preliminary statements required by § 1.215 and serving notice of such filing, not less than 2 months from the date of declaration.

(2) For each party who files a preliminary statement to serve a copy thereof on each opposing party who also files a preliminary statement as required by § 1.215(b), not less that 15 days after the expiration of the time for filing preliminary statements.

(3) For filing motions under § 1.231, not less than 4 months from declaration.

(c) The notices of interference shall be forwarded by the patent interference examiner to all the parties, in care of their attorneys or agents; a copy of the notices will also be sent the patentees in person and, if the patent in interference has been assigned, to the assignees.

(d) When the notices sent in the interest of a patent are returned to the Office undelivered, or when one of the parties resides abroad and his agent in the United States is unknown, additional notice may be given by publication in the *Official Gazette* for such period of time as the Commissioner may direct.

(e) In a case where the showing required by § 1.204(c) is deemed insufficient (§ 1.228) the notice of interference will not set the time schedule specified in paragraph (b) of this section but will be accompanied by an order to show cause by the Board of Patent Interferences as provided by § 1.228.

[30 FR 6645, May 14, 1965, and 43 FR 28478, June 30, 1978]

§ 1.208 Conflicting parties having same attorney.

Whenever it shall be found that two or more parties whose interests appear to be in conflict are represented by the same attorney or agent, the examiner shall notify each of said principal parties and the attorney or agent of this fact, and shall also call the matter to the attention of the Commissioner. If conflicting interests exist, the same attorney or agent or his associates will not be recognized to represent either of the parties whose interests are in conflict without the consent of the other party or in the absence of special circumstances requiring such representation, in further proceedings before the Patent and Trademark Office involving the matter or application or patent in which the conflicting interests exist.

§ 1.211 Jurisdiction of interference.

(a) Upon the institution and declaration of the interference, as provided in § 1.207, the Board of Patent Interferences will take jurisdiction of the same, which will then become a contested case.

(b) The primary examiner will retain jurisdiction of the case until the declaration of interference is made.

[30 FR 6645, May 14, 1965]

§ 1.212 Suspension of ex parte prosecution.

On declaration of the interference, ex parte prosecution of an application is sus-

pended, and amendments and other papers received during the pendency of the interference will not be entered or considered without the consent of the Commissioner, except as provided by the regulations in this part. Proposed amendments directed toward the declaration of an interference with another party will be considered to the extent necessary. Ex parte prosecution as to specified matters may be continued concurrently with the interference, on order from or with the consent of the Commissioner.

INTERFERENCES: PRELIMINARY STATEMENT

AUTHORITY: Secs. 1.215 to 1.228 also issued under 35 U.S.C. 135.

§ 1.215 Preliminary statement required.

(a) Each party to the interference will be required to file a concise preliminary statement giving certain facts and dates, on or before a date fixed by the Office. The preliminary statement must be signed and sworn to or made in the form of a declaration, by the inventor but in appropriate circumstances, as when the inventor is dead or a showing is made of inability to obtain a statement from the inventor, the preliminary statement may be made by the personal representative or assignee or by someone authorized or entitled to make the statement and having knowledge of the facts.

(b) A party who files a preliminary statement shall at the same time notify all opposing parties of that fact and by the time set for that purpose he shall serve a copy of his preliminary statement and all attached documents on every opposing party from whom he has received notification of the filing of a statement.

(c) A party who fails to serve a copy of his preliminary statement as required in paragraph (b) of this section will be restricted to his effective filing date. (See § 1.223(c).)

[30 FR 6645, May 14, 1965, 34 FR 12630, Aug. 2, 1969; and 34 FR 18858, Nov. 26, 1969]

§ 1.216 Contents of the preliminary statement.

(a) The preliminary statement must state that the party made the invention set forth by each count of the interference, and whether the invention was made in the United States or abroad. When the invention was made in the United States the preliminary statement must set forth as to the invention defined by each count the following facts:

(1) The date upon which the first drawing of the invention was made; if a drawing of the invention has not been made prior to the filing date of the application, it must be so stated.

(2) The date upon which the first written description of the invention was made; if a written description of the invention has not been made prior to the filing date of the application, it must be so stated.

(3) The date upon which the invention was first disclosed to another person; if the invention was not disclosed to another person prior to the filing date of the application, it must be so stated.

(4) The date of the first act or acts susceptible of proof (other than making a drawing or written description or disclosing the invention to another person) which, if proven, would establish conception of the invention, and a brief description of such act or acts; if there have been no such acts, it must be so stated.

(5) The date of the actual reduction to practice of the invention; if the invention has not been actually reduced to practice before the filing date of the application, it must be so stated.

(6) The date after conception of the invention when active exercise of reasonable diligence toward reducing the invention to practice began.

(b) When an allegation as to the first drawing (paragraph (a)(1) of this section) and/or as to the first written description (paragraph (a)(2) of this section) is made, a copy of such drawing and/or written description must be attached to the statement. (See § 1.223(c).)

(c) If a party intends to rely solely on a prior application, domestic or foreign, and on no other evidence, the preliminary statement may so state and need not be signed or sworn to or declaration made by the inventor.

[30 FR 6646, May 14, 1965, 34 FR 12630, Aug. 2, 1969; and 34 FR 18858, Nov. 26, 1969]

§ 1.217 Contents of the preliminary statement; invention made abroad.

When the invention was made abroad the facts specified by § 1.216(a) (1) to (6) are not required, and in lieu thereof there should be stated:

(a) When the invention was introduced into this country by or on behalf of the party, giving the circumstances with the dates connected therewith which are relied upon to establish the fact and, when appropriate, including allegations of activity in this country of the nature of that represented by § 1.216(a) (1) to (6) and documentary attachments if the allegations relate to a drawing or written description. Such statement may be signed and sworn to, or made in the form of a declaration, either by the inventor or by one authorized to make the statement and having knowledge of the facts alleged therein.

(b) If a party is entitled to the benefit of the second sentence of 35 U.S.C. 104, he must so state and his preliminary statement must include allegations of activity abroad corresponding to those required by § 1.216(a) (1) to (6).

[43 FR 28478, June 30, 1978; and 43 FR 57886, Dec. 11, 1978]

§ 1.218 Time for filing preliminary statement.

The time for filing the preliminary statement is ordinarily specified in the notices of interference mailed to the parties (§ 1.207). (For extension of the time set see § 1.245.)

[30 FR 6646, May 14, 1965]

§ 1.219 Statements sealed before filing.

The statement must be filed in a sealed envelope bearing the name of the party filing it and the number and title of the interference. The envelope should contain nothing but this statement and if mailed should be enclosed in an outer envelope. The statements may be opened only by an examiner of interferences.

§ 1.222 Correction of statement on motion.

In case of material error arising through inadvertence or mistake, the statement or attachments may be corrected or omitted attachments may be supplied on motion (see § 1.243), upon a satisfactory showing that such action is essential to the ends of justice. The motion must be made, if possible, before the taking of any testimony, and as soon as practicable after the discovery of the error.

[34 FR 12630, Aug. 2, 1969]

§ 1.223 Effect of statement.

(a) The preliminary statement should be carefully prepared, as a party will not be allowed to amend his statement in any way except by motion under § 1.222, and any doubts as to definiteness or sufficiency of any allegation or compliance with formal requirements will be resolved against the party concerned by restriction to his effective filing date or to the latest date of a period alleged as may be appropriate. Prior to final hearing a party will not be notified of any defect in his statement except that a junior party, subject to restriction resulting from such a defect and by virtue of that restriction being subject to judgment under § 1.225, will be notified of that defect and also notified that judgment on the record will be entered against him at the expiration of a time set, not less than 30 days, unless cause be shown why judgment should not be entered. Each of the parties by whom or on whose behalf a preliminary statement is made will be strictly held in his proofs to the dates set forth therein. This includes joint applicants or patentees; a new preliminary statement will not be received in the event the application is amended or the patent is corrected to remove the names of those not inventors, nor will a preliminary statement alleging different dates be received if an application is amended or a patent is corrected to include a joint inventor, except by motion under § 1.222.

(b) If a party proves any date earlier than alleged in his preliminary statement, such proof will be held to establish the date so alleged and none earlier.

(c) If a party to an interference fails to file a statement, testimony will not be received subsequently from him to prove that he made the invention at a date prior to his effective filing date. If a party alleges in his statement a date of first drawing or first written description but does not attach a copy of such drawing or written description as required by § 1.216 (b), he will be restricted to his effective filing date as to that allegation unless such copy is admitted by motion under § 1.222. The content of a drawing or written description attached to the statement normally will not be considered by the Office.

(d) The preliminary statement can in no case be used as evidence in behalf of the party making it.

[24 FR 10332, Dec. 22, 1959, 34 FR 12630, Aug. 2, 1969; and 43 FR 28478, June 30, 1978]

§ 1.224 Reliance on prior application.

A party will not be permitted to rely on any prior application to obtain the benefit of its filing date unless the prior application is specified in the notice of interference (see § 1.226) or its benefit is sought by a motion filed in accordance with § 1.231. In the latter case, complete copies of the contents of the application file the benefit of which is sought, except affidavits or declarations under §§ 1.131, 1.202, and 1.204, must be served on all opposing parties with the motion, and in the case of a foreign application the necessary papers to prove a date of priority under 35 U.S.C. 119 including a translation where required (§ 1.55), must be filed and copies served on all opposing parties with the motion except for such papers as were of record in the involved application when the interference was declared. In either case proof of service required by § 1.247 must include reference to the prior application as well as the motion or, in the case of the stated exception, note that the papers in question were of record when the interference was declared.

[34 FR 12630, Aug. 2, 1969, and 34 FR 18858, Nov. 26, 1969]

§ 1.225 Failure of junior party to file statements or to overcome filing date of senior party.

(a) If a junior party to an interference fails to file a preliminary statement, or if his statement fails to overcome the effective filing date of another party, judgment on the record will be entered against that junior party unless:

(1) Under the provisions of § 1.258(a), he would be entitled to raise before the Board of Patent Interferences a matter which is ancillary to priority and which, if decided in his favor, would remove the

basis for judgment on the record against him, and

(2) Within a time set by the patent interference examiner, not less than 30 days, he requests that final hearing be set to review such matter. If the matter was raised in a motion which was dismissed for one of the reasons specified in § 1.258(a)(1)(iii), the request for final hearing must be accompanied by a motion to take testimony under paragraph (b) of this section.

(b) Such a junior party will not be permitted to take testimony except on granting of a motion accompanied by showing of good cause, which should normally include names of proposed witnesses and affidavits or declarations by them giving their expected testimony.

(c) If, as a result of a decision on motion, the original senior party is deprived of the benefit of an earlier filed application and is thereby made a junior party and if in addition he relies solely on said earlier filed application in his preliminary statement, he stands in the same position as a junior party whose statement fails to overcome the effective filing date of the senior party as in the first sentence of § 1.225(a).

[43 FR 28478, June 30, 1978, and 46 FR 52363, Oct. 27, 1981]

§ 1.226 Access to applications.

After the mailing of the notices of interference each party will be permitted to see or obtain copies of each other's applications which are set out in the notices except for copies of affidavits or declarations filed under §§ 1.131, 1.202, and 1.204 which shall be and remain sealed until preliminary statements are opened under § 1.227, except as provided in § 1.228 regarding affidavits or declarations under § 1.204(c).

[30 FR 6646, May 14, 1965, and 34 FR 18858, Nov. 26, 1969]

§ 1.227 Access to preliminary statements.

(a) The preliminary statements shall be open to the inspection of the senior party, and of any junior party who himself filed a statement, after the date set for the serving of preliminary statements (§ 1.207(b)(2)), but shall not be open to inspection prior to that time.

(b) A junior party who fails to file a preliminary statement shall not have access to the preliminary statement of any other party.

(c) If the interference be terminated before the preliminary statements have been opened to the inspection of the parties, the preliminary statements will remain sealed.

(d) After termination of an interference any unopened statements will be removed from the interference file and preserved by the Office, and in no case will such statements be open to the inspection of anyone (including opposing parties) without authority from the Commissioner.

[30 FR 6646, May 14, 1965]

§ 1.228 Summary judgment.

When an interference is declared on the basis of a showing under § 1.204(c), such showing will be examined by an Examiner of Interferences. If the Examiner considers that the facts set out in the showing provide sufficient basis for the interference to proceed, the interference will proceed in the normal manner as provided by the regulations in this part; otherwise an order shall be entered concurrently with the notice of interference pointing out wherein the showing is insufficient and notifying the applicant making such showing that summary judgment will be rendered against him because of such insufficiency at the expiration of a period specified in the notice, not less than 30 days, unless cause be shown why such action should not be taken. In the absence of a showing of good and sufficient cause, judgment shall be so rendered. Any response made during the specified period will be considered by a Board of Patent Interferences without an oral hearing unless such hearing is requested by the applicant, but additional affidavits, declarations or exhibits will not be considered unless accompanied by a showing in excuse of their omission from the original showing. If the applicant files a response to the order to show cause, the patentee will be furnished with one copy of the showing under § 1.204(c) and will be allowed not less than 30 days from its mailing date within which to present his views with respect thereto. He shall also be entitled to be represented at any oral hearing on the matter. Unless it shall be otherwise ordered before the hearing begins, oral arguments will be limited to not more than 30 minutes for each party. The Board will determine, on the basis of the original showing and the response made, whether the interference should be allowed to proceed or summary judgment should be entered against the junior applicant.

[41 FR 27832, July 7, 1976]

INTERFERENCES: MOTION PERIOD, DISSOLUTION, REFORMATION

AUTHORITY: Secs. 1.231 to 1.238 also issued under 35 U.S.C. 135.

§ 1.231 Motions before the primary examiner.

(a) Within the period set in the notice of interference for filing motions any party to an interference may file a motion seeking:

(1) To dissolve as to one or more counts, except that such motion based on facts sought to be established by affida-

vits, declarations or evidence outside of official records and printed publications will not normally be considered. A motion to dissolve an interference in which a patentee is a party on the ground that the claims corresponding to the counts are unpatentable to the patentee over patents or printed publications will be considered through reexamination if it complies with the requirements of § 1.510(b) and is accompanied by the fee for requesting reexamination set in § 1.20(c). Otherwise, a motion to dissolve an interference in which a patentee is a party will not be considered if it would necessarily result in the conclusion that the claims of the patent which correspond to the counts are unpatentable to the patentee on a ground which is not ancillary to priority. Where a motion to dissolve is based on prior art, service on opposing parties must include copies of such prior art. A motion to dissolve on the ground that there is no interference in fact will not be considered unless the interference involves a design or plant patent or application or unless it relates to a count which differs from the corresponding claim of an involved patent or of one or more of the involved applications as provided in §§ 1.203(a) and 1.205(a).

(2) To amend the issue by addition or substitution of new counts. Each such motion must contain an explanation as to why a count proposed to be added is necessary or why a count proposed to be substituted is preferable to the original count, must demonstrate patentability of the count to all parties and must apply the proposed count to all involved applications except an application in which the proposed count originated.

(3) To substitute any other application owned by him as to the existing issue, or to declare an additional interference to include any other application owned by him as to any subject matter other than the existing issue but disclosed in his application or patent involved in the interference and in an opposing party's application or patent in the interference which should be made the basis of interference with such other party. Complete copies of the contents of such other application, except affidavits or declarations under §§ 1.131, 1.202, and 1.204, must be served on all other parties and the motion must be accompanied by proof of such service.

(4) To be accorded the benefit of an earlier application or to attack the benefit of an earlier application which has been accorded to an opposing party in the notice of declaration. See § 1.224.

(5) To amend an involved application by adding or removing the names of one or more inventors as provided in § 1.45. (See par. (d) of this section.)

(b) Each motion must contain a full statement of the grounds therefor and reasoning in support thereof. Any opposition to a motion must be filed within 20 days of the expiration of the time set for filing motions and the moving party may, if he desires, file a reply to such opposition within 15 days of the date the opposition was filed. If a party files a timely motion to dissolve, any other party may file a motion to amend within 20 days of the expiration of the time set for filing motions. Service on opposing parties of an opposition to a motion to amend which is based on prior art must include copies of such prior art. In the case of action by the primary examiner under § 1.237, such motions may be made within 20 days from the date of the primary examiner's decision on motion wherein such action was incorporated or the date of the communication giving notice to the parties of the proposed dissolution of the interference.

(c) A motion to amend under paragraph (a)(2) of this section or to substitute another application or declare an additional interference under paragraph (a)(3) of this section must be accompanied by an amendment adding claims corresponding to the proposed counts to the application concerned if such claims are not already in that application. The motion must also request the benefit of a prior application as provided for under paragraph (a)(4) of this section if the party concerned expects to be accorded such benefit.

(d) All proper motions as specified in paragraphs (a) and (b) of this section, or of a similar character, will be transmitted to and considered by the primary examiner without oral argument, except that consideration of a motion to dissolve on a ground other than no interference in fact will be deferred to final hearing before a Board of Patent Interferences where the motion raises a matter which would be reviewable at final hearing under § 1.258(a) and such matter is raised against a patentee or has been ruled upon by the Board of Appeals or by a court in ex parte proceedings. Also consideration of a motion to add or remove the names of one or more inventors may be deferred to final hearing if such motion is filed after the times for taking testimony have been set. Requests for reconsideration will not be entertained.

(e) In the determination of a motion to dissolve an interference between an application and a patent, the prior art of record in the patent file may be referred to for the purpose of construing the issue.

(f) Upon the granting of a motion to amend the adoption of the claims by the other parties within a time specified, or upon the granting of a motion to substitute another application, and after the expiration of the time for filing any new preliminary statements, a patent interference examiner shall redeclare the interference or shall declare such other interferences as may be necessary to include said claims. A preliminary statement as to the added claims need not be filed if a

party states that he intends to rely on the original statement and such a declaration as to added claims need not be signed or sworn to by the inventor in person. A second time for filing motions will not be set and subsequent motions with respect to matters which have been once considered by the primary examiner will not be considered.

[30 FR 6647, May 14, 1965, 34 FR 12630, Aug. 2, 1969; 34 FR 18858, Nov. 26, 1969; 38 FR 10005, Apr. 23, 1973; 40 FR 11873, Mar. 14, 1975; 46 FR 29184, May 29, 1981; 46 FR 52363, Oct. 27, 1981 and 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.237 Dissolution at the request of examiner.

If, during the pendency of an interference, a reference or other reason be found which, in the opinion of the primary examiner, renders all or part of the counts unpatentable, the attention of the Board of Patent Interferences shall be called thereto. The interference may be suspended and referred to the primary examiner for consideration of the matter, in which case the parties will be notified of the reason to be considered. Arguments of the parties regarding the matter will be considered if filed within 20 days of the notification. The interference will be continued or dissolved in accordance with the determination by the primary examiner. If such reference or reason be found while the interference is before the primary examiner for determination of a motion, decision thereon may be incorporated in the decision on the motion, but the parties shall be entitled to reconsideration if they have not submitted arguments on the matter.

[30 FR 6647, May 14, 1965]

§ 1.238 Addition of new party by examiner.

If during the pendency of an interference, another case appears, claiming substantially the subject matter in issue, the primary examiner should notify the Board of Patent Interferences and request addition of such case to the interference. Such addition will be done as a matter of course by a patent interference examiner, if no testimony has been taken. If, however, any testimony may have been taken, the patent interference examiner shall prepare and mail a notice for the proposed new party, disclosing the issue in interference and the names and addresses of the interferants and of their attorneys or agents, and notices for the interferants disclosing the name and address of the said party and his attorney or agent, to each of the parties, setting a time for stating any objections and at his discretion a time of hearing on the question of the admission of the new party. If the patent interference examiner be of the opinion that the new party should be added, he shall prescribe the conditions imposed upon the proceedings, including a suspension if appropriate.

[34 FR 12631, Aug. 2, 1969]

INTERFERENCES: MISCELLANEOUS PROVISIONS

AUTHORITY: Secs. 1.242 to 1.248 also issued under 35 U.S.C. 135.

§ 1.242 Prosecution by assignee.

When on motion duly made and upon satisfactory proof, it shall be shown that, by reason of the inability or refusal of the inventor to take suitable action in an interference, or from other cause, the ends of justice require that an assignee of an undivided interest in the invention be permitted to prosecute the same, it may be so ordered.

§ 1.243 Motions before the Board of Patent Interferences.

(a) Motions relating to matters other than those specified in § 1.231 will be determined by a patent interference examiner or the Board of Patent Interferences, as may be deemed appropriate. Such motions shall be made in writing and shall contain a full statement of the action sought and the grounds therefor, and satisfactory proof of any facts required must accompany the motion. Oral hearings will not be held except on order of a patent interference examiner or Board of Patent Interferences. Briefs or memoranda in support of such motions shall accompany the motion. Any opposition to the motion, together with any brief or memorandum in support thereof, shall be filed within 20 days from the date of service of the motion unless some other date is set by the patent interference examiner.

(b) Typewritten briefs may be used in connection with all motions. By stipulation of the parties subject to approval or by order of the tribunal before whom the motion is pending, briefs may be received if filed otherwise than as prescribed.

(c) In oral hearings on motions, the moving parties shall have the right to make the opening and closing arguments. Unless otherwise ordered before the hearing begins, oral arguments will be limited to 30 minutes for each party.

(d) Any request for reconsideration or modification of a decision or other action by the Board of Patent Interferences or patent interference examiner, must be filed within 20 days after the date of the decision, or other action and any reply thereto must be filed within 20 days from the date of service of the request. With regard to requests for reconsideration of a decision after final hearing, see § 1.256(b).

[41 FR 27832, July 7, 1976]

§ 1.244 Petition to the Commissioner from decisions on motions.

There is no appeal from decisions rendered on motions, but the Commissioner may consider on petition any matter involving abuse of discretion or the exercise of his supervisory authority, or such other matters as he may deem proper to consider. Any such petition must comply with § 1.181 and, if not filed within 20 days from the decision complained of, may be dismissed as untimely. Any opposition thereto must be filed within 20 days from the date of service of the petition.

[41 FR 27832, July 7, 1976]

§ 1.245 Extension of time.

Extensions of time in any interference proceeding not otherwise provided for may be had by stipulation of the parties, subject to approval, or on motion duly brought, sufficient cause being shown for such extension. The provisions of § 1.136 do not apply to time periods in interferences.

[43 FR 28478, June 30, 1978 and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.246 Late papers.

A motion or other paper belatedly filed will not normally be considered except upon a showing, under oath or in the form of a declaration (§ 1.68), of sufficient cause as to why such motion or paper was not timely presented. The provisions of § 1.136 do not apply to time periods in interferences.

[43 FR 28478, June 30, 1978 and 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.247 Service of papers.

(a) Every paper filed in the Patent and Trademark Office in interference proceedings must be served upon the other parties in the manner provided in § 1.248, except the following:

(1) Preliminary statements at the time of filing but see § 1.215 (b) and (c).

(2) Documentary exhibits introduced at the taking of a deposition.

(3) Certified transcripts of testimony under § 1.276 (but copies of the record must be served (§ 1.253(a)).

(4) Statutory disclaimers under 35 U.S.C. 253.

(b) The specification in certain sections that a designated paper must be served does not imply that other papers, not excepted above need not be served. However, the requirement for service of designated papers may be waived under particular circumstances and service may be required of other designated papers which need not ordinarily be served. Proof of service must be made before the paper will be considered in the interference by the Office. A statement of the attorney, attached to or appearing in the original paper when filed, clearly stating the time and manner in which service was made will be accepted as prima facie proof of service.

[43 FR 28478, June 30, 1978]

§ 1.248 Service of papers; manner of service; proof of service.

(a) Service of papers must be on the attorney or agent of the party if there be such or on the party if there is no attorney or agent, and may be made in any of the following ways:

(1) By delivering a copy of the paper to the person served;

(2) By leaving a copy at the usual place of business of the person served with someone in his employment;

(3) When the person served has no usual place of business, by leaving a copy at the person's residence, with some person of suitable age and discretion who resides there;

(4) Transmission by first class mail. When service is by mail the date of mailing will be regarded as the date of service;

(5) Whenever it shall be satisfactorily shown to the Commissioner that none of the above modes of obtaining or serving the paper is practicable, service may be by notice published in the *Official Gazette*.

(b) Papers filed in the Patent and Trademark Office which are required to be served shall contain proof of service. Proof of service may appear on or be affixed to papers filed. Proof of service shall include the date and manner of service. In the case of personal service, proof of service shall also include the name of any person served, certified by the person who made service. Proof of service may be made by: (1) An acknowledgement of service by or on behalf of the person served or (2) a statement signed by the attorney or agent containing the information required by this section.

[46 FR 29184, May 29, 1981]

INTERFERENCES: TRIAL

AUTHORITY: Secs. 1.251 to 1.259 also issued under 35 U.S.C. 135.

§ 1.251 Assignment of times for discovery and taking testimony.

(a) Subject to the exception provided in paragraph (c) of this section, a period for preparation for testimony will be set in which all parties should complete discovery and other preparatory activities, except for service by the senior party required by § 1.287(a)(1) which is governed by § 1.287(a)(2)(iii).

(b) Subject to the exception provided in paragraph (c) of this section, times will be assigned in which the junior party shall complete his testimony in chief, and in

which the other party shall complete the testimony on his side, and a further time in which the junior party may take rebutting testimony, but he shall take no other testimony. If there be more than two parties to the interference, the times for taking testimony will be so arranged that each shall have an opportunity to prove his case against prior parties and to rebut their evidence, and also to meet the evidence of junior parties. If a senior party fails to file a preliminary statement, or expressly elects to rely solely on his effective filing date, he will be assigned only a time for taking rebuttal testimony, and no junior party will be assigned a time for taking rebuttal testimony unless another junior party senior to him is assigned a time for taking testimony in chief. But, subject to the conditions imposed upon junior parties by § 1.225, such senior party may be assigned a period for taking testimony concerning a matter raised by a motion under § 1.231.

(c) Times for preparation of testimony, for compliance with § 1.287(a) and for taking of testimony will ordinarily be assigned in notices sent to the parties after motions under § 1.231 have been disposed of or, if no such motions have been filed, after the close of the motion period (§ 1.231). Such times will not normally be assigned for a junior party who fails to file a preliminary statement or whose preliminary statement fails to overcome the effective filing date of the senior party. (See § 1.225).

(d) Testimony shall be taken during the times assigned in accordance with §§ 1.271 to 1.286.

(e) The date for final hearing will ordinarily be set in separate notices.

[36 FR 8733, May 12, 1971, 38 FR 10005, Apr. 23, 1973; and 40 FR 11873, Mar. 14, 1975]

§ 1.252 Failure of junior party to take testimony.

Upon the filing of a motion for judgment by any senior party to an interference stating that the time for taking testimony on behalf of any junior party has expired and that no testimony has been taken and no other evidence offered by said junior party, an order shall be entered that the junior party show cause within a time set therein, not less than 10 days, why judgment should not be rendered against him, and in the absence of a showing of good and sufficient cause, judgment shall be so rendered. In the absence of such a motion, if any junior party fails to file an evidentiary record by the date set as provided in § 1.253(d), a patent interference examiner shall enter the order to show cause.

[34 FR 12631, Aug. 2, 1969]

§ 1.253 Copies of the testimony.

(a) In addition to the certified transcript of the testimony (§§ 1.275 to 1.278) or executed copies of affidavits or stipulated testimony or facts (§ 1.272), and the exhibits, three true copies of the testimony of each party must be filed for the use of the Office (a total of four copies), and one true copy must be served upon each of the opposing parties. Only one set of exhibits need be filed in the Office.

(b) These copies of the testimony may be submitted either in printed or in typewritten form.

(c) These copies, whether printed or typewritten, must include the testimony presented by the party filing the same, a copy of the counts of the interference, an index of the names of the witnesses, giving the pages where their examination and cross-examination begin, and an index of the exhibits, briefly describing their nature and giving the pages at which they are introduced and offered in evidence. The pages must be serially numbered throughout the entire record of testimony and the names of the witnesses must appear at the top of the pages over their testimony.

(d) The copies of the testimony for all parties must be filed and served on the opposing parties by the date specified in the order setting times for taking testimony or such extensions as may be granted.

(e) When the copies of the testimony are submitted in printed form, they may be produced by standard typographic printing or by any process capable of producing a clear black permanent image. All printed matter except on covers must appear in at least 11 point type on opaque, unglazed paper. Margins must be justified. Footnotes may not be printed in type smaller than 9 point. The page size shall be 8½ by 11 inches (21.8 × 27.9 cm.) with type matter 6½ by 9½ inches (16.5 × 24.1 cm.). The testimony shall be bound to lie flat when open.

(f) When the copies of the testimony are submitted in typewritten form, they must be clearly legible on opaque, unglazed, durable paper approximately 8 ½ by 11 inches (21.6 by 27.9 cm.) in size (letter size) and one of the three copies must be a ribbon copy, but need not be executed by the certifying officer. (The certified transcript may be a properly executed carbon copy. See § 1.277.) The typing shall be on one side of the paper, in not smaller than pica-type; and double-spaced with a margin of 1½ inches (3.8 cm.) on the left-hand side of the page. The sheets shall be bound at their left edges, in such manner to lie flat when opened, in a volume or volumes of convenient size (approximately 100 pages per volume is suggested) provided with covers. Documentary exhibits should not be included in bound volumes of testimony. Multigraphed or otherwise reproduced copies conforming to the standards specified will be accepted.

(g) The testimony of any party failing to supply copies thereof as specified may be refused consideration.

[40 FR 11873, Mar. 14, 1975, as amended at 46 FR 52363, Oct. 27, 1981; 47 FR 47380, Oct. 26, 1982; effective Oct. 26, 1982]

§ 1.254 Briefs at final hearing.

Briefs at final hearing before the Board of Patent Interferences shall be submitted in printed form, except that when not in excess of 50 legal-size double-spaced typewritten pages, or the equivalent thereof, and in any other case where satisfactory reason therefor is shown they may be submitted in typewritten form. If submitted in printed form, they shall be the same in size and the same as to page and print as is specified for printed copies of testimony. Typewritten briefs shall conform to the requirements for typewritten copies of testimony, except that legal-size paper may be used and the binding and covers specified are not required. Every brief of more than 15 pages shall contain a subject index with page references, supplemented by a list of all authorities referred to, together with references to pages thereof. Three copies of each brief must be filed. The times for filing briefs will be set at an appropriate stage in the proceeding prior to final hearing. The brief for the junior party shall present a full, fair statement of the questions involved, including his position with respect to priority evidence on behalf of other parties, and a clear statement of the points of law or fact upon which he relies. The main brief for each party shall contain a copy of the counts in interference. The board may refuse to accept any brief which has been printed, typewritten, or bound otherwise than in substantial conformity with this section.

[41 FR 27832, July 7, 1976, and 46 FR 52363, Oct. 27, 1981]

§ 1.255 Request for findings of fact and conclusions of law.

Either party may, in his brief, submit concise proposed findings of fact, supported by specific references to and analysis of the record, and conclusions of law, supported by citation of authorities. The opposing party may, in his brief in reply thereto, accept any such proposed findings, or reject any proposed findings giving the reasons therefor, and may likewise submit proposed findings. The Board of Patent Interferences may, in its discretion, adopt the proposed findings in whole or in part.

§ 1.256 Final hearing.

(a) Final hearings will be held by the Board of Patent Interferences on the day appointed at the designated time. If either party appears at the proper time, he will be heard. After the day of hearing, the case will not be taken up for oral argument except by consent of all parties. If the Board of Patent Interferences be prevented from hearing the case at the time specified, a new assignment will be made, or the case will be continued from day to day until heard. Unless it shall be otherwise ordered before the hearing begins, oral arguments will be limited to not more than one hour for each party. A junior party may reserve a portion of his time for rebuttal purposes, but a full, fair opening of his case must be made, including his position with respect to the case presented on behalf of other parties. After a contested case has been argued nothing further relating thereto will be heard unless upon request of the Board of Patent Interferences.

(b) Any request for rehearing or reconsideration, or modification of the decision after final hearing, must be filed within 30 days from the date of the original decision, unless that decision is so modified as to become, in effect, a new decision, and the Board of Patent Interferences so states. Any reply thereto must be filed within 15 days from the filing of the request. The times specified herein may be extended by the Board of Patent Interferences upon a showing of sufficient cause. (See § 1.304.)

[41 FR 27833, July 7, 1976]

§ 1.257 Burden of proof.

(a) The parties to an interference will be presumed to have made their inventions in the chronological order of the filing dates of their applications for patents involved in the interference or the effective filing dates which such applications have been accorded; and the burden of proof will rest upon the party who shall seek to establish a different state of facts.

(b) The termination of the interference by dissolution under § 1.231 or § 1.237, without an award of priority, or by an award of priority based solely upon ancillary matters, shall not disturb this presumption, and a party under these circumstances enjoying the status of a senior party with respect to any subject matter of his application shall not be deprived of any claim to such subject matter solely on the ground that such claim was not added to the interference by amendment under § 1.231.

[24 FR 10332, Dec. 22, 1959, and 31 FR 7285, May 19, 1966]

§ 1.258 Matters considered in determining priority.

(a) In determining priority of invention, the Board of Patent Interferences will consider only priority of invention on the evidence submitted, and matters ancillary thereto. A party shall be entitled to raise a matter which is ancillary to priority only if:

(1) The matter was raised by the party in a motion under § 1.231(a), and:

(i) The motion was transmitted to and decided by the primary examiner; or

(ii) Consideration of the motion was deferred to final hearing; or

(iii) The motion was dismissed as being based on facts sought to be established by affidavits, declarations or evidence outside of official records and printed publications, or as being based on a ground which would require the taking of testimony; or

(2) The matter was raised by the party in opposition to a motion under § 1.231(a) (2), (3), (4) or (5) which was granted over his opposition; or

(3) The party shows good reason why the matter was not raised as specified in paragraphs (a)(1) or (a)(2) of this section.

(b) To prevent manifest injustice the Board of Patent Interferences may in its discretion consider a matter which is ancillary to priority even though it would not otherwise be entitled to consideration under paragraph (a) of this section.

(c) At final hearing between an application and a patent the prior art of record in the patent file may be referred to for the purpose of construing the issue.

[46 FR 52363, Oct. 27, 1981]

§ 1.259 Recommendation by Board of Patent Interferences.

The Board of Patent Interferences may, either before or concurrently with their decision on the question of priority, but independently of such decision, direct the attention of the Commissioner to any matter not relating to priority which may have come to their notice, and which in their opinion establishes the fact that no interference exists, or that there has been irregularity in declaring the same, or which amounts to a bar to the grant of a patent to either of the parties for the claim or claims in interference. The Commissioner may suspend the interference and remand the case to the primary examiner for his consideration of the matters to which attention has been directed if such matters have not been considered before by the examiner, or take other appropriate action. If the case is not so remanded, the primary examiner will, after judgment on priority, consider such matters, unless the same shall have been previously disposed of by the Commissioner.

INTERFERENCES: TERMINATION

AUTHORITY: Secs. 1.261 to 1.267 also issued under 35 U.S.C. 135.

§ 1.261 Termination of interference.

An interference will be terminated by judgment after final hearing (§§ 1.251 to 1.259), or by judgment on the record as provided by § 1.225 or § 1.252, or by summary judgment because of an insufficient showing under § 1.204(c) as provided by § 1.228, or by dissolution as provided by § 1.231 or § 1.237, or as otherwise provided.

[30 FR 6648, May 14, 1965]

§ 1.262 Disclaimer, concession, abandonment.

(a) An applicant or a patentee involved in an interference may, at any time, file a written disclaimer or concession of priority, or abandonment of the invention, signed by the inventor in person with the written consent of the assignee when there has been an assignment. Upon the filing of such an instrument by any party, judgment shall be rendered against him.

(b) An applicant, except an applicant for reissue having a claim or claims from his patent in the interference, may at any time prior to the taking of testimony, and at any time thereafter with the consent of all of the other parties involved, avoid the continuance of the interference as to all counts by filing a written abandonment of the contest or of the application, signed by the inventor in person with the written consent of the assignee when there has been an assignment. Upon the filing of such abandonment of the contest or of the application, the interference shall be dissolved as to that party, but such dissolution shall in subsequent proceedings have the same effect with respect to the party filing the same as an adverse award of priority.

(c) Upon a showing of sufficient cause, the disclaimer, or abandonment of the invention, or abandonment of the contest or of the application above referred to, may be executed and filed by the assignee of the entire interest. A concession of priority may not be made by an assignee.

(d) Such disclaimer, concession of priority, abandonment of the invention, or abandonment of the contest shall operate without further action as a direction to cancel the claims involved from the application of the party making the same on termination of the interference on the basis thereof.

§ 1.263 Statutory disclaimer by patentee.

The disclaimer referred to in § 1.262, when made by a patentee in interference is not a disclaimer under 35 U.S.C. 253. If a disclaimer under the statute and the fee set forth in § 1.20(d) (see § 1.321) cancelling claims involved in the interference from the patent, is made by the patentee, including all assignees as shown by the records of the Patent and Trademark Office, the interference will be dissolved pro forma as to such claims.

[47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.264 Reissue filed by patentee.

If a patentee in interference files an application for reissue during the interference, omitting the claims involved (for the purpose of avoiding the interference), the application will be examined and such examination will include the question of patentability over the issue of the interference and over the application of the other

party. The interference will not be terminated unless a reissue is granted excluding claims to the conflicting subject matter, whereupon the interference will be dissolved. If a reissue application is filed for other purposes, it may be held subject to the outcome of the interference. An application for reissue will not be included in the interference on the basis of new claims presented by the reissue unless a motion to that effect is brought during the motion period or any delay adequately explained.

§ 1.265 Status of claims of defeated applicant after interference.

Whenever an award of priority has been rendered in an interference proceeding and the limit of appeal from such decision has expired, the claim or claims constituting the issue of the interference in the application of the defeated or unsuccessful applicant or applicants stand finally disposed of without further action by the examiner and are not open to further ex parte prosecution.

§ 1.266 Action after interference.

(a) After the termination of the interference, the primary examiner will promptly take such action in each of the applications involved as may be necessary. Amendments presented during the interference shall not be entered except as otherwise provided; amendments required to accompany motions to amend shall be entered only to the extent the motion was granted (matter not entered may be subsequently presented by the applicant, subject to the sections relating to amendments, provided the prosecution of the application is not otherwise closed). The examiner will act on any matter requiring action and call for response to any examiner's action unresponded to.

(b) After judgment of priority, the application of any party may be held subject to further examination, including interference with other applications.

§ 1.267 Second interference.

A second interference between the same parties will not be declared upon another application for patent for the same invention filed by either party.

§ 1.268 Filing of interference settlement agreements.

(a) Any agreement or understanding between parties to an interference, including any collateral agreements referred to therein, made in connection with or in contemplation of the termination of the interference, must be in writing and a true copy thereof filed in the Patent and Trademark Office, directed to the Board of Patent Interferences, before the termination of the interference as between the said parties to the agreement or understanding.

(b) If any party filing the agreement or understanding pursuant to paragraph (a) of this section so requests, the copy will be kept separate from the file of the interference, and made available only to Government agencies on written request, or to any person upon petition accompanied by the fee set forth in § 1.17(i) and on a showing of good cause.

(c) Failure to file the copy of the agreement or understanding pursuant to paragraph (a) of this section, will render permanently unenforceable such agreement or understanding and any patent of the parties involved in the interference or any patent subsequently issued on any application of the parties so involved. The Commissioner may, however, upon petition accompanied by the fee set forth in § 1.17(h) and on a showing of good cause for failure to file within the time prescribed, permit the filing on the agreement or understanding during the six-month period subsequent to the termination of the interference as between the parties to the agreement or understanding.

[47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

Testimony in Interferences and Other Contested Cases

Authority: Secs. 1.271 to 1.286 also issued under 35 U.S.C. 23, 135.

§ 1.271 Evidence must comply with rules.

Evidence touching the matter at issue which shall not have been taken and filed in compliance with this part will not be considered in determining the interference or other proceeding.

§ 1.272 Manner of taking testimony of witnesses.

(a) The testimony of witnesses shall be taken by depositions on oral examination in accordance with the regulations in this part.

(b) If the parties so stipulate in writing, deposition may be taken before any person authorized to administer oaths, at any place, upon any notice, and in any manner, and when so taken may be used like other depositions. By agreement of the parties, provided the Commissioner consent, testimony may be taken before an officer or officers of the Patent and Trademark Office under such terms and conditions as the Commissioner may prescribe.

(c) By agreement of the parties, the testimony of any witness or witnesses of any party may be submitted in the form of an affidavit by such witness or witnesses. The parties may stipulate what a particular witness would testify to if called, or the facts in the case of any party may be stipulated. When evidence is submitted in one of these forms, four copies of such affidavit or stipulated testimony (§ 1.253 (a), (c), (f)) are required.

[24 FR 10332, Dec. 22, 1959, and 38 FR 10005, Apr. 23, 1973]

§ 1.273 Notice of examination of witnesses.

(a) Before the depositions of witnesses shall be taken by a party, due notice in writing shall be given to the opposing party or parties, as provided in § 1.248, of the time when and place where the depositions will be taken, of the cause or matter in which they are to be used, and the name and address of each witness to be examined; if the name of a witness is not known a general description sufficient to identify him or the particular class or group to which he belongs, together with a satisfactory explanation, may be given instead. The opposing party shall have full opportunity, either in person or by attorney, to cross-examine the witnesses. If the opposing party shall attend the examination of witnesses not named in the notice, and shall either cross-examine such witnesses or fail to object to their examination, he shall be deemed to have waived his right to object to such examination for want of notice. Neither party shall take testimony in more than one place at the same time, nor so nearly at the same time that reasonable opportunity for travel from one place of examination to the other cannot be had.

(b) The notice for taking testimony must be served (unless otherwise stipulated in an instrument in writing filed in the case) upon the attorney of record, if there be one, or, if there be no attorney of record, upon the adverse party. Reasonable time must be given therein for such adverse party to reach the place of examination. Such notice shall, with a statement signed by the attorney as to the fact, time, and mode of service thereof, be attached to the deposition or depositions, whether the opposing party shall have cross-examined or not.

§ 1.274 Persons before whom depositions may be taken.

(a) Within the United States, or within a territory or insular possession of the United States, depositions shall be taken before an officer authorized to administer oaths by the laws of the United States or of the place where the examination is held.

(b) No such officer who is a relative or employee of either of the parties, or of their attorneys or agents, or interested, directly or indirectly, in the matter in controversy, either as counsel, attorney, agent or otherwise, shall be competent to take depositions, unless with the written consent of all the parties.

§ 1.275 Examination of witnesses.

(a) Each witness before testifying shall be duly sworn according to law by the officer before whom his deposition is to be taken.

(b) The testimony shall be taken in answer to interrogatories, with the questions and answers recorded in their regular order by the officer, or by some other person (who shall be subject to the provisions of § 1.274(b)), in the presence of the officer except when his presence is waived on the record by agreement of the parties. The testimony shall be taken stenographically and transcribed, unless the parties present agree otherwise.

(c) In the absence of all opposing parties and their attorneys or agents, testimony may be taken in longhand, typewriting, or stenographically.

(d) All objections made at the time of the examination to the qualifications of the officer taking the deposition, or to the manner of taking it, or to the evidence presented, or to the conduct of any party and any other objection to the proceedings, shall be noted by the officer upon the deposition. Evidence objected to shall be taken subject to the objections.

(e) When the testimony has been transcribed, the deposition shall be carefully read over by the witness, or by the officer to him, and shall then be signed by the witness in the presence of the officer unless the reading and the signature be waived on the record by agreement of all parties.

§ 1.276 Certification and filing by officer.

The officer shall annex to the deposition his certificate showing: (a) Due administration of the oath by the officer to the witness before the commencement of his testimony; (b) the name of the person by whom the testimony was taken down, and whether, if not taken down by the officer, it was taken down in his presence; (c) the presence or absence of the adverse party; (d) the place, day, and hour of commencing and taking the deposition; (e) that the deposition was read by or to the witness before he signed the same, and that he signed the same in the presence of the officer; and (f) the fact that the officer was not disqualified as specified in § 1.274. If any of the foregoing requirements are waived, the certificate shall so state. The officer shall sign the certificate and affix thereto his seal of office, if he have such seal. Unless waived on the record by agreement, he shall then, without delay, securely seal in an envelope all the evidence, notices, and paper exhibits, inscribe upon the envelope a certificate giving the number and title of the case, the name of each witness, and the date of sealing, address the package, and forward the same to the Commissioner of Patents and Trademarks. If the weight or bulk of an exhibit shall exclude it from the envelope, it shall, unless waived on the record by agreement of all parties, be authenticated by the officer and transmitted in a separate package, marked and addressed as provided in this section.

§ 1.277 Form of deposition.

(a) The testimony must be written on letter size paper, with a wide margin on the left-hand side of the page, and with the writing on one side only of the sheet. The pages must be serially numbered throughout the entire record for each party (§ 1.253(c)) and the name of the witness must be plainly and conspicuously written at the top of each page. The questions propounded to each witness must be consecutively numbered, unless paper with numbered lines is used, and each question must be followed by its answer.

(b) In order to have a ribbon copy of the testimony available as required by § 1.253(f), a carbon copy of the deposition may be executed by the witnesses and the officer and filed as required by § 1.276.

(c) Exhibits must be numbered or lettered consecutively and each must be marked with the number and title of the case and the name of the party offering the exhibit. Entry and consideration may be refused to improperly marked exhibits.

[24 FR 10332, Dec. 22, 1959, 38 FR 10005, Apr. 23, 1973; and 40 FR 11874, Mar. 14, 1975]

§ 1.278 Depositions must be filed.

All depositions which are taken must be duly filed in the Patent and Trademark Office. On refusal to file, the Office at its discretion will not further hear or consider the contestant with whom the refusal lies; and the Office may, at its discretion, receive and consider a copy of the withheld deposition, attested by such evidence as is procurable.

§ 1.279 Inspection of testimony.

After testimony is filed in the Office, it may be inspected by any party to the case, but it cannot be withdrawn for the purpose of printing. It may be printed by someone specially designated by the Office for that purpose, under proper restrictions.

§ 1.281 Additional time for taking testimony.

If either party has proceeded with the taking of testimony on his behalf but is unable to complete his case because of inability to procure the testimony of a witness or witnesses within the time limited and said time has expired, and he desires additional time for such purpose, he must file a motion, accompanied by a statement under oath or in the form of a declaration setting forth specifically the cause of such inability, the name or names of the witness or witnesses, the facts expected to be proved by such witness or witnesses, the steps which have been taken to procure such testimony, and the dates on which efforts have been made to procure it. (See § 1.245 for extensions of time in other situations.)

[38 FR 10005, Apr. 23, 1973]

§ 1.282 Official records and printed publications.

(a) Official records and any special matter contained in a printed publication, if competent evidence and pertinent to the issue, may be introduced in evidence by filing in the Patent and Trademark Office a notice to that effect, before the closing of the time for taking the testimony of the party (before the time for taking the testimony in chief if such matters are not in rebuttal), specifying the record or the printed publication, the page or pages thereof to be used, indicating generally its relevancy, and accompanied by the record or authenticated copy, or the printed publication or a copy. The notice and copies of the record or publication must be served on each of the other parties.

(b) In the case of prior applications, the filing date of which is claimed, compliance with the requirements of §§ 1.224 and 1.231 is sufficient notice under this section.

[24 FR 10332, Dec. 22, 1959, and 30 FR 6648, May 14, 1965]

§ 1.283 Testimony taken in another interference or action.

Upon motion, supported by a showing demonstrating its relevance and materiality to the issue, duly made and granted, testimony taken in another interference proceeding or action, between the same parties or those in interest, may be used in an interference proceeding, subject, however, to the right of any contesting party to recall or demand the recall of witnesses whose testimony has been taken and who are physically and mentally able to testify, and to take other testimony in rebuttal of the testimony.

[34 FR 12632, Aug. 2, 1969]

§ 1.284 Testimony taken in foreign countries.

Upon motion duly made and granted, testimony may be taken in foreign countries, upon complying with the following requirements:

(a) The motion must designate a place for the examination of the witnesses at which an officer duly qualified to take testimony under the laws of the United States in a foreign country shall reside and it must be accompanied by a statement under oath that the motion is made in good faith, and not for the purposes of delay or of vexing or harassing any party to the case; it must also set forth the names of the witnesses, the particular facts to which it is expected each will testify, and the grounds on which is based the belief that each will so testify.

(b) It must be demonstrated that the testimony desired is material and competent, and that it cannot be taken in this country at all, or cannot be taken here without hardship and injury to the moving party greatly exceeding that to which

the opposite party will be exposed by the taking of such testimony abroad.

(c) Upon the granting of such motion a time will be set within which the moving party shall file in duplicate the interrogatories to be propounded to each witness, and serve a copy of the same upon each adverse party, who may, within a designated time, file in duplicate cross-interrogatories. Objections to any of the interrogatories or cross-interrogatories may be filed at any time before the depositions are taken and such objections will be considered and determined upon the hearing of the case.

(d) As soon as the interrogatories and cross-interrogatories are decided to be in proper form, the Commissioner will cause them to be forwarded to the proper officer, with the request that, upon payment of, or satisfactory security for, his official fees, he notify the witnesses named to appear before him within a designated time and make answer thereto under oath; and that he reduce their answers to writing, and transmit the same, under his official seal and signature, to the Commissioner of Patents and Trademarks with the certificate prescribed in § 1.276.

(e) By stipulation of the parties the requirements of paragraph (c) of this section as to written interrogatories and cross-interrogatories may be dispensed with, and the testimony may be taken before the proper officer upon oral interrogatories by the parties, their attorneys or their agents.

(f) Unless false swearing in the giving of such testimony before the officer taking it shall be punishable as perjury under the laws of the foreign state in which it shall be taken, it will not stand on the same footing in the Patent and Trademark Office as testimony duly taken in the United States; but its weight in each case will be determined by the tribunal having jurisdiction of such case.

[24 FR 10332, Dec. 22, 1959, and 34 FR 12632, Aug. 2, 1969]

§ 1.285 Effect of errors and irregularities in depositions.

Notice will not be taken of merely formal or technical objections which shall not appear to have wrought a substantial injury to the party raising them; and in case of such injury it must be made to appear that, as soon as the party became aware of the ground of objection, he gave notice thereof.

(a) *As to notice.* All errors and irregularities in the notice for taking a deposition are waived unless objection is promptly made and served in writing upon the party giving the notice.

(b) *As to disqualification of officer.* Objection to taking a deposition because of disqualification of the officer before whom it is to be taken is waived unless made before the taking of the deposition begins or as soon thereafter as the disqualification becomes known or could be discovered with reasonable diligence.

(c) *As to taking of deposition.* (1) Objections to the competency of a witness or to the competency, relevancy, or materiality of testimony are not waived by failure to make them before or during the taking of the deposition, unless the ground of the objection is one which might have been obviated or removed if presented at that time.

(2) Errors and irregularities occurring at the oral examination in the manner of taking the deposition, in the form of the questions or answers, in the oath or affirmation, or in the conduct of the parties, and errors of any kind which might be obviated, removed, or cured if promptly presented, are waived unless seasonable objection thereto is made at the taking of the deposition.

(d) *As to completion and return of deposition.* Errors and irregularities in the manner in which the testimony is transcribed or the deposition is prepared, signed, certified, sealed, indorsed, transmitted, filed, or otherwise dealt with by the officer are waived unless a motion to suppress the deposition or some part thereof is made with reasonable promptness after such defect is, or with due diligence might have been, ascertained.

§ 1.286 Objections to admissibility.

Subject to the provisions of § 1.285, objection may be made to receiving in evidence any deposition or part thereof, or any other evidence, for any reason which would require the exclusion of the evidence according to the established rules of evidence, which will be applied strictly by the Office.

§ 1.287 Discovery.

(a)(1) Each party who expects to take testimony must serve on each opposing party who requests service the following:

(i) A copy of each document in his possession, custody, or control and upon which he intends to rely,

(ii) A list of and a proffer of reasonable access to things in his possession, custody, or control and upon which he intends to rely, and

(iii) A list giving the names and addresses of all persons whom he intends to call as witnesses and indicating the relationship of each person to the invention in issue.

(2) Dates for compliance with paragraph (a)(1) of this section will be set in accordance with the following:

(i) The date by which all parties may request service shall be not less than 10 days from the date of the order setting testimony times;

(ii) The date for service by all junior parties shall be not less than 30 days from the date of the order setting such times;

(iii) The date for service by the senior party shall be not less than 10 days from

the date set for the close of testimony in chief of all junior parties.

(3) Where more than two parties are involved and one of the junior parties is not entitled to take testimony as to a more senior party, the requirements of paragraphs (a) (1) and (2) of this section shall not be applicable as between such parties.

(b) The provisions of paragraph (a) of this section are without prejudice to the right of a party, where appropriate, to obtain production of documents or things during cross-examination of an opponent's witness or during his own period for rebuttal testimony.

(c) Upon motion (§ 1.246) brought by a party during the period for preparation for testimony, or thereafter as authorized under § 1.246, and upon a showing that the interest of justice so requires, the Board of Patent Interferences may order additional discovery as to matters under the control of a party within the scope of the discovery rules of the Federal Rules of Civil Procedure, specifying the terms and conditions of such additional discovery. An order by the Board granting or denying a motion under this paragraph shall not be subject to review prior to a decision awarding priority.

(d)(1) A party will not be permitted to rely on any document or thing in his possession, custody, or control, or on any witness, not listed and served by that party as required by paragraph (a) of this section, except upon a promptly filed motion accompanied by the proposed additional documents or lists together with a showing of sufficient cause as to why they were not served by the date set pursuant to paragraph (a) of this section.

(2) Any failure to comply with an order under the provisions of paragraph (c) of this section may be considered by the Board of Patent Interferences as basis for applying appropriate restrictions against the party failing to comply, for holding certain facts to have been established, and in an appropriate case for awarding priority against him, or for taking such other action as may be deemed appropriate.

(e) The parties may by agreement among themselves modify any of the foregoing requirements consistent with the schedule of times for taking testimony and filing the record. In the absence of such agreement, discovery will not be permitted prior to the period set for the preparation for testimony.

[36 FR 8733, May 12, 1971, and 43 FR 28479, June 30, 1978]

§ 1.288 Use of discovery.

(a) If a party intends to rely upon an admission or upon an answer to an interrogatory, obtained by discovery, the admission or answer may be introduced into evidence by filing, before the closing of the time for taking the testimony of the party (before the time for taking the testimony in chief if such admission or answer is not in rebuttal), a copy of the admission and the request therefor and/or a copy of the interrogatory and its answer, together with a notice of reliance thereon.

(b) A party may not rely upon any other matter obtained by discovery unless it is introduced into evidence pursuant to §§ 1.271 to 1.286.

[46 FR 52363, Oct. 27, 1981]

PROTESTS AND PUBLIC USE PROCEEDINGS

§ 1.291 Protests by the public against pending applications.

(a) Protests by a member of the public against pending applications will be referred to the examiner having charge of the subject matter involved. A protest specifically identifying the application to which the protest is directed will be entered in the application file if (1) the protest is timely submitted; and (2) the protest is either served upon the applicant in accordance with § 1.248, or filed with the Office in duplicate in the event service is not possible.

(b) A protest submitted in accordance with the second sentence of paragraph (a) of this section will be considered by the Office if it includes (1) a listing of the patents, publications or other information relied upon; (2) a concise explanation of the relevance of each listed item; (3) a copy of each listed patent or publication or other item of information in written form or at least the pertinent portions thereof; and (4) an English language translation of all the necessary and pertinent parts of any non-English language patent, publication, or other item of information in written form relied upon.

(c) An acknowledgment of the entry of a protest under paragraph (a) of this section in a reissue application file will be sent to the member of the public filing the protest. A member of the public filing a protest under paragraph (a) of this section in an application for an original patent will not receive any communications from the Office relating to the protest, other than the return of a self-addressed postcard which the member of the public may include with the protest in order to receive an acknowledgment by the Office that the protest has been received. The Office will communicate with the applicant regarding any protest entered in the application file and may require the applicant to supply information pursuant to paragraph (a) of § 1.56, including responses to specific questions raised by the protest, in order for the Office to decide any issues raised by the protest. The active participation of the member of the public filing a protest pursuant to paragraph (a) of this section ends with the filing of the protest and no further submission on behalf of the protestor will be

acknowledged or considered unless such submission raises new issues which could not have been earlier presented, and thereby constitutes a new protest.

[47 FR 21752, May 19, 1982]

§ 1.292 Public use proceedings.

(a) When a petition for the institution of public use proceedings, supported by affidavits or declarations and the fee set forth in § 1.17(j) is filed by one having information of the pendency of an application and is found, on reference to the primary examiner, to make a prima facie showing that the invention involved in an interference or claimed in an application believed to be on file had been in public use or on sale one year before the filing of the application, or before the date alleged by an interfering party in his or her preliminary statement or the date of invention established by such party, a hearing may be had before the Commissioner to determine whether a public use proceeding should be instituted. If instituted, times may be set for taking testimony, which shall be taken as provided by §§ 1.271 to 1.286. The petitioner will be heard in the proceedings but after decision therein will not be heard further in the prosecution of the application for patent.

(b) The petition and accompanying papers should either: (1) Reflect that a copy of the same has been served upon the applicant or upon his attorney or agent of record; or (2) be filed with the Office in duplicate in the event service is not possible. The petition and accompanying papers, or a notice that such a petition has been filed, shall be entered in the application file.

[24 FR 10332; Dec. 22, 1959, 34 FR 18858, Nov. 26, 1969; 42 FR 5595, Jan. 28, 1977; 47 FR 33086, July 30, 1982, effective Oct. 1, 1982]

§ 1.301 Appeal to U.S. Court of Appeals for the Federal Circuit.

Any applicant or any owner of a patent involved in a reexamination proceeding dissatisfied with the decision of the Board of Appeals, and any party to an interference dissatisfied with the decision of the Board of Patent Interferences, may appeal to the U.S. Court of Appeals for the Federal Circuit. The appellant must take the following steps in such an appeal: (a) In the Patent and Trademark Office give notice to the Commissioner and file the reasons of appeal (see §§ 1.302 and 1.304); (b) in the court, file a copy of the notice and reasons of appeal and pay the fee for appeal, as provided by the rules of the court. The certified list required by the rules of the Court will be transmitted to the Court by the Patent and Trademark Office.

[46 FR 29184, May 29, 1981; 47 FR 47380, Oct. 26, 1982; effective Oct. 26, 1982]

§ 1.302 Notice and reasons of appeal.

(a) When an appeal is taken to the U.S. Court of Appeals for the Federal Circuit, the appellant shall give notice thereof to the Commissioner, and file in the Patent and Trademark Office within the time specified in § 1.304, his or her reasons of appeal specifically set forth in writing.

(b) In interferences and other contested cases, the notice and reasons must be served as provided in § 1.248.

(35 U.S.C. 142)

[47 FR 47380, Oct. 26, 1982; effective Oct. 26, 1982]

§ 1.303 Civil action under 35 U.S.C. 145, 146, 306.

(a) Any applicant or any owner of a patent involved in a reexamination proceeding dissatisfied with the decision of the Board of Appeals, and any party dissatisfied with the decision of the Board of Patent Interferences, may, instead of appealing to the U.S. Court of Appeals for the Federal Circuit (§ 1.301), have remedy by civil action under 35 U.S.C. 145 or 146, as appropriate. Such civil action must be commenced within the time specified in § 1.304.

(b) If an applicant in an ex parte case or an owner of a patent involved in a reexamination proceeding has taken an appeal to the U.S. Court of Appeals for the Federal Circuit, he or she thereby waives his or her right to proceed under 35 U.S.C. 145.

(c) If any adverse party to an appeal taken to the U.S. Court of Appeals for the Federal Circuit by a defeated party in an interference proceeding files notice with the Commissioner within twenty days after the filing of the defeated party's notice of appeal to the court (§ 1.302), that he or she elects to have all further proceedings conducted as provided in 35 U.S.C. 146, certified copies of such notices will be transmitted to the U.S. Court of Appeals for the Federal Circuit for such action as may be necessary. The notice of election must be served as provided in § 1.248.

[46 FR 29184, May 29, 1981; 47 FR 47380, Oct. 26, 1982; effective Oct. 26, 1982]

§ 1.304 Time for appeal or civil action.

(a) The time for filing the notice and reasons of appeal to the U.S. Court of Appeals for the Federal Circuit (§ 1.302) or for commencing a civil action (§ 1.303) is sixty days from the date of the decision of the Board of Appeals or the Board of Patent Interferences. If a request for rehearing or reconsideration, or modification of the decision, is filed within the time provided pursuant to § 1.197(b) or § 1.256(b), the time for filing an appeal or commencing a civil action shall expire at the end of the sixty-day period or thirty days after action on the request, whichev-

er is later. The time periods set forth herein are subject to the provisions of § 1.136.

(b) The times specified herein are calendar days. If the last day of the time specified for appeal or commencing a civil action falls on a Saturday, Sunday or legal holiday, the time is extended to the next day which is neither a Saturday, Sunday nor a holiday.

(c) If a defeated party to an interference has taken an appeal to the U.S. Court of Appeals for the Federal Circuit and an adverse party has filed notice under 35 U.S.C. 141 that he or she elects to have all further proceedings conducted under 35 U.S.C. 146 (§ 1.303(c)), the time for filing a civil action thereafter is specified in 35 U.S.C. 141.

[41 FR 758, Jan. 5, 1976; 47 FR 33086, July 30, 1982, revised paragraph (a) effective Oct. 1, 1982; and 47 FR 47380, Oct. 26, 1982 revised paragraph (c) effective Oct. 26, 1982]

Allowance and Issue of Patent

§ 1.311 Notice of allowance.

(a) If, on examination, it shall appear that the applicant is entitled to a patent under the law, a notice of allowance will be sent to applicant at the correspondence address indicated in § 1.33, calling for the payment of a specified sum constituting the issue fee (§ 1.18), which shall be paid within 3 months from the date of the mailing of the notice of allowance.

(b) An authorization to charge the issue fee (§ 1.18) to a deposit account may be filed in an individual application, either before or after mailing of the notice of allowance. Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of the notice of allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance.

[30 FR 12844, Oct. 8, 1965; 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.312 Amendments after allowance.

(a) No amendment may be made as a matter of right in an application after the mailing of the notice of allowance. Any amendment pursuant to this paragraph filed before the payment of the issue fee may be entered on the recommendation of the primary examiner, approved by the Commissioner, without withdrawing the case from issue.

(b) Any amendment pursuant to paragraph (a) of this section filed after the date the issue fee is paid must be accompanied by a petition including the fee set forth in § 1.17(i) and a showing of good and sufficient reasons why the amendment is necessary and was not earlier presented.

[34 FR 6844, Apr. 24, 1969; 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.313 Withdrawal from issue.

(a) Applications may be withdrawn from issue for further action at the initiative of the Office or upon petition by the applicant. Any such petition by the applicant must include a showing of good and sufficient reasons why withdrawal of the application is necessary and, if the reason for the withdrawal is not the fault of the Office, must be accompanied by the fee set forth in § 1.17(i). If the application is withdrawn from issue, a new notice of allowance will be sent if the application is again allowed. Any amendment accompanying a petition to withdraw an application from issue must comply with the requirements of § 1.312.

(b) When the issue fee has been paid, and the patent to be issued has received its issue date and patent number, the application will not be withdrawn from issue for any reason except (1) mistake on the part of the Office, (2) a violation of § 1.56 or illegality in the application, (3) unpatentability of one or more claims, or (4) for interference.

[30 FR 12844, Oct. 8, 1965, as amended at 34 FR 18858, Nov. 26, 1969; 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.314 Issuance of patent.

If payment of the issue fee is timely made, the patent will issue in regular course unless (a) the application is withdrawn from issue (§ 1.313) or (b) issuance of the patent is deferred. Any petition by the applicant requesting deferral of the issuance of a patent must be accompanied by the fee set forth in § 1.17(i) and must include a showing of good and sufficient reasons why it is necessary to defer issuance of the patent.

[30 FR 12844, Oct. 8, 1965; 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.315 Delivery of patent.

The patent will be delivered or mailed on the day of its date to the attorney or agent of record, if there be one; or if the attorney or agent so request, to the patentee or assignee of an interest therein; or, if there be no attorney or agent, to the patentee or to the assignee of the entire interest, if he so request.

(35 U.S.C. 151)

§ 1.316 Application abandoned for failure to pay issue fee.

(a) If the issue fee is not paid within 3 months from the date of the notice of allowance, the application will be regarded as abandoned. Such an abandoned application will not be considered as pending before the Patent and Trademark Office.

(b) The Commissioner may accept the payment of the issue fee later than three months after the mailing of the notice of allowance as though no abandonment had ever occurred if upon petition the delay

in payment is shown to have been unavoidable. The petition to accept the delayed payment must be promptly filed after the applicant is notified of, or otherwise becomes aware of, the abandonment, and must be accompanied by (1) the issue fee, unless it has been previously submitted, (2) the fee for delayed payment (§ 1.17(l)), and (3) a showing that the delay was unavoidable. Such showing must be a verified showing if made by a person not registered to practice before the Patent and Trademark Office.

(c) The Commissioner may, upon petition, accept the payment of the issue fee later than three months after the mailing of the notice of allowance as though no abandonment had ever occurred if the delay in payment was unintentional. The petition to accept the delayed payment must be filed within one year of the date on which the application became abandoned or be filed within three months of the date of the first decision on a petition under paragraph (b) of this section which was filed within one year of the date of abandonment of the application. The petition to accept the delayed payment must be accompanied by (1) the issue fee, unless it has been previously submitted, (2) the fee for unintentionally delayed payment (§ 1.17(m)), and (3) a statement that the delay was unintentional. Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office. The Commissioner may require additional information where there is a question whether the abandonment was unintentional. The three-month period from the date of the first decision referred to in this paragraph may be extended under the provisions of § 1.136(a), but no further extensions under § 1.136(b) will be granted. Petitions to the Commissioner under § 1.183 to waive any time periods for requesting revival of an unintentionally abandoned application will not be considered, but will be returned to the applicant.

(d) Any petition pursuant to paragraph (b) of this section not filed within six months of the date of abandonment must be accompanied by a terminal disclaimer with fee under § 1.321 dedicating to the public a terminal part of the term of any patent granted thereon equivalent to the period of abandonment of the application.

[30 FR 12844, Oct. 8, 1965, as amended at 40 FR 44814, Sept. 30, 1975, 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.317 Lapsed patents; delayed payment of balance of issue fee.

(a) If the issue fee was paid prior to October 1, 1982, any remaining balance of the issue fee is to be paid within three months from the date of notice thereof and, if not paid, the patent will lapse at the termination of the three month period.

(b) The Commissioner may accept the payment of the remaining balance of the issue fee later than three months after the mailing of the notice thereof as though no lapse had ever occurred if upon petition the delay in payment is shown to have been unavoidable. The petition to accept the delayed payment must be promptly filed after the applicant is notified of, or otherwise becomes aware of, the lapse, and must be accompanied by (1) the remaining balance of the issue fee, unless it has been previously submitted, (2) the fee for delayed payment (§ 1.17(l)), and (3) a showing that the delay was unavoidable. Such showing must be a verified showing if made by a person not registered to practice before the Patent and Trademark Office.

(c) The Commissioner may, upon petition, accept the payment of the remaining balance of the fee later than three months after the mailing of the notice thereof as though no lapse had ever occurred if the delay in payment was unintentional. The petition to accept the delayed payment must be filed within one year of the date on which the patent lapsed or be filed within three months of the date of the first decision on a petition under paragraph (b) of this section which was filed within one year of the date of lapse of the patent. The petition to accept the delayed payment must be accompanied by (1) the remaining balance of the issue fee, unless it has been previously submitted, (2) the fee for unintentionally delayed payment (§ 1.17(m)), and (3) a statement that the delay was unintentional. Such statement must be a verified statement if made by a person not registered to practice before the Patent and Trademark Office. The Commissioner may require additional information where there is a question whether the delay in payment was unintentional. The three-month period from the date of the first decision referred to in this paragraph may be extended under the provisions of § 1.136(a), but no further extensions under § 1.136(b) will be granted. Petitions to the Commissioner under § 1.183 to waive any time periods for requesting acceptance of an unintentionally delayed payment will not be considered, but will be returned to the applicant.

(d) Any petition pursuant to paragraph (b) of this section not filed within six months of the date of lapse must be accompanied by a terminal disclaimer with fee under § 1.321 dedicating to the public a terminal part of the term of the patent equivalent to the period of lapse of the patent.

[40 FR 44814, Sept. 30, 1975; 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.318 Notification of national publication of a patent based on an international application.

The Office will notify the International Bureau when a patent is issued on an application filed under 35 U.S.C. 371, and

there has been no previous international publication.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20465, May 11, 1978]

DISCLAIMER

§ 1.321 Statutory disclaimer.

(a) A disclaimer under 35 U.S.C. 253 must be accompanied by the fee set forth in § 1.20(d) and identify the patent and the claim or claims which are disclaimed, and be signed by the person making the disclaimer, who shall state therein the extent of his or her interest in the patent. A disclaimer which is not a disclaimer of a complete claim or claims may be refused recordation. A notice of the disclaimer is published in the *Official Gazette* and attached to the printed copies of the specification. In like manner any patentee or applicant may disclaim or dedicate to the public the entire term, or any terminal part of the term, of the patent granted or to be granted.

(b) A terminal disclaimer, when filed in an application to obviate a double patenting rejection, must be accompanied by the fee set forth in § 1.20(d) and include a provision that any patent granted on that application shall be enforceable only for and during such period that said patent is commonly owned with the application or patent which formed the basis for the rejection.

[36 FR 7312, Apr. 17, 1971; 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

CORRECTION OF ERRORS IN PATENT

§ 1.322 Certificate of correction of Office mistake.

(a) A certificate of correction under 35 U.S.C. 254 may be issued at the request of the patentee or his assignee. Such certificate will not be issued at the request or suggestion of anyone not owning an interest in the patent, nor on motion of the Office, without first notifying the patentee (including any assignee of record) and affording him an opportunity to be heard.

(b) If the nature of the mistake on the part of the Office is such that a certificate of correction is deemed inappropriate in form, the Commissioner may issue a corrected patent in lieu thereof as a more appropriate form for certificate of correction, without expense to the patentee.

(35 U.S.C. 254)

[24 FR 10332, Dec. 22, 1959, and 34 FR 5550, Mar. 22, 1969]

§ 1.323 Certificate of correction of applicant's mistake

Whenever a mistake of a clerical or typographical nature or of minor character which was not the fault of the Office, appears in a patent and a showing is made that such mistake occurred in good faith, the Commissioner may, upon payment of the required fee, issue a certificate of correction, if the correction does not involve such changes in the patent as would constitute new matter or would require reexamination.

[34 FR 5550, Mar. 22, 1969]

§ 1.324 Correction of inventorship in patent.

Whenever a patent is issued and it appears that the correct inventor or inventors were not named through error without deceptive intention on the part of the actual inventor or inventors, the Commissioner may, on petition of all the parties and the assignees and satisfactory proof of the facts and payment of the fee set forth in § 1.20(b), or on order of a court before which such matter is called in question, issue a certificate naming only the actual inventor or inventors.

[47 FR 33086, July 30, 1982; and 48 FR 2696 Jan. 20, 1983, effective Feb. 27, 1983]

§ 1.325 Other mistakes not corrected.

Mistakes other than those provided for in §§ 1.322, 1.323, 1.324, and not affording legal grounds for reissue or for reexamination, will not be corrected after the date of the patent.

[48 FR 2696, Jan. 20, 1983; effective Feb. 27, 1983]

ASSIGNMENTS AND RECORDING

§ 1.331 Recording of assignments.

(a) Assignments, including grants and conveyances, of patents, national applications, or international applications which designate the United States of America, will be recorded in the Patent and Trademark Office under 35 U.S.C. 261. Other instruments affecting title to a patent, a national application, or an international application which designates the United States of America, and licenses, even though the recording thereof may not serve as constructive notice under 35 U.S.C. 261, will be recorded as provided in this section or at the discretion of the Commissioner. Any instrument to be recorded, except those under Part 7 of this title, must be accompanied by the fee set forth in § 1.21(h).

(b) No instrument will be recorded which is not in the English language and which does not amount to an assignment, grant, mortgage, lien, incumbrance, or license, or which does not affect the title of the patent or invention to which it relates, and which does not identify the patent or application to which it relates, except as ordered by the Commissioner.

(c) An instrument relating to a patent should identify the patent by number and

date (the name of the inventor and title of the invention as stated in the patent should also be given); an instrument relating to a national application, or an international application which designates the United States of America should identify the application by serial number or international application number and date of filing (the name of the inventor and title of the invention as stated in the application should also be given), but if an assignment is executed concurrently with or subsequent to the execution of the application but before the application is filed or before its serial number or international application number and filing date are ascertained, it should adequately identify the application, as by its date of execution and name of the inventor and title of the invention; so that there can be no mistake as to the patent or application intended.

(35 U.S.C. 261; Pub. L. 94-131, 89 Stat. 685)

[24 FR 10332, Dec. 22, 1959, as amended at 43 FR 20465, May 11, 1978; 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.332 Receipt and recording.

Assignments are recorded in regular order as promptly as possible, and then transmitted with the date and identification of the record stamped thereon to the persons entitled to them. The date of the record is the date of the receipt of the assignment at the Office in proper form and accompanied by the fee set forth in § 1.21(h).

(35 U.S.C. 261)

[24 FR 10332, Dec. 22, 1959, as amended at 34 FR 18858, Nov. 26, 1969; 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.333 Conditional assignments.

Assignments which are made conditional on the performance of certain acts or events, as the payment of money or other condition subsequent, if recorded in the Office are regarded as absolute assignments for Office purposes until cancelled with the written consent of both parties or by the decree of a competent court. The Office has no means for determining whether such conditions have been fulfilled.

(35 U.S.C. 261)

§ 1.334 Issue of patent to assignee.

(a) In case of an assignment of the entire interest in the invention and application, or of the entire interest in the patent to be granted, the patent will normally issue to the assignee. If the assignee should hold an undivided part interest, the patent will normally issue jointly to the inventor and the assignee. If it is desired that the patent so issue, the assignment in either case must first have been recorded, and at a day not later than the date payment is made of the issue fee.

(b) At the time of payment of the issue fee, a statement must be furnished indicating whether or not an assignment has been filed with the Patent and Trademark Office. In the event an assignment has been filed, such statement must include the name and address of the assignee and indicate whether or not an acknowledgement of a recorded assignment has been received from the Patent and Trademark Office.

(c) If the assignment is recorded after the date of payment of the issue fee, the assignee may petition that the patent issue to the assignee as recorded. Any such petition must be accompanied by the fee set forth in § 1.17(i).

[34 FR 17772, Nov. 4, 1969; and 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.335 Filing of notice of arbitration awards.

(a) Written notice of any award by an arbitrator pursuant to 35 U.S.C. 294 must be filed in the Patent and Trademark Office by the patentee, or the patentee's assignee or licensee. If the award involves more than one patent a separate notice must be filed for placement in the file of each patent. The notice must set forth the patent number, the names of the inventor and patent owner, and the names and addresses of the parties to the arbitration. The notice must also include a copy of the award.

(b) If an award by an arbitrator pursuant to 35 U.S.C. 294 is modified by a court, the party requesting the modification must file in the Patent and Trademark Office, a notice of the modification for placement in the file of each patent to which the modification applies. The notice must set forth the patent number, the names of the inventor and patent owner, and the names and addresses of the parties to the arbitration. The notice must also include a copy of the court's order modifying the award.

(c) Any award by an arbitrator pursuant to 35 U.S.C. 294 shall be unenforceable until any notices required by paragraph (a) or (b) of this section are filed in the Patent and Trademark Office. If any required notice is not filed by the party designated in paragraph (a) or (b) of this section, any party to the arbitration proceeding may file such a notice.

[48 FR 2696, Jan. 20, 1983; effective Feb. 27, 1983]

RECOGNITION OF ATTORNEYS AND AGENTS

AUTHORITY: Secs. 1.341 to 1.348 also issued under 35 U.S.C. 31, 32.

§ 1.341 Registration of attorneys and agents.

A register of attorneys and a register of agents are kept in the Patent and Trademark Office on which are entered the

names of all persons recognized as entitled to represent applicants before the Patent and Trademark Office in the preparation and prosecution of applications for patent. Registration in the Patent and Trademark Office under the provisions of the regulations in this part shall only entitle the persons registered to practice before the Patent and Trademark Office.

(a) *Attorneys at law.* Any attorney at law in good standing admitted to practice before any United States Court or the highest court of any State or Territory of the United States who fulfills the requirements and complies with the provisions of these rules may be admitted to practice before the Patent and Trademark Office and have his name entered on the register of attorneys.

(b) *Agents.* Any citizen of the United States not an attorney at law who fulfills the requirements and complies with the provisions of these rules may be admitted to practice before the Patent and Trademark Office and have his name entered on the register of agents.

Note: All persons registered prior to November 15, 1938, were registered as attorneys, whether they were attorneys at law or not, and such registrations have not been changed.

(c) *Requirements for registration.* No person will be admitted to practice and registered unless he shall apply to the Commissioner of Patents and Trademarks in writing on a prescribed form supplied by the Commissioner and furnish all requested information and material; and shall establish to the satisfaction of the Commissioner that he is of good moral character and of good repute and possessed of the legal and scientific and technical qualifications necessary to enable him to render applicants for patents valuable service, and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent and Trademark Office. In order that the Commissioner may determine whether a person seeking to have his name placed upon either of the registers has the qualifications specified, satisfactory proof of good moral character and repute, and of sufficient basic training in scientific and technical matters must be submitted and an examination which is held from time to time must be taken and passed. Each application for admission to the examination for registration must be accompanied by the prescribed fee (see § 1.21). The taking of an examination may be waived in the case of any person who has actively served for four years in the examining corps of the Patent and Trademark Office.

(d) [Reserved]

(e) *Foreign patent attorneys and agents.* Any foreign patent attorney or agent not a resident of the United States who shall file proof to the satisfaction of the Commissioner that he is registered and in good standing before the patent office of the country in which he resides and practices, and is possessed of the qualifications stated in paragraph (c) of this section, may be registered on the register of agents as entitled to represent applicants located in such country before the United States Patent and Trademark Office in the presentation and prosecution of applications: *Provided,* That the patent office of such country allows substantially reciprocal privileges to those admitted to practice before the United States Patent and Trademark Office. Such registration shall continue only during the period that the conditions specified obtain.

(f) *Government employees.* Officers and employees of the United States who are disqualified by statute (18 U.S.C. 203, 205) from practicing as attorneys or agents in proceedings or other matters before Government departments or agencies, may not be registered, and if any registered attorney or agent becomes such an officer or employee, his name on the register shall be endorsed as inactive during the period of such employment, but officers or employees whose official duties require the preparation and prosecution of applications for patent may be registered (on compliance with the regulations in this part) or recognized to practice, to the extent necessary to carry out their official duties.

(g) *Former examiners.* No person who has served in the examining corps of the Patent and Trademark Office will be registered after termination of his services, nor, if registered before such service, be reinstated, unless he undertakes: (1) Not to prosecute or aid in any manner in the prosecution of any application pending in any examining group during his period of service therein; and (2) not to prepare or prosecute nor to assist in any manner in the preparation or prosecution of any application of another filed within 2 years after the date he left such group, and assigned to such group, without the specific authorization of the Commissioner. Associated and related classes in other groups may be required to be included in the undertaking or designated classes may be excluded. In case application for registration or reinstatement is made after resignation from the Office, the applicant will not be registered, or reinstated, if he has prepared or prosecuted, or assisted in the preparation or prosecution of any such application as indicated in this paragraph. (See further 18 U.S.C. 207.)

(h) *Oath and registration fee.* Before his or her name may be entered on the register of attorneys or on the register of agents, every applicant for registration must, after his or her application is approved, subscribe and swear to an oath or make a declaration prescribed by the Commissioner of Patents and Trademarks and pay the prescribed registration fee. (See § 1.21(a)(2).)

(i) *Committee on Enrollment.* The Commissioner may establish a Committee on

Enrollment to receive and act upon applications for registration to practice before the Patent and Trademark Office, to conduct and supervise the examinations provided for in paragraph (c) of this section, to maintain the registers and to perform such other duties in connection with enrollment and recognition of attorneys and agents as may be necessary; or such functions may be performed by designated officials of the Patent and Trademark Office. Any action of such committee or official may be reviewed by the Commissioner.

[24 FR 10332, Dec. 22, 1959, 30 FR 6391, May 7, 1965; 34 FR 18858, Nov. 26, 1969; 36 FR 12617, July 2, 1971; 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

NOTE: See § 2.12 for practice in trademark cases.

§ 1.342 Limited recognition.

Any person not registered and not entitled to be recognized under § 1.341 as an attorney or agent to represent applicants generally may, upon a showing of circumstances which render it necessary or justifiable, be recognized by the Commissioner to prosecute as attorney or agent a specified application or applications, but this limited recognition shall not extend further than the application or applications specified.

§ 1.343 Persons not registered or recognized.

Only persons who are registered or given limited recognition as provided in § 1.342 will be permitted to prosecute patent applications of others before the Patent and Trademark Office.

[36 FR 12617, July 2, 1971]

§ 1.344 Professional conduct.

Attorneys and agents appearing before the Patent and Trademark Office must conform to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association as amended February 24, 1970, insofar as such code is not inconsistent with this part. A copy of the said code is available for inspection in the Office of the Solicitor, U.S. Patent and Trademark Office, Room 11C04, Building 3, Crystal Plaza, 2021 Jefferson Davis Highway, Arlington, VA. Copies of the code are available upon request to the American Bar Center, 1155 E. 60th Street, Chicago, IL 60637.

[36 FR 12617, July 2, 1971]

§ 1.345 Advertising.

(a) The use of advertising, circulars, letters, cards, and similar material to solicit patent business, directly or indirectly, is forbidden as unprofessional conduct, and any person engaging in such solicitation, or associated with or employed by others who so solicit, shall be refused recognition to practice before the Patent and Trademark Office or may be suspended, excluded or disbarred from further practice.

(b) The use of simple professional letterheads, calling cards, or office signs, simple announcements necessitated by opening an office, change of association, or change of address, distributed to clients and friends, and insertion of listings in common form (not display) in a classified telephone or city directory, and listings and professional cards with biographical data in standard professional directories shall not be considered a violation of this rule.

(c) No agent shall, in any material specified in paragraph (b) of this section or in papers filed in the Patent and Trademark Office, represent himself to be an attorney, solicitor or lawyer.

[23 FR 8622, Nov. 5, 1958]

§ 1.346 Signature and certificate of attorney.

Every paper filed by an attorney or agent representing an applicant or party to a proceeding in the Patent and Trademark Office must bear the signature of such attorney or agent, except papers which are required to be signed by the applicant or party in person (such as the application itself and affidavits or declarations required of applicants). The signature of an attorney or agent to a paper filed by him, or the filing or presentation of any paper by him, constitutes a certificate that the paper has been read; that its filing is authorized; that to the best of his knowledge, information, and belief, there is good ground to support it; including any allegations of improper conduct contained therein; and that it is not interposed for delay.

[42 FR 5595, Jan. 28, 1977]

§ 1.347 Removing names from registers.

Attorneys and agents, registered to practice before the Patent and Trademark Office, should notify the Office of any change of address for entry on the register, by letter separate from any notice of change of address filed in individual applications. The Office may address a letter to any person on the registers, at the address of which separate notice for the register was last received, for the purpose of ascertaining whether such person desires to remain on the register. The name of any person failing to reply and give the information requested within a time limit specified will be removed from the register, and the names so removed published in the *Official Gazette*. Any name so removed may be reinstated, either on the register of attorneys or the register of agents, as may be appropriate. Any request for reinstatement must be accompanied by the fee set forth in § 1.21(a)(3).

[36 FR 12618, July 2, 1971; 47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.348 Suspension or disbarment proceedings.

Except as otherwise provided, proceedings for suspension, disbarment, or exclusion from practice are before a Commissioner.

(a) *Investigating and prosecuting officer.* The duties of investigation, preparing charges, collecting and presenting testimony, and presenting a case for suspension, exclusion from practice or disbarment shall be performed by the Solicitor of the Patent and Trademark Office or, at his direction, by a designated law examiner or other person, and neither the Solicitor nor such law examiner or other person shall participate in any manner in the decision of the case. If, upon investigation of a complaint or other information concerning an attorney or agent, it shall appear to the Solicitor that grounds for suspension, exclusion from practice, or disbarment exist, he shall prepare and forward the necessary notice and statement.

(b) *Notice of proceedings.* Proceedings for suspension or disbarment shall be instituted by the Solicitor by mailing to, or otherwise serving on, the respondent a notice of such proceeding with a statement of the charges against him, at the same time forwarding a copy to the Commissioner. It shall be the duty of the respondent to answer the charges as specified in paragraph (c) of this section.

(c) *Answer.* The respondent's answer shall be filed in writing with the Commissioner within one month from the time the notice is served on the respondent, or within such extension of time as may be allowed by the Commissioner for good cause shown. The answer shall be under oath or declaration. Failure to answer within the time allowed will be taken as an admission of the charges. The respondent in his answer should specifically admit or deny every material allegation of fact in the statement of charges; every allegation not denied shall be deemed admitted, unless the respondent states that he has no knowledge thereof sufficient to form a belief, which statement shall be considered a denial. Any special matters of defense shall be stated affirmatively in the answer. False statements in the answer may be made the basis of supplemental charges.

(d) *Hearing.* (1) Unless the Commissioner finds the answer sufficient to dispose of the charges, he will set the case for hearing before him, notifying the respondent and the Solicitor of the place, day and time of commencement of the hearing. Evidence as to the matters in issue may be submitted at the hearing, the testimony of witnesses being presented orally, under oath and reported.

(2) The hearing may be advanced and continued by the Commissioner, as far as may be deemed convenient and proper.

(3) Depositions for use at the hearing in lieu of personal appearance of witnesses may be taken by either the Solicitor or the respondent on application to and with the written consent of the Commissioner within such times and under such conditions as the Commissioner may prescribe.

(e) *Hearing officer.* The Commissioner may, in his discretion, delegate the conduct of the hearing to a hearing or trial examiner who shall be the presiding officer and who shall make a recommended decision.

(f) *Administrative Procedure Act.* Proceedings shall be governed, in matters not specifically set forth herein, by the provisions of the Administrative Procedure Act, 60 Stat. 237; 5 U.S.C. 1001–1011, which may be applicable.

[24 FR 10332, Dec. 22, 1959, and 34 FR 18858, Nov. 26, 1969]

AMENDMENT OF RULES

§ 1.351 Amendments to rules will be published.

All amendments to the regulations in this part will be published in the *Official Gazette* and in the FEDERAL REGISTER.

§ 1.352 Publication of notice of proposed amendments.

(a) Whenever required by law, and in other cases whenever practicable, notice of proposed amendments to the regulations in this part will be published in the *Official Gazette* and in the FEDERAL REGISTER. If not published with the notice, copies of the text will be furnished to any person requesting the same. All comments, suggestions, and briefs received within a time specified in the notice will be considered before adoption of the proposed amendments which may be modified in the light thereof.

(b) Oral hearings may be held at the discretion of the Commissioner.

Subpart C—International Processing Provisions

AUTHORITY: Pub. L. 94-131, 89 Stat. 685.

SOURCE: 43 FR 20466, May 11, 1978, unless otherwise noted.

GENERAL INFORMATION

§ 1.401 Definitions of terms under the Patent Cooperation Treaty.

(a) The abbreviation "PCT" and the term "Treaty" mean the Patent Cooperation Treaty.

(b) "International Bureau" means the World Intellectual Property Organization located in Geneva, Switzerland.

(c) "Administrative Instructions" means that body of instructions for operating under the Patent Cooperation Treaty referred to in PCT Rule 89.

(d) "Request", when capitalized, means that element of the international application described in PCT Rules 3 and 4.

(e) "International application", as used in this subchapter is defined in § 1.9(b).

(f) "Priority date" for the purpose of computing time limits under the Patent Cooperation Treaty is defined in PCT Art. 2 (xi). Note also § 1.465.

(g) Other terms and expressions in this Subpart C not defined in this section are to be taken in the sense indicated in PCT Art. 2 and 35 U.S.C. 351.

§ 1.412 The United States Receiving Office.

(a) The United States Patent and Trademark Office is a Receiving Office only for applicants who are residents or nationals of the United States of America.

(b) The Patent and Trademark Office, when acting as a Receiving Office, will be identified by the full title "United States Receiving Office" or by the abbreviation "RO/US."

(c) The major functions of the Receiving Office include:

(1) According of international filing dates to international applications meeting the requirements of PCT Art. 11(1), and PCT Rule 20;

(2) Assuring that international applications meet the standards for format and content of PCT Art. 14(1), PCT Rule 9, 26, 29.1, 37, 38, 91, and portions of PCT Rules 3 through 11;

(3) Collecting and, when required, transmitting fees due for processing international applications (PCT Rule 14, 15, 16);

(4) Transmitting the record and search copies to the International Bureau and International Searching Authority, respectively (PCT Rules 22 and 23); and

(5) Determining compliance with applicable requirements of Part 5 of this chapter.

§ 1.413 The United States International Searching Authority.

(a) Pursuant to appointment by the Assembly, the United States Patent and Trademark Office will act as an International Searching Authority for international applications filed in the United States Receiving Office and in other Receiving Offices as may be agreed upon by the Commissioner, in accordance with agreement between the Patent and Trademark Office and the International Bureau (PCT Art. 16(3)(b)).

(b) The Patent and Trademark Office, when acting as an International Searching Authority, will be identified by the full title "United States International Searching Authority" or by the abbreviation "ISA/US."

(c) The major functions of the International Searching Authority include:

(1) Approving or establishing the title and abstract;

(2) Considering the matter of unity of invention;

(3) Conducting international and international-type searches and preparing international and international-type search reports (PCT Art. 15, 17 and 18, and PCT Rules 25, 33 to 45 and 47); and

(4) Transmitting the international search report to the applicant and the International Bureau.

§ 1.414 The United States Designated Office.

(a) The United States Patent and Trademark Office will act as a Designated Office for international applications in which the United States of America has been designated as a State in which patent protection is desired.

(b) The Patent and Trademark Office, when acting as a Designated Office during international processing will be identified by the full title "United States Designated Office" or by the abbreviation "DO/US."

(c) The major functions of the United States Designated Office in respect to international applications in which the United States of America has been designated, include:

(1) Receiving various notifications throughout the international stage;

(2) Accepting for regular national patentability examination international applications which satisfy the requirements of 35 U.S.C. 371; and

(3) Conducting reviews under PCT Article 25 for those international applications declared withdrawn.

§ 1.415 The International Bureau.

(a) The International Bureau is the World Intellectual Property Organization located at Geneva, Switzerland. It is the international intergovernmental organization which acts as the coordinating body under the Treaty and the Regulations (PCT Art. 2 (xix) and 35 U.S.C. 351 (h)).

(b) The major functions of the International Bureau include:

(1) Publishing of international applications and the International Gazette;

(2) Transmitting copies of international applications to Designated Offices;

(3) Storing and maintaining record copies; and

(4) Transmitting information to authorities pertinent to the processing of specific international applications.

Who May File an International Application

§ 1.421 Applicant for international application.

(a) Only residents or nationals of the

United States of America may file international applications in the United States Receiving Office.

(b) Although the United States Receiving Office will accept international applications filed by any resident or national of the United States of America for international processing, an international application designating the United States of America will be accepted by the Patent and Trademark Office for the national stage only if filed by the inventor or as provided in §§ 1.422, 1.423 or 1.425.

(c) International applications which do not designate the United States of America may be filed by the assignee or owner.

(d) The attorney or agent of the applicant may sign the international application Request and file the international application for the applicant if the international application when filed is accompanied by a separate power of attorney to that attorney or agent from the applicant. The separate power of attorney from the applicant may be submitted after filing if sufficient cause is shown for not submitting it at the time of filing. Note that paragraph (b) of this section requires that the applicant be the inventor if the United States of America is designated.

(e) Any indication of different applicants for the purpose of different Designated Offices must be shown on the Request portion of the international application.

(f) Changes in the person, name, or address of the applicant of an international application shall be made in accordance with PCT Rule 18.5.

§ 1.422 When the inventor is dead.

In case of the death of the inventor, the legal representative (executor, administrator, etc.) of the deceased inventor may file an international application which designates the United States of America.

§ 1.423 When the inventor is insane or legally incapacitated.

In case an inventor is insane or otherwise legally incapacitated, the legal representative (guardian, conservator, etc.) of such inventor may file an international application which designates the United States of America.

§ 1.424 Joint inventors.

Joint inventors must jointly file an international application which designates the United States of America; the signature of either of them alone, or less than the entire number will be insufficient for an invention invented by them jointly, except as provided in § 1.425.

§ 1.425 Filing by other than inventor.

(a) If a joint inventor refuses to join in an international application which designates the United States of America or cannot be found or reached after diligent effort, the international application which designates the United States of America may be filed by the other inventor on behalf of himself or herself and the omitted inventor. Such an international application which designates the United States of America must be accompanied by proof of the pertinent facts and must state the last known address of the omitted inventor. The Patent and Trademark Office shall forward notice of the filing of the international application to the omitted inventor at said address.

(b) Whenever an inventor refuses to execute an international application which designates the United States of America, or cannot be found or reached after diligent effort, a person to whom the inventor has assigned or agreed in writing to assign the invention or who otherwise shows sufficient proprietary interest in the matter justifying such action may file the international application on behalf of and as agent for the inventor. Such an international application which designates the United States of America, must be accompanied by proof of the pertinent facts and a showing that such action is necessary to preserve the rights of the parties or to prevent irreparable damage, and must state the last known address of the inventor. The assignment, written agreement to assign or other evidence of proprietary interest, or a verified copy thereof, must be filed in the Patent and Trademark Office. The Office shall forward notice of the filing of the application to the inventor at the address stated in the application.

The International Application

§ 1.431 International application requirements.

(a) An international application shall contain, as specified in the Treaty and the Regulations, a Request, a description, one or more claims, an abstract, and one or more drawings (where required). (PCT Art. 3(2) and Section 207 of the Administrative Instructions.)

(b) An international filing date will be accorded by the United States Receiving Office, at the time of receipt of the international application, provided that:

(1) The applicant is a United States resident or national (35 U.S.C. 361(a), PCT Art. 11(1)(i)).

(2) The international application is in the English language (35 U.S.C. 361(c), PCT Art. 11(1)(ii)).

(3) The international application contains at least the following elements (PCT Art. 11(1)(iii)):

(i) An indication that it is intended as an international application (PCT Rule 4.2);

(ii) The designation of at least one Contracting State of the International Patent Cooperation Union;

(iii) The name of the applicant, as prescribed (note § 1.422);

(iv) A part which on the face of it appears to be a description; and

(v) A part which on the face of it appears to be a claim.

(c) Payment of the basic portion of the international fee (PCT Rule 15.2) and the transmittal and search fees (§ 1.445) shall be made in full at the time the international application papers required by paragraph (b) of this section are deposited. Failure to make full payment on the same date as the deposit of the international application papers required by subparagraph (b) of this section will result in the international application being considered withdrawn (PCT Art. 14(3)(a)).

§ 1.432 Designation of States and payment of designation fees.

(a) The names of Designated States shall appear in the Request upon filing and must be indicated as set forth in Section 201 of the Administrative Instructions.

(b) The designation fees may be paid upon filing of the international application, but must be paid at the latest before the expiration of one year from the priority date (PCT Rule 15.4(b)). Failure to timely pay the designation fee for a particular Designated State will result in the withdrawal of that designation (PCT Art. 14(3)(b)). Failure to timely pay at least one designation fee will result in the withdrawal of the international application (PCT Art. 14(3)(a)).

§ 1.433 Physical requirements of international application.

(a) The international application and each of the documents that may be referred to in the check list of the Request (PCT Rule 3.3(a)(ii)) shall be filed in one copy only.

(b) All sheets of the international application must be on A4 size paper (21.0 × 29.7 cm.).

(c) Other physical requirements for international applications are set forth in PCT Rule 11 and Sections 201-207 of the Administrative Instructions.

§ 1.434 The request.

(a) The request shall be made on a standardized printed form (PCT Rules 3 and 4). Copies of such printed Request forms are available from the Patent and Trademark Office. Letters requesting such forms should be marked "Box PCT."

(b) The Check List portion of the Request form should indicate each document accompanying the international application on filing.

(c) All information, for example, addresses, names of States and dates, shall be indicated in the Request as required by PCT Rule 4 and Administrative Instructions 110 and 201.

(d) International applications which designate the United States of America shall include:

(1) The name, address and signature of the inventor, except as provided by §§ 1.421(d), 1.422, 1.423 and 1.425;

(2) A reference to any copending national application or international application designating the United States of America, if the benefit of the filing date for the prior copending application is to be claimed.

§ 1.435 The description.

(a) Requirements as to the content and form of the description are set forth in PCT Rules 5, 9, 10 and 11 and Administrative Instruction 204, and shall be adhered to.

(b) In international applications designating the United States the description must contain upon filing an indication of the best mode contemplated by the inventor for carrying out the claimed invention.

§ 1.436 The claims.

The requirements as to the content and format of claims are set forth in PCT Art. 6 and PCT Rules 6, 9, 10 and 11 and shall be adhered to. The number of the claims shall be reasonable, considering the nature of the invention claimed.

§ 1.437 The drawings.

(a) Subject to paragraph (b) of this section, when drawings are necessary for the understanding of the invention, or are mentioned in the description, they must be part of an international application as originally filed in the United States Receiving Office in order to maintain the international filing date during the national stage (PCT Art. 7).

(b) Drawings missing from the application upon filing will be accepted if such drawings are received within 30 days of the date of first receipt of the incomplete papers. If the missing drawings are received within the 30-day period, the international filing date shall be the date on which such drawings are received. If such drawings are not timely received, all references to drawings in the international application shall be considered non-existent (PCT Art. 14(2), Administrative Instruction 310).

(c) The physical requirements for drawings are set forth in PCT Rule 11 and shall be adhered to.

§ 1.438 The abstract.

(a) Requirements as to the content and form of the abstract are set forth in PCT Rule 8, and shall be adhered to.

(b) Lack of an abstract upon filing of an international application will not affect the granting of a filing date. However, failure to furnish an abstract within one month from the date of the notification by the Receiving Office will result in the

international application being declared withdrawn.

FEES

§1.445 International application filing and processing fees.

(a) The following fees and charges are established by the Patent and Trademark Office under the authority of 35 U.S.C. 376:

(1)	A transmittal fee (see 35 U.S.C. 361(d) and PCT Rule 14)	$125.00
(2)	A search fee (see 35 U.S.C. 361(d) and PCT Rule 16) where:	
	(i) No corresponding prior United States national application with fee has been filed	$500.00
	(ii) Corresponding prior United States national application with fee has been filed . . .	250.00
(3)	A supplemental search fee when required (see PCT Art. 17(3)(a) and PCT Rule 40.2)	[1]$125.00
(4)	The national fee, that is, the amount set forth as the filing fee under § 1.16 (a) through (d) credited by an amount of $250 where an international search fee has been paid on the corresponding international application to the United States as an International Searching Authority. Where the amount of the credit is in excess of that required for the national fee, a request for a refund of the excess under § 1.446(b) may be filed at the time of paying the national fee. Only one such credit is permitted based on a single international search fee.	

[1]Per additional invention.

(5) A special fee when required (see 35 U.S.C. 372(c))—$10 per claim.

(b) The basic fee and designation fee portions of the international fee shall be as prescribed in PCT Rule 15.

[47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.446 Refund of international application filing and processing fees.

(a) Money paid for international application fees, where paid by actual mistake or in excess, such as a payment not required by law or Treaty and its Regulations, will be refunded.

(b) Refund of a portion of the search fee may be made to the extent set forth in § 1.445(a)(4) if requested at the time of paying the national fee.

(c) Refund of the supplemental search fees will be made if such refund is determined to be warranted by the Commissioner or the Commissioner's designee acting under PCT Rule 40.2(c).

(d) The international and search fees will be refunded if no international filing date is accorded (PCT Rules 15.6 and 16.2).

[47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

PRIORITY

§ 1.451 The priority claim and priority document in an international application.

(a) The claim for priority must be made on the Request (PCT Rule 4.10) in a manner complying with Section 110 and 201 of the Administrative Instructions.

(b) Whenever the priority of an earlier United States national application is claimed in an international application, the applicant may request in a letter of transmittal accompanying the international application upon filing with the United States Receiving Office, that the Patent and Trademark Office prepare a certified copy of the national application for transmittal to the International Bureau (PCT Art. 8 and PCT Rule 17). The fee for preparing a certified copy is stated in § 1.19(a)(3) and (b)(1).

(c) If a certified copy of the priority document is not submitted together with the international application on filing, or, if the priority application was filed in the United States and a request and appropriate payment for preparation of such a certified copy do not accompany the international application on filing, the certified copy of the priority document must be transmitted directly by the applicant to the International Bureau within the time limit specified in PCT Rule 17.1(a).

[47 FR 33086, July 30, 1982 and 47 FR 40134, Sept. 10, 1982, effective Oct. 1, 1982]

REPRESENTATION

§ 1.455 Representation in international applications.

(a) Applicants of international applications may be represented by attorneys or agents licensed to practice before the Patent and Trademark Office or by a common representative (PCT Art. 49, Rules 4.8 and 90 and § 1.341).

(b) Appointment of an agent, attorney or common representative (PCT Rule 4.8) must be effected either in the Request

form, signed by all applicants, or in a separate power of attorney submitted either to the United States Receiving Office or to the International Bureau.

(c) Powers of attorney and revocations thereof should be submitted to the United States Receiving Office until the issuance of the international search report.

(d) The addressee for correspondence will be as indicated in Section 108 of the Administrative Instructions.

TRANSMITTAL OF RECORD COPY

§ 1.461 Procedures for transmittal of record copy to the International Bureau.

(a) Transmittal of the record copy of the international application to the International Bureau shall be made, at the option of the applicant, either by the United States Receiving Office or by the applicant. Subject to paragraph (b) of this section, any applicant who chooses to make such transmittal personally shall notify the United States Receiving Office to that effect in writing, by way of a notice filed together with the international application. Such notice shall also state whether the applicant wishes to collect the record copy at the United States Receiving Office or to have the record copy mailed directly to him. The record copy of an international application which was filed without being accompanied by such notice will be transmitted to the International Bureau by the United States Receiving Office (PTC Rule 22).

(b) An applicant may transmit the record copy to the International Bureau as provided in PCT Rule 22.2 only if the international application is filed with the United States Receiving Office before the expiration of 11 months from the priority date.

(c) No copy of an international application may be transmitted to the International Bureau, a foreign Designated Office, or other foreign authority by the United States Receiving Office or the applicant, unless the applicable requirements of Part 5 of this chapter have been satisfied.

TIMING

§ 1.465 Timing of application processing based on the priority date.

(a) For the purpose of computing time limits under the Treaty, the priority date shall be defined as in PCT Art. 2(xi).

(b) When a claimed priority date is cancelled under PCT Rule 4.10(d), or considered not to have been made under PCT Rule 4.10(b), the priority date for the purposes of computing time limits will be the date of the earliest valid remaining priority claim of the international application, or if none, the international filing date.

(c) When corrections under PCT Art. 11(2), Art. 14(2) or PCT Rule 20.2(a)(i) or (iii) are timely submitted and the date of receipt of such corrections falls later than one year from the claimed priority date or dates, the Receiving Office shall proceed under PCT Rule 4.10(d).

§ 1.468 Delays in meeting time limits.

Delays in meeting time limits during international processing of international applications may only be excused as provided in PCT Rule 82. For delays in meeting time limits in a national application, see § 1.137.

AMENDMENTS

§ 1.471 Corrections and amendments during international processing.

(a) All corrections submitted to the United States Receiving Office must be in the form of replacement sheets and be accompanied by a letter that draws attention to the differences between the replaced sheets and the replacement sheets, except that the deletion of lines of text, the correction of simple typographical errors, and one addition or change of not more than five words per sheet may be stated in a letter and the United States Receiving Office will make the deletion or transfer the correction to the international application, provided that such corrections do not adversely affect the clarity and direct reproducibility of the application (PCT Rule 26.4).

(b) Amendments of claims submitted to the International Bureau shall be as prescribed by PCT Rule 46.

§ 1.475 Changes in person, name, or address of applicants and inventors.

All requests for a change in person, name or address of applicants and inventor should be sent to the United States Receiving Office until the time of issuance of the international search report. Thereafter requests for such changes should be submitted to the International Bureau.

UNITY OF INVENTION

§ 1.481 Determination of unity of invention before the International Searching Authority.

(a) Before establishing the international search report, the International Searching Authority shall determine whether the international application complies with the requirement of unity of invention as set forth in PCT Rule 13 and as set forth in §§ 1.141 and 1.146 except as modified below in this section.

(b) If the International Searching Authority considers that the international application does not comply with the requirement of unity of invention, it shall inform the applicant accordingly and invite the payment of additional fees (note § 1.445 and PCT Art. 17(3)(a) and PCT

Rule 40). The applicant will be given a time period in accordance with PCT Rule 40.3 to pay the additional fees due.

(c) In the case of non-compliance with unity of invention and where no additional fees are paid, the international search will be performed on the invention first mentioned ("main invention") in the claims.

(d) Lack of unity of invention may be directly evident before considering the claims in relation to any prior art, or after taking the prior art into consideration, as where a document discovered during the search shows the invention claimed in a generic or linking claim lacks novelty or is clearly obvious, leaving two or more claims joined thereby without a common inventive concept. In such a case the International Searching Authority may raise the objection of lack of unity of invention.

§ 1.482 Protest to lack of unity of invention.

(a) If the applicant disagrees with the holding of lack of unity of invention by the International Searching Authority, additional fees may be paid under protest, accompanied by a request for refund and a statement setting forth reasons for disagreement or why the required additional fees are considered excessive, or both (PCT Rule 40.2(c)).

(b) Protest under paragraph (c) of this section will be examined by the Commissioner or the Commissioner's designee. In the event that the applicant's protest is determined to be justified, the additional fees or a portion thereof will be refunded.

(c) An applicant who desires that a copy of the protest and the decision thereon accompany the international search report when forwarded to the Designated Offices, may notify the International Searching Authority to that effect any time prior to the issuance of the international search report. Thereafter, such notification should be directed to the International Bureau (PCT Rule 40.2(c)).

Subpart D—Reexamination of Patents

SOURCE: 46 FR 29185, May 29, 1981, unless otherwise noted.

CITATION OF PRIOR ART

§ 1.501 Citation of prior art in patent files.

(a) At any time during the period of enforceability of a patent, any person may cite to the Patent and Trademark Office in writing prior art consisting of patents or printed publications which that person states to be pertinent and applicable to the patent and believes to have a bearing on the patentability of any claim of a particular patent. If the citation is made by the patent owner, the explanation of pertinency and applicability may include an explanation of how the claims differ from the prior art. Citations by the patent owner under § 1.555 and by a reexamination requester under either § 1.510 or § 1.535 will be entered in the patent file during a reexamination proceeding. The entry in the patent file of citations submitted after the date of an order to reexamine pursuant to § 1.525 by persons other than the patent owner, or a reexamination requester under either § 1.510 or § 1.535, will be delayed until the reexamination proceedings have been terminated.

(b) If the person making the citation wishes his or her identity to be excluded from the patent file and kept confidential, the citation papers must be submitted without any identification of the person making the submission.

(c) Citation of patents or printed publications by the public in patent files should either: (1) Reflect that a copy of the same has been mailed to the patent owner at the address as provided for in § 1.33(c); or in the event service is not possible (2) be filed with the Office in duplicate.

REQUEST FOR REEXAMINATION

§ 1.510 Request for reexamination.

(a) Any person may, at any time during the period of enforceability of a patent, file a request for reexamination by the Patent and Trademark Office of any claim of the patent on the basis of prior art patents or printed publications cited under § 1.501. The request must be accompanied by the fee for requesting reexamination set in § 1.20(c).

(b) Any request for reexamination must include the following parts:

(1) A statement pointing out each substantial new question of patentability based on prior patents and printed publications.

(2) An identification of every claim for which reexamination is requested, and a detailed explanation of the pertinency and manner of applying the cited prior art to every claim for which reexamination is requested. If appropriate the party requesting reexamination may also point out how claims distinguish over cited prior art.

(3) A copy of every patent or printed publication relied upon or referred to in paragraph (b) (1) and (2) of this section accompanied by an English language translation of all the necessary and pertinent parts of any non-English language patent or printed publication.

(4) The entire specification (including claims) and drawings of the patent for which reexamination is requested must be furnished in the form of cut-up copies of the original patent with only a single column of the printed patent securely mounted or reproduced in permanent form on one side of a separate paper. A copy of any disclaimer, certificate of correction,

or reexamination certificate issued in the patent must also be included.

(5) A certification that a copy of the request filed by a person other than the patent owner has been served in its entirety on the patent owner at the address as provided for in § 1.33(c). The name and address of the party served must be indicated. If service was not possible, a duplicate copy must be supplied to the Office.

(c) If the request does not include the fee for requesting reexamination or all of the parts required by paragraph (b) of this section, the person identified as requesting reexamination will be so notified and given an opportunity to complete the request within a specified time. If the fee for requesting reexamination has been paid but the defect in the request is not corrected within the specified time, the determination whether or not to institute reexamination will be made on the request as it then exists. If the fee for requesting reexamination has not been paid, no determination will be made and the request will be placed in the patent file as a citation if it complies with the requirements of § 1.501(a).

(d) The filing date of the request is: (1) The date on which the request including the entire fee for requesting reexamination is received in the Patent and Trademark Office; or (2) the date on which the last portion of the fee for requesting reexamination is received.

(e) A request filed by the patent owner, may include a proposed amendment in accordance with § 1.121(f).

(f) If a request is filed by an attorney or agent identifying another party on whose behalf the request is being filed, the attorney or agent must have a power of attorney from that party or be acting in a representative capacity pursuant to § 1.34(a).

[47 FR 33086, July 30, 1982; effective Oct. 1, 1982]

§ 1.515 Determination of the request for reexamination.

(a) Within three months following the filing date of a request for reexamination, an examiner will consider the request and determine whether or not a substantial new question of patentability affecting any claim of the patent is raised by the request and the prior art cited therein, with or without consideration of other patents or printed publications. The examiner's determination will be based on the claims in effect at the time of the determination and will become a part of the official file of the patent and will be given or mailed to the patent owner at the address as provided for in § 1.33(c) and to the person requesting reexamination.

(b) Where no substantial new question of patentability has been found, a refund of a portion of the fee for requesting reexamination will be made to the requester in accordance with § 1.26(c).

(c) The requester may seek review by a petition to the Commissioner under § 1.181 within one month of the mailing date of the examiner's determination refusing reexamination. Any such petition must comply with § 1.181(b). If no petition is timely filed or if the decision on petition affirms that no substantial new question of patentability has been raised, the determination shall be final and nonappealable.

§ 1.520 Reexamination at the initiative of the Commissioner.

The Commissioner, at any time during the period of enforceability of a patent, may determine whether or not a substantial new question of patentability is raised by patents or printed publications which have been discovered by the Commissioner or which have been brought to the Commissioner's attention even though no request for reexamination has been filed in accordance with § 1.510. The Commissioner may initiate reexamination without a request for reexamination pursuant to § 1.510. Normally requests from outside the Patent and Trademark Office that the Commissioner undertake reexamination on his own initiative will not be considered. Any determination to initiate reexamination under this section will become a part of the official file of the patent and will be given or mailed to the patent owner at the address as provided for in § 1.33(c).

Reexamination

§ 1.525 Order to reexamine.

(a) If a substantial new question of patentability is found pursuant to § 1.515 or § 1.520, the determination will include an order for reexamination of the patent for resolution of the question. If the order for reexamination resulted from a petition pursuant to § 1.515(c), the reexamination will ordinarily be conducted by an examiner other than the examiner responsible for the initial determination under § 1.515(a).

(b) If the order for reexamination of the patent mailed to the patent owner at the address as provided for in § 1.33(c) is returned to the Office undelivered, the notice published in the *Official Gazette* under § 1.11(c) will be considered to be constructive notice and reexamination will proceed.

§ 1.530 Statement and amendment by patent owner.

(a) Except as provided in § 1.510(e), no statement or other response by the patent owner shall be filed prior to the determinations made in accordance with §§ 1.515 or 1.520. If a premature statement or other response is filed by the patent owner it will not be acknowledged or considered in making the determination.

(b) The order for reexamination will set a period of not less than two months from the date of the order within which the patent owner may file a statement on the new question of patentability including any proposed amendments the patent owner wishes to make.

(c) Any statement filed by the patent owner shall clearly point out why the subject matter as claimed is not anticipated or rendered obvious by the prior art patents or printed publications, either alone or in any reasonable combinations. Any statement filed must be served upon the reexamination requester in accordance with § 1.248.

(d) Any proposed amendments to the description and claims must be made in accordance with § 1.121(f). No amendment may enlarge the scope of the claims of the patent or introduce new matter. No amended or new claims may be proposed for entry in an expired patent. Moreover, no amended or new claims will be incorporated into the patent by certificate issued after the expiration of the patent.

(e) Although the Office actions will treat proposed amendments as though they have been entered, the proposed amendments will not be effective until the reexamination certificate is issued.

§ 1.535 Reply by requester.

A reply to the patent owner's statement under § 1.530 may be filed by the reexamination requester within two months from the date of service of the patent owner's statement. Any reply by the requester must be served upon the patent owner in accordance with § 1.248. If the patent owner does not file a statement under § 1.530, no reply or other submission from the reexamination requester will be considered.

§ 1.540 Consideration of responses.

The failure to timely file or serve the documents set forth in § 1.530 or in § 1.535 may result in their being refused consideration. No submissions other than the statement pursuant to § 1.530 and the reply by the requester pursuant to § 1.535 will be considered prior to examination.

§ 1.550 Conduct of reexamination proceedings.

(a) All reexamination proceedings, including any appeals to the Board of Appeals, will be conducted with special dispatch within the Office. After issuance of the reexamination order and expiration of the time for submitting any responses thereto, the examination will be conducted in accordance with §§ 1.104–1.119 and will result in the issuance of a reexamination certificate under § 1.570.

(b) The patent owner will be given at least 30 days to respond to any Office action. Such response may include further statements in response to any rejections and/or proposed amendments or new claims to place the patent in a condition where all the claims, if amended as proposed, would be patentable.

(c) The time for reply set in paragraph (b) of this section will be extended only for sufficient cause, and for a reasonable time specified. Any request for such extension must be filed on or before the day on which action by the patent owner is due, but in no case will the mere filing of the request effect any extension.

(d) If the patent owner fails to file a timely and appropriate response to any Office action, the reexamination proceeding will be terminated and the Commissioner will proceed to issue a certificate under § 1.570 in accordance with the last action of the Office.

(e) The reexamination requester will be sent copies of Office actions issued during the reexamination proceeding. Any document filed by the patent owner must be served on the requester in the manner provided in § 1.248. The document must reflect service or the document may be refused consideration by the Office. The active participation of the reexamination requester ends with the reply pursuant to § 1.535, and no further submissions on behalf of the reexamination requester will be acknowledged or considered. Further, no submissions on behalf of any third parties will be acknowledged or considered unless such submissions are (1) in accordance with § 1.510 or (2) entered in the patent file prior to the date of the order to reexamine pursuant to § 1.525. Submissions by third parties, filed after the date of the order to reexamine pursuant to § 1.525, must meet the requirements of and will be treated in accordance with § 1.501(a).

§ 1.552 Scope of reexamination in reexamination proceedings.

(a) Patent claims will be reexamined on the basis of patents or printed publications.

(b) Amended or new claims presented during a reexamination proceeding must not enlarge the scope of the claims of the patent and will be examined on the basis of patents or printed publications and also for compliance with the requirements of 35 U.S.C. 112 and the new matter prohibition of 35 U.S.C. 132.

(c) Questions other than those indicated in paragraphs (a) and (b) of this section will not be resolved in a reexamination proceeding. If such questions are discovered during a reexamination proceeding, the existence of such questions will be noted by the examiner in an Office action, in which case the patent owner may desire to consider the advisability of filing a reissue application to have such questions considered and resolved.

§1.555 Duty of disclosure in reexamination proceedings.

(a) A duty of candor and good faith toward the Patent and Trademark Office

rests on the patent owner, on each attorney or agent who represents the patent owner, and on every other individual who is substantively involved on behalf of the patent owner in a reexamination proceeding. All such individuals who are aware, or become aware, of patents or printed publications material to the reexamination which have not been previously made of record in the patent file must bring such patents or printed publications to the attention of the Office. A prior art statement, preferably in accordance with § 1.98, should be filed within two months of the date of the order for reexamination, or as soon thereafter as possible in order to bring such patents or printed publications to the attention of the Office.

(b) Disclosures pursuant to this section may be made to the Office through an attorney or agent having responsibility on behalf of the patent owner for the reexamination proceeding or through a patent owner acting in his or her own behalf. Disclosure to such an attorney, agent or patent owner shall satisfy the duty of any other individual. Such an attorney, agent or patent owner has no duty to transmit information which is not material to the reexamination.

(c) The duties of candor, good faith, and disclosure required in paragraph (a) of this section have not been complied with if any fraud was practiced or attempted on the Office or there was any violation of the duty of disclosure through bad faith or gross negligence by, or on behalf of, the patent owner in the reexamination proceeding.

(d) The responsibility for compliance with this section rests upon the individuals identified in paragraph (a) of this section and no evaluation will be made in the reexamination proceeding by the Office as to compliance with this section. If questions of compliance with this section are discovered during a reexamination proceeding, they will be noted as unresolved questions in accordance with § 1.552(c).

[47 FR 21752, May 19, 1982]

§ 1.560 Interviews in reexamination proceedings.

(a) Interviews in reexamination proceedings pending before the Office between examiners and the owners of such patents or their attorneys or agents of record must be had in the Office at such times, within Office hours, as the respective examiners may designate. Interviews will not be permitted at any other time or place without the authority of the Commissioner. Interviews for the discussion of the patentability of claims in patents involved in reexamination proceedings will not be had prior to the first official action thereon. Interviews should be arranged for in advance. Requests that reexamination requesters participate in interviews with examiners will not be granted.

(b) In every instance of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the patent owner. An interview does not remove the necessity for response to Office actions as specified in § 1.111.

§ 1.565 Concurrent office proceedings.

(a) In any reexamination proceeding before the Office, the patent owner shall call the attention of the Office to any prior or concurrent proceedings in which the patent is or was involved such as interferences, reissue, reexaminations, or litigation and the results of such proceedings.

(b) If a patent in the process of reexamination is or becomes involved in interference proceedings or litigation, or a reissue application for the patent is filed or pending, the Commissioner shall determine whether or not to stay the reexamination, reissue or interference proceeding.

(c) If reexamination is ordered while a prior reexamination proceeding is pending, the reexamination proceedings will be consolidated and result in the issuance of a single certificate under § 1.570.

(d) If a reissue application and a reexamination proceeding on which an order pursuant to § 1.525 has been mailed are pending concurrently on a patent, a decision will normally be made to merge the two proceedings or to stay one of the two proceedings. Where merger of a reissue application and a reexamination proceeding is ordered, the merged examination will be conducted in accordance with §§ 1.171 through 1.179 and the patent owner will be required to place and maintain the same claims in the reissue application and the reexamination proceeding during the pendency of the merged proceeding. The examiner's actions and any responses by the patent owner in a merged proceeding will apply to both the reissue application and the reexamination proceeding and be physically entered into both files. Any reexamination proceeding merged with a reissue application shall be terminated by the grant of the reissued patent.

[46 FR 29185, May 29, 1981, and 47 FR 21753, May 19, 1982]

CERTIFICATE

§ 1.570 Issuance of reexamination certificate after reexamination proceedings.

(a) Upon the conclusion of reexamination proceedings, the Commissioner will issue a certificate in accordance with 35 U.S.C. 307 setting forth the results of the reexamination proceeding and the content of the patent following the reexamination proceeding.

(b) A certificate will be issued in each

patent in which a reexamination proceeding has been ordered under § 1.525. Any statutory disclaimer filed by the patent owner will be made part of the certificate.

(c) The certificate will be mailed on the day of its date to the patent owner at the address as provided for in § 1.33(c). A copy of the certificate will also be mailed to the requester of the reexamination proceeding.

(d) If a certificate has been issued which cancels all of the claims of the patent, no further Office proceedings will be conducted with regard to that patent or any reissue applications or reexamination requests relating thereto.

(e) If the reexamination proceeding is terminated by the grant of a reissued patent as provided in § 1.565(d) the reissued patent will constitute the reexamination certificate required by this section and 35 U.S.C. 307.

(f) A notice of the issuance of each certificate under this section will be published in the *Official Gazette* on its date of issuance.

[46 FR 29185, May 29, 1981, and 47 FR 21753, May 19, 1982]

PART 3—FORMS FOR PATENT CASES [REMOVED]

[47 FR 40134, Sept. 10, 1982; effective Oct. 1, 1982]

PART 5—SECRECY OF CERTAIN INVENTIONS AND LICENSES TO FILE APPLICATIONS IN FOREIGN COUNTRIES

Secrecy Orders

Authority: 35 U.S.C. 6, 181-187, 188.

Source: 24 FR 10381, Dec. 22, 1959, unless otherwise noted.

Secrecy Orders

§ 5.1 Defense inspection of certain applications.

(a) The provisions of this part shall apply to both national and international applications filed in the Patent and Trademark Office and, with respect to inventions made in the United States, to applications filed in any foreign country or any international authority other than the United States Receiving Office. The (1) filing of a national or an international application in a foreign country or with an international authority other than the United States Receiving Office, or (2) transmittal of an international application to a foreign agency or an international authority other than the United States Receiving Office is considered to be a foreign filing within the meaning of Chapter 17 of Title 35, United States Code.

(b) In accordance with the provisions of 35 U.S.C. 181, patent applications containing subject matter the disclosure of which might be detrimental to the national security are made available for inspection by defense agencies as specified in said section. Only applications obviously relating to national security, and applications within fields indicated to the Patent and Trademark Office by the defense agencies as so related, are made available. The inspection will be made only by responsible representatives authorized by the agency to review applications. Such representatives are required to sign a dated acknowledgement of access accepting the condition that information obtained from the inspection will be used for no purpose other than the administration of 35 U.S.C. 181-188. Copies of applications may be made available to such representatives for inspection outside the Patent and Trademark Office under conditions assuring that the confidentiality of the applications will be maintained, including the conditions that: (1) All copies will be returned to the Patent and Trademark Office promptly if no secrecy order is imposed, or upon rescission of such order if one is imposed, and (2) no additional copies will be made by the defense agencies. A record of the removal and return of copies made available for defense inspection will be maintained by the Patent and Trademark Office. Applications relating to atomic energy are made available to the Department of Energy as specified in § 1.14 of this chapter.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20470, May 11, 1978]

§ 5.2 Secrecy order.

(a) When notified by the chief officer of a defense agency that publication or disclosure of the invention by the granting of a patent would be detrimental to the national security, an order that the invention be kept secret will be issued by the Commissioner of Patents and Trademarks.

(b) The secrecy order is directed to the applicant, his successors, any and all assignees, and their legal representatives; hereinafter designated as principals.

(c) A copy of the secrecy order will be forwarded to each principal of record in the application and will be accompanied by a receipt, identifying the particular principal, to be signed and returned.

(d) The secrecy order is directed to the subject matter of the application. Where any other application in which a secrecy order has not been issued discloses a significant part of the subject matter of the application under secrecy order, the other application and the common subject matter should be called to the attention of the Patent and Trademark Office. Such a notice may include any material such as would be urged in a petition to rescind secrecy orders on either of the applications.

§ 5.3 Prosecution of application under secrecy orders; withholding patent.

Unless specifically ordered otherwise, action on the application by the Office and prosecution by the applicant will proceed during the time an application is under secrecy order to the point indicated in this section:

(a) National applications under secrecy order which come to a final rejection must be appealed or otherwise prosecuted to avoid abandonment. Appeals in such cases must be completed by the applicant but unless otherwise specifically ordered by the Commissioner will not be set for hearing until the secrecy order is removed.

(b) An interference will not be declared involving national applications under secrecy order. However, if an applicant whose application under secrecy order copies claims from an issued patent, a notice of that fact will be placed in the file wrapper of the patent. (See § 1.205(c).

(c) When the national application is found to be in condition for allowance except for the secrecy order the applicant and the agency which caused the secrecy order to be issued will be notified. This notice (which is not a notice of allowance under § 1.311 of this chapter) does not require response by the applicant and places the national application in a condition of suspension until the secrecy order is removed. When the secrecy order is removed the Patent and Trademark Office will issue a notice of allowance under § 1.311 of this chapter, or take such other action as may then be warranted.

(d) International applications under secrecy order will not be mailed, delivered or otherwise transmitted to the international authorities or the applicant. International applications under secrecy order will be processed up to the point where, if it were not for the secrecy order, record and search copies would be transmitted to the international authorities or the applicant.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20470, May 11, 1978, and 43 FR 28479, June 30, 1978]

§ 5.4 Petition for rescission of secrecy order.

(a) A petition for rescission or removal of a secrecy order may be filed by, or on behalf of, any principal affected thereby. Such petition may be in letter form, and it must be in duplicate. The petition must be accompanied by one copy of the application or an order for the same, unless a showing is made that such a copy has already been furnished to the department or agency which caused the secrecy order to be issued.

(b) The petition must recite any and all facts that purport to render the order ineffectual or futile if this is the basis of the petition. When prior publications or patents are alleged the petition must give complete data as to such publications or patents and should be accompanied by copies thereof.

(c) The petition must identify any contract between the Government and any of the principals, under which the subject matter of the application or any significant part thereof was developed, or to which the subject matter is otherwise related. If there is no such contract, the petition must so state.

(d) Unless based upon facts of public record, the petition must be verified.

§ 5.5 Permit to disclose or modification of secrecy order.

(a) Consent to disclosure, or to the filing of an application abroad, as provided in 35 U.S.C. 182, shall be made by a "permit" or "modification" of the secrecy order.

(b) Petitions for a permit or modification must fully recite the reason or purpose for the proposed disclosure. Where any proposed disclosee is known to be cleared by a defense agency to receive classified information, adequate explanation of such clearance should be made in the petition including the name of the agency or department granting the clearance and the date and degree thereof. The petition must be filed in duplicate and be accompanied by one copy of the application or an order for the same, unless a showing is made that such a copy has already been furnished to the department or agency which caused the secrecy order to be issued.

(c) In a petition for modification of a secrecy order to permit filing abroad, all countries in which it is proposed to file must be made known, as well as all attorneys, agents and others to whom the material will be consigned prior to being lodged in the foreign patent office. The petition should include a statement vouching for the loyalty and integrity of the proposed disclosees and where their clearance status in this or the foreign country is known all details should be given.

(d) Consent to disclosure of subject matter from one application under secrecy order may be deemed to be consent to the disclosure of common subject matter in other applications under secrecy order so long as not taken out of context in a manner disclosing material beyond the modification granted in the first application.

(e) The permit or modification may contain conditions and limitations.

§ 5.6 General and group permits.

(a) Organizations requiring consent for disclosure of applications under secrecy order to persons or organizations in connection with repeated routine operation may petition for such consent in the form of a general permit. To be successful such petitions must ordinarily recite the security clearance status of the disclosees as sufficient for the highest classification of materials that may be involved.

(b) Where identical disclosees and circumstances are involved, and consent is desired for the disclosure of each of a specific list of applications, the petitions may be joined.

§ 5.7 Compensation.

Any request for compensation as provided in 35 U.S.C. 183 must not be made to the Patent and Trademark Office but should be made directly to the department or agency which caused the secrecy order to be issued. Upon written request persons having a right to such information will be informed as to the department or agency which caused the secrecy order to be issued.

§ 5.8 Appeal to Secretary.

Appeal to the Secretary of Commerce, as provided by 35 U.S.C. 181, from a secrecy order cannot be taken until after a petition for rescission of the secrecy order has been made and denied. Appeal must be taken within 60 days from the date of the denial, and the party appealing, as well as the department or agency which caused the order to be issued will be notified of the time and place of hearing. The appeal will be heard and decided by the Secretary or such officer or officers as he may designate.

LICENSES FOR FOREIGN FILING

§ 5.11 License for filing application in foreign country or for transmitting international application.

(a) When no secrecy order has been issued under § 5.2, a license from the Commissioner of Patents and Trademarks under 35 U.S.C. 184 is required before filing any application for patent or for the registration of a utility model, industrial design, or model, in a foreign country, or transmitting an international application to any foreign patent agency or any international agency other than the United States Receiving Office, or causing or authorizing such filing or transmittal, with respect to an invention made in the United States, if:

(1) The foreign application is to be filed or its filing caused or authorized before a national or international application for patent is filed in the United States, or

(2) The foreign application is to be filed, or its filing caused or authorized, or the transmittal of the international application is caused or authorized, prior to the expiration of six months from the filing of the application in the United States.

(b) When there is no secrecy order in effect, a license under 35 U.S.C. 184 is not required if:

(1) The invention was not made in the United States, or

(2) The foreign application is to be filed or the international application is to be transmitted, or its filing or transmittal caused or authorized, after the expiration of six months from the filing of the national application in the United States.

(c) When a secrecy order has been issued under § 5.2, an application cannot be filed in a foreign country, nor can an international application be transmitted to any agency other than the United States Receiving Office except in accordance with § 5.5.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20471, May 11, 1978]

§ 5.12 Petition for license.

(a) Filing of an application for patent for inventions made in the United States will be considered to include a petition for license under 35 U.S.C. 184 for the subject matter of the application. The filing receipt will indicate if a license is granted. If the initial automatic petition is not granted, a subsequent petition may be filed under paragraph (b) of this section.

(b) Petitions for license under 35 U.S.C. 184 should be presented in letter form and should include petitioner's address, and full instructions for delivery of the requested license when it is to be delivered to other than the petitioner.

[48 FR 2696, Jan. 20, 1983; effective Feb. 27, 1983]

§ 5.13 Petition for license; no corresponding application.

Where there is no corresponding national or international application, the petition for license must be accompanied by a legible copy of the material upon which license is desired. This copy will be retained as a measure of the license granted. For assistance in the identification of the subject matter of each license so issued, it is suggested that the petition or requesting letter be submitted in duplicate and provide a title and other description of the material. The duplicate copy of the petition will be returned with the license or other action on the petition. Where an international application is being filed in the United States Receiving Office, the petition may accompany the international application.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20471, May 11, 1978]

§ 5.14 Petition for license; corresponding U.S. application.

(a) Where there is a corresponding United States application on file the petition for license must identify this application by serial number, filing date, inventor, and title, and a copy of the material upon which the license is desired is not required. The subject matter licensed will be measured by the disclosure of the United States application. Where the title is not descriptive, and the subject matter is clearly of no interest from a security standpoint, time may be saved by a short statement in the petition as to the nature of the invention.

(b) Two or more United States applications should not be referred to in the same petition for license unless they are to be combined in the foreign or international application, in which event the petition should so state and the identification of each United States application should be in separate paragraphs.

(c) Where the application to be filed or transmitted abroad contains matter not disclosed in the United States application or applications, including the case where the combining of two or more United States applications introduces subject matter not disclosed in any of them, a copy of the application as it is to be filed in the foreign country or international application which is to be transmitted to a foreign international or national agency as it is to be filed in the Receiving Office must be furnished with the petition. If, however, all new matter in the foreign or international application to be filed is readily identifiable, the new matter may be submitted in detail and the remainder by reference to the pertinent United States application or applications.

(Pub. L. 94-131, 89 Stat. 685)

[24 FR 10381, Dec. 22, 1959, and 43 FR 20471, May 11, 1978]

§ 5.15 Scope of license.

(a) A license to file an application in a foreign country or transmit an international application to any foreign or international agency other than the United States Receiving Office, when granted, includes authority to forward all duplicate and formal papers to the foreign country or international agencies and to make amendments and take any action in the prosecution of the foreign or international application, provided subject matter additional to that covered by the license is not involved. In those cases in which no license is required to file the foreign application or transmit the international application, no license is required to file papers in connection with the prosecution of the foreign or international application not involving the disclosure of additional subject matter. Any paper filed abroad or with an international agency following the filing of a foreign or international application which involves the disclosure of additional subject matter must be separately licensed in the same manner as a foreign or international application.

(b) Licenses separately granted in connection with two or more United States applications may be exercised by combining or dividing the disclosures, as desired, provided additional subject matter is not introduced.

(c) A license does not apply to acts done before the license was granted unless the petition specifically requests and describes the particular acts and the license is worded to apply to such acts.

(Pub. L. 94-131, 89 Stat. 685)

[24 FR 10381, Dec. 22, 1959, and 43 FR 20471, May 11, 1978]

§ 5.16 Effect of secrecy order.

Any license obtained under 35 U.S.C. 184 is ineffective if the subject matter is under a secrecy order, and a secrecy order prohibits the exercise of or any further action under the license unless separately specifically authorized by a modification of the secrecy order in accordance with § 5.5.

§ 5.17 Who may use license.

Licenses may be used by anyone interested in the foreign filing or international transmittal for or on behalf of the inventor or the inventor's assigns.

(Pub. L. 94-131, 89 Stat. 685)

[43 FR 20471, May 11, 1978]

§ 5.18 Arms, ammunition, and implements of war.

(a) The exportation of technical data relating to arms, ammunition, and implements of war generally is subject to the International Traffic in Arms Regulations of the Department of State (22 CFR Parts 121-128); the articles designated as arms, ammunition, and implements of war are

enumerated in the U.S. Munitions List, 22 CRF 121.01. However, if a patent applicant complies with regulations issued by the Commissioner of Patents and Trademarks under 35 U.S.C. 184, no separate approval from the Department of State is required unless the applicant seeks to export technical data exceeding that used to support a patent application in a foreign country. This exemption from Department of State regulations is applicable regardless of whether a license from the Commissioner is required by the provisions of §§ 5.11 and 5.15 (22 CFR 125.04(b), 125.20(b)).

(b) When a patent application containing subject matter on the Munitions List (22 CFR 121.01) is subject to a secrecy order under § 5.2 and a petition is made under § 5.5 for a modification of the secrecy order to permit filing abroad, a separate request to the Department of State for authority to export classified information is not required (22 CFR 125.05(d)).

[35 FR 6430, Apr. 22, 1970]

§ 5.19 Export of technical data.

(a) Under regulations (15 CFR 370.10(j)) established by the U.S. Department of Commerce, International Trade Administration, Office of Export Administration, a validated export license is not required in any case to file a patent application or part thereof in a foreign country if the foreign filing is in accordance with the regulations (37 CFR 5.11-5.23) of the Patent and Trademark Office.

(b) A validated export license is not required for data contained in a patent application prepared wholly from foreign-origin technical data where such application is being sent to the foreign inventor to be executed and returned to the United States for subsequent filing in the U.S. Patent and Trademark Office (15 CFR 379.3(c)).

(c) Inquiries concerning the export control regulations for the foreign filing of technical data other than patent applications should be made to the Office of Export Administration, International Trade Administration, Department of Commerce, Washington, D.C. 20230.

[45 FR 72654, Nov. 3, 1980]

General

§ 5.21 Effect of modification, rescission or license.

Any consent, rescission or license under the provisions of this part does not lessen the responsibilities of the principals in respect to any Government contract or the requirements of any other Government agency.

§ 5.22 Papers in English language.

All papers submitted in connection with petitions must be in the English language, or be accompanied by an English translation and a translator's certificate as to the true, faithful and exact character of the translation.

§ 5.23 Correspondence.

All correspondence in connection with this part, including petitions, should be addressed to "Commissioner of Patents and Trademarks (Attention Patent Security Division), Washington, D.C. 20231."

PART 7—REGISTER OF GOVERNMENT INTERESTS IN PATENTS

Authority: E.O. 9424, Feb. 18, 1944, 9 FR 1959; 3 CFR 1943–1948 Comp.

Source: 24 FR 10383, Dec. 22, 1959.

§ 7.1 Requirements.

Executive Order 9424 (3 CFR 1943–1948 Comp.) requires the several departments and other executive agencies of the Government, including Government-owned or Government-controlled corporations, to forward promptly to the Commissioner of Patents and Trademarks for recording all licenses, assignments, or other interests of the Government in or under patents or applications for patents.

§ 7.2 Assignments.

The original of an assignment or other instrument which conveys to the Government only the title to a patent or to an application for patent shall be forwarded to the Commissioner of Patents and Trademarks. The instrument will be recorded, endorsed, and returned.

§ 7.3 Licenses.

A copy of any license or instrument other than an assignment which conveys to or gives the Government any interest in or under a patent or an application for patent shall be forwarded for recording. The copy will be retained by the Patent and Trademark Office but, when desired, the original will be endorsed and returned.

§ 7.4 Abbreviated copy.

If an instrument deals with matters in addition to rights and interests in patents or in applications for patents, or in inventions disclosed therein, a copy of only those portions of the instrument dealing with such rights and interests need be forwarded. In such case, a statement giving the general nature of the entire instrument, the parties involved, the date of the instrument, the place where it is usually

filed, and any docket or identifying number, must be attached to the copy.

§ 7.5 Instruments already on record.

Instruments which have been recorded prior to the adoption of §§ 7.1 to 7.7 and are on the general assignment records of the Patent and Trademark Office need not be forwarded again for recording.

§ 7.6 Access to register.

The register will not be open to public inspection. It will be available for examination and inspection by duly authorized representatives of the Government, subject to the provisions of § 7.7. Public examination will be restricted to those

§ 7.7 Secret register.

Any instrument to be recorded will be placed on a secret record or register at the request of the department or agency submitting the same. No information will be given concerning any instrument in such record or register, and no examination or inspection thereof or of the index thereto will be permitted, except on the written authority of the head of the department or agency which submitted the instrument and requested secrecy, and the approval of such authority by the Commissioner of Patents and Trademarks. No instrument or record other than the one specified may be examined, and the examination must take place in the presence of a designated official of the Patent and Trademark Office. When the department or agency which submitted an instrument no longer requires secrecy with respect to that instrument, it will be recorded or registered anew in the appropriate part of the register which is not secret.

INDEX I—RULES RELATING TO PATENTS

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REISSUES

APRIL 19, 1983

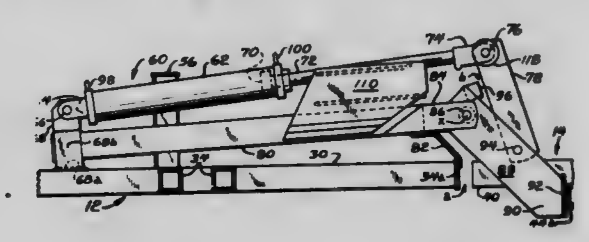
Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 31,209
AGRICULTURAL IMPLEMENT WITH FOLDABLE TOOL SUPPORTING FRAME

Charles W. Anderson, 327 E. Prospect St., Kewanee, Ill. 61443
Original No. 4,023,623, dated May 17, 1977, Ser. No. 652,490, Jan. 26, 1976. Application for reissue May 14, 1979, Ser. No. 38,508

Int. Cl.^{3} **A01B** *73/00*

U.S. Cl. 172—311 **1 Claim**



21. An agricultural implement comprising a tool supporting main frame and at least one tool supporting wing frame, a hinge link rigidly connected to the wing frame and hingedly connected to the main frame to swing on a hinge axis, an operating link pivotally connected to the hinge link, a piston cylinder disposed over the main frame and containing an extendible and retractable piston, one of said piston and cylinder being pivotally connected to the main frame inboard of said hinge axis and the other pivotally connected to the operating link, the wing frame being swingable on said hinge axis between a storage position over the main frame and generally horizontal working position to one side of the main frame in response to force exerted on the operating link by retraction and extension of the piston within the cylinder, one of said links having an abutment positioned to be engaged by the other link when force is exerted on the operating link by the piston to swing the wing frame between near vertical and its generally horizontal working position, said abutment being out of engagement with the other link when the piston is in its fully extended position so that the wing frame is free to swing through a limited angle about the hinge axis when in its working position in order to follow field contour and slope, and guide means on the main frame which receive and confine the pivotal connection of the operating link to said other of the piston and cylinder so as to resist raising of said pivotal connection off said guide means when the wing frame is swung through substantially its full range of movement between said near vertical and storage position, wherein the operating link is pivotally connected to the hinge link intermediate the latter's rigid and hinged connections to the wing frame and main frame respectively, and wherein the abutment is fixed to the hinge link with the hinged connection of the hinge link to the main frame disposed between the abutment and the fixed connection of the hinge link to the wing frame.

Re. 31,210
APPARATUS AND METHOD FOR FEEDING AND COLLECTING CONTINUOUS WEB MATERIAL

James F. Lapp, Richmond, Va., and Thomas F. McGrath, Tinley Park, Ill., assignors to Acme Visible Records, Inc., Crozet, Va.
Original No. 4,256,248, dated Mar. 17, 1981, Ser. No. 90,585, Nov. 2, 1979. Application for reissue Dec. 11, 1981, Ser. No. 329,944

Int. Cl.^{3} **B65H** *19/42, 23/32, 19/18*

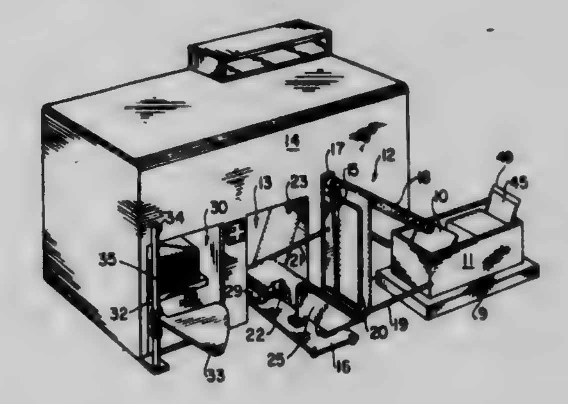
U.S. Cl. 226—119 **12 Claims**

7. An apparatus for continuously feeding a series of web portions to a high speed web processing machine having a web intake aperture located in a recessed area of said processing machine, comprising

(a) web portion alignment and splicing means exterior of said processing machine for aligning web portions in tandem relationship for splicing;

(b) turn bar means for changing the direction of web travel from a path determined by splicing to successive paths toward and within said intake recess of said processing machine and thereafter in a path through said intake aperture; and

(c) driving and tension control means for controllably driving said web from said alignment and splicing means to a position adjacent said intake aperture, which driving and tension control means, in turn, comprises



(i) a driven roll for contacting said web, said driven roll having a surface capable of engaging said web with sufficient force to substantially assist in pulling said web from said alignment and splicing means to a position adjacent said intake aperture with the remainder of the force required for web movement being supplied by an internal web moving means located within said processing machine; and

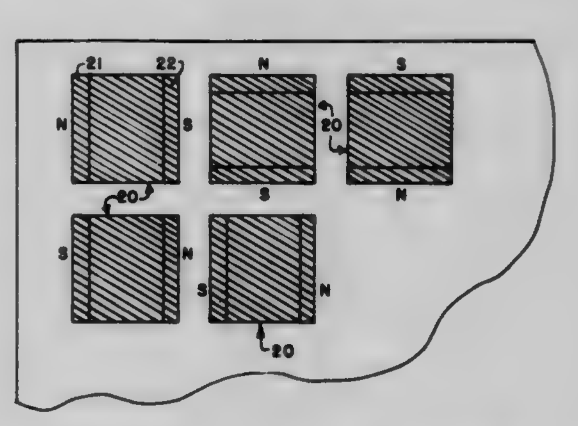
(ii) drive means for driving said driven roll.

Re. 31,211
MAGNETICALLY CODED IDENTIFICATION CARD

Edwin N. Whitehead, 6208 Tally Ho La., Alexandria, Va. 22307
Original No. 4,253,017, dated Feb. 24, 1981, Ser. No. 911,588, May 31, 1978. Continuation-in-part of Ser. No. 601,778, Aug. 4, 1975, and Ser. No. 487,757, Jul. 11, 1974, which is a continuation-in-part of Ser. No. 431,803, Jan. 8, 1974, abandoned, which is a continuation-in-part of Ser. No. 223,649, Feb. 4, 1972, abandoned. Application for reissue Feb. 17, 1982, Ser. No. 349,444

Int. Cl.^{3} **G06K** *7/08;* **G11B** *5/38;* **B42D** *15/00*

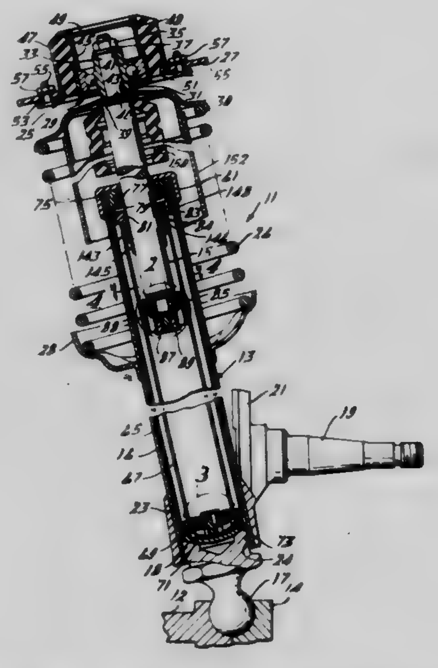
U.S. Cl. 235—449 **12 Claims**



7. Apparatus for reading an identification card having a core capable of being permanently magnetized to provide multiplicity of bits of information, said bits being arranged in at least one row, which core has a spot for each bit of information with each spot being magnetized along its length to provide spaced opposing magnetic poles comprising:

reading means for reading said bits of information simultaneously,
said reading means having for a plurality of the bits to be read:
(*a*) *magnetic means having first and second ends adjacent said opposing poles respectively so that magnetic flux passes through said magnetic means,*
(*b*) *flux responsive means, cooperating with said magnetic means, responsive to the direction that magnetic flux is passing through said magnetic means, and*
(*c*) *means for selectively applying magnetic flux to said magnetic means to effect predetermined magnetization of the portion of the core on which the bit of information is recorded.*

Re. 31,212
VEHICLE SUSPENSION DEVICE
Charles J. Smith, Fairview, Mich., assignor to Monroe Auto Equipment Company, Monroe, Mich.
Original No. 3,346,272, dated Oct. 10, 1967, Ser. No. 496,045, Oct. 14, 1965. Continuation of Ser. No. 735,809, Oct. 26, 1976, abandoned. Application for reissue Sep. 21, 1978, Ser. No. 944,544
Int. Cl.³ B60G *11/14*
U.S. Cl. 280—668 **38 Claims**



1. In an independent wheel suspension device for an automotive vehicle, said suspension device comprising a hydraulic tubular shock absorber having a pair of relatively movable telescopic parts, detachable means on one of said telescopic parts connectable to a body portion of said vehicle, a tube removably supporting the other of said telescopic parts, said tube being connectable to a wheel spindle and having a removable end portion whereby said shock absorber is removable and replaceable through the end of said tube having said removable end portion upon detaching said detachable means.

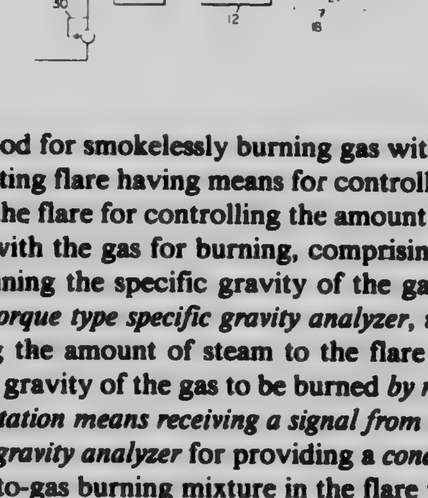
Re. 31,213
POLYOLEFIN COMPOSITION HAVING HIGH IMPACT RESISTANCE AND HIGH TEMPERATURE FLOW RESISTANCE
Armand E. Brachman, Emmaus, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.
Original No. 4,229,504, dated Oct. 21, 1980, Ser. No. 929,611, Jul. 31, 1978. Application for reissue Jan. 28, 1981, Ser. No. 229,050
Int. Cl.³ B32B *15/08*
U.S. Cl. 428—462 **14 Claims**

14. A metal-plastic laminate containing a core material [of the composition of matter of claim 1] *sandwiched between two metal sheets, the core material being characterized by a high level of impact resistance and high temperature flow resistance and being a resin blend of a polyolefin and an elastomer to which a filler is added consisting essentially of:*
(*a*) *about 30 to 90 weight percent of a resin containing*
(*i*) *greater than 50 to less than 75 weight percent of at least one polyolefin selected from the group consisting of isotactic crystalline polypropylene, high density crystalline polyethylene, low density polyethylene and propylene-ethylene copolymer in which propylene is present in 85–95% by weight and which has a tensile yield elongation greater than 20%, and*
(*ii*) *greater than 25 to less than 50 weight percent of elastomer and*
(*b*) *about 10 to 70 weight percent of an inorganic filler.*

Re. 31,214
COLLOIDAL SOL ANTIMONY PENTAOXIDE FLAMEPROOFING COMPOSITIONS
Henry G. Petrow, 32 Garfield St., Watertown, Mass. 02172, and Robert J. Allen, 130 Adams Ave., Saugus, Mass. 01906
Original No. 3,960,989, dated Jun. 1, 1976, Ser. No. 526,058, Nov. 21, 1974. Division of Ser. No. 212,375, Dec. 27, 1971, Pat. No. 3,860,523. Application for reissue Feb. 23, 1981, Ser. No. 236,748
Int. Cl.³ C08K *3/22;* **C09K** *3/28*
U.S. Cl. 524—411 **6 Claims**

1. A flame retardant comprising [a] *an aqueous* colloidal sol of Sb_2O_5 having colloidal particle size ranging from substantially 20 Angstroms to 1/10 micron and in which an effective amount of a halogen is added.

Re. 31,215
SMOKELESS GAS FLARE WITH SPECIFIC GRAVITY GAS ANALYZER FOR REDUCTION OF NOISE
John J. Stranahan, Peru, Ind., and John C. L. Hollier, Nederland, Tex., assignors to Texaco Inc., White Plains, N.Y.
Original No. 3,771,940, dated Nov. 13, 1973, Ser. No. 266,794, Jun. 27, 1972. Application for reissue Mar. 2, 1981, Ser. No. 239,293
Int. Cl.³ F23D *13/20*
U.S. Cl. 431—4 **11 Claims**



1. A method for smokelessly burning gas with less noise in a steam aspirating flare having means for controlling the amount of steam to the flare for controlling the amount of air drawn in for mixing with the gas for burning, comprising the steps of,
a. determining the specific gravity of the gas being burned *with a torque type specific gravity analyzer*, and
b. varying the amount of steam to the flare relative to the specific gravity of the gas to be burned *by means including a ratio station means receiving a signal from said torque type specific gravity analyzer* for providing a *conditioned* smokeless air-to-gas burning mixture in the flare with less steam usage and reduced noise.

Re. 31,216

CONTROLLER FOR DC ARC WELDING GENERATORS

Nelson Hairgrove, Sr., Houston, Tex., assignor to Central Welding Supply Co., Inc., Houston, Tex.

Original No. 4,093,845, dated Jun. 6, 1978, Ser. No. 761,580, Jan. 24, 1977. Continuation-in-part of Ser. No. 588,200, Jun. 19, 1975, abandoned. Application for reissue Dec. 20, 1979, Ser. No. 105,570

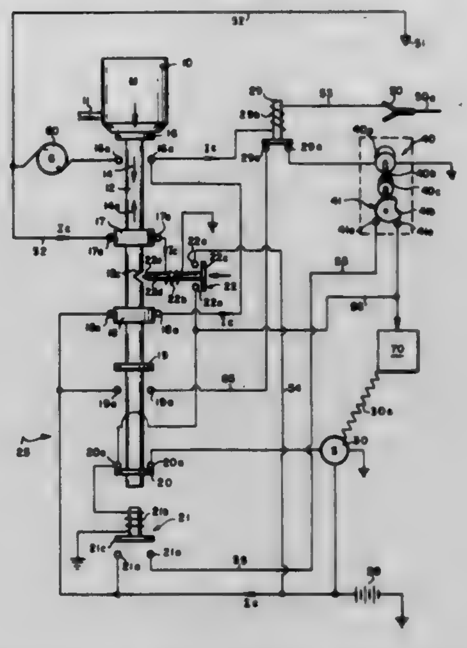
Int. Cl.³ B23K *9/10*

U.S. Cl. 219—132 **17 Claims**

11. In an arc welding system including a DC generator for providing welding current to a welding rod, and an internal combustion engine for powering the DC generator, the engine having a starter and an ignition, the improvement comprising apparatus for controlling the starting and stopping of the engine, which control apparatus comprises:

(*a*) *circuitry for:* (*i*) *automatically energizing the ignition and starter of the internal combustion engine, responsive to contact between the welding rod and the material to be welded;* (*ii*) *automatically de-energizing the starter responsive to the operation of the engine; and* (*iii*) *providing welding current to the welding rod from the DC generator; and*

(*b*) *a timer which operates to automatically de-energize the ignition of said engine, when welding has been interrupted for a predetermined period of time, said ignition remaining de-energized until the welding rod again contacts material to be welded.*



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PLANT PATENTS

GRANTED APRIL 19, 1983

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

5,040
ROSE PLANT 74-1489-2
William A. Warriner, Tustin, Calif., assignor to Jackson & Perkins Company, Medford, Oreg.
Filed Nov. 6, 1981, Ser. No. 318,969
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—11 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its upright plant habit, glossy foliage, red tipped yellow buds, and lighter yellow open flowers.

5,041
JUNIPER PLANT - CORCORCOR VARIETY
Clifford D. Corliss, Ipswich, Mass., assignor to The Conard-Pyle Company, West Grove, Pa.
Filed Jun. 22, 1981, Ser. No. 276,063
Int. Cl.³ A01H *5/12*
U.S. Cl. Plt.—50 **1 Claim**

1. A new and distinct variety of Juniperus, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of:

(a) an upright evergreen conifer which assumes a columnar configuration which is more dense than the *Juniperus virginiana* parent and substantially similar to that of *Juniperus virginiana Hillii,*

(b) an extremely hardy, vigorous and disease resistant shrub which can be readily sheared within predetermined limits, and which is substantially more vigorous than both *Juniperus virginiana* and *Juniperus virginiana Hillii* and is usually larger than *Juniperus virginiana* and is larger than *Juniperus virginiana Hillii,*

(c) a plant which from a distance is similar in color and shape to the *Juniperus virginiana* parent, but which is much quicker growing and which retains its older foliage for a longer period, giving the new variety a substantially denser appearance,

(d) a facility for propagation which represents a marked improvement over the *Juniperus virginiana* parent, thus making the new variety of particular interest to commercial nurserymen,

(e) mature (e.g., two year old) foliage which is considerably darker in coloration and slightly glossier than that of the *Juniperus virginiana* parent and when compared to *Juniperus virginiana Hillii* is more emerald green rather than the glaucous green coloration of *Juniperus virginiana Hillii,*

(f) young foliage which is a truer and deeper emerald green than *Juniperus virginiana Hillii* and than the slightly grayed-green foliage commonly exhibited by the *Juniperus virginiana* parent,

(g) a much more free-branching character than the *Juniperus virginiana* parent with at least twice the number of shoots on side branches arising from a lateral branch on a main limb than the parent giving the new variety a much denser aspect, and

(h) main, lateral and side branches which are perceptively thicker and more robust than those of the *Juniperus virginiana* parent.

PATENTS

GRANTED APR. 19, 1983

ERRATA

For CLASS	See PATENT NO.
604–180	4,380,234
604–251	4,380,235
604–151	4,380,236
604–028	4,380,239
384–123	4,380,355
384–133	4,380,356
604–386	4,380,450
419–011	4,380,471
419–009	4,380,472
419–041	4,380,473
525–370	4,380,599
382–068	4,380,755

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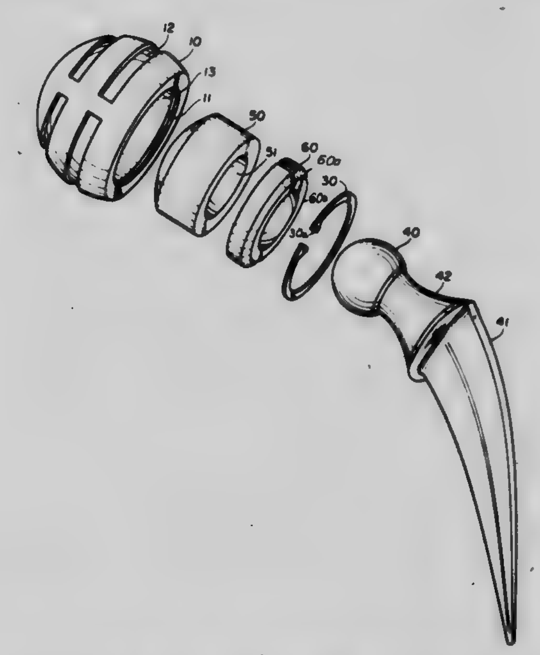
PATENTS

GRANTED APRIL 19, 1983

GENERAL AND MECHANICAL

4,380,090
HIP PROSTHESIS
Pedro A. Ramos, 1960 SW. 27th Ave., Miami, Fla.
Continuation-in-part of Ser. No. 286,532, Jul. 24, 1981, abandoned, which is a continuation-in-part of Ser. No. 177,791, Aug. 13, 1980, abandoned. This application Mar. 10, 1982, Ser. No. 356,881
Int. Cl.^{3} A61F *1/24, 1/00*
U.S. Cl. 3—1.912 **6 Claims**



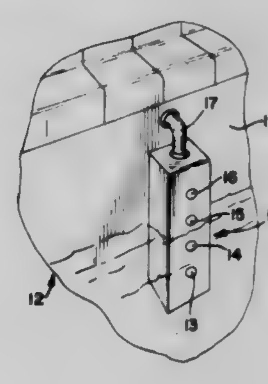
1. An artificial hip joint comprising an artificial hip socket having a first cavity and an opening in a surface of the socket communicating with the first cavity, an annular groove formed in the first cavity adjacent said opening, a sectionalized bearing insert registerably positioned in the first cavity inwardly of said groove, said bearing insert having a second cavity of spherical configuration greater in scope than hemispherical, a femoral component having a ball extending from a neck of reduced diameter, said neck extending through said socket opening positioning said ball in operative, retained engagement in said second cavity, said bearing insert having inner and outer sections, each section being formed with a complementary component of said second cavity, the cavity component of said inner section being approximately hemispherical, said outer section being annular in shape and having an outer surface portion opposite the cavity component thereof adapted to align with said annular groove when said outer section is in operative position in said first cavity, and an open annular spring locking ring having opposite ends formed with tool engaging openings, said locking ring being removably engaged in said annular groove in abutment with said outer surface portion of the bearing insert outer section, said locking ring, when in said groove engagement, being visibly exposed and removably retaining said annular outer section in said first cavity in operative engagement with the inner section whereby said ball is retained in said second cavity, said annular outer section being formed to expand over said ball when the latter is removed from said first cavity.

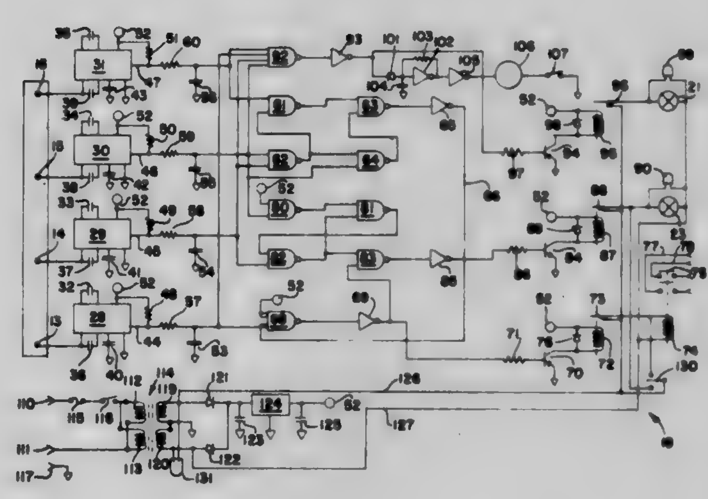
4,380,091
CONTROL CIRCUITRY FOR WATER LEVEL CONTROL OF POOLS
Olin A. Lively, 11821 Welch Rd., Dallas, Tex. 75234
Continuation of Ser. No. 960,585, Nov. 13, 1978, abandoned. This application Dec. 5, 1980, Ser. No. 213,322
Int. Cl.^{3} E04H *3/16, 3/18*
U.S. Cl. 4—508 **22 Claims**

1. A system for controlling the level of water in a swimming pool, said system being adapted to control a fill valve to add water to the pool as required, and comprising, in combination:

first water level sensing means positioned in said pool for producing a first output signal indicative of the presence or absence of water at a predetermined latch level within the pool;

second water level sensing means positioned in said pool for producing a second output signal indicative of the presence or absence of water at a predetermined normal level within the pool above said latch level;





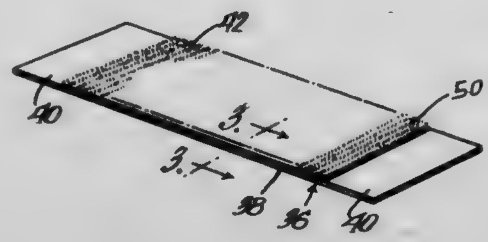
control circuit means for opening said fill valve in response to said output signal from said first water level sensing means indicating said water level falling below said latch level, and for closing said fill valve in response to said output signal from said second water level sensing means indicating said water level rising to said normal level; and

monitor circuit means responsive to said first and second output signals for disabling operation of said fill valve upon the occurrence of sensing water at said normal level without also sensing water at said latch level.

4,380,092
ACCESSORY FOR USING STEEL WOOL OR OTHER ABRADING MATERIALS
Woodrow W. Brothers, 220 N. Elmhurst Ave., Mt. Prospect, Ill. 60056
Filed Feb. 26, 1981, Ser. No. 238,223
Int. Cl.^{3} A47L *13/34*
U.S. Cl. 15—209 C **5 Claims**

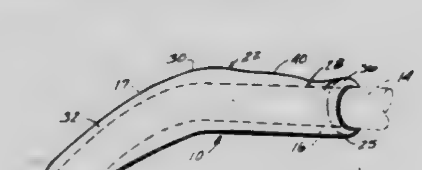
1. For use with a power sander having a platen that can be oscillated under power, an improved accessory comprising the combination of a sheet of flexible material adapted to extend the entire length of the accessory and moreover be removably secured to the platen, said sheet of flexible material being sized larger than the exposed face of the platen so as to provide an intermediate section that can overlie the platen face and end sections that can be wrapped around the platen ends and be

gripped thereat operable to secure the sheet of flexible material relative to the platen, and a mat area sized approximately the same as the platen face and secured flush against the sheet of flexible material at the intermediate section thereof, the mat area being in the form of the hook portion only of a Velcro-type hook and loop fastener, whereby when the flexible sheet



is secured to the platen said mat area is virtually coextensive of and entirely backed by the platen and is rigidly held relative to the platen and the hooks of the Velcro-type hook fastener are exposed and projected away from the platen, whereby an abrading element such as a pad of steel wool can be pressed against and adhered to the mat area operable thereby to allow use of the power sander for powered steel wooling.

4,380,093
BICYCLE HANDLEBAR GRIP
Clyde R. Morgan, Box 302, Coeur d'Alene, Id. 83814
Filed Nov. 28, 1980, Ser. No. 211,297
Int. Cl.³ B62K *21/26*
U.S. Cl. 16—110 R **8 Claims**



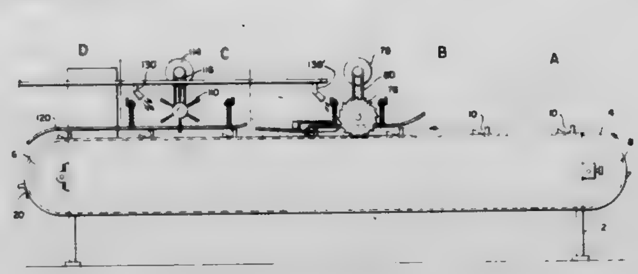
1. A handlebar grip for the crossover and turn-of-bar portion of a racing bicycle handlebar in which such portion is substantially tubular about a central axis and includes (1) a substantially straight section extending laterally outward from a central portion of the handlebar, and (2) turn-of-bar section extending from the straight section forward terminating at a drop portion having a brake lower attachment location, comprising:

a flexible "L" shaped body mountable on the crossover and turn-of-bar portion with a complementary annular bore extending from one end to an opposite end to receive the crossover and turn-of-bar portion therein;

said "L" shaped body having (1) a crossover segment extending from the one end along the substantially straight section and (2) a turn-of-bar segment extending from the crossover segment forward to the drop portion terminating at the brake lever attachment location;

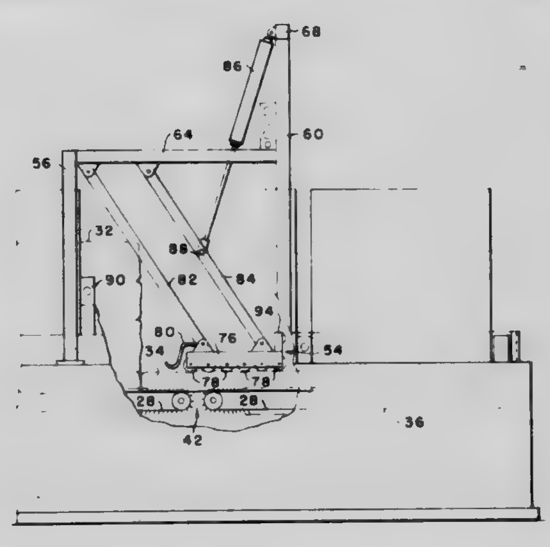
said turn-of-bar segment having an elbow projection formed integrally therewith that projects outward from the central axis to enlarge the turn-of-bar segment and provide support for the heel portion of the biker's hand independently of whether the biker grips the crossover segment in an overhand grip or grips the turn-of-bar section in a side underhand grip.

4,380,094
CRAB PROCESSING MACHINE
Calvert B. Tolley, and Andrew T. Tolley, both of Wingate, Md., assignors to Sea Savory Inc., Cambridge, Md.
Filed Jul. 15, 1980, Ser. No. 169,150
Int. Cl.³ A22C *29/02*
U.S. Cl. 17—71 **1 Claim**



1. A machine for processing whole, cooked, hard crabs, comprising an elongated supporting frame, a plurality of work stations spaced along the length of the machine, an endless belt supported on vertical rotating support and driving wheels at the loading and delivery ends of the frame and having elongated section thereof extending adjacent the work stations, a plurality of crab holders mounted on said belt and spaced along the length thereof, means at each work station for performing an operation on the crab carried by each holder, each of said crab holders comprising two parts the configurations of which are such that they cooperate to snugly support and hold a crab, the parts being separately connected to the belt and spaced apart in the direction of movement of the belt whereby the parts separate to discharge the crab body therefrom as the holder passes about the belt support and driving wheel at the discharge end of the machine, the means at the first work station reached by each crab holder comprising means for holding the crab body in position on its holder and sawing through the carapace and the ends of the crab body longitudinally of the crab body and then cleaning the visceral cavity, the means at the second work station reached by each crab holder comprising means for holding the crab body in position on its holder and cleaning and water spraying the crab body including the visceral cavity, said holding means comprising an elongated rod having an elongated opening therethrough through which water spray passes to the visceral cavity.

4,380,095
AUTOMATIC FIBER BLENDER
Jesse P. Walker, and William H. Robertson, both of Union, S.C., assignors to Milliken Research Corporation, Spartanburg, S.C.
Filed Nov. 24, 1980, Ser. No. 209,471
Int. Cl.³ D01G *7/06*
U.S. Cl. 19—80 R **7 Claims**



1. Apparatus to automatically pluck fibers from a plurality of bales comprising: a conveyor system including a plurality of

conveyors, means to drive adjacent conveyors in directions opposite to one another, a first means holding a weighted member above said conveyor system in an inoperative position and a second means operably associated with the last conveyors of said conveyor system to sense the height of a bale of fibers in said conveyor, said first means including a means to automatically lower said weighted member from its inoperative position onto the top of a bale on said conveyor when said second means detects that the height of the bale is below a predetermined minimum.

4,380,096

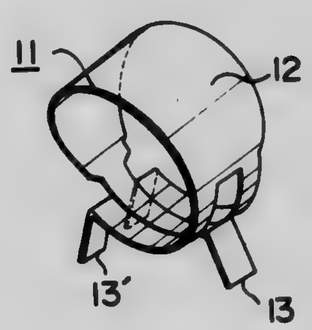
HOSE CLAMP

Haruki Nishida, Ishibashi, and Nobuya Shinozaki, Mooka, both of Japan, assignors to Nissan Motor Co., Ltd. and Kato Hatsujo Kaisha., Ltd., both of Yokohama, Japan

Filed Jul. 13, 1981, Ser. No. 283,067

Int. Cl.³ B65D *63/02;* **F16L** *33/02*

U.S. Cl. 24—20 R **1 Claim**



1. In a cylindrical hose clamp having: a central annular clamping portion formed by bending a resilient flat plate material;

with a first gripping end portion and a pair of flat parallel second gripping end portions, said second end portions defining a travel track therebetween, said first end portion having a tongue so designed as to engage and travel along said track so as to expand the diameter of said hose clamp;

the improvement therein wherein said clamping portion is formed in an expanded shape such that the width of the clamping portion where the maximum stress is applied is at a maximum so that the forces causing stress are at predetermined locations of said clamping portion, said width B of said clamping portion being obtained according to the following mathematical formula:

$$B = \frac{M}{\sigma'_1 rt}\left(1 + \frac{1}{\kappa}\;\frac{t}{2r + t}\right) + \frac{N}{\sigma'_1 t}$$

or

$$B = \frac{M}{\sigma'_2 rt}\left(1 - \frac{1}{\kappa}\;\frac{t}{2r - t}\right) + \frac{N}{\sigma'_2 t}$$

where δ_1' and δ_2' represent reference stresses like allowable stresses and

M: bending moment acting on the calculated clamp cross section

N: axial force acting on the calculated clamp cross section

r: radius of curvature of the neutral axis of a bending beam under the condition that said hose clamp is regarded as a bending beam

t: thickness of said clamping portion

κ: constant.

4,380,097

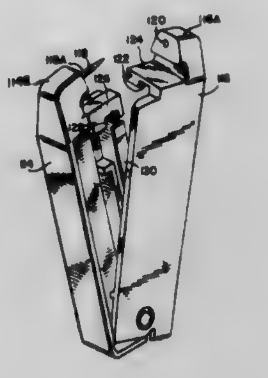
PRODUCT MONITORING DEVICE

Terry A. Keifer, Pottstown, Pa., assignor to Check Mate Systems, Inc., King of Prussia, Pa.

Filed Oct. 17, 1980, Ser. No. 198,277

Int. Cl.³ G08B *13/14*

U.S. Cl. 24—160 **8 Claims**



1. A releasable locking device adapted to be secured to a product, comprising:

a pair of relatively moveable members;

a locking element movable between a locking position in which said members are locked together and a release position in which said members are unlocked from each other to permit relative motion thereof;

means for operatively controlling actuation of said locking element to control the locking and unlocking of said members;

said members including a pair of arms, one of said arms mounting at its terminal end at least one pin member engagable in at least one socket in the terminal end of the other arm;

said terminal ends being adapted for movement to mating contacted positions as said members are moved to the locked positions thereof;

one of said ends having a groove therein;

the other of said ends having a projection thereon;

said projection being operatively engaged within said groove as said members are moved to the said locked position thereof and when so engaged constituting means opposing relative twisting of one moveable member with respect to the other and deterring disengagement of said ends by a relative twisting movement therebetween.

4,380,098

SLIDE FASTENER STRINGER

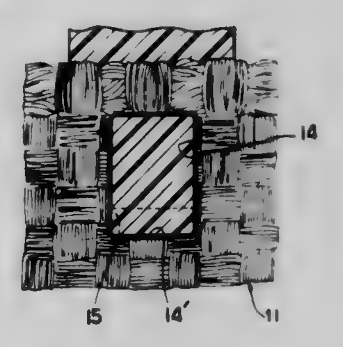
Takeo Fukuroi, Uozu, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan

Filed Dec. 10, 1980, Ser. No. 215,059

Claims priority, application Japan, Dec. 26, 1979, 54-185262[U]

Int. Cl.³ A44B *19/04*

U.S. Cl. 24—205.16 R **2 Claims**



1. A slide fastener stringer comprising:

(a) a tape made essentially of thermoplastic fibers having a longitudinal edge portion including a bead extending longitudinally therealong, there being a series of openings formed in and along said longitudinal edge portion, each

of said openings being located closely adjacent to said bead and each opening being defined by a rigid marginal edge constituted by fused tape fibers;

(b) a series of discrete coupling scoops made of a synthetic resin and mounted on and along said longitudinal edge portion, each in registration with only one of said openings, each of said scoops having a coupling head, an upper leg and a lower leg, said upper and lower legs being disposed astride the opposite surfaces of said longitudinal edge portion, each said opening extending closely along and between marginal edges of each pair of scoop legs;

(c) said bead having a width in the range of one-third to two-fifths of the length of said scoop legs; and

(d) a series of separate connecting strips individually accommodated in one of said openings and respectively interconnecting said upper and lower legs.

4,380,099

ATTACHMENT DEVICE FOR COMPONENTS MOUNTED IN RECESSES IN VEHICLE BODYWORK

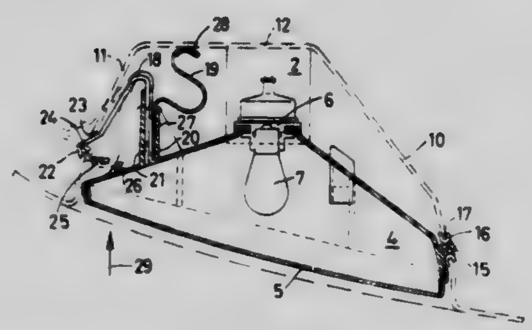
Heinz Dick, Odenthal, and Hans Lux, Cologne, both of Fed. Rep. of Germany, assignors to Ford Motor Company, Dearborn, Mich.

Filed Jul. 29, 1981, Ser. No. 287,847

Claims priority, application Fed. Rep. of Germany, Nov. 25, 1980, 3044313

Int. Cl.³ A44B *21/00*

U.S. Cl. 24—211 P **6 Claims**



1. Attachment device for a component mounted in a recess in a vehicle bodywork with clamps, supports and holders that are operatively disposed between the component and the walls of the recess and which interact with apertures formed in the walls of the recess in order to hold the component in an easily detachable fashion in the bodywork;

the attachment comprising:

a holder on the component in the form of a swivel pin interacting with a recess wall aperture;

a substantially V-shaped clamp interacting with a complementarily formed aperture in the wall of the recess in such a way that when the component is in its normal position a head of the clamp engages in the aperture;

an S-shaped flexible support interposed between the component and the recess wall exerting an outward biasing force on the component when in said normal position; and in the event of an inwards movement of the component beyond the normal position against the biasing force of the support the head being released from the aperture by a bevel on the clamp;

the clamp then interacting with the aperture and being held in a loose position by means of a catch on one edge of a detent fixed on the component.

4,380,100

SAFETY BELT BUCKLE

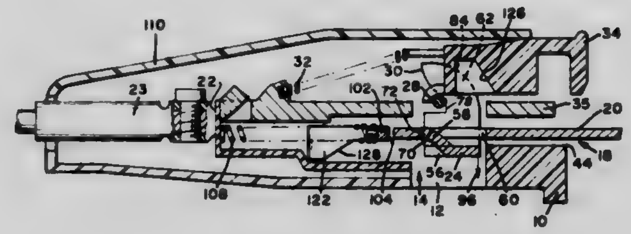
Terrence S. Crisp, Haasrode, Belgium, assignor to Klippan S.A., Haasrode, Belgium

Continuation of Ser. No. 953,241, Oct. 20, 1978, abandoned, which is a continuation of Ser. No. 781,918, Mar. 28, 1977, abandoned. This application Jan. 24, 1980, Ser. No. 114,811

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1976, 2651115

Int. Cl.³ A44B *11/26*

U.S. Cl. 24—230 AL **4 Claims**



1. A seat belt buckle comprising:

an inlet slot for receiving a tongue;

a latch movable between lock and unlock positions, said latch including a latching surface for engagement with said tongue when said latch is in its lock position whereby said tongue is retained in said buckle, said latch including a lock bar receiving surface, said latch normally being disposed in its unlock position;

a push button slidably disposed in said buckle;

a push button spring biasing said push button to a forward position, said push button being movable against the bias of said spring to a rearward position at which said latch is moved to its unlock position to release said tongue;

a lock bar slidably movable with said push button, said lock bar normally being spaced from said lock bar receiving surface of said latch, said lock bar being movable into engagement with said lock bar receiving surface of said latch upon insertion of said tongue into said buckle and movement of said latch to its lock position to retain said latch in said lock position, said lock bar being movable out of engagement with said lock bar receiving surface upon movement of said push button to its rearward position to release said latch from its lock position; and

an ejection bar for ejecting said tongue from said buckle when said push button is moved to its rearward position; said latch comprising cam means engagable by said lock bar, said cam means comprising an upstanding element having a curved underside surface adjacent a slot, said slot defining said lock bar receiving surface, said lock bar being movable along said underside surface to move said latch into its lock position, and said lock bar being further movable along said underside surface into said slot, whereby said latch is retained in its lock position.

4,380,101

TIE HOOK, PARTICULARLY RUBBER SPRING HOOK

Antoine Joubert; Thierry Joubert; Bernard Bichard, and Jean Joubert, all of Ambert, France, assignors to Joubert S.A., Ambert, France

Filed Sep. 2, 1980, Ser. No. 183,045

Claims priority, application France, Jul. 15, 1980, 80 15612

Int. Cl.³ A44B *13/02*

U.S. Cl. 24—237 **9 Claims**

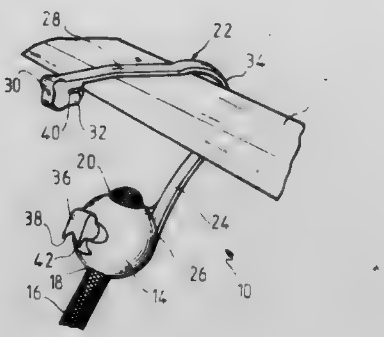
1. A hook for hitching a tie, said hook comprising:

an anchorage block having a through passage to receive the tie;

a recess formed in the anchorage block; and

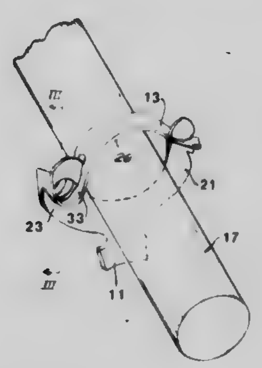
an open hooking loop having two arms substantially symmetrical with reference to the through passage, a base spaced from the anchorage block and serving to join said arms to form the loop, said loop being substantially coaxial with said through passage, one arm of the loop being

integral with the anchorage block and the other arm of the loop being free and being movable laterally away from or towards the block and having a nose directed towards the base of the loop and adapted to enter the recess of the



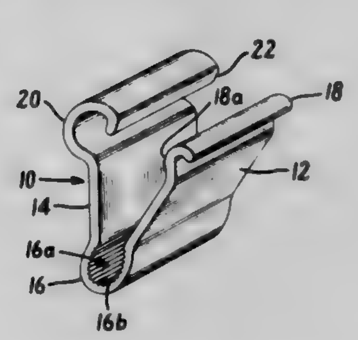
block for engagement with the block to close the loop, said nose being pointed and the recess having a corresponding but hollow shape to cause self-centering of the nose in the recess.

4,380,102
CLASPING DEVICE
Erik G. Hansson, Stughemmet, S-56242, Sandhem, Sweden
Filed Jul. 7, 1980, Ser. No. 166,233
Claims priority, application Sweden, Jun. 2, 1980, 8004095
Int. Cl.[3] A44B *24/00*
U.S. Cl. 24—248 SA 14 Claims



1. A clasping device for releasably tightly clasping an object, comprising:
base means;
hasp means; and
conical screw means;
said base means having: means defining an exterior surface thereof for receiving an object thereon; a first end and a second end disposed on opposite sides of said surface, said first end having: means defining an opening therein having an area substantially larger than at least the smallest cross-sectional area of said conical screw means; and edge means having a thickness for engaging within the grooves of said conical screw means and allowing longitudinal displacement of said conical screw means upon rotation thereof when in engagement with said edge means; and
said hasp means having: means defining an exterior surface thereof for receiving an object thereon; a first end and a second end of said hasp means disposed on opposite sides of said surface, said hasp means second end operatively pivotally mounted to said base means second end; said hasp means first end having curved surface means for engaging said conical screw means so that as said conical screw means passes through said base means first end opening, with said base and hasp means second ends in operative engagement, it engages said edge means and said hasp means first end curved surface, and as it is rotated it moves longitudinally of said edge means and moves said edge means and curved surface further apart, which in turn moves said hasp and base means object-receiving surfaces closer together; and
said hasp means being so constructed that as said hasp means first end curved surface means is engaged by said conical screw means a bending of said first end takes place as said object-receiving surface means is straightened, effecting tightly clamping of an object received thereby.

4,380,103
BALLOON CLIP
John E. McGrath, 456 Glen Mar Rd., Glen Burnie, Md. 21061, and Earl Wilson, 2922 N. Seminary Ave., Chicago, Ill. 60657
Filed Jul. 21, 1981, Ser. No. 285,586
Int. Cl.[3] A63H *3/06;* A44B *21/00*
U.S. Cl. 24—255 SL 8 Claims

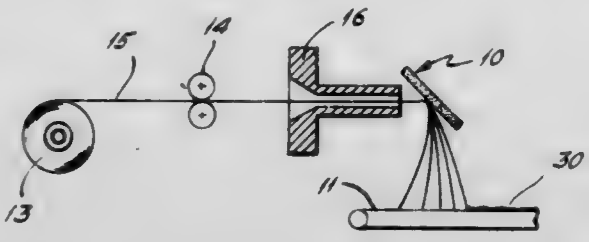


5. A clip device of unitary construction for sealing an object such as the valve of a balloon, flexible tubing and the like comprising first and second arms connected by an integral hinge which hinge defines an interior clamping area, said first and second arms having interior and exterior surfaces and coacting locking means on the extended ends thereof,
said locking means on said first arm comprising a first C-shaped flange opening toward said exterior surface of said first arm,
said locking means on said second arm comprising a second C-shaped flange, being slightly larger than said first C-shaped flange and adapted to overlie and substantially conform to said first C-shaped flange when said clip device is in a closed position, said second C-shaped flange further comprising a flat lip formed at the terminus of said second C-shaped flange extending laterally across said second arm and directed toward said interior clamping area,
said first and second arms being urged toward each other into said closed position after the object to be sealed is inserted into said interior clamping area so that when said first C-shaped flange abuts said inwardly directed lip said second C-shaped flange is deflected until said first C-shaped flange is within said second C-shaped flange, said inwardly directed lip thereby locking said first C-shaped flange within said second C-shaped flange thereby to retain said object within said interior clamping area.

4,380,104
APPARATUS FOR SEPARATING THE FILAMENT BUNDLE OF FIBROUS MATERIAL
Seiichi Kamioka, 390-5, Shimonogo-cho, Moriyama-shi, Shiga-ken; Masahiko Manabe, B3-22,10, Sonoyama 2-chome, and Rokuro Sakai, 4-25-1, Sonoyama 2-chome, both of Ohtsu-shi, Shiga-ken, all of Japan
Filed Jan. 16, 1981, Ser. No. 225,740
Claims priority, application Japan, Jan. 18, 1980, 55-3599
Int. Cl.[3] D01D *11/02*
U.S. Cl. 28—282 11 Claims

1. An apparatus for separating filaments in a filament bundle, which comprises a nozzle for ejecting the filament bundle, means for ejecting said filament bundle from said nozzle, an impingement plate having a surface composed of a material

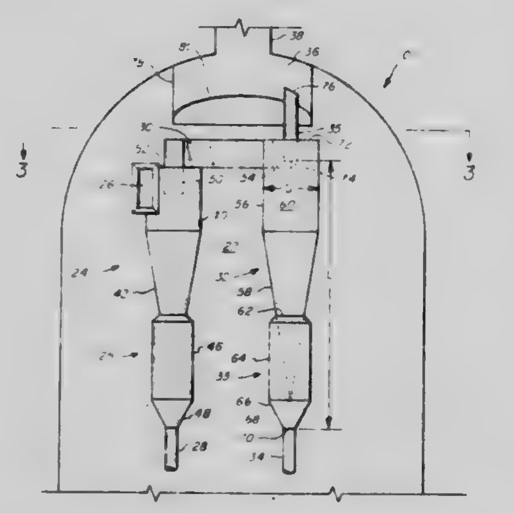
that negatively electrically charges the surfaces of the filaments of the fiber bundle upon impact, said plate being positioned adjacent said nozzle so that the filament bundle is projected against said surface of said impingement plate.



4,380,105
METHOD FOR SHAPING, FORMING AND ASSEMBLING A HIGHLY EFFICIENT CYCLONE SEPARATOR

John P. MacLean, Stafford; J. Edward Cantwell, Houston; John D. Brown, The Woodlands, and Harold D. Hoy, Bridge City, all of Tex., assignors to Texaco Inc., White Plains, N.Y.

Continuation-in-part of Ser. No. 38,757, May 14, 1979, abandoned, which is a continuation-in-part of Ser. No. 865,051, Dec. 27, 1977, abandoned. This application Jul. 7, 1980, Ser. No. 166,714
Int. Cl.^{3} B23P *15/00*; B01D *45/12*
U.S. Cl. 29—157 R **1 Claim**



1. A method for shaping, forming, and assembling a cyclone separator (32) comprising the steps of,

(a) assembling an intermediate partly tapered portion (58,64) from a conical portion (58) and a barrel section dust bowl (33), the dust bowl including an upper cylindrical barrel section (64) joined to a lower conical section (66) and having a solids entrance (62) of a particular and precise diameter,

(b) interconnecting a cylindrical portion (56) and a lower dipleg (34) with the intermediate partly tapered portion (58,64) having a solids outlet (70) for forming a cyclone separator housing (32),

(c) mounting an inlet means (54) having an inlet area (I) in the upper portion of said cyclone separator cylindrical housing portion (56) and shaped for receiving gases with entrained solids therein at a velocity in the range of 52 feet per second to 80 feet per second,

(d) attaching a gas outlet tube (35) defining a solids-free-gas outlet (74) having an area (O) to the upper portion of the separator cylindrical housing portion (56) and shaped for receiving solids-free-gas at a velocity in the range of 52 feet per second to 200 feet per second,

(e) shaping the solids-free-gas outlet area (O) to the separator inlet area (I) proportional to the range of substantially O/I=0.4/1 to 1.0/1.0, and

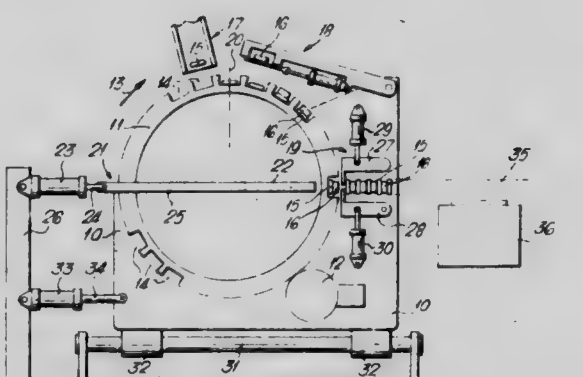
(f) shaping the dust bowl solids entrance diameter relative to the diameter D of the cyclone separator cylindrical housing portion (56) in the range of substantially 0.05 D to 0.2 D and disposing the junction of the barrel section (64) and the conical section (66) of the dust bowl so as to lie in a plane which passes through the apex (68) of the projection of the conical portion (58),

(g) forming the solids outlet (70) on the housing by a distance (L) from the gas outlet (74) proportional to the diameter (D) of the cyclone separator cylindrical portion (56) in an amount so that $L/D=4.49-1.09\ (O/L)$ for providing maximum efficiency with minimum erosion of both the cyclone separator internal wall surface and of the separated solids.

4,380,106
ASSEMBLY APPARATUS

Karl G. Jonason, Västerås, Sweden, assignor to Gränges Metallverken Aktiebolag, Västerås, Sweden

Filed Oct. 30, 1980, Ser. No. 202,419
Claims priority, application Sweden, Nov. 2, 1979, 7909122
Int. Cl.^{3} B23P *15/26*
U.S. Cl. 29—157.3 A **11 Claims**



1. An apparatus for assembling a heat exchanger core comprising tubes and associated fin elements in thermal contact with the tubes said apparatus comprising a means for receiving the tubes and the fin elements and delivering these elements in an alternate relationship to a transportation path, means arranged adjacent the transportation path for interconnecting the adjacent tubes and fin elements, an ejecting device for expelling the tubes and the fin elements from the receiving means to the transportation path in the direction of transportation of tubes and fin elements along the transportation path, and advancing means which cooperate with said removing or ejecting device to advance the tubes and the fin elements along the transportation path, wherein the said ejecting device has operating means which cause the removing or ejecting device, during each expelling cycle of operation, firstly to move in the forward direction to expel a tube and fin element from said receiving means at first speed, and secondly to move in the forward direction at a second speed, slower than said first speed, to advance the tubes and fin elements along said transportation path, said second speed being substantially equal with the advancing speed of the advancing means, the arrangement being such that the tube and the fin elements are brought into abutment against each other and are then moved continuously and with a substantially even speed along the transportation path past the means for interconnecting the adjacent tubes and the fin elements.

4,380,107

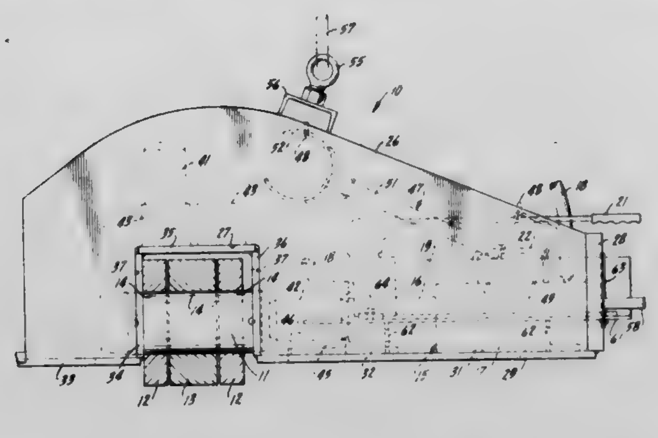
CONNECTOR PIN HANDLING DEVICE

Dennis I. Andress, Two Rivers, Wis., assignor to The Manitowoc Company, Inc., Mantiwoc, Wis.

Filed Feb. 15, 1978, Ser. No. 877,903

Int. Cl.[3] B23P *19/04*

U.S. Cl. 29—252 **3 Claims**



1. A device for handling connector pins comprising, in combination, a pair of frame plates having alined notches to fit over structural members with holes to receive connector pins, said plates being connected with a butt plate and a bed plate defining a jack receiving trough, a hydraulic jack with a piston in a cylinder rested in said trough, said plates and trough being sufficiently long to receive a pin between said notches and said jack when said piston is in said cylinder and the jack is adjacent said butt plate so that hydraulically extending the piston will force the pin transversely of the notches and into holes in members in said notches, said frame plates having a pin receiving tray on the side of said notches opposite said jack for receiving the pin when the jack is used to force a pin from members in said notches, and a pin carrying tool having a handle and a pin embracing portion, and a pair of auxiliary push pins for extending the reach of said jack by being inserted between said jack and a connector pin, and said side frames having sockets for storing said push pins and hooks for storing said tool.

4,380,108

UNIVERSAL JOINT FLEXURE HINGE SUSPENSION SYSTEM, AND METHOD FOR MANUFACTURING THIS SYSTEM

Robert J. G. Craig, Malibu, Calif., assignor to Incosym, Inc., Westlake Village, Calif.

Division of Ser. No. 822,384, Aug. 5, 1977, abandoned. This application May 19, 1980, Ser. No. 150,743

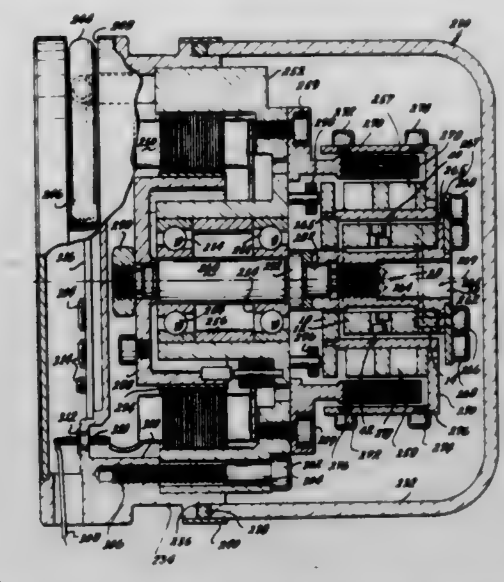
Int. Cl.[3] G01C *19/04*

U.S. Cl. 29—434 **9 Claims**

1. A method for making a tuned inertial instrument comprising the steps:

(a) assembling together in a first assembly, a rotor shaft and an inertially sensitive element gimballed thereto with at least one axis of rotational freedom substantially orthogonal to said rotor shaft;

(b) rotatably mounting said rotor shaft in a second assembly including motor means for rotating said rotor shaft, said second assembly further including electro-magnetic means for applying restoring torques to said inertially sensitive elements; and



(c) mounting said assembled first assembly and said second assembly into a unitary, single compartment interior, substantially air-tight from an outside environment.

4,380,109

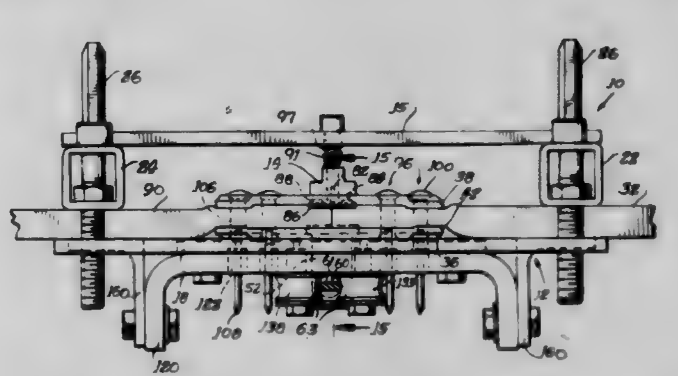
METHOD FOR APPLYING BELT FASTENERS TO A BELT

Winston C. Pray, Lombard, Ill., assignor to Flexible Steel Lacing Company, Downers Grove, Ill.

Division of Ser. No. 948,971, Oct. 5, 1978, Pat. No. 4,258,461. This application Nov. 17, 1980, Ser. No. 207,300

Int. Cl.[3] B23Q *3/00;* **B21D** *39/00;* **B23P** *11/02*

U.S. Cl. 29—466 **7 Claims**



1. A method of fastening ends of a belt together with upper and lower belt fasteners secured to the belt by rivets upset by an anvil means, said method comprising the steps of:

securing lower plate fasteners in an aligned position over the anvil means with rivet receiving openings in the lower plate fasteners aligned with rivet upsetting portions of the anvil means;

aligning the belt ends over the centers of the lower plate fasteners; holding a plurality of sets of aligned upper plate fasteners on the upper side of an elongated bar and inverting the bar and placing the bar with the upper plate fasteners held thereon over the belt ends longitudinally along the belt ends;

securing said sets of upper plate fasteners while held on said bar in an aligned position over the belt ends with rivet receiving openings in the upper plate fasteners aligned with rivet receiving openings of the lower plate fasteners and with the rivet upsetting portions of the anvil; and

driving the rivet fasteners through the upper plate fasteners while held on said bar, the belt ends and the lower plate fasteners into the anvil means and upsetting the lower ends of the rivets against said lower plate fasteners.

4,380,110

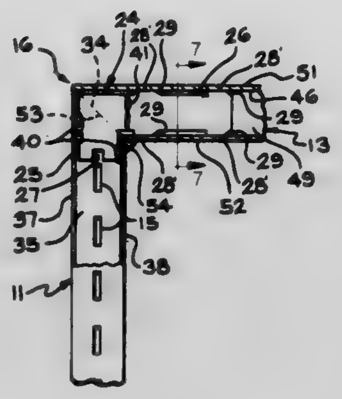
METHOD OF FORMING A MITERED JOINT

Robert G. Harig, Paragould, Ark., assignor to Darling Store Fixtures, Paragould, Ark.

Filed Nov. 24, 1980, Ser. No. 209,909

Int. Cl.³ B23P *19/02*

U.S. Cl. 29—525 **3 Claims**



1. A method for forming a mitered joint between ends of two tubular members, said joint connecting said members at a predetermined angle, comprising the steps of:
(1) shaping the end of each member to extend at an angle of one half of the predetermined angle;
(2) connecting one leg of an insert having two legs extending at said predetermined angle to the interior of one of said members with the other insert leg extending from said end of said one member said other insert leg having at least one projection extending from the side of said other leg, said projection disposed for engaging the interior of the other of said members;
(3) trimming said projection on said other insert leg to align said other insert leg for forming said joint and to insure an interference fit between said other insert leg and said other member;
(4) pressing said end of the other of said members onto said other insert leg until said member ends abut and said members form a joint extending at the predetermined angle, said other insert leg creating an interference fit with said other member to maintain said other member in position for forming said mitered joint, said abutting ends defining a line extending around said members and including inner and outer portions; and
(5) welding said members ends together only along the inner portion of the line between said abutting ends.

4,380,111

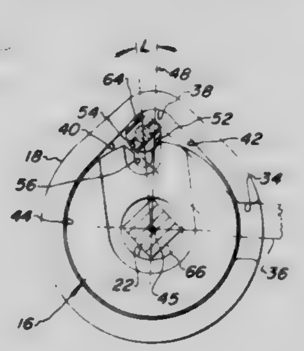
CUTTING, STRIPPING AND WRAPPING BIT

Clifford L. Galloup; Roger M. Bula, both of Reed City; Robert W. Klemm, Hersey, and Ralph E. Westerburg, Jr., Reed City, all of Mich., assignors to Cooper Industries, Inc., Houston, Tex.

Filed Sep. 8, 1980, Ser. No. 184,763

Int. Cl.³ H01R *43/04*; B21F *15/04*

U.S. Cl. 29—564.4 **14 Claims**



1. In a device for stripping insulation from a flexible conductor wire and wrapping said wire on a terminal in a series of helical convolutions:
a rotatable wrapping bit having an elongated cylindrical body and including groove means forming a longitudinal conductor wire receiving groove disposed along the periphery of said bit and radially displaced from the axis of rotation from said bit;
an elongated cylindrical tubular sleeve, said sleeve including guide surface means forming a guide surface extending generally axially from one end of said sleeve and positioned to be in alignment with said groove means in a starting position of said bit with respect to said sleeve to provide for inserting an insulated conductor wire into said groove means; said guide surface having a substantially flat surface portion, and,
insulation cutting means interposed in said groove means, said insulation cutting means including a first substantially straight cutting edge portion, oriented relative to said guide surface means such that, at the point of contact of said cutting edge portion with the flexible conductor insulation, said cutting edge portion is essentially parallel to said substantially flat surface portion of said guide surface means for forcibly engaging said insulated conductor wire between said first cutting edge portion and said substantially flat surface portion upon initial rotation of said bit to commence cutting said insulation.

4,380,112

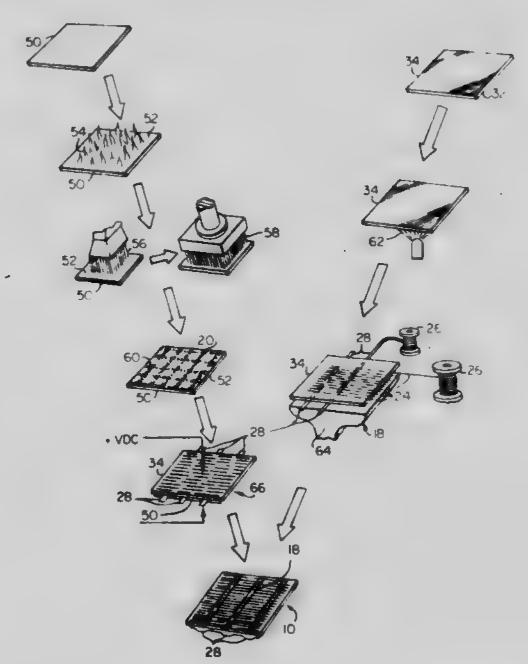
FRONT SURFACE METALLIZATION AND ENCAPSULATION OF SOLAR CELLS

Roger G. Little, Bedford, Mass., assignor to Spire Corporation, Bedford, Mass.

Division of Ser. No. 181,106, Aug. 25, 1980, abandoned. This application Sep. 14, 1981, Ser. No. 301,480

Int. Cl.³ H01L *31/18*

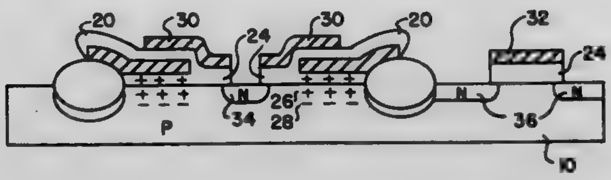
U.S. Cl. 29—572 **4 Claims**



1. A method of front surface metallization and encapsulation for solar cells comprising:
(a) providing a transparent plate having inner and outer surfaces;
(b) heating said plate so as to soften its said inner surface;
(c) pressing a mesh of wires fed from spools into said softened plate inner surface;
(d) providing a semiconductor wafer having front and rear semiconductor strata; and
(e) bonding said plate inner surface, together with said mesh of wires embedded therein, to said semiconductor wafer.

4,380,113
PROCESS FOR FABRICATING A HIGH CAPACITY MEMORY CELL

Manohar L. Malwah, Sunnyvale, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.
Filed Nov. 17, 1980, Ser. No. 207,275
Int. Cl.³ H01L *29/78*
U.S. Cl. 29—577 C **9 Claims**

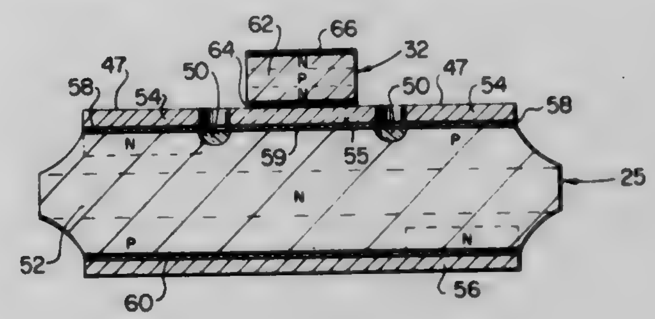


1. A method of fabricating a high capacity memory cell, comprising:
(a) forming isolation regions in a surface of a semiconductor substrate patterned to produce a multiplicity of cell areas;
(b) forming an insulating layer over the entire surface of said cell areas;
(c) introducing ions having majority carriers of first conductivity type throughout the entire area of said insulating layer;
(d) introducing ions having majority carriers of second conductivity type opposite said first conductivity type throughout the entire area of the semiconductor surface.
(e) forming a first pattern of conductive material over said insulating layer to form a storage gate and to define a storage region beneath said storage gate extending to an isolation region and to define a transfer region spaced from said isolation region by said storage region;
(f) removing said insulating layer from the portion lying above said transfer region and from other active areas to selectively remove ions having majority carriers of said first conductivity type;
(g) removing ions having majority carriers of said second conductivity type from said transfer region and other active areas by forming an oxide layer on the semiconductor surface where said insulating layer is removed;
(h) diffusing ions having majority carriers of said first conductivity type from said insulating layer to said storage region to produce in said storage region a shallow ion layer having majority carriers of said first conductivity type and beneath said shallow ion layer a deep ion layer having majority carriers of said second conductivity type; and
(i) forming a second pattern of conductive material over said storage region to define a bit line region spaced from said storage region by a portion of said transfer region and to produce a transfer gate overlying said transfer region portion and also insulated from and partially overlying said storage gate.

4,380,114
METHOD OF MAKING A SEMICONDUCTOR SWITCHING DEVICE

Monty F. Webb, Richardson, Tex., assignor to Teccor Electronics, Inc., Irving, Tex.
Division of Ser. No. 29,263, Apr. 11, 1979, abandoned. This application Feb. 20, 1981, Ser. No. 236,258
Int. Cl.³ H01L *21/603, 21/28, 21/302, 21/56*
U.S. Cl. 29—588 **4 Claims**

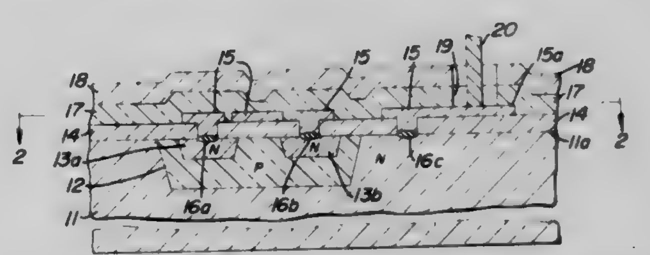
1. A method of making a semiconductor switching device comprising:
providing a semiconductor wafer having a plurality of defined zones arranged in a two-dimensional array, each zone having a plurality of regions of alternate conductivity type constructed and arranged to permit one of said semiconductor switching devices to be formed from the semiconductor chip defined by one of said zones once separated from the wafer;
applying molten solder to said wafer;
applying a copper foil having a thickness of approximately 1 to 5 mils over the solder covering at least one major face of the wafer;
uniformly pressing the copper foil and wafer together with sufficient force to cause the molten solder to flow laterally and then harden to a uniform thickness, said solder thickness being several times thinner than the thickness of said copper foil;



selectively etching away portions of said copper foil and underlying solder along the boundaries of said zones and in gate regions defined in each zone;
bonding a trigger element to the gate region within each zone;
breaking said wafer along the boundaries between zones to provide separate semiconductor chips;
bonding one of said chips onto a terminal;
bonding a cathode lead to a portion of said copper foil atop said chip;
bonding a gate lead atop said trigger element; and
encapsulating said chip, trigger element, terminal and leads.

4,380,115
METHOD OF MAKING A SEMICONDUCTOR DEVICE WITH A SEAL

Louis N. Pomante, Lansdale, Pa., assignor to Solid State Scientific, Inc., Montgomeryville, Pa.
Division of Ser. No. 100,905, Dec. 6, 1979, abandoned. This application Aug. 17, 1981, Ser. No. 293,200
Int. Cl.³ H01L *23/02*
U.S. Cl. 29—588 **11 Claims**



1. A method of fabricating a semiconductor device comprising the steps of:
(a) forming a layer of metal overlying a major surface of a semiconductor body, and removing parts of said metal layer to leave a pattern thereof overlying said semi-conductor surface,
(b) forming an insulating passivating layer of silicon dioxide overlying and contacting said patterned metal layer,
(c) forming a passive sealing silicon layer overlying and contacting the insulating layer by placing said semi-conductor device with said patterned metal layer and insulating layer formed thereon in a chamber containing an atmosphere including a gas which decomposes and deposits silicon at a temperature below 525° C. for a time duration sufficient to form a deposit of silicon in the range of 500 to 3000 A thick approximately, and
(d) etching windows in the sealing silicon layer and insulat-

ing layer to provide openings to receive terminal connections to said metal layer.

4,380,116

RADIANT ELECTRICAL HEATER, AS WELL AS METHOD AND APPARATUS FOR THE MANUFACTURE THEREOF

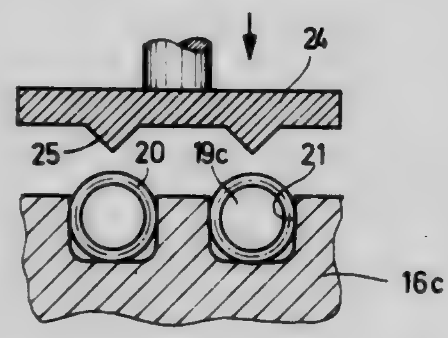
Gerhard Gössler, Oberderdingen, and Eugen Wilde, Knittlingen, both of Fed. Rep. of Germany, assignors to E.G.O. Elektro-Geräte Blanc u. Fischer, Oberderdingen, Fed. Rep. of Germany

Filed Dec. 4, 1980, Ser. No. 212,802

Claims priority, application Fed. Rep. of Germany, Dec. 14, 1979, 2950302

Int. Cl.[3] H05B *3/00*

U.S. Cl. 29—611 **9 Claims**



1. A method for manufacturing a radiant electrical heater, wherein a support is made from an electrically and thermally insulating material and slots are formed therein for receiving helical heating resistor coils, comprising the further step of deforming at least one of the support and the heater coils, while the support is in a prehardened condition, whereby portions of the support will at least partially surround portions of the heater coils for securing the heater coils in the slots.

4,380,117

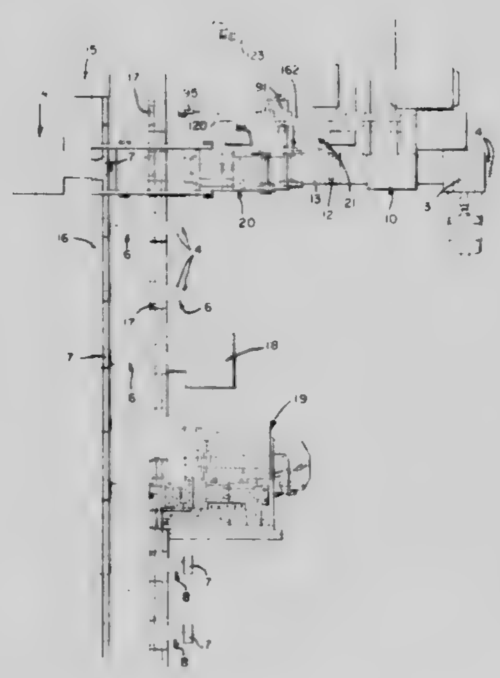
ELECTRICAL HARNESS FABRICATING APPARATUS

Joseph E. Brandewie, Dunedin, and Granville S. Hart, Clearwater, both of Fla., assignors to AMP Incorporated, Harrisburg, Pa.

Filed May 26, 1981, Ser. No. 267,104

Int. Cl.[3] H01R *43/04*

U.S. Cl. 29—742 **4 Claims**



1. Improved apparatus for terminating the leading ends of a plurality of wires to a like plurality of terminals in a linear array and inserting the terminated leads into a linear array of cavities in a connector housing, said apparatus being of the type having an operating zone having a terminating station therein, an insertion station where terminated ends are inserted into a connector housing, and a reciprocable wire delivery shuttle having telescoping wire guide tubes and releasable wire gripping means thereon, characterized in that

said shuttle is reciprocable on a first path from said operating zone to a point remote therefrom, said shuttle being reciprocable on a second path from said insertion station to said point remote from said operating zone, said first path and said second path being colinear along part of their lengths proximate to said remote point, said paths diverging obliquely as they approach the respective stations, whereby,

said shuttle positions said leading ends for terminating at said terminating station, retreats therefrom along said first path without passing through said insertion station, and advances along said second path to insert the terminated ends into said cavities in said connector housing.

4,380,118

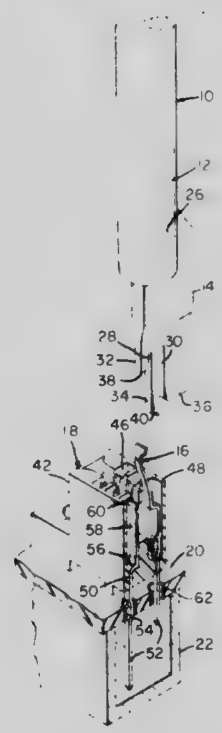
TERMINAL INSERTION TOOL

Donald E. Driver, Shermanstown, and John W. Kaufman, Hershey, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Aug. 13, 1981, Ser. No. 292,564

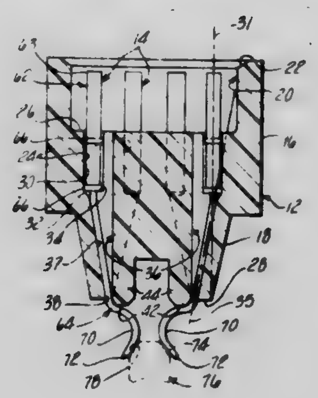
Int. Cl.[3] H01R *43/00*

U.S. Cl. 29—747 **4 Claims**



1. A hand tool for inserting individual replacement terminals into a housing of an electrical connector pre-mounted on a circuit board, each said terminal having an active portion forming electrical and mechanical contact with a respective conductive hole in said board, an intermediate shoulder for receiving an axial thrust, and a free end profiled to be pre-loaded in said housing, said tool having a handle with an insertion head secured to one end thereof, characterized in that said insertion head has a trident configuration, the arms of which secure a free end of the replacement terminal in a pre-loaded condition, engage an intermediate shoulder of the terminal to apply an insertion force thereagainst, and engage said housing to guide the movement of the tool with respect thereto whereby said replacement terminal is inserted into the housing in a pre-loaded condition.

4,380,119
METHOD OF MAKING AN ELECTRICAL CONNECTOR ASSEMBLY
Richard W. Normann, Otego, and LeRoy W. Fairbairn, Sidney, both of N.Y., assignors to The Bendix Corporation, Southfield, Mich.
Division of Ser. No. 116,055, Jan. 28, 1980. This application Apr. 20, 1981, Ser. No. 255,200
Int. Cl.³ H01R *43/00*
U.S. Cl. 29—884 **8 Claims**



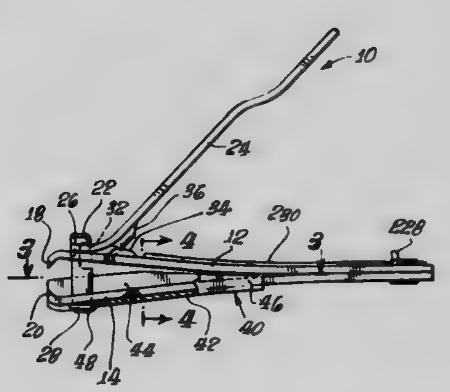
1. A method of making an electrical connector assembly including a body of dielectric material having a plurality of passages extending therethrough from a front face to a rear face and further including a plurality of electrical contacts, each electrical contact being adapted to mount within one respective passage and each having a body portion at one end thereof and a termination portion extending from the body portion, the steps of method comprising:

molding the body to form the passages, each of said passages forming on each respective face an array of spaced-apart openings disposed in straight line rows, the front face array of openings describing a grid comprising four spaced-apart rows and the rear face array of openings describing a grid comprising two spaced-apart rows,

inserting the contacts into their respective passages so that the termination portions extend beyond the rear face of the body and the body portions of the contacts are adjacent the front face, and

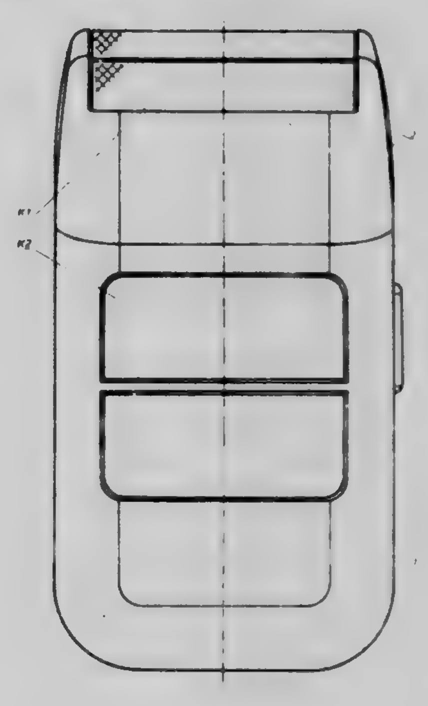
bending the termination portions of the contacts so that the ends of the termination portions extending beyond the rear face form two rows.

4,380,120
NAIL CLIPPING RETAINER
William B. Hannon, P.O. Box 187, Kihei, Hi.
Filed Feb. 9, 1981, Ser. No. 232,503
Int. Cl.³ A45D *29/02*
U.S. Cl. 30—28 **2 Claims**



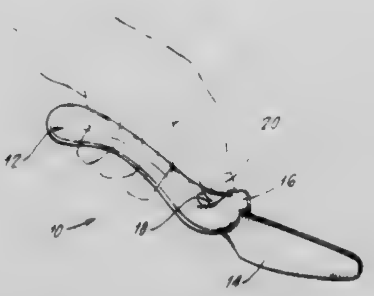
1. A nail clipping retainer means to be removably attached to a nail clipping device of the class which includes a stationary plate means cooperating with a movable plate means which in turn are joined together at one end and have at the opposite ends of said stationary and movable plate means cutting edges of the type that cut toe and finger nails, said movable plate means being moved relative to said stationary plate means by a pivoted lever means, said nail clipping retainer means includes: a "U"-shaped elongated channel means; a central web means of said channel means; parallel side wall means integrally formed with said central web means and said wall means projecting normally from central web means; said side wall means of a height that forms a compartment for retaining clipped toe and finger nails after being clipped by said cutting edges; the terminating upper surface of said side walls being parallel to said stationary plate means of at least one half the length of said elongated "U"-shaped channel means; the said terminating upper surface of said side walls being not parallel to the movable plate means along the one half of the length of said elongated "U"-shaped channel means so that when the movable plate means is in its opened position there will be a tapered opening between said movable plate means and the terminating upper surfaces of said side walls which are parallel to said stationary means for at least half the length of the elongated "U"-shaped channel means in order that clippings may be disposed from the interior of the clipper by use of the opening existing between the parallel side walls and the movable plate means; said second half of said upper surface being parallel to said movable plate means and extending to the end of said "U"-shaped elongated channel means which is at the end of said elongated channel means nearest said point of joining together of said movable and stationary plate means; and retaining means located on said side walls for removably retaining said "U"-shaped elongated channel means to said stationary plate means.

4,380,121
ELECTRIC SHAVER
Gundolf Naimer, and Kurt Hauer, both of Graz, Austria, assignors to Payer-Lux Elektroprodukte Gesellschaft m.b.H., Graz, Austria
Filed Apr. 1, 1981, Ser. No. 249,971
Claims priority, application Austria, Apr. 3, 1980, 1838/80
Int. Cl.³ B26B *19/38*
U.S. Cl. 30—42 **4 Claims**



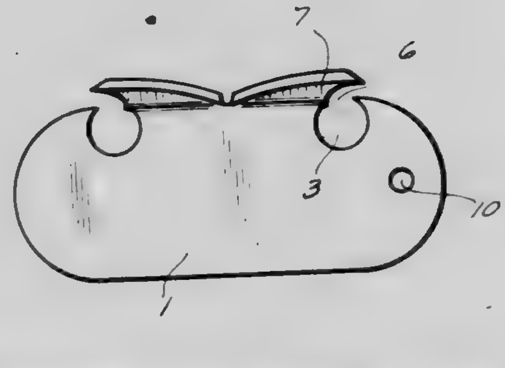
1. In an electric shaver having a casing, a shear head, a driving motor for the knife, and an on-off switch provided in the motor circuit, the improvement comprising an electronic sensor switch (5) which is electrically connected to a contact plate (K2) on the outside of the casing (1) with the gripping zone and to the shear face (K1) of the shear head (2) and shear foil, the terminals (53, 54)) of the sensor switch (5) being connected to the control circuit of an actuating means (RL) for opening and closing the motor circuit.

4,380,122
CUTLERY IMPROVEMENTS FOR AIDING EFFECTIVE AND CORRECT USE THEREOF
Peter C. Jagger, Cuckfield, England, assignor to Little People Limited, Hong Kong, Hong Kong
Filed Sep. 16, 1980, Ser. No. 187,722
Claims priority, application United Kingdom, Sep. 17, 1979, 32098/79
Int. Cl.[3] B25G *3/00*
U.S. Cl. 30—343 **17 Claims**



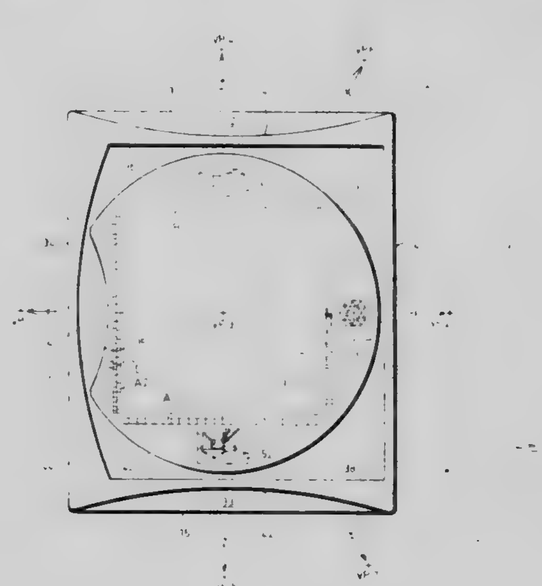
1. A piece of cutlery having a longitudinal center line, said cutlery piece comprising
a handle having an upper surface and a front end,
an operative portion joined to said handle's front end,
a recess positioned adjacent the joint between said operative portion and said handle's front end, said recess being provided in said handle's upper surface and being centered on said longitudinal center line, and said recess being of a size to accommodate and locate the tip of the index finger of a user's hand when the user's hand grips said handle; and
a rim defining the peripheral edge of said recess, said rim having a front wall adjacent said operative portion and opposed side walls extending from said front wall toward said handle's rear end, the depth of said recess defined by said front and opposed side walls of said rim being sufficient to prevent accidental longitudinal displacement of the tip of the index finger of a user's hand out of said recess toward said operative portion, and being sufficient to prevent accidental lateral displacement of the index finger of a user's hand out of said recess in a sideways fashion, when the user's hand is holding said handle during normal usage of said piece of cutlery.

4,380,123
TOOL FOR OPENING A CAN OR THE LIKE
Ayzik Blyakharov, 31-77 32 St., Astoria, N.Y. 11106
Filed Jun. 7, 1979, Ser. No. 46,565
Int. Cl.[3] B67B *7/30*
U.S. Cl. 30—409 **10 Claims**



1. A tool for opening a can or the like, comprising a body part formed as an integral member and including a first portion extending in a first plane and a second portion extending in a second plane which is substantially transverse to said first plane, said first portion being elongated in a first direction and having a wall which bounds two cutouts spaced from one another in the direction of elongation and each having an outlet which opens at said second plane, each of said cutouts being bounded by a first wall section and a second wall section formed in said wall and spaced from one another in the direction of elongation, said second portion being also elongated in said first direction and having two pointed tips and two cutting edges which are located in said second plane, spaced from one another in the direction of elongation and face in opposite directions so that they can be utilized for opening by a left-handed person and a right-handed person, respectively, said second portion having two further wall sections which partially overlap and laterally limit the respective outlets of said cutouts of said first portion, so that when the body part is placed onto a bead of a can or the like and the bead is received in one of said cutouts, the first portion of said body part is supported on the bead from above by a respective one of said first wall sections, whereas a wall of the can or the like is firmly clamped between a respective one of said second wall sections of said first portion and a respective one of said further wall sections of said second portion of said body part, and when the second portion is forced into a cover of the can or the like said one second wall section of said first portion abuts against the bead from below.

4,380,124
DRAWING BOARD
Joseph Smith, Auckland, New Zealand, assignor to Colin Ward Rogers, Auckland, New Zealand, a part interest
Filed Dec. 16, 1980, Ser. No. 217,183
Claims priority, application New Zealand, Jan. 22, 1980, 192655
Int. Cl.[3] B43L *13/14*
U.S. Cl. 33—433 **9 Claims**



1. A drawing board having a drawing surface and guide means for drawing instruments which guide means do not protrude above the plane of the drawing surface, said guide means including a pair of arcuate guide means of opposite curvature situated on one side of the board each arcuate guide means defining a different vanishing point with said vanishing points disposed on opposite sides of the center of the drawing surface, and a recess between the arcuate guide means to enable a drawing instrument positioned partly within said recess to be moved from one arcuate guide means to the other to enable lines to be drawn towards the different vanishing points on opposite sides of the center of the drawing surface, said arcuate guide means that is closest to the adjacent edge of the board being of larger radius, and being longer than the other said arcuate guide means.

4,380,125

METHOD OF AND APPARATUS FOR DRYING AND PREHEATING COKING COAL IN A FLIGHT STREAM TUBE

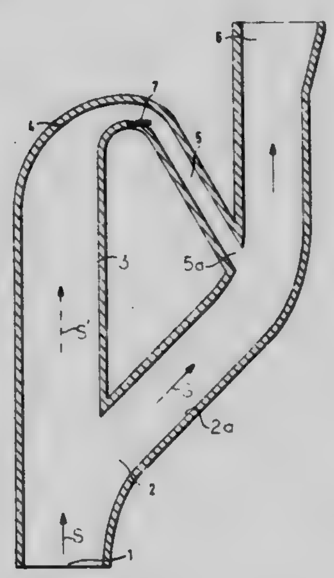
Diethard Habermehl; Wolfgang Rohde; Werner Kucharzyk, and Werner Siebert, all of Essen, Fed. Rep. of Germany, assignors to Bergwerksverband GmbH and Didier Engineerin GmbH, both of Essen, Fed. Rep. of Germany

Filed Oct. 23, 1980, Ser. No. 199,953

Claims priority, application Fed. Rep. of Germany, Oct. 24, 1979, 2942878

Int. Cl.³ F26B *3/10, 17/10*

U.S. Cl. 34—10 **12 Claims**



1. Method of drying and preheating coking coal fines composed of mixed particle fractions in an upright flight stream tube, comprising the steps of advancing a stream composed of hot gas and mixed fractions of moist coal particles upwardly through a flight stream tube in a primary path; temporarily splitting said stream into a larger main stream containing the smaller particle fractions and a smaller secondary stream containing the coarser particle fractions; thereupon admitting the coarser particle fractions into the main stream with the smaller particle fractions in a directions generally opposite to the advancement of the main stream; and varying the volumetric quantity of said secondary stream to thereby vary the size composition of the coarser particle fractions contained therein.

4,380,126

HEAT RECYCLING APPARATUS

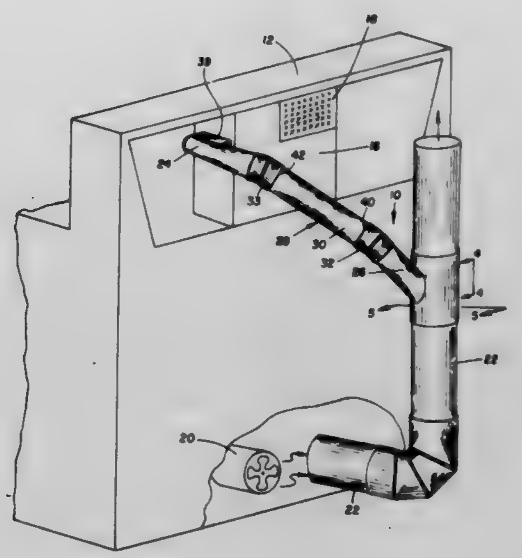
Horton C. Kinder, 2524 Springfield Ave., Fort Wayne, Ind. 46805

Filed Jun. 2, 1981, Ser. No. 269,726

Int. Cl.³ F26B *11/04*

U.S. Cl. 34—86 **8 Claims**

1. A heat recycling apparatus operatively connected to a hot air chamber having an exhaust pipe, said apparatus comprising: an intake conduit having opposite ends, one of said conduit ends having an opening surrounded by a peripheral edge, said exhaust pipe having an aperture therein, said one intake conduit end extending into said exhaust pipe through said aperture, said opening having an area of between approximately 30% and approximately 65% of the cross-sectional area of said exhaust pipe, said peripheral edge being disposed tangent to said exhaust pipe and in a plane perpendicular to the longitudinal axis of said exhaust pipe passing through the most upstream point of said aperture thereby minimizing dead air space at the junction of said intake conduit and said exhaust pipe; the other of said conduit ends being connected to said hot air chamber,



thereby providing recycled exhaust air to said hot air chamber without excessive lint accumulation.

4,380,127

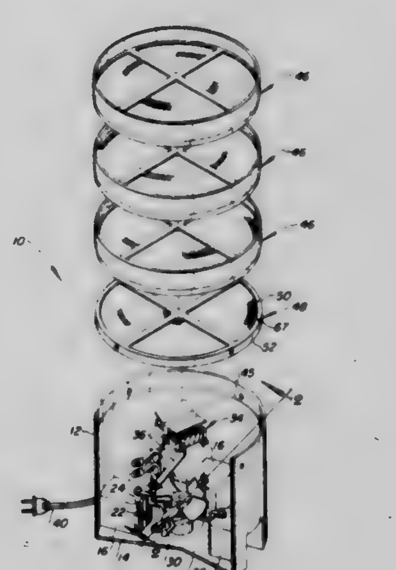
DEHYDRATOR APPARATUS WITH UNIDIRECTIONAL AIR FLOW CONTROL MEANS

Elliott D. Roberts, 105 W. Shore Dr., Richardson, Tex. 75080

Continuation-in-part of Ser. No. 77,900, Sep. 24, 1978. This application Feb. 27, 1981, Ser. No. 238,848

Int. Cl.³ F26B *9/00*

U.S. Cl. 34—197 **17 Claims**



1. Dehydrator apparatus for drying food comprising:

a housing including a vertical sidewall portion and a transverse base wall joined to said sidewall portion and forming an enclosure;

air intake means in said housing comprising a plurality of spaced apart recesses formed by respective wall portions of said housing projecting inwardly from said sidewall portion adjacent said base wall and forming air inlet flow channels into said housing through openings in respective walls of said recesses;

at least one food supporting tray member disposed across an open top part of said housing, said tray member having a foraminous food supporting portion forming a generally flat shelf;

a fan mounted in said housing generally above said openings and disposed for inducting a flow of air into said housing through said air intake means and then through said shelf; and

a motor mounted in said housing below and drivably con-

nected to said fan, said motor being mounted adjacent said openings in said recesses whereby air is drawn through said channels into said housing by said fan and flows generally over said motor before flowing through said shelf.

4,380,128

GREETING CARD WITH OPEN WORK ENGRAVING THEREON

Junju Ichikawa, Mikageishi, Japan, assignor to Kagawa & Co., Ltd., Osaka, Japan

Filed Oct. 7, 1980, Ser. No. 194,884

Claims priority, application Japan, Oct. 12, 1979, 54-142033[U]

Int. Cl.[3] G09F *1/00*

U.S. Cl. 40—158 R **3 Claims**

1. A greeting card comprising
a front sheet having a front face and a back sheet containing an inner face,
an aperture disposed in the front face,
a front flap portion attached to the inner surface of the front sheet, across said aperture, said front flap portion combining with the inside surface of the front sheet to form a pocket, and
a decorative element made of a metallic or synthetic material and having a specific see-through design, removably disposed in said pocket, whereby a desired background can be seen through said decorative, see-through design.

4,380,129

PROOF-OF-PURCHASE FOR SELF-OPENING CANS

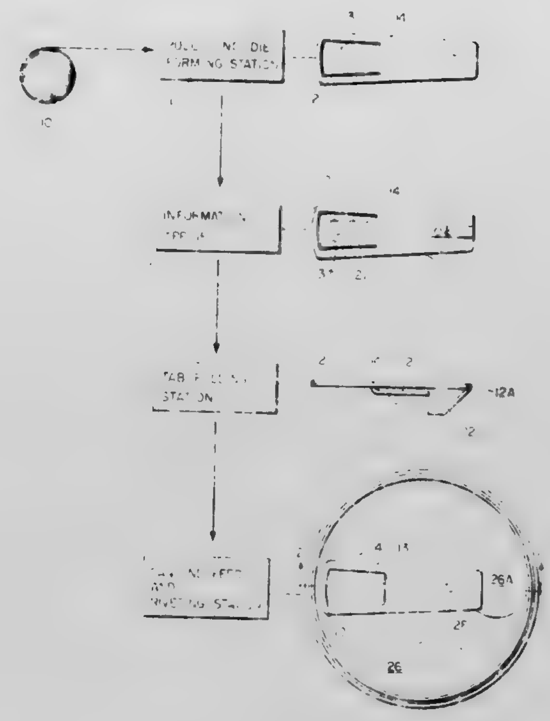
Marshall J. Barrash, Atlanta, Ga., assignor to The Coca-Cola Company, Atlanta, Ga.

Filed Sep. 9, 1981, Ser. No. 300,554

Int. Cl.[3] G09F *3/00*

U.S. Cl. 40—307 **16 Claims**

1. A pull ring opening device for a self-opening can lid comprising:
a finger engaging portion;
a closure engaging portion for engaging closure means for said can; and



an integral removable portion comprising at least a surface adapted to display indicia.

4,380,130

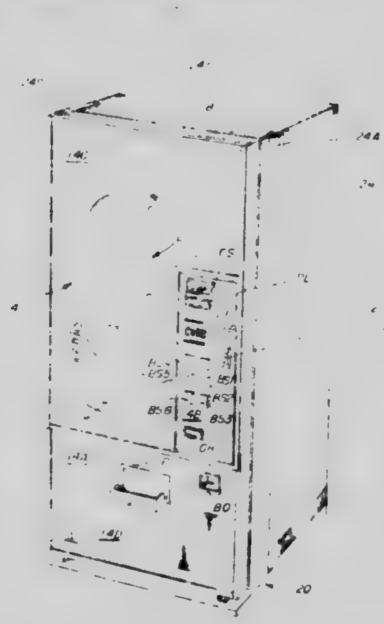
DISPLAY PANELS FOR VENDING MACHINES

G. Merle Bachmann, Stone Mountain; Charles L. Davis, and Annis R. Morgan, Jr., both of Atlanta, all of Ga., assignors to The Coca-Cola Company, Atlanta, Ga.

Filed Mar. 17, 1981, Ser. No. 244,818

Int. Cl.[3] G09F *7/00*

U.S. Cl. 40—584 **1 Claim**



1. Display means for an obverse face of a vending machine comprising:
a plurality of panel means defining a like plurality of display fields within a defined display area;
selected ones of said panel means being of contrasting surface characteristics to the remaining said panel means in the provision of selected display configurations in said display area;
one of said selected ones of said panel means including logo means definitive of a primary product to be dispensed by said vending machine; and
the remaining said selected ones of said panel means being so configured, in conjunction with said one of said selected panel means, as to suggest the representation by said display panel means of an alphanumeric character representative of the said primary product in addition to said logo

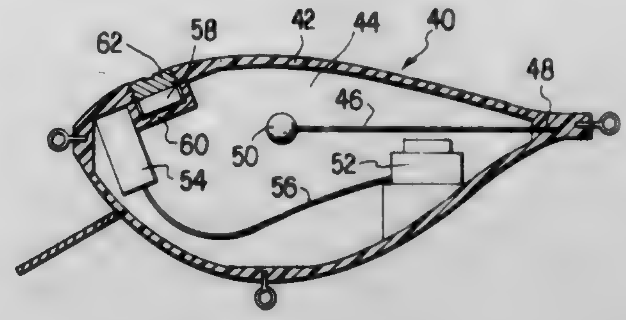
means, said alphanumeric character being an abbreviation for said primary product.

4,380,131
FISH LINE HOOK SETTING ATTACHMENT
Frank Lazan, Jr., Box 311, Cassville, W. Va. 26527
Filed Dec. 16, 1980, Ser. No. 216,849
Int. Cl.³ A01K *97/12*
U.S. Cl. 43—15 **7 Claims**

1. In combination with a fishing line assembly including a flexible base end portion for support from a support structure such as a fishing rod, a flexible free end portion from one end of which a hook assembly may be supported and an elongated intermediate portion extending between and connecting said end portions, said intermediate portion including means functioning to rigidify said intermediate portion, the opposite ends of said intermediate portion including oppositely inclined transverse water vane portions supported therefrom against rotation relative to said intermediate portion, whereby a downward pull on the free end portion of the fishing line assembly by a fish biting on the attached hook assembly sufficient to cause lengthwise downward displacement of the fishing line assembly against light buoyancy applied thereto by an associated bobber will cause said intermediate portion to be inclined relative to the direction of the pull and thus resist said pull at the free end portion of said fishing line assembly to thereby render the effect of an almost immediate pull on the free end portion of the fishing line assembly in a direction substantially opposite to the direction of the pull effected thereon by a fish.

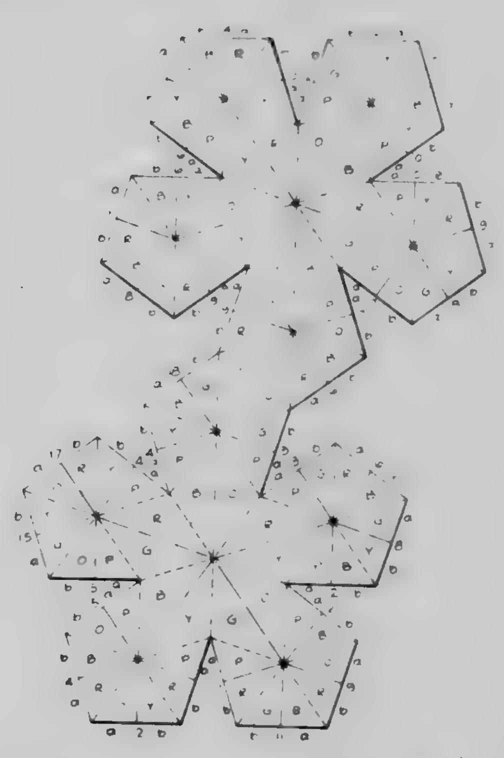
4,380,132
FISHING LURE WITH VIBRATION PRODUCING MEANS
James K. Atkinson, 504 Harrison St., Dardanelle, Ark. 72834
Filed Jun. 23, 1978, Ser. No. 918,405
Int. Cl.³ A01K *85/01*
U.S. Cl. 43—26.2 **4 Claims**

2. A fishing lure comprising:
a body member having walls defining a water-tight cavity;
a weight located within said cavity;
an electromagnetic transducer mounted within said cavity and coupled to said weight;
a power source; and



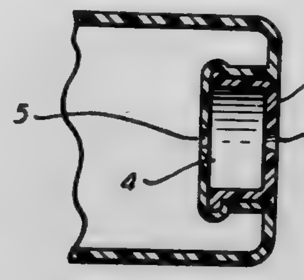
an oscillator circuit supplied by said power source and operable to drive said transducer at a predetermined frequency.

4,380,133
FLAT PATTERN FOR THREE-DIMENSIONAL RIGID STRUCTURE
Bennett R. Arnstein, 3049 W. 8th St., Apt. 435, Los Angeles, Calif. 90005
Filed Feb. 17, 1981, Ser. No. 235,012
Int. Cl.³ A63H *33/00*
U.S. Cl. 46—1 L **5 Claims**



1. A flat pattern laid out on a thin flexible sheet of material that can be written or printed or painted or marked upon and that can be folded and creased to form a three-dimensional structure, consisting of twelve regular pentagons connected to form a flat pattern for a simple dodecahedron, each pentagon having diagonals bisecting the corner angles of said pentagons, crease lines lying along said diagonals, up-facing creases being directed toward the side edges of said pentagons, down-facing creases being directed toward the corners of said pentagons, whereby a great dodecahedron is formed when the side edges of said pentagons are joined.

4,380,134
MOLDED SQUEEZE TOY INCLUDING WHISTLE
Anthony P. Taluba, Box 245, R.D. 3, Lebanon, N.J. 08833, and Paul A. Taluba, 319A Rte. 1, Morrisville, N.Y. 12962
Continuation of Ser. No. 727,473, Sep. 28, 1976, abandoned. This application Jul. 10, 1978, Ser. No. 923,447
Int. Cl.³ A63H *5/00*
U.S. Cl. 46—117 **11 Claims**

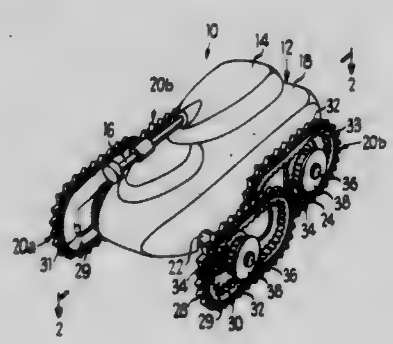


1. An air-filled squeeze toy of unvulcanized thermoplastic rubber material comprising in combination a whistle having a site comprising a whistle cavity integrally formed with the body of said toy in a blow molding process in which a parison extruded from a source for plasticizing said thermoplastic rubber is clamped in an unheated mold including precisely engineered apertured insert means in fixed relation to the interior of said mold,

said whistle cavity including a closure forming a substantially closed chamber resonant to a preselected sound frequency,

said whistle cavity and said closure each having a small central opening, said openings being substantially aligned in axial relation to said chamber, wherein at least the central opening in said whistle cavity as formed by said insert means is positioned to accommodate the excursions of a cylindrical blow pin of uniform cross-section, whereby it serves as a blow hole during said blow molding process, and wherein as a result thereof said opening in said whistle cavity is precisely controlled to have a uniform reproducible diameter precisely equalling the minimum diameter of the opening in said closure.

4,380,135
FOUR WHEEL DRIVE TOY
John R. Wildman, North Riverside, and Howard J. Morrison, Deerfield, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Aug. 10, 1981, Ser. No. 291,420
Int. Cl.³ A63H *17/04*
U.S. Cl. 46—219 **3 Claims**



1. A four-wheel drive toy vehicle comprising:

a vehicle housing having a front and rear end;

two pairs of identical elongated movable track means for forwarding the vehicle housing over a surface, a first pair of track means near the front end on opposite sides of the housing and a second pair of track means near the rear end on opposite sides of the housing, each track means mounted for independent pivoting movement about a horizontal axis through a full 360°, each of said track means including a member having a pair of generally parallel spaced elongated run portions and end portions, one of said pair of track means being mounted further outwardly of the housing than the other pair, one pair of track means overlapping the other pair to provide a shortened profile for said vehicle, each of said track means defining an elongated central recess;

a symmetrical drive means for driving each of said pairs of track means at the same velocity;

follower means carried by said housing and driven by said drive means for movement along the recess of each of said track means at the same velocity, in proximity to said run portions and said end portions whereby the track means forms a base on which the follower means moves, said follower means including cooperating means providing for pivoting movement of said track means about said follower means as the latter reaches one of said end portions, said follower means further including gears driven by said drive means for rotation about a horizontal axis and adapted to roll about the interior of each recess;

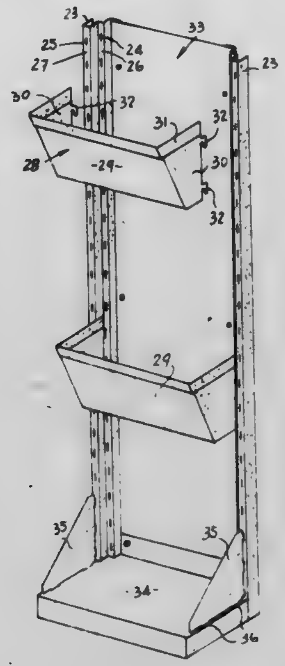
a pair of axles arranged to transmit rotary motion from said drive means to said track means, said axles mounting said follower means, said axles spaced apart by a distance slightly greater than the length of the elongated run portions of said track means, one of said axles being shorter than the other; and

means for making the interior of said track means visible from the outside, said means for making the interior of the track means visible including a first flange for each track means, attached to each gear and engaging the exterior side of said track means for relative sliding movement along said track means as said follower means moves relative to said track means, said means for making the interior of said track means visible further including a set of second flanges, each second flange attached to an axle between said first flange and said vehicle housing, said second flange engaging the interior side of said track means for relative sliding movement along said track means as said follower means moves relative to said track means, each of said track means further including a radially inwardly directed flange arranged to abut with said second flange and to be sandwiched between said follower means and said second flange so as to securely and safely retain said track means on said follower means.

4,380,136
ASSEMBLY KIT FOR A HOLDER FOR GROWTH SUPPORTING MEDIUM
Ladislav S. Karpisek, 86 Woodfield Boulevarde, Caringbah, n.s.w, Australia
Filed Jul. 11, 1980, Ser. No. 167,725
Int. Cl.³ A01G *9/02*
U.S. Cl. 47—83 **5 Claims**

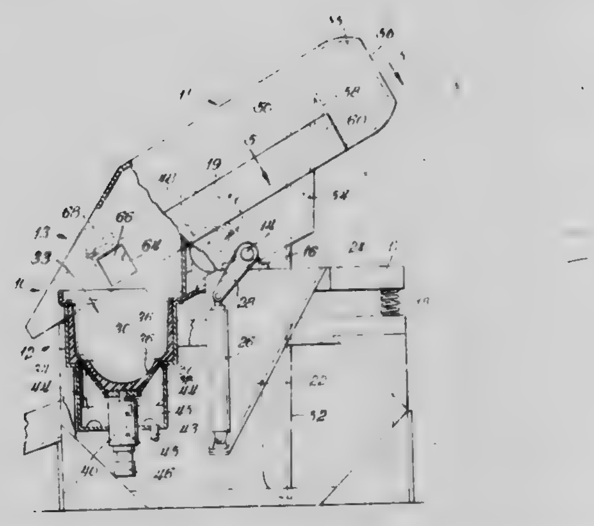
1. A kit to assemble into at least one holder for a growth supporting medium such as soil, said kit comprising a backing member and two posts to be erected in vertical parallel spaced relationship against said backing member, first coupling means on each post spaced apart at regular intervals along the posts, at least one contoured front panel having an upper edge and a lower edge which is shorter than the upper edge, said front panel having a central portion disposed between two end portions, second coupling means on each of said end portions to respectively releasably engage with the first coupling means on the posts to position said end portions in planes at right angles to the plane of the backing member fixed to the cooperating post and to space said central portion from the backing member, said central portion and end portions of the front panel and the backing member providing encircling walls for a

soil zone which is open top and bottom and has a smaller cross-sectional area adjacent the front panel lower edge than it



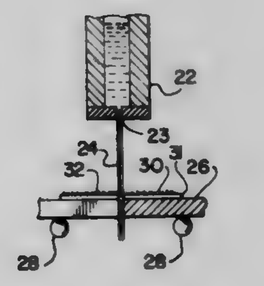
has adjacent the front panel upper edge and a bottom panel to close off the bottom of a selected soil zone.

4,380,137
SELF-SEPARATING FINISHING MACHINE HAVING VARIABLE DEGREES OF ROTATION AND VIBRATION, AND METHOD
Gunther W. Balz, Kalamazoo, Mich., assignor to Roto-Finish Company, Inc., Kalamazoo, Mich.
Filed May 18, 1981, Ser. No. 264,399
Int. Cl.^{3} **B24B** *31/00*
U.S. Cl. 51—163.1 **28 Claims**



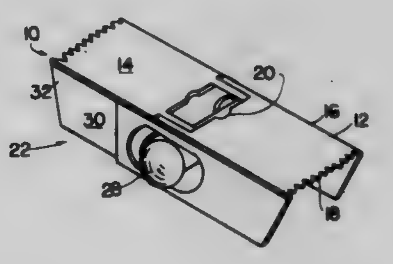
1. A finishing machine for finishing the surface of unfinished parts with finishing media comprising a housing which is rotatable about a substantially horizontal axis, a finishing chamber in said housing for receiving unfinished parts and finishing media and for finishing of parts when said housing is in a first and finishing position, a storage chamber in said housing adapted to receive finishing media from said finishing chamber when said housing is rotated to a position different from said first position, a foraminous member disposed in said housing for separating finishing media from parts, parts exit means adjacent said foraminous member for exit of finished parts from said machine when said housing is rotated to a position different from said first position, means for rotating said housing about a substantially horizontal axis from one position to another, and means for transfer of finishing media from said storage chamber to said finishing chamber upon return of said housing to said finishing position, characterized in that said housing is rotatable to a second and media-separation position and to a third and parts-ejection position, said positions being separate and independent positions and means for rotating said housing to each of said different positions for Media separation at said record portion and for parts—ejection at said separate third position.

4,380,138
ABRASIVE LIQUID JET CUTTING
Peter H. Hofer, Barrington, Ill., assignor to International Harvester Co., Chicago, Ill.
Filed Apr. 13, 1981, Ser. No. 253,440
Int. Cl.^{3} **B24B** *1/00*
U.S. Cl. 51—321 **31 Claims**



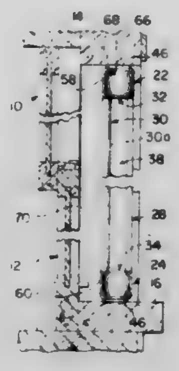
1. In a process of cutting a workpiece using a relatively thin, high velocity liquid jet directed through a nozzle opening, the improvement comprising the steps of interposing a plurality of stationary positionally supported abrasive particles between said nozzle opening and said workpiece, directing said liquid jet in an airborne stream toward said particles, intercepting said particles with said liquid jet, and driving said liquid jet and said particles into said workpiece.

4,380,139
ANCHORING APPARATUS
Ronald Mitchell, 4600 W. Second St., Roswell, N. Mex. 88201
Filed Sep. 15, 1980, Ser. No. 187,433
Int. Cl.^{3} **E02D** *5/74*
U.S. Cl. 52—162 **14 Claims**



1. An anchoring apparatus comprising a pair of fluke members, each fluke member comprising a planar top plate and at least two support arms secured in a substantially perpendicular orientation to said top plate and extending longitudinally away from said top plate with their top sides being substantially parallel to said planar top, each said support arm defining a slot, pin means positioned in each said support arm slot, each said support arm being adapted to slide and rotate on said pin means so that the portion of the support arm extending away from the top plate abuts against the bottom of the top plate of the other fluke member, said pin means defining an eyelet with a threaded bore therethrough and tension means threadedly engaging said threaded eyelet adapted to keep said fluke member locked into abutting position.

4,380,140
THERMAL BARRIER FOR WINDOWS
Joseph L. Abbott, Columbia, S.C.
Filed Sep. 25, 1980, Ser. No. 190,796
Int. Cl.[3] **E04B** *3/26*
U.S. Cl. 52—202 **10 Claims**



1. A thermal barrier for a window in a window opening including means providing spaced apart pairs of horizontal and vertical surfaces extending about the window opening comprising, a channel member mountable on each said surface and having a bottom wall transverse to said window and a pair of spaced apart side walls extending inwardly from said bottom wall parallel to said window, a sheet of rigid plastic film material having opposite sides and spaced apart pairs of planar horizontal and vertical edges each received in a corresponding one of said channel members between said side walls thereof and parallel to said window, the upper one of said pair of horizontally extending edges including rigid flange means extending at an angle with respect to one of said opposite sides of said sheet, a retaining member removably received in each channel member and including a leg frictionally engaging the corresponding edge of said sheet against one of the side walls of the corresponding channel member and in the direction toward the bottom wall of the channel member, said lower one of said pair of horizontally extending edges and said pair of vertical edges each terminating adjacent the juncture between said one side wall and the bottom wall of said corresponding channel member, said leg of the retaining member in the channel member receiving said upper one of said pair of horizontally extending edges of said sheet engaging said flange means in the direction toward the bottom wall of the corresponding channel member.

4,380,142
AGRICULTURAL MACHINE FOR THE TEDDING OR CONDITIONING OF FODDER
Albert Wattron, Schwenheim, and Michel Quirin, Allenwiller, both of France, assignors to Belrecolt S.A., Marmoutier, France
Filed Dec. 12, 1980, Ser. No. 215,854
Claims priority, application France, Dec. 20, 1979, 79 31888
Int. Cl.[3] **A01D** *49/00*
U.S. Cl. 56—370 **4 Claims**

1. In a machine for handling cut herbage during forward movement of the machine on the ground,

in combination:

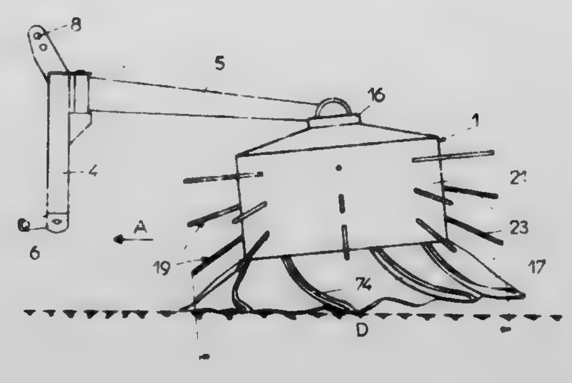
a support,

at least one drum mounted on said support for rotation about an axis which is inclined upwardly and forwardly in respect of the direction of movement of the machine,

driving means operable for rotating said drum about said axis,

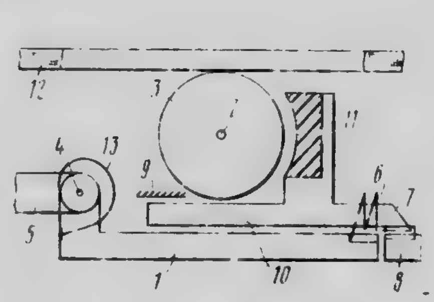
a flexible deformable skirt mounted on the lower portion of said drum for joint rotation therewith and operative for lifting the cut herbage and moving it rearwardly,

tedding means cooperating with said skirt for tedding the lifted herbage prior to its deposition on the ground, wherein said drum is hollow, and



a mounting support situated within said hollow drum, and wherein said tedding means includes impelling means affixed to said mounting support.

4,380,143
DEVICE FOR WITHDRAWING ROTOR OF SPINDLELESS SPINNING MACHINE TO INOPERATIVE POSITION
Abdurakhim Abduganiev, Chilanzar, kvartal 20, 33, kv. 7; Valentin N. Tikhonov, ulitsa Sh. Rustaveli, 55, kv. 28; Gennady N. Shlykov, Chilanzar, kvartal 19, 31, kv. 3; Vitaly I. Zhestkov, Chilanzar, kvartal 19, 26, kv. 41, all of Tashkent; Timur P. Krjuk, prospekt Mira, 90, kv. 11, Moscow; Viktor M. Mukhin, ulitsa Bogdana Khmelnitskogo, 69, korpus 2, kv. 31, Tashkent, and Jury N. Tikhonov, ulitsa Mukimi, 1, kv. 62, Tashkent, all of U.S.S.R.
PCT No. PCT/SU79/00011, § 371 Date Oct. 27, 1980, § 102(e) Date Oct. 22, 1980, PCT Pub. No. WO80/01815, PCT Pub. Date Sep. 4, 1980
PCT Filed Feb. 27, 1979, Ser. No. 197,996
Int. Cl.[3] **D01H** *7/22, 1/12*
U.S. Cl. 57—89 **8 Claims**



1. Apparatus for withdrawing a rotor of a spindleless spinning machine to an inoperative position and for braking the rotation of the rotor, comprising:

a housing in which a rotor is mounted and bearings for rotation about an axis of rotation;

cylindrical pivot means for pivotally mounting said housing to a framework of the spinning machine such that said housing is pivotable about an axis which is substantially parallel to the axis of rotation of said rotor between a first position wherein said rotor mounted in said housing is in an operative position and a second position wherein said rotor is in an inoperative position; and

a slide member mounted on said housing for translatory reciprocating movement thereon in a direction substantially normal to the axis of rotation of said rotor, said slide member having at least one brake shoe secured thereto adapted to selectively interact with said rotor at a point within the sliding travel of said slide member on said housing, and latch means provided on said slide member adapted to releasably engage the framework of the spinning machine when said housing is in said first position;

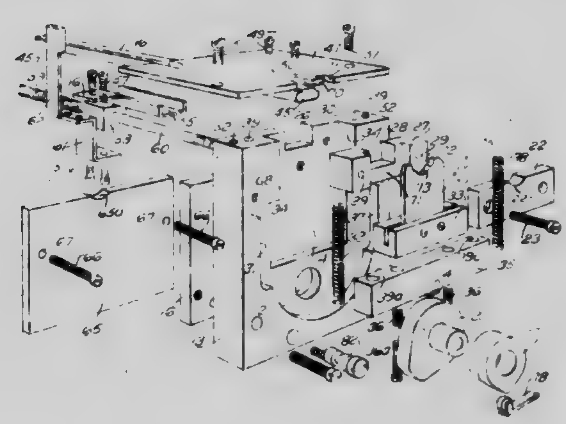
whereby in order to withdraw said rotor to the inoperative position and brake its rotation, said latch is slidably moved

to a position such that it is disengaged from the framework of the spinning machine, such movement being transmitted to said slide member which translates on said housing whereupon said brake shoe comes into contact with said rotor to terminate its rotation.

4,380,144
BELT FALSE TWISTING SYSTEM
William J. Henry, Spartanburg, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.
Filed Aug. 3, 1981, Ser. No. 289,165
Int. Cl.³ D02G *1/02;* **D01H** *13/30*
U.S. Cl. 57—286 **2 Claims**

1. A false twist crimping machine comprising: a primary heater, means to supply a yarn to said primary heater, a cooling bath, means to guide the yarn from said primary heater to said cooling bath, a belt false twisting mechanism, means to supply the yarn to said false twisting mechanism, means to take-up the yarn false twisted from said mechanism, means to supply a cooling liquid to said cooling bath and means operably associated with said cooling bath to purify and recirculate cooling water from said cooling bath to said means to supply a cooling liquid.

4,380,145
WIRE LINK-FORMING AND LINKING DEVICE
Robert A. Morin, 49 Mulberry Cir., Johnston, R.I. 02919
Continuation-in-part of Ser. No. 65,941, Aug. 13, 1979, abandoned. This application Feb. 20, 1981, Ser. No. 236,620
Int. Cl.³ B21L *1/04*
U.S. Cl. 59—27 **6 Claims**

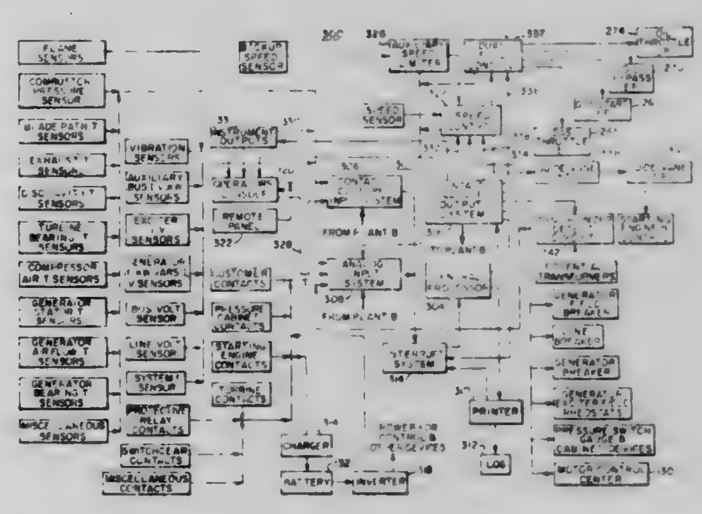


1. A machine for closing open end links comprising a magazine having means for guiding the open end links; a slideway intersecting the path of said link guiding means;

a fixed semi-circularly shaped link center forming tool across said slideway on one side of the path of said link guiding means;

a single one-piece slide tool in said slideway on the other side of the path of said link guiding means having an irregularly-shaped groove having an upper arcuate portion mating with said link and supporting the link at spaced points at least for initial movement to the forming tool and a lower arcuate portion, the juncture of said portions defining spaced link contacting points whereby, when an open end curved link having a concave inner surface is moved into the path of said slideway and engaged by said upper arcuate spaced points of said slide tool and moved toward said center forming tool, its inner surface will first engage said center forming tool and further movement in the same direction of said slide tool with both arcuate portions will cause said spaced link contacting points to bend the link on either side of the center thereof about said center forming tool moving the link out of said upper arcuate portion and without interruption of bending into the lower arcuate portion to close the open ends of the link.

4,380,146
SYSTEM AND METHOD FOR ACCELERATING AND SEQUENCING INDUSTRIAL GAS TURBINE APPARATUS AND GAS TURBINE ELECTRIC POWER PLANTS PREFERABLY WITH A DIGITAL COMPUTER CONTROL SYSTEM
Robert A. Yannone, Aldan, and Roy W. Kiscaden, Springfield, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Continuation of Ser. No. 758,532, Jan. 12, 1977, abandoned, which is a continuation of Ser. No. 252,131, May 10, 1972, abandoned. This application Nov. 16, 1979, Ser. No. 95,174
Int. Cl.³ F02C *7/26*
U.S. Cl. 60—39.141 **12 Claims**



1. A gas turbine electric power plant comprising a gas turbine having compressor combustion and turbine elements, a generator coupled to said gas turbine for drive power, a fuel system for supplying fuel to said gas turbine combustion element, means for operating said fuel system to energize said turbine, electronic means for controlling said fuel system operating means including electronic means for generating a speed reference, and electronic means for controlling said operating means to control the fuel flow in response to the speed reference and actual turbine speed normally to accelerate said turbine to operating speed from a predetermined lower speed in a substantially fixed period of time irrespectively of the existing ambient temperature over an ambient temperature range at least from −40° F. to 120° F.

4,380,147
STEAM POWER PLANT CONTAINING PRESSURE-FIRED STEAM GENERATOR WITH FLUIDIZED BED FIRING

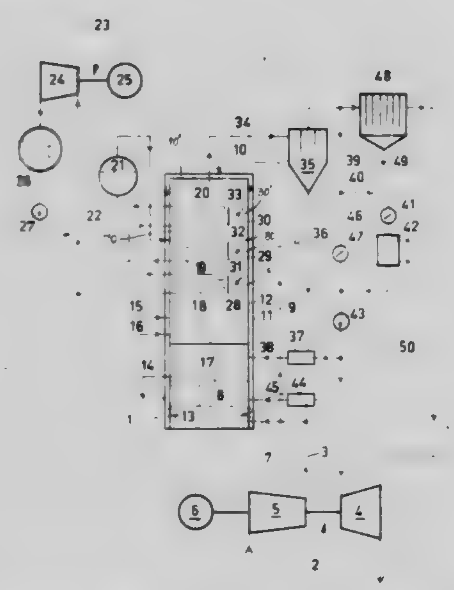
Tadeusz Zaba, Ennetbaden, Switzerland, assignor to BBC Brown, Boveri & Co. Ltd., Baden, Switzerland

Filed Mar. 18, 1981, Ser. No. 245,075

Claims priority, application European Pat. Off., Apr. 16, 1980, 80200338.4

Int. Cl.³ F02C *6/18*

U.S. Cl. 60—39.182 **1 Claim**



1. In a steam power plant containing a pressure-fired steam generator equipped with fluidized bed firing, a charging set composed of a gas turbine and a compressor, the charging set being driven by the flue gases of the steam generator and conveying the compressed combustion air beneath the fluidized bed in order to form thereat a vortex layer, devices for the separation, filtering and withdrawal of the dust-like contaminants contained in the flue gas and for controlling and regulating the steam output for a steam turbo-generator set, the improvement which comprises:

said steam generator containing boiler heating surfaces;

all of said boiler heating surfaces being arranged externally of the vortex layer of the fluidized bed;

said devices for the control and regulation of the steam output comprising:

by-pass flow regulating valve means for the flue gas;

said by-pass flow regulating valve means being arranged in said steam generator;

a flue gas withdrawal line provided for said steam generator;

a flue gas by-pass line means branching-off said flue gas withdrawal line;

said flue gas by-pass line means containing a flue gas by-pass valve means, a flue gas cooler means and a ventilator means;

said flue gas by-pass line means opening into the steam generator below the fluidized bed;

a secondary flue gas by-pass line for flow communicating a location of the flue gas by-pass line means forwardly of the flue gas by-pass valve means with a location of the flue gas by-pass line means following the flue gas cooler means;

a secondary flue gas by-pass valve means provided for said secondary flue gas by-pass line;

an injector for blowing in solid non-combusted constituents separated out of the flue gas withdrawal line into the fluidized bed;

a flue gas branch means leading frm the flue gas by-pass line means following the ventilator into said injector;

a flue gas/air mixer provided for the flue gas by-pass line means forwardly of a location where it opens below the fluidized bed of the steam generator; and

said flue gas/air mixer flow communicating with a branched location leading from a primary air line of said charging set.

4,380,148
DEVICE FOR ADJUSTING GAS TURBINE ENGINE FUEL CONTROL SYSTEM IN ACCORDANCE WITH ENGINE PARAMETER

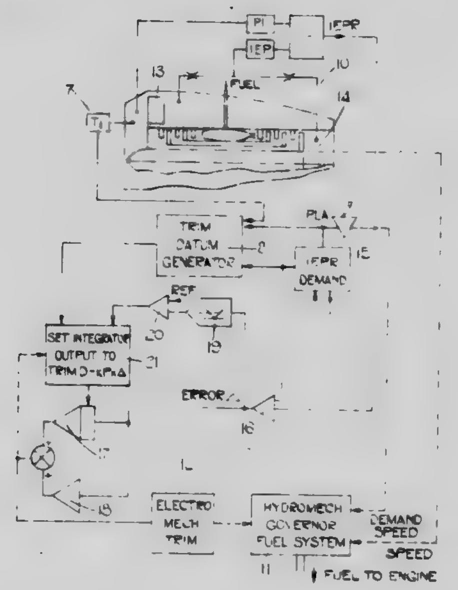
Robert G. Burrage, and Michael J. Joby, both of Solihull, England, assignors to Lucas Industries Limited, Birmingham, England

Filed Sep. 19, 1980, Ser. No. 188,727

Claims priority, application United Kingdom, Sep. 21, 1979, 7932878

Int. Cl.³ F02C *9/28*

U.S. Cl. 60—39.281 **4 Claims**



1. A fuel control system for a gas turbine engine of the kind including a hydromechanical speed governor fuel control in which a fuel valve is movable under the influence of a control input element, operable for example by the pilot of an aircraft in which the engine is installed, and speed sensing means, the effect of said control input element on said fuel valve being variable through the intermediary of an electromechanical trim device controlled by an electronic control circuit sensitive to at least one engine parameter, wherein said electronic control circuit includes error signal generating means for producing an error signal representing the difference between the desired and actual values of said engine parameter, a proportional-plus-integral controller circuit for producing the output signal which is applied to said electromechanical trim device, means for generating a trim datum signal dependent on the control input and means for setting the integrator included in the proportional-plus-integral control circuit to a value corresponding to the difference between the trim datum signal and the output of the proportional part of the proportional-plus-integral control circuit when the magnitude of a function of the error signal exceeds a predetermined value.

4,380,149
METHOD AND MEANS FOR DIESEL EXHAUST PARTICULATE EMISSION CONTROL

Otto A. Ludecke, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 9, 1981, Ser. No. 232,320

Int. Cl.³ F01N *3/18*

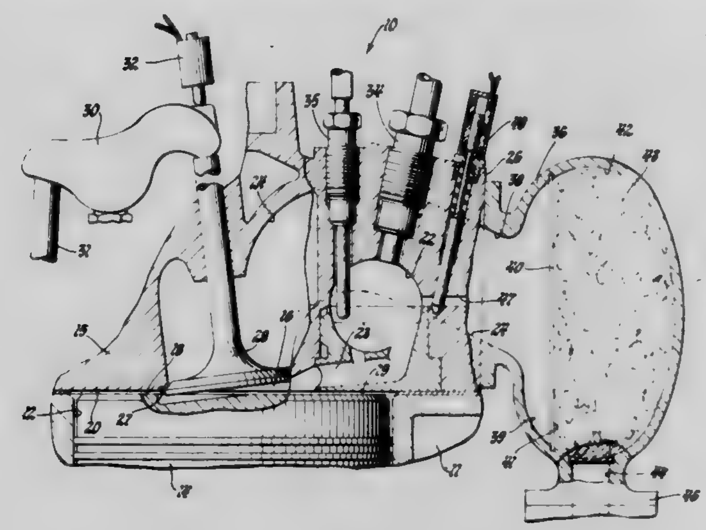
U.S. Cl. 60—274 **5 Claims**

1. A process for limiting emissions of combustible particulates with the exhaust gases from a compression ignition engine of the type wherein excess air is present in the combustion chambers and exhaust gases, at least under conditions other than high load, and in which pressurized fuel-air mixtures are burned and the cylinder gases are expanded to a predetermined cylinder volume which develops substantial mechanical work

prior to venting the cylinder gases to exhaust, said process comprising the steps of

filtering the exhaust gases to collect combustible particulates in a filter capable of withstanding temperatures adequate to incinerate the collected particulates in the excess air containing exhaust gases, and

occasionally, at extended intervals of engine operation, igniting and burning particulates collected in the filter by selectively venting burning pressurized mixture from at



least one cylinder directly to said filter prior to the completion of burning and expansion in the cylinder to said predetermined volume, the mass of said burning mixture which is selectively vented being sufficient to raise to their combustion temperature the particulates in at least a selected portion of said filter,

whereby there results ignition and burning of the collected particulates supported by the excess air containing engine exhaust gases passed through the filter.

4,380,150

PUMP JACK ASSEMBLY FOR WELLS

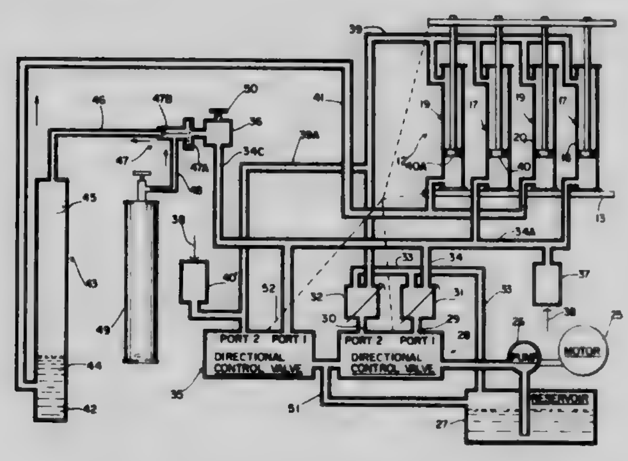
John C. Carlson, General Delivery, Salmon Arm, British Columbia, Canada (V0E 2T0)

Filed Feb. 7, 1980, Ser. No. 119,378

Claims priority, application Canada, Feb. 22, 1979, 322062

Int. Cl.³ F15B *1/02, 13/02*

U.S. Cl. 60—372 **12 Claims**



1. In a pump jack assembly for wells which include a polish rod operating a pump within the well and a source of hydraulic fluid under pressure including a fluid reservoir; the improvement comprising in combination a separate pump actuating assembly having a lift stroke and a return stroke and including at least one fluid operator operatively connected to the polish rod, and a separate counter balance assembly including at least one fluid operator, also operatively connected to the polish rod, said fluid operators including a lift side and a return side, means operatively connecting the source of hydraulic fluid under pressure, to the lift side of said fluid operator of said pump actuating assembly when said pump actuating assembly is on the lift stroke, and to the return side of said fluid operators of said pump actuating assembly and said counter balance assembly when said pump actuating assembly is on the return stroke, said connecting means being responsive to the position of said pump actuating assembly to effect a cycling operation of said pump jack assembly, and a fluid source having means to adjust the pressure thereof and being operatively connected to the lift side of the fluid operator of said counter balance assembly, said fluid source having adjustable pressure including an accumulator having a liquid in the lower portion thereof and gas under pressure in the upper portion thereof, said liquid being operatively connected to the lift side of the fluid operator of said counter balance assembly, a source of high pressure gas, a one-way high-to-low pressure regulator valve between said source and the upper portion of said last mentioned accumulator, and adjustable means operatively connected to the hydraulic pressure acting on the lift side of the fluid operator of said pump actuating assembly and said regulating valve for operating said regulating valve.

4,380,151

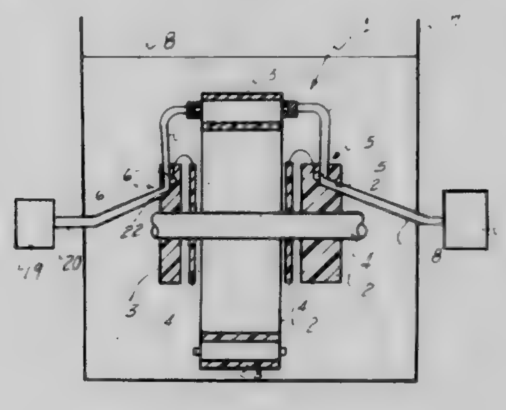
BUOYANCY GENERATOR DEVICE AND METHODS OF MAKING AND USING THE SAME

Thomas C. Miller, 216 Antire Rd., High Ridge, Mo. 63049

Filed Nov. 17, 1980, Ser. No. 207,293

Int. Cl.³ F03C *00/00*

U.S. Cl. 60—496 **1 Claim**



1. A buoyancy generator comprising an energy conversion device for converting stored liquids and potential energy into rotational and kinetic energy comprising,

wheel means, rotatably mounted and submerged in a body of liquid,

closed rigid storage chambers operably mounted in said wheel means and disposed about the periphery thereof,

downward motion assistance means comprising fluid insertion means operably mounted proximate the uppermost part of said wheel means and adapted to fill each chamber with fluid as it reaches its highest point of travel,

upward motion assistance means comprising fluid extracting and air injection means operably mounted proximate the lowermost part of said wheel means and adapted to empty each chamber of fluid as it reaches its lowest point of travel and thereby increase each chamber's buoyancy.

4,380,152

DIAPHRAGM DISPLACER STIRLING ENGINE POWERED ALTERNATOR-COMPRESSOR

Lawrence R. Folsom, Schenectady, N.Y.; John J. Dineen, Durham, N.H.; Nicholas G. Vitale, Schenectady, N.Y., and Charles B. Balas, Jr., Denville, N.J., assignors to Mechanical Technology Incorporated, Latham, N.Y.

Filed Jul. 25, 1980, Ser. No. 172,373

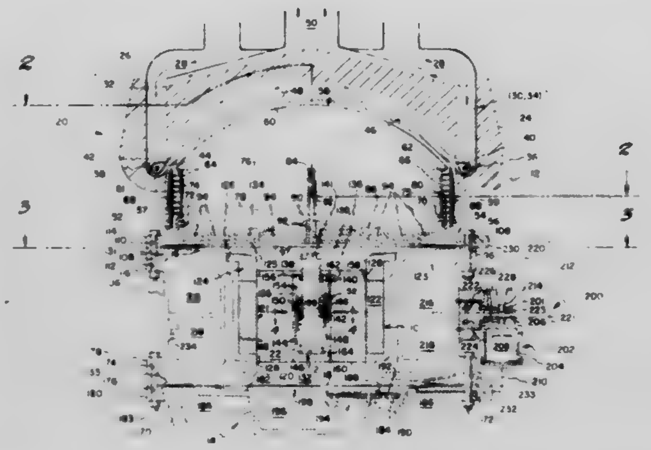
Int. Cl.³ F02G *1/04*

U.S. Cl. 60—520 **19 Claims**

1. A Stirling engine having a vessel containing a working fluid and having a hot chamber; a cold chamber; a displacer having a hot end facing said hot chamber and a cold end facing

said cold chamber, said displacer arranged for oscillation between the hot and cold chambers; and a fluid actuated work output member; wherein the improvement comprises:

unitary means contained entirely within said vessel and coupled between said displacer and stationary structure fixed within said vessel for reducing the effective area of



said displacer cold face relative to the effective area of said displacer hot face, and for storing energy upon movement of said displacer toward one end to drive said displacer back toward the other end, and

wherein said unitary means includes a diaphragm having an inner portion connected to said stationary structure, and an outer portion connected to said displacer.

4,380,153

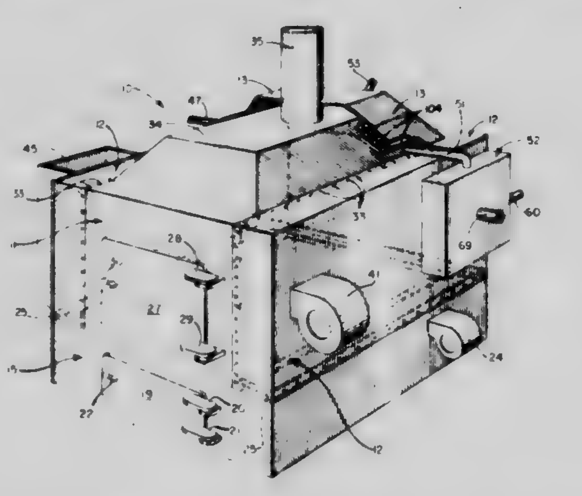
TOTAL ENERGY HEATING UNIT

Henry G. Ursillo, 306 Ipswich Rd., Boxford, Mass. 01921

Filed Oct. 24, 1980, Ser. No. 200,155

Int. Cl.³ F01K *17/00*

U.S. Cl. 60—648 **21 Claims**



1. Process for providing hot air for heating, hot water, and electricity from a single source of fuel comprising the following steps:

(a) burning a suitable fuel within a closed system for the generation of heat;

(b) providing forging air as needed to generate and to maintain said heat;

(c) introducing water under pressure into a closed tank heated by said heat generated, for the generation of steam;

(d) operating a steam turbine operatively connected to an electrical generator, by the steam generated;

(e) passing air around said closed system whereby said air is heated and subsequently forced into a distribution system; and

(f) circulating water around a portion of said closed system whereby the heat from the system generated is additionally used to heat the water.

4,380,154

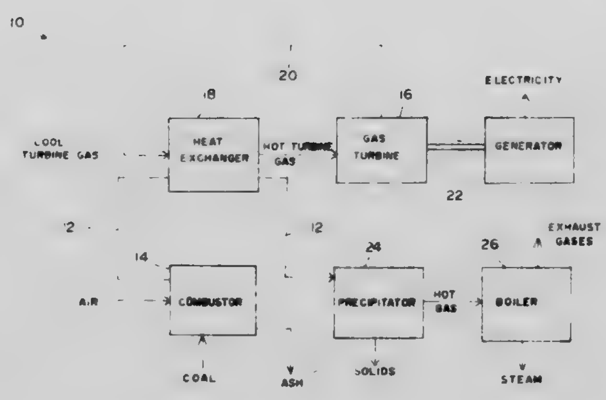
CLEAN COAL POWER SYSTEM

George Y. Eastman, Lancaster, Pa., assignor to Thermacore, Inc., Lancaster, Pa.

Filed Jun. 23, 1981, Ser. No. 276,655

Int. Cl.³ F02C *1/10*

U.S. Cl. 60—682 **13 Claims**



1. An apparatus for the production of mechanical power comprising:

a fluidized bed combustor into which air, coal and limestone are introduced and in which the coal is burned to create heat and the limestone chemically combines with any sulphur in the coal to produce solid compounds;

means attached to the combustor to remove the solid compounds produced by combination of the limestone and sulphur;

a closed cycle gas turbine using hot gas furnished to its input to create mechanical energy; and

a heat exchanger, a first part of which is connected to the fluidized bed combustor and a second part of which is attached to the gas turbine input, heating the turbine gas prior to entry into the turbine, comprising multiple heat pipes constructed with casings with a coating of a continuous impermeable layer of oxide of approximately one micron thickness and a second ceramic coating of between 0.010 and 0.125 inch thickness, covering at least that portion of the heat pipes immersed in the fluidized bed.

4,380,155

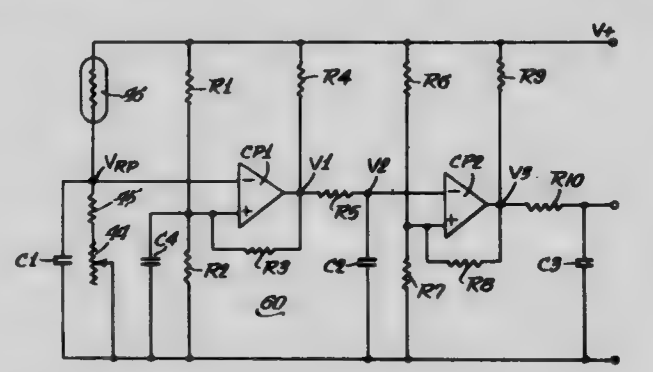
TEMPERATURE SENSING CIRCUIT WITH HIGH NOISE IMMUNITY

Stephen W. Paddock, Evansville, and Andrew T. Tershak, Centre Township, Vanderburgh County, both of Ind., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Division of Ser. No. 68,473, Aug. 20, 1979, Pat. No. 4,297,851. This application Feb. 26, 1981, Ser. No. 238,521

Int. Cl.³ F25B *1/00;* G01K *7/02*

U.S. Cl. 62—229 **5 Claims**



1. In a refrigerator system having refrigeration apparatus for cooling a refrigerated compartment, a temperature sensing circuit with improved immunity to noise occurring in the refrigerator system, comprising:

a circuit board for the temperature sensing circuit located within the refrigerated compartment;

an analog temperature sensing device mounted in the refrigerated compartment and connected to the circuit board for coupling a low level analog sensing signal to the temperature sensing circuit; and

a trigger circuit on the circuit board for generating a digital output as the temperature sensed by the analog device varies above or below a set point including an adjustable potentiometer mounted on the circuit board for manual adjustment of a set point, the potentiometer being connected in a voltage divider network with the analog temperature sensing device, and wherein the trigger circuit further includes a pair of cascaded comparator stages with the first stage coupled to the voltage divider network and having substantially no hysteresis in its response and the second comparision stage having substantial hysteresis in its response to produce the digital output.

4,380,156

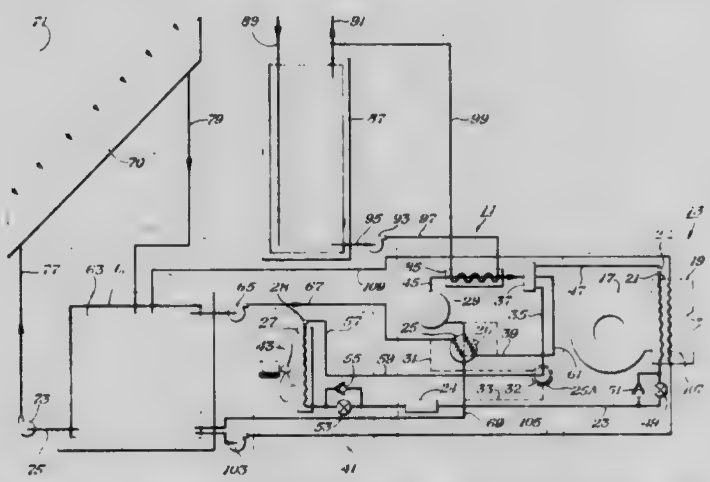
MULTIPLE SOURCE HEAT PUMP

Amir L. Ecker, Duncanville, Tex., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Continuation-in-part of Ser. No. 125,503, Feb. 28, 1980, abandoned, Ser. No. 50,548, Jun. 21, 1979, and Ser. No. 45,392, Jun. 4, 1979. This application Dec. 11, 1981, Ser. No. 330,005

Int. Cl.³ F25B *29/00*

U.S. Cl. 62—235.1 **9 Claims**



1. Apparatus for conditioning a fluid temperaturewise comprising:

a. a fluid handler and fluid path means for circulating said fluid in a path in heat exchange relationship with a refrigerant fluid;

b. at least three refrigerant heat exchangers; a first of the heat exchangers having parallel-connected and alternatively operable first throttling means for throttling refrigerant flow and a first by-pass therefor, said first heat exchanger being disposed in the path of the fluid such that the fluid is passed in heat exchange relationship with said first heat exchanger when said fluid handler is operative, a second of the refrigerant heat exchangers having a liquid level controller controlling a throttling means upstream of said heat exchanger to prevent flooding thereof and being disposed in a heat exchange fluid circuit for circulating the refrigerant in heat exchange relationship with a heat exchange fluid, and a third of the heat exchangers having parallel-connected and alternatively operable second throttling means for throttling the refrigerant flow and second by-pass therefor, said third heat exchanger being disposed in a path of ambient air for circulating said refrigerant in heat exchange relationship with the ambient air;

c. a compressor connected into a refrigerant circuit for efficiently compressing the refrigerant from its inlet pressure to its discharge pressure under conditions of operation of the refrigerant circuit;

d. ambient air blower for circulating said ambient air in heat exchange relationship with the refrigerant in said third heat exchanger;

e. a refrigerant circuit serially connecting said at least three heat exchangers and said compressor and defining a flow path for said refrigerant;

f. means including a reversing valve for selecting the heat exchangers and direction of flow of refrigerant therethrough for selecting a particular mode of operation of the apparatus:

g. refrigerant disposed in said refrigerant circuit and adapted to be circulated in a selected flow path for transferring heat at a coefficient of performance greater than one;

h. a source of heat exchange fluid;

i. heat exchange fluid circulating means for circulating said heat exchange fluid in a heat exchange circuit and in heat exchange relationship with said refrigerant;

j. a heat exchange circuit serially connecting said heat exchange fluid source, circulating means and second heat exchanger;

k. control means for controlling respective modes of operation;

the element a-j being connected together in respective circuits and with said control means so as to be operable in at least the following modes, one operational cycle being indicated in each mode interconnection:

l. air to fluid heating in which said elements are connected serially compressor to reversing valve to first heat exchanger, with said first by-pass operative and with said fluid handler operative, to second throttling means to third heat exchanger, with said second throttling means controlling the liquid level in said third heat exchanger and with said ambient air blower operative, to second heat exchanger back to compressor;

m. heat exchange fluid to fluid heating in which said elements are connected serially compressor to reversing valve to first heat exchanger, with said first by-pass operative and with said fluid handler operative, to second throttling means to third heat exchanger, operating in flooded condition with said ambient air blower deenergized to second heat exchanger, with said liquid level controlling said second throttling means and with said heat exchange fluid circulating means operative to circulate said heat exchange fluid through said second heat exchanger and effect a low compression pressure ratio across said compressor, back to said compressor;

n. air and heat exchange fluid to fluid heating in which said elements are connected serially compressor to reversing valve to first heat exchanger with said first by-pass operative and with said fluid handler operative, to second throttling means to third heat exchanger, with said second throttling means controlling the liquid level of refrigerant therein and with said ambient air blower operative, to second heat exchanger with said heat exchange fluid circulating means operative to circulate said heat exchange fluid through said second heat exchanger and effect a low compression pressure ratio across said compressor and with said liquid level control imposing safety control on said second throttling means to prevent flooding of said second heat exchanger, back to said compressor; and

o. air to fluid cooling in which said elements are connected compressor to reversing valve to third heat exchanger, with second by-pass operative, to first throttling means to first heat exchanger, with first throttling means operative to control liquid level in said first heat exchanger and with fluid handler operative, to second heat exchanger back to compressor.

4,380,157

SELF-CHILLING DISPENSER FOR DRINKING FLUIDS

Peter Christiani, 333 First St., Apt. D-303, Seal Beach, Calif. 90740

Filed Jul. 8, 1981, Ser. No. 281,366

Int. Cl.³ F28C *1/00*

U.S. Cl. 62—315 **1 Claim**

1. A self-chilling dispensing container for potable fluids comprising:

a wall of porous material, said wall having an interior wall surface defining a cavity and an upper mouth opening for receiving a potable liquid, and an exterior wall surface immersible in a coolant fluid such that said coolant fluid is absorbed and retained within said wall and thereafter may be allowed to evaporate to thus chill said potable liquid, there being a lip surface connecting said interior wall surface and said exterior wall surface to define a rim about said mouth, and a nonporous layer substantially insoluble in either fluid fully lining said interior wall surface and integral therewith forming an impermeable boundary between said potable liquid and said coolant fluid whereby the former is not contaminated by the latter, said nonporous layer extending uninterruptedly from said inner surface outwardly over said lip surface to further prevent said potable liquid from intermixing with said coolant fluid during decanting of said potable fluid from said container.

4,380,158

DEVICE FOR SPACE-DYEING TEXTILE FILAMENTS

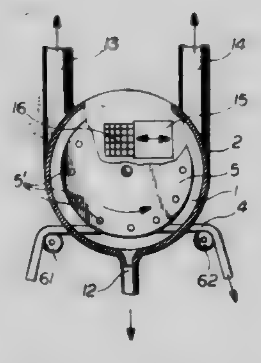
Karl Bous, Wuppertal, Fed. Rep. of Germany, assignor to Hacoba Textilmaschinen GmbH & Co. KG, Wuppertal, Fed. Rep. of Germany

Filed Oct. 7, 1980, Ser. No. 194,896

Claims priority, application Fed. Rep. of Germany, Oct. 8, 1979, 2940774

Int. Cl.³ D06B *1/02*

U.S. Cl. 68—205 R **10 Claims**



1. A device for intermittently dyeing filamentary material, comprising:

a spray nozzle connected to a supply of liquid dyestuff under pressure;

transport means for continuously conveying a filament along a predetermined path past said nozzle; and

shutter means interposed between said nozzle and said path for chopping a jet of dyestuff trained upon the latter by said nozzle, said shutter means including a dished wheel with radially projecting, peripherally spaced sectoral vanes mounted on a shaft for rotation about an axis thereof, said wheel having a concave side partly surrounding said nozzle.

4,380,159

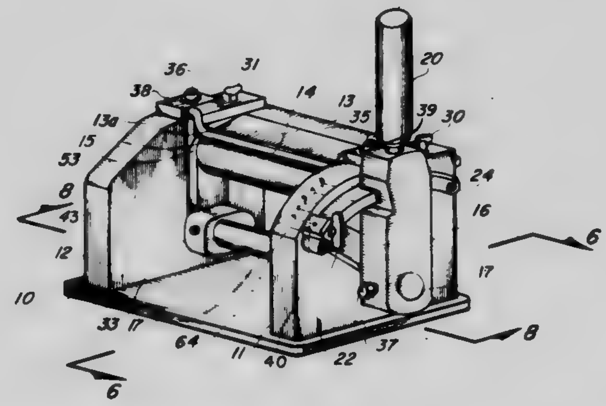
LEATHER SPLITTING MACHINE

John Michalik, 619 Mountain View, La Habra, Calif. 90631

Filed Apr. 20, 1981, Ser. No. 255,474

Int. Cl.³ C14B *1/14*

U.S. Cl. 69—12 **1 Claim**



1. An adjustable leather splitting machine that incorporates in combination:

a base attached to to metal plates at a 90° angle to the base to which is attached:

a support roller, and

a guide roller with ball bearings on either end, running in channels for preselected adjustment of the thickness of leather to be split;

a knife adjustable for wear and lubrication;

a adjustable guide rod to assist in holding the leather against the roller;

at one side of the metal plates is an adjustment arm that controls the opening between the roller and knife edge according to premarked numbers on an articulate guide for the thickness of leather desired;

a scale along the side of the machine next to the arm;

two cams on the support roller which are rotated by the arm and engage two flat connecting rods that raise and lower the roller as directed by the arm;

the two cams are adjustable by set screws on top of each cam for perfect parallelism between roller and knife;

the arm is resettable by set screws to zero on the scale after wear of long use or repair;

the guide rod is adjustable for the distance between the knife edge on to of the two plates and the pressure against the roller by the plate on the opposite side of the arm; and

the thickness selector stop uses the same arms and cams as the roller and a support rod to center the axis to avoid wabbling.

4,380,160

TRAILER TOW LOCKING DEVICE

William F. Hoffman, 17 Brook Dr., Hope Valley, R.I. 02832

Filed Jan. 26, 1981, Ser. No. 228,067

Int. Cl.³ E05B *73/00, 67/38*

U.S. Cl. 70—14 **5 Claims**

1. Apparatus for deterring theft of trailers which utilize a tow ring having a central opening and upper and lower annular surfaces comprising:

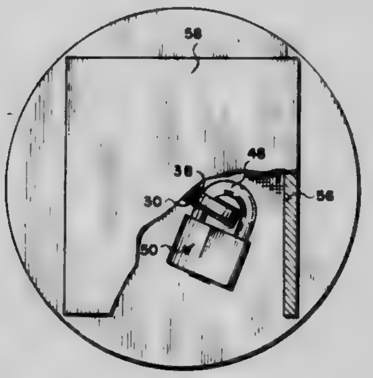
a base plate having an upper surface;

an upstanding tongue integral with said base plate and in-

cluding a free end distant from said base plate, said tongue adapted for reception through the central opening of the tow ring when said upper surface of said base plate is positioned proximate to the lower annular surface of the tow ring;

a top plate having upper and lower surfaces and an aperture therethrough for slideably receiving said tongue when said lower surface of said top plate is positioned proximate to the upper annular surface of the tow ring;

said apparatus being in the operational position when said upper surface of said base plate is positioned proximate to



the lower annular surface of the tow ring and said lower surface of said top plate is positioned proximate to the upper annular surface of the tow ring and said tongue extends through the aperture in said top plate; and

a cover member having spaced apart flanges fixed to said upper surface of said top plate and upstanding therefrom and a web portion integral with said flanges and spaced from said upper surface of said top plate; said tongue having a hole therethrough at a location intermediate said free end and said upper surface of said top plate adapted to receive the shank of a locking device when said apparatus assumes the operational position.

4,380,161

PLUG WITH A SAFETY LOCK FOR FILLERS OF FUEL RESERVOIRS OF AUTOMOTIVE VEHICLES

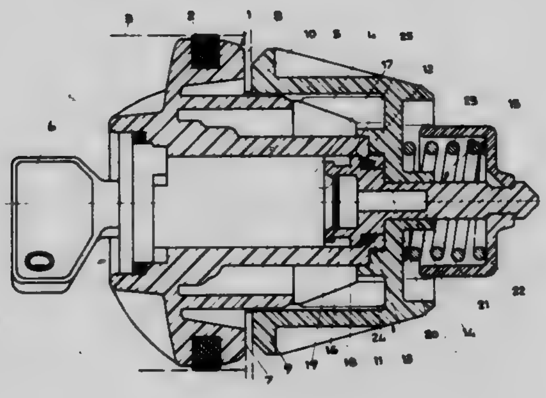
Alberto Bassi, Turin, Italy, assignor to ITW Fastex Italia S.p.A., Turin, Italy

Filed Nov. 24, 1980, Ser. No. 209,453

Claims priority, application Italy, Dec. 18, 1979, 28098 A/79

Int. Cl.³ B65D *55/14;* **E05B** *9/08*

U.S. Cl. 70—168 **5 Claims**



1. A closure plug for closing the end of a filler tube for a container comprising a plug means and a locking means, said plug means including cap means having a peripheral seal for engaging and sealing within the filler tube, a centrally disposed bore in said cap means, a rotatably received shank means received within and extending from the bottom end of said bore, latch means circumferentially disposed relative to the end of said bore engaged by and movable in response to rotative movement of said shank means said locking means including a key actuatable lock, a depending portion having a locking groove means therein, and an axially extending drive means, cooperating means within said bore adapted to engage said groove means and thereby secure said locking means within said bore, said shank means further including complimentary means for engagement by said drive means; whereby said plug means is insertable in a filler neck and secured therein by a tool, and said locking means may thereafter be inserted into the bore and non-removably secured therein thereby rendering said closure plug operable and lockable.

4,380,162

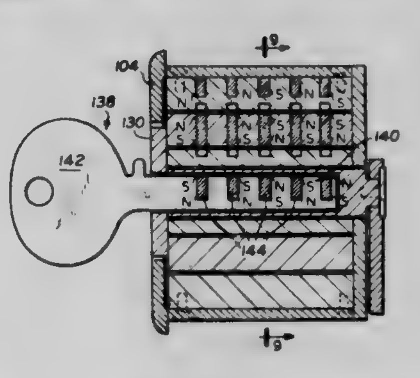
MAGNETIC LOCK

Joseph W. Woolfson, 10 Montaque Ter., Brooklyn, N.Y. 11201

Continuation-in-part of Ser. No. 539,285, Jan. 8, 1975, abandoned. This application Dec. 5, 1975, Ser. No. 637,961

Int. Cl.³ E05B *47/00, 19/26*

U.S. Cl. 70—276 **36 Claims**



1. A magnetic lock for operation by a key having a plurality of spaced apart magnets of different field strengths, said lock comprising:

a stator and a movable part, said stator having two spaced apart portions on opposite sides of said movable part to define two spaced apart shear planes, said movable part being movable to and from a locked position;

both stator portions having a like plurality of recesses in their respective surfaces that confront said movable part, said recesses being in alignment and being alignable with the key magnets;

said movable part having a like plurality of spaced apart through holes in alignment with said cavities when said movable part is in said locked position for rendering said through holes alignable with said key magnets;

a like plurality of pin tumbler magnets slidably disposed in said through holes, said pin tumbler magnets being of no greater longitudinal extent than said through holes; and

a like plurality of means, one for each pin tumbler magnet, for biasing each of said pin tumbler magnets toward one of said stator portions, at least two of said pin tumbler biasing means exerting different biasing forces on said pin tumbler magnets, whereby when said key is juxtaposed adjacent to said one stator portion and said key magnets are registered with said pin tumbler magnets and of effective field strength and polarity to repel said pin tumbler magnets with a force equal to the different biasing forces on said pin tumbler magnets, said pin tumbler magnets will be out of both said shear planes to unlock said lock.

4,380,163

TAMPER-RESISTANT LOCK

Kenneth J. Reder, 1837 Midland Rd., Bay City, Mich. 48706

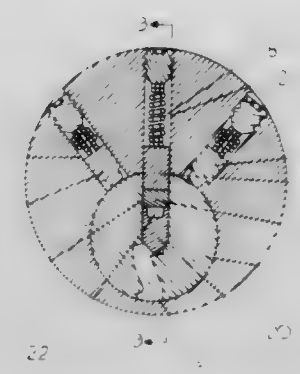
Filed Sep. 8, 1981, Ser. No. 300,323

Int. Cl.³ E05B *15/14, 27/06, 63/00*

U.S. Cl. 70—364 A **2 Claims**

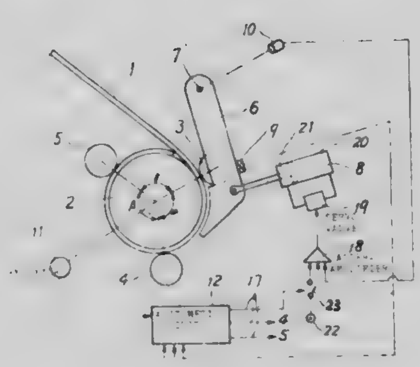
1. A tamper-resistant lock comprising an outer cylinder adapted to be mounted in an entrance barrier; an inner cylinder rotatably mounted in said outer cylinder; a plurality of top pins

disposed in chambers in said outer cylinder; said top pins being urged toward said inner cylinder; a plurality of bottom pins disposed in chambers in said inner cylinder; said chambers in the inner and outer cylinders being in alignment when the lock is locked; at least one wafer disposed between said top pins and said bottom pins in at least one of the chambers when the lock



is locked; at least one of said wafers having a hole herein; at least one bottom pin having a hole therein; a plurality of trap pins mounted in trap pin chambers in the outer cylinder; said trap pins being urged toward the inner cylinder; said trap pins additionally having an extension thereon adapted to engage the hole in said wafer or said bottom pin when a wafer or a bottom pin having a hole herein passes a trap pin chamber.

4,380,164
WINDING MACHINE
Hiroaki Kuwano, Yokohama, Japan, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 19, 1981, Ser. No. 226,225
Int. Cl.³ B21C *47/04*
U.S. Cl. 72—21 **2 Claims**



1. In a winding machine of the type in which a strip is wrapped around a mandrel so as to establish stepped portions comprising the leading edge and trailing portions of the strip overlying said leading edge, and a plurality of wrapper rolls disposed around the mandrel are forced by individually controlled hydraulic cylinders associated therewith to press the strip against the mandrel, in combination:

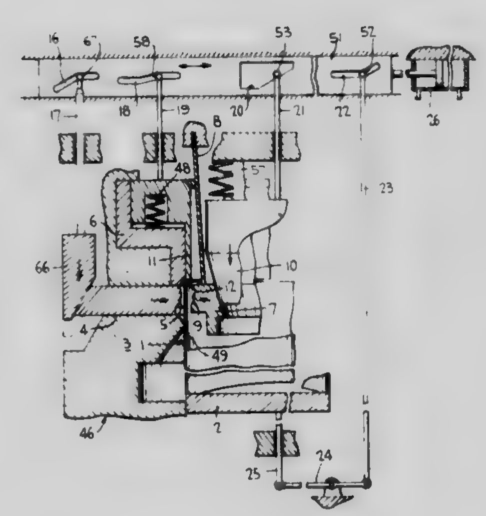
(a) sensor means associated with at least one of said wrapper rolls and adapted to respond to displacement of the latter with respect to the mandrel and to generate a signal representative of said displacement;

(b) a first pulse generator operatively coupled to said mandrel and adapted to generate a pulse signal representative of an angle of rotation thereof;

(c) an arithmetic circuit connected to receive the signals from said sensor means and first pulse generator and generate for each respective wrapper roll a retraction signal corresponding for each respective wrapper roll to the time the stepped portion of said strip will pass each said respective wrapper roll; and

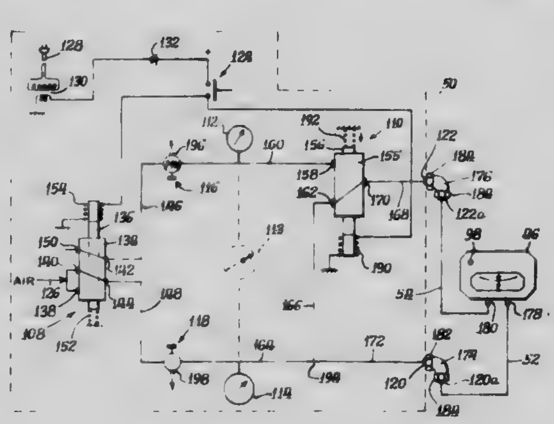
(d) means responsive to said reaction signals and operatively coupled to said hydraulic cylinders operative to cause each said hydraulic cylinder to be energized to retract the wrapper roll associated therewith away from said mandrel during the passing of the stepped portion of said strip past such associated wrapper roll.

4,380,165
SQUEEZER FLANGER
Willem P. Post, Diepenveen, Netherlands, assignor to Thomassen & Drijver-Verblifa N.V., Derventer, Netherlands
Filed May 22, 1981, Ser. No. 266,280
Int. Cl.³ B21D *22/00*
U.S. Cl. 72—355 **11 Claims**



1. A method of manufacturing a sleeve body having an outwardly directed circumferential flange arranged at the side of an open end and a circular constriction adjoining the same by pressing a substantially cylindrical sleeve body near one opening thereof along the entire circumference with the aid of a plurality of radially inwardly and outwardly movable outer segments, the form of the inner surface of which corresponds with the form to be imparted to the constriction, at the same time on all sides inwardly against an inner support, the diameter of which can be reduced, characterized in that the inner support, the form of the outer surface of which at least partly matches that of the inner surface of the desired constriction, is loaded by a spring force having a radial, outwardly directed component, which exceeds the force required for the radial narrowing of the sleeve body, but which is smaller than the radially directed force by which the outer segments are pushed inwardly.

4,380,166
TESTING APPARATUS FOR A DUAL PRESSURE INDICATOR AND CONTROL UNIT FOR PASTEURIZATION EQUIPMENT
Robert A. Crombie, 521 Cowles Ave., Joliet, Ill. 60435
Continuation-in-part of Ser. No. 237,687, Feb. 23, 1981, abandoned. This application Mar. 5, 1982, Ser. No. 355,188
Int. Cl.³ G01N *27/00*
U.S. Cl. 73—4 R **10 Claims**



1. Testing apparatus for a dual pressure indicator and control

unit of the kind used to monitor and control pasteurizing equipment, said unit having two pressure ports with indicating means associated therewith, said unit also having a control switch operable in response to a predetermined pressure differential between said ports, said ports being connected in use to pressure sensors at a pasteurized product outlet and a raw product inlet respectively in such pasteurizing equipment, said testing apparatus comprising:

valve means;

an input line at the input side of said valve means and adapted to be connected to a fluid pressure source;

two output lines at the output side of said valve means and adapted to be connected respectively to the two pressure ports of a pasteurizing system dual pressure indicator and control unit;

two pressure regulators;

a pressure gauge on the output side of each pressure regulator;

means for selectively placing said valve means either in a tracking test mode or a differential test mode;

said valve means in said tracking test mode connecting both of said output lines to said input line through a single one of said pressure regulators to thereby apply identical pressures determined by said one pressure regulator to said output lines; and

said valve means in said differential test mode connecting said output lines to said input line through respective ones of said two pressure regulators to thereby apply pressures determined by said respective pressure regulators to said output lines.

4,380,167

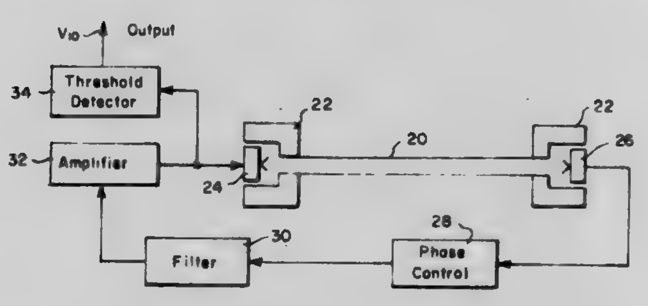
APPARATUS AND METHOD FOR DETECTING A FRACTION OF A GAS

Richard L. Longini, Pittsburgh, Pa., assignor to Energy Controls, Inc., Denver, Colo.

Filed Mar. 18, 1981, Ser. No. 245,108

Int. Cl.^{3} G01N *29/02*

U.S. Cl. 73—24 **5 Claims**



1. An apparatus for detecting a fraction of a gas in a carrier gas when water vapor is present comprising:

(a) whistle means which has a resonant frequency and through which the gas and the carrier gas are passed, the resonant frequency changes as a function of the fraction of the gas, a temperature of the gas, and the water vapor and produces a whistle means output signal which is a function of the resonant frequency;

(b) correction means which senses the water vapor and the temperature and produces a correction means output signal which is a function of the water vapor and the temperature; and

(c) receiving means receiving the whistle means output signal and the correction means output signal and producing an output signal which is only a function of the fraction of the gas, the receiving means having:

(i) a timer means which produces a timer means output signal for a preset time; and

(ii) a counter means receiving the whistle means output signal, correction means output signal and the timer means output signal and producing an output signal which is only a function of the fraction of the gas.

4,380,168

SODIUM LEAKAGE DETECTION SYSTEM AND METHOD OF CONTROLLING THE SAME

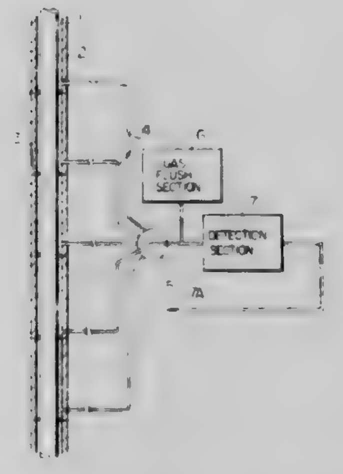
Hidefumi Ibe, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 9, 1980, Ser. No. 167,029

Claims priority, application Japan, Jul. 12, 1979, 54-87499

Int. Cl.^{3} G01M *3/18*

U.S. Cl. 73—40.5 R **11 Claims**



1. A sodium leakage detection system comprising:

at least one sodium flow path;

a plurality of first sampling tubes for sampling surrounding gas at various points along said at least one sodium flow path and for conducting gas samples obtained at said various points away from said flow path;

a selector valve located at the gas exit ends of said plurality of first sampling tubes for selectively connecting one of said gas exit ends of said first sampling tubes with a second sampling tube;

said second sampling tube being connected to said selector valve for leading a sample gas passed through the selected one of the first sampling tubes to a sodium leakage detector section;

said sodium leakage detection section including means for detecting sodium leaked from the sodium flow path and contained in the sample gas in the vapor phase, said means including a pressure difference detector for detecting a difference between gas pressures before and after a filter disposed in a gas sample flow path within said detection section and a sodium ionization detector, disposed in parallel with said pressure difference detector with respect to said gas sample flow path, for determining the content of sodium ion contained in the sample gas; and

a flushing section for flushing inner walls of said selector valve and said second sampling tube each time the connection between one of said sampling tubes and said selector valve is changed over.

4,380,169

METHOD AND APPARATUS FOR MEASURING MOISTURE TENSION IN LEAVES OF GROWING PLANTS

Ellis R. Graham, Columbia, Mo., assignor to The Curators of the University of Missouri, Columbia, Mo.

Filed Jan. 21, 1981, Ser. No. 226,765

Int. Cl.^{3} G01N *21/00*

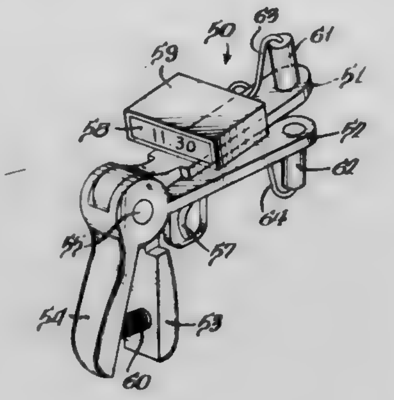
U.S. Cl. 73—73 **2 Claims**

1. A method for measuring moisture tension in a leaf of a growing plant by means of an instrument having a pair of separable jaws with a standard light source mounted on one jaw and a photoelectric detector mounted on the other jaw, with both connected to a digital panel meter, the steps comprising:

initially squeezing the jaws together, without a leaf present, to bring the light source into coincidence with the detec-

tor to establish an initial intensity of light transmitted to the detector and display on the meter;

placing a leaf between the jaws and squeezing said jaws together to measure the light intensity transmitted through said leaf and displayed on said meter; and



comparing the measurements made with some predetermined standard measurements for the particular plant leaf of interest.

4,380,170

PROCESS FOR THE CHEMICAL PLOTTING OF BOUNDARY LAYER FLOWS, AND CHEMIGRAPHY MATERIALS FOR THE PRACTICE THEREOF

Richard Dötzer, Nuremberg, and Winfried Plundrich, Kalchreuth, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jul. 14, 1980, Ser. No. 168,245

Claims priority, application Fed. Rep. of Germany, Jul. 16, 1979, 2928690

Int. Cl.[3] **G01M** *10/00*

U.S. Cl. 73—147 **11 Claims**

1. A process for the chemical plotting of boundary layer flows of liquids over a surface, comprising:

(a) providing said surface with a colorless, uncompacted or partially compacted anodically oxidizied aluminum layer thereon;

(b) adding to said liquid a visible dye includable and adsorbable in said aluminum layer; and

(c) exposing said surface to the flow of said liquid such that the dye contained therein is adsorbed in said aluminum layer to a degree characteristic of the flow of liquid thereover.

4,380,171

METHOD AND APPARATUS FOR MEASURING NORMAL CONTACT FORCES IN ELECTRICAL CONNECTOR

Terry J. Smith, Ephrata, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

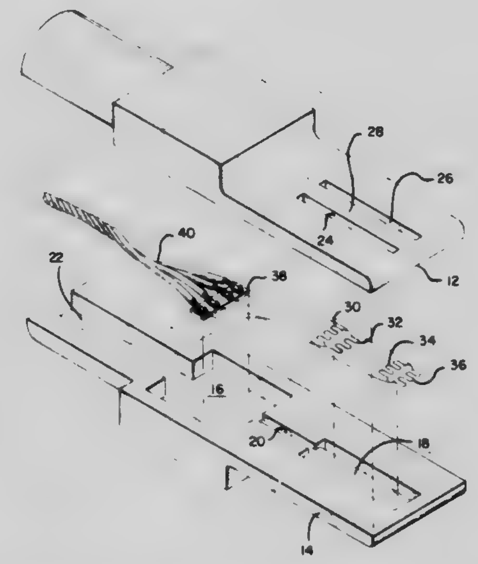
Filed Dec. 29, 1980, Ser. No. 220,926

Int. Cl.[3] **G01L** *1/22, 5/00*

U.S. Cl. 73—161 **4 Claims**

1. A device for measuring the force of an electrical terminal mounted in an edge board connector and applied normal to the surface of a circuit board received in the connector, said device comprising:

a housing having two mating rigid metallic members defining a cavity therebetween, said members together having an outer profile enabling insertion of the device into said connector, one of said members having at least one pair of elongated slots defining therebetween at least one beam supported at both ends and disposed over said cavity, each said at least one beam being profiled to accommodate a terminal, and



a pair of strain gauges applied to each end of each said beam, means interconnecting said strain gauges of each beam in a respective balanced bridge configuration whereby when the device is inserted into the connector a respective terminal contacts and applies force normal to the surface of and intermediate the ends of a beam causing a difference in voltage output from said strain gauges in said pairs of strain gauges which difference is summed to give an indication of the force applied by said terminal in a direction normal to said beam.

4,380,172

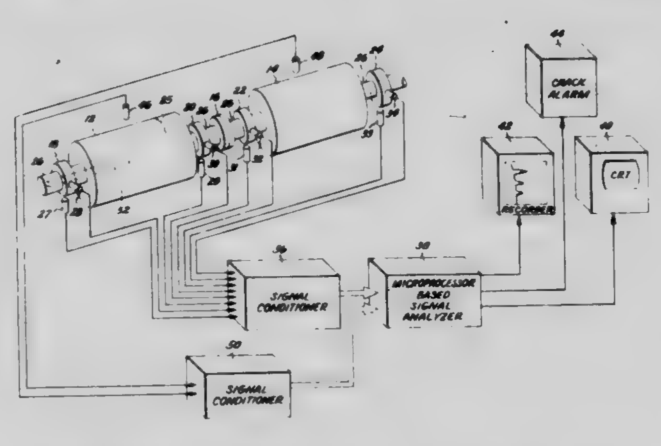
ON-LINE ROTOR CRACK DETECTION

Imdad Imam, Schenectady, and Leslie H. Bernd, Altamont, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 19, 1981, Ser. No. 236,007

Int. Cl.[3] **G01H** *1/00;* **G01N** *29/00*

U.S. Cl. 73—659 **11 Claims**



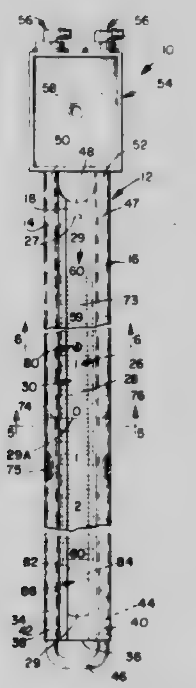
1. For a motive fluid powered turbine, a method for detecting incipient cracks in the turbine rotor while the turbine is under load at substantially normal operating speed, comprising the steps of:

(a) obtaining from at least one vibration sensor, adapted to sense vibrations in said rotor, a signal representation of such vibrations;

(b) determining the spectral distribution of said vibration signal;

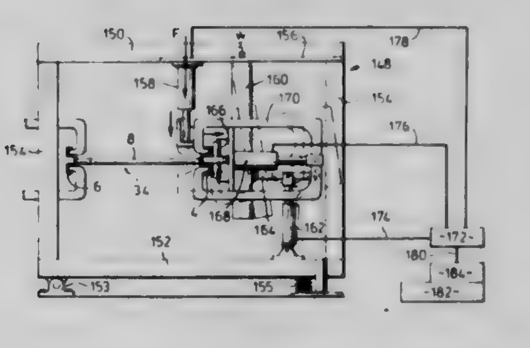
(c) causing a transient perturbation of said rotor to establish a transient vibratory response therein by changing the temperature of the turbine motive fluid;
(d) determining the spectral distribution of said vibration signal resulting during said transient vibratory response, and
(e) comparing the spectral distribution obtained in step (b) with the spectral distribution obtained in step (d), the change in spectral distribution between that of step (b) and that of step (d) being indicative of the presence and size of cracks in said rotor.

4,380,173
ROLL-UP TYPE U-TUBE MANOMETER
David A. Wozniak, Michigan City, Ind., assignor to Dwyer Instruments, Inc., Michigan City, Ind.
Filed Jun. 12, 1981, Ser. No. 273,215
Int. Cl.[3] G01L *7/18*
U.S. Cl. 73—747 **5 Claims**



1. A flexible U-tube manometer of the roll-up type comprising, in combination:
an elongate flexible body formed from a transparent flexible plastic material and defining a pair of spaced apart tubes extending longitudinally of said body and joined together by a web integrally connecting same that extends substantially the length of said tubes,
said web defining a forward facing side surface on the front side of said body and a rearwardly facing side surface on the back side of said body,
said body along its front side and adjacent the juncture of the respective tubes and said web defining a pair of continuous flanges,
one of said flanges being disposed along one of said tubes and the other of said flanges extending along the other of said tubes,
said flanges being in overlying, closely spaced relation relative to said web and each defining a continuous projecting edge portion that parallels said body,
with said flange projecting edge portions being spaced apart transversely of said body,
said flanges and said web defining therebetween a scale slideway that is open between said flange edge portions,
an elongate flexible scale member mounted in said slideway for sliding movement therealong,
said scale member comprising a length of spring steel of film thickness dimensions that is arced forwardly of said body web along the length of said scale member,
said scale member bearing manometer scale indicia on its forward facing side and defining side edge portions therealong on either side of same that extend longitudinally of said body and that are respectively slidably engaged by the respective flanges, whereby said scale member is frictionally retained in selected zero adjust positions within said scale slideway,
said scale indicia including at the midlength portion of said scale a datum zero marker means on each of said scale side portions and aligned transversely of said scale,
means for connecting said body tubes at the lower end of said body,
means for connecting said tubes at the upper end of said body to locales of fluid pressure to be measured manometer style,
said tubes being substantially half filled with fluid pressure measuring liquid manometer style whereby when said manometer is vertically disposed in rectilinear relation and said means for connecting said tubes to the fluid pressure locales is vented for both tubes, the levels of said liquid in said tubes are horizontally aligned,
and a knob fixed to said scale member adjacent to said datum zero marker means and projecting forwardly from said scale member forwardly projecting side through and between said flange edge portions,
whereby when said levels of said liquid in tubes are horizontally aligned under said vented conditions, said scale member may be moved longitudinally of said slideway by the user of said manometer grasping said knob with one hand and eye leveling said scale member datum zero marker means with said horizontally aligned tubes liquid levels to zero set said manometer free of finger pressure application to said scale member at the ends of same.

4,380,174
APPARATUS FOR SHEAR TESTING WELDS
Joseph M. Tanenbaum, 4 Dewbourne Ave., Toronto, Ontario, Canada (M5P 1Z2)
Division of Ser. No. 179,634, Aug. 20, 1980. This application Jul. 21, 1981, Ser. No. 285,535
Claims priority, application Canada, Aug. 15, 1980, 358388
Int. Cl.[3] G01N *3/24*
U.S. Cl. 73—842 **5 Claims**



1. A device for non-destructively simultaneously testing the shear strength of at least four welded joints presented by a metallic truss having two spaced substantially parallel chord members joined together by a substantially coplanar web member bent into a substantially uniform undulating configuration between said chord members so as to present a series of alternate opposite apices at said bends welded to said spaced chord members respectively along regularly spaced intervals longitudinally of said chord members, said device including;
(a) means for simultaneously clamping said chord members in at least four positions adjacent said welded joints, including means for eliminating the twisting of said welded joints from said plane defined by said web member during said simultaneous clamping,
(b) and means for simultaneously applying a substantially perpendicular force relative said plane defined by said web member, for a selected timed interval, to at least four of said apices defined by said bent web member, adapted to test the shear strength of at least four of said welded joints.

4,380,175

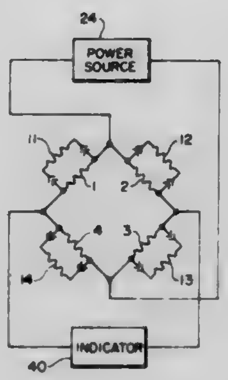
COMPENSATED LOAD CELL

Neil C. Griffen, Columbus, Ohio, assignor to Reliance Electric Company, Cleveland, Ohio

Filed Jun. 12, 1981, Ser. No. 272,928

Int. Cl.[3] G01L *1/22, 25/00*

U.S. Cl. 73—862.67 **7 Claims**



2. A force measuring load cell arrangement comprising two elongated beams having substantially parallel longitudinal axes, means for rigidly connecting one end of the beams together, support means for rigidly connecting the other ends of the beams together and to a force receiver, means for mounting strain gages on the beams, at least one strain gage on one of the beams being displaced toward one side of the beam in a direction transverse to the longitudinal axes of the beams, at least one strain gage on the other beam being displaced toward the other side of said other beam in a direction transverse to the longitudinal axes of the beams, means for connecting the strain gages in a bridge arrangement, means for connecting a resistor to at least one of the strain gages on at least one of the beams to cause the output of the bridge arrangement to accurately represent the magnitude of a force applied to the force receiver independent of any offset of the force relative to the beams in at least the transverse direction.

7. A method of compensating a force measuring load cell arrangement including two beams having substantially parallel longitudinal axes and supporting a force receiving member, the method comprising the steps of (1) placing at least one strain gage toward one side of one of the beams in a direction transverse to the longitudinal axes of the beams, (2) placing at least one strain gage toward the opposite side of the other beam in a direction transverse to the longitudinal axes of the beams, and (3) connecting a compensating resistor to at least one strain gage mounted on at least one of the beams to cause the response of the load cell arrangement to be independent of the location in at least the transverse direction of the force applied to the force receiving member.

4,380,176

ISOBAROMETRIC AND SELF-CONTAINED APPARATUS FOR SAMPLING PURPOSE ON GASEOUS DRINKS

Gilbert Bauer, Mutzig, and Michel Maurer, Strasbourg, both of France, assignors to Brasseries Kronenbourg, Strasbourg, France

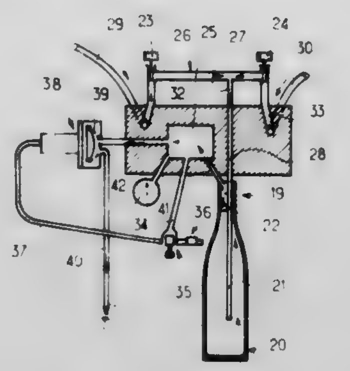
Filed Feb. 4, 1981, Ser. No. 231,511

Claims priority, application France, Feb. 5, 1980, 80 02743

Int. Cl.[3] G01N *1/10*

U.S. Cl. 73—863.86 **11 Claims**

1. A self-contained constant pressure apparatus for sampling gaseous beverages, comprising a frame composed of a tripod and a central inclined stand surmounted by an upper block provided with a handle, with the central stand comprising a first support for a sample drawing recipient (**20**) and another support for an inert gas bottle (**7**), and the upper block comprising a distributor-head (**16**) including two taps (**23,24**) for admission and regulation of gas and liquid, an exit leading into a tap (**35**) for pressurising said exit, a regulation valve (**38**) acting upon distributor-head evacuation means and monitored by the tap (**35**); the distributor-head at its lower face having an stopper (**19**) with joint (**18**) for receiving a neck of the sample drawing recipient; the distributor-head including a common inner chamber (**25**) for said evacuation means including an



evacuation circuit (**40**), said apparatus including tightening means (**43**) for applying said neck of the sample drawing recipient against the stopper (**19**).

4,380,177

GEAR SHIFT CONTROL MECHANISM FOR SERVO-DRIVEN TRANSMISSION

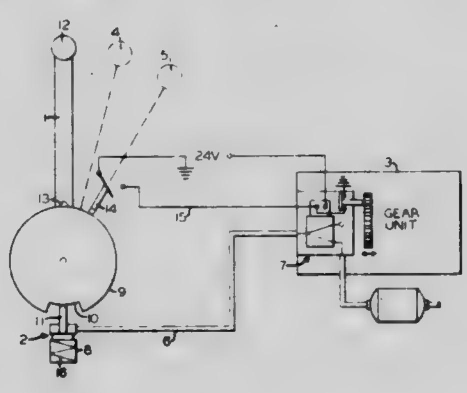
Erich Reinecke, Burgdorf, and Alfred Klatt, Wathlingen, both of Fed. Rep. of Germany, assignors to WABCO Fahrzeugbremsen G.m.b.H., Hanover, Fed. Rep. of Germany

Filed Jan. 8, 1981, Ser. No. 223,524

Claims priority, application Fed. Rep. of Germany, Mar. 1, 1980, 3007953

Int. Cl.[3] G05G *5/04;* **F16H** *57/06*

U.S. Cl. 74—475 **6 Claims**



1. A gear shift mechanism for indirectly shifting the gears in a gear unit via intermediate gear drive means comprising:

(a) a manually operable gear shift lever having first, second, and third positions, said intermediate gear drive means being operative to effect a change of gearing of said gear unit in response to movement of said gear shift lever from said first position to said second position;

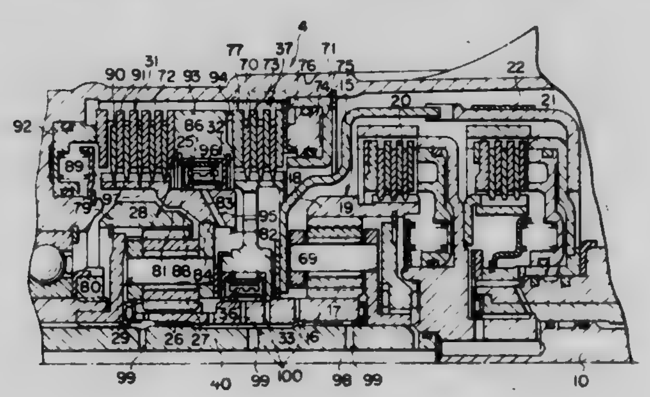
(b) locking means manually engageable with said gear shift lever in said second position thereof for preventing movement of said gear shift lever to said third position; and

(c) gear change sensing means for operating said locking means in response to completion of said gear change to accordingly effect disengagement of said locking means and thereby permit further movement of said gear shift lever from said second position to said third position, by which movement an operator of said gear shift lever is apprised of completion of said gear change.

4,380,178
REMOTE CONTROL ASSEMBLY (SWIVEL INSERT)
William G. Bennett, Troy, and Arthur L. Spease, Livonia, both of Mich., assignors to Teleflex Incorporated, Limerick, Pa.
Filed Jul. 21, 1980, Ser. No. 170,888
Int. Cl.³ F16C *1/10*
U.S. Cl. 74—501 P **6 Claims**

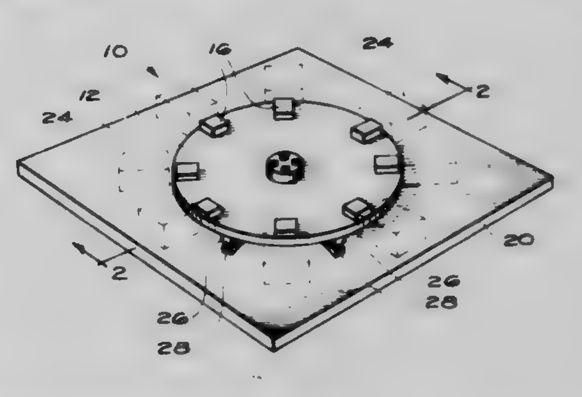
1. A motion transmitting remote control assembly (10) of the type for transmitting motion in a curved path by a flexible motion transmitting core element (12), said assembly (10) comprising a flexible motion transmitting core element (12) having a terminal portion, a conduit (14) for supporting said core element (12), said conduit having an end portion, an end fitting (16) disposed about said end portion of said conduit, (14) a rod (24) attached to said terminal portion of said core element, (12) a swivel tube (32) having a bore (34) therethrough for swivelling movement relative to said end fitting (16) and movably supporting said rod (24), said swivel tube (32) connected to said end fitting (16) at a swivel joint (36) and having a front end face (40) and characterized by said swivel joint (36) including a male swivel portion (38) having a partially convex spherical surface extending from its intersection with the exterior of said swivel tube (32) to said front end face (40) of said swivel tube (32) and including a cup-shaped insert (42) engaging said convex spherical surface at least beyond said front end face (40), said end fitting (16) encapsulating said end portion of said conduit (14) and said insert (42) and the remainder of said convex spherical surface on said swivel tube (32).

4,380,179
ENGAGEMENT DEVICE IN AUTOMATIC TRANSMISSION
Seitoku Kubo, Toyota; Koujiro Kuramochi, Okazaki, and Tatsuo Kyushima, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 23, 1980, Ser. No. 190,034
Claims priority, application Japan, May 6, 1980, 55-58734
Int. Cl.³ F16H *57/10, 37/08;* **F16D** *65/78*
U.S. Cl. 74—762 **4 Claims**



1. In an automatic transmission including a housing, a sun gear, a ring gear and a carrier rotatably supporting a pinion on a pinion shaft, said pinion meshing with said sun and ring gears, the improvement comprising:
- a hub secured to said carrier and extending radially outside of and axially overlapping said ring gear, said hub having a small diameter portion constituting an inner race and having an axially adjacent large diameter portion having external spline-teeth on the outer peripheral wall thereof, the outer peripheral wall of said small diameter portion having a friction surface thereon;
- a cylindrical outer race fitted on internal spline-teeth of said housing and disposed radially outward of and axially aligned with said inner race;
- a friction element disposed radially between said inner and outer races for engaging said friction surface on the outer peripheral wall of said small diameter portion and said outer race, said small diameter portion having a radially running hole for conducting lubricating oil into said friction element;
- a first brake axially adjacent said outer race, said first brake including a plurality of said first friction plates axially slidably fitted on the external spline-teeth of said large diameter portion and a plurality of second friction plates axially slidably fitted on the internal spline-teeth of said housing, said first and second friction plates being interleaved; and
- a second brake axially adjacent said outer race opposite said first brake, said second brake including a plurality of third friction plates, and a plurality of fourth friction plates axially slidably fitted on the inner spline-teeth of said housing, said third and fourth friction plates being interleaved.

4,380,180
ENERGY STORAGE FOR INDEXING MECHANISM
James C. Foote, and Dennis R. Zander, both of 1669 Lake Ave., Rochester, N.Y. 14650
Filed Jun. 2, 1980, Ser. No. 155,689
Int. Cl.³ B23Q *17/00*
U.S. Cl. 74—821 **1 Claim**



1. Indexing apparatus comprising:
- a platform;
- a work member movable relative to said platform along a plurality of spaced dwell positions;
- drive means for intermittently moving said work member between the dwell positions;
- a plurality of first magnets on said work member and movable therewith; and
- a plurality of second magnets positioned on said platform such that poles of said first magnets align with like poles of said second magnets when said work member is in each of the dwell positions, whereby the kinetic energy of said work member approaching a dwell position is converted to stored energy by said first and second magnets and the stored energy is applied back to said work member as said work member moves away from a dwell position.

4,380,181

STUD MANIPULATING DEVICE

Thomas W. Bunyan, London, England, assignor to Pilgrim Engineering Developments Limited, Essex, England

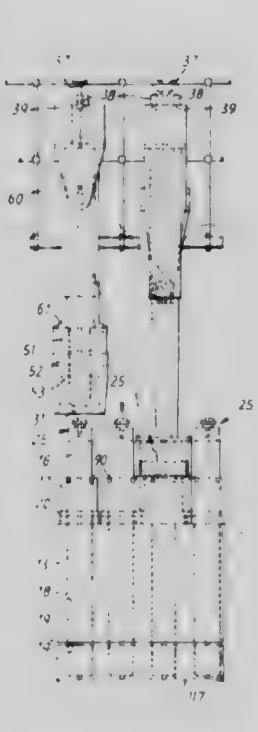
PCT No. PCT/GB79/00161, § 371 Date Jun. 3, 1980, § 102(e) Date May 14, 1980, PCT Pub. No. WO80/00672, PCT Pub. Date Apr. 17, 1980

PCT Filed Oct. 3, 1979, Ser. No. 193,189

Claims priority, application United Kingdom, Oct. 3, 1978, 39129/78

Int. Cl.[3] **B25B** *29/02*

U.S. Cl. 81—57.38 **6 Claims**



1. A stud manipulating device for inserting a stud into a bore in a workpiece, tensioning the stud, tightening a working nut on the stud, or for slackening the nut on the stud and removing the stud from the workpiece, the device comprising means for engaging the working nut and interlocking with the nut against relative rotational movement, first drive means coupled to the working-nut engaging means and operable in use to rotate the working nut, a top nut for securing onto the end of the stud, second drive means operable to rotate the top nut, means for raising and lowering the top nut, a hydraulic pressure member located between the top nut and the workpiece and operable to tension the stud by means of the top nut, stud engaging means engagable with the stud to interlock with the stud against relative rotational movement, means for raising and lowering the stud-engaging means, and clutch means operable between the second drive means and the stud engaging means and which is engaged when the top nut is in a raised position and the stud-engaging means is in a lowered position, to couple the stud engaging means in rotation with the second drive means.

4,380,182

ARRANGEMENT FOR REPLACEABLY HOLDING A STRIPPER OF A TOOL HOLDER OF THE TOOL, AND A REPLACING TOOL FOR REPLACING THE STRIPPER

Walter Bredow, and Gerhard Otto, both of Alfeld, Fed. Rep. of Germany, assignors to C. Behrens AG, Alfeld, Fed. Rep. of Germany

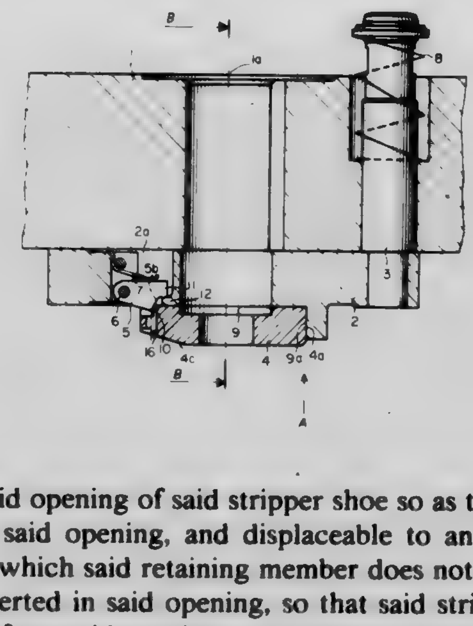
Filed Jan. 14, 1981, Ser. No. 225,966

Claims priority, application Fed. Rep. of Germany, Feb. 15, 1980, 3005613

Int. Cl.[3] **B21D** *45/00*

U.S. Cl. 83—140 **21 Claims**

1. A stripper arrangement for a working tool having an axis, such as a revolving tool of a revolving cutting press, comprising a stripper; a stripper shoe arranged to be mounted on a lower side of a tool holder of a tool and having an inner opening for receiving said stripper and a wall which bounds said opening and includes an abutment wall portion, said opening being arranged so that said stripper can be inserted into the same by movement in a plane transverse to the axis of the tool and abut against said abutment wall portion in inserted condition; means for retaining said stripper in said opening of said stripper shoe and including a retaining member which is deflectable in direction from the tool to an operative position in which said retaining member engages with said stripper in-



serted in said opening of said stripper shoe so as to retain said stripper in said opening, and displaceable to an inoperative position in which said retaining member does not engage said stripper inserted in said opening, so that said stripper can be withdrawn from said opening to be replaced by a new stripper; and means for urging said retaining member so as to deflect the same from the tool to said operative position.

4,380,183

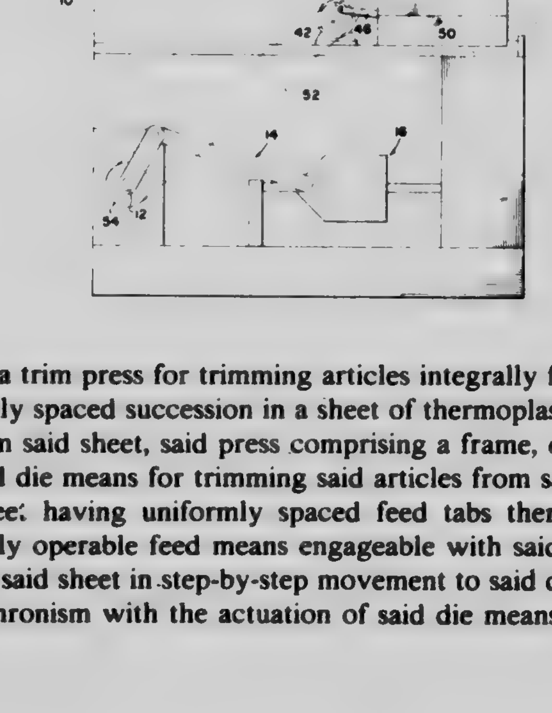
PLASTICS TRIM PRESS SHEET FEEDING MECHANISMS

Fred L. Greynolds, Beaverton; Robert C. Whiteside, Harrison, and Doyle D. Durkee, Beaverton, all of Mich., assignors to Leesona Corporation, Beaverton, Mich.

Filed May 20, 1981, Ser. No. 265,572

Int. Cl.[3] **B26F** *1/40;* **B65H** *17/36, 17/40*

U.S. Cl. 83—244 **21 Claims**



1. In a trim press for trimming articles integrally formed in uniformly spaced succession in a sheet of thermoplastic material from said sheet, said press comprising a frame, cyclically actuated die means for trimming said articles from said sheet, said sheet having uniformly spaced feed tabs thereon, and cyclically operable feed means engageable with said tabs for feeding said sheet in step-by-step movement to said die means in synchronism with the actuation of said die means; the im-

provement wherein said feed means comprises treadle means mounted adjacent its upper end upon said frame for pivotal movement about a first horizontal axis, slide means mounted on said treadle means adjacent the lower end thereof for reciprocation along a first path normal to said first axis, feed finger means mounted on said slide means, a first rotary member, mounting means mounting said first rotary member on said frame for rotation about a second axis parallel to said first axis, first link means pivotally connected at one end to said first rotary member at a location offset from said second axis and pivotally connected at its opposite end to said slide means to cyclically reciprocate said slide means along said first path in response to rotation of said first rotary member, a second rotary member mounted on said frame for rotation about a third axis parallel to said first axis, second link means pivotally connected at one end to said second rotary member at a location offset from said third axis and pivotally connected at its opposite end to said treadle means adjacent the lower end thereof for pivotally oscillating said treadle means about said first axis upon rotation of said second rotary member, and first drive means for driving said first and second rotary members in continuous rotation synchronized with the actuation of said die means.

4,380,184

ELECTRONIC MUSICAL INSTRUMENT

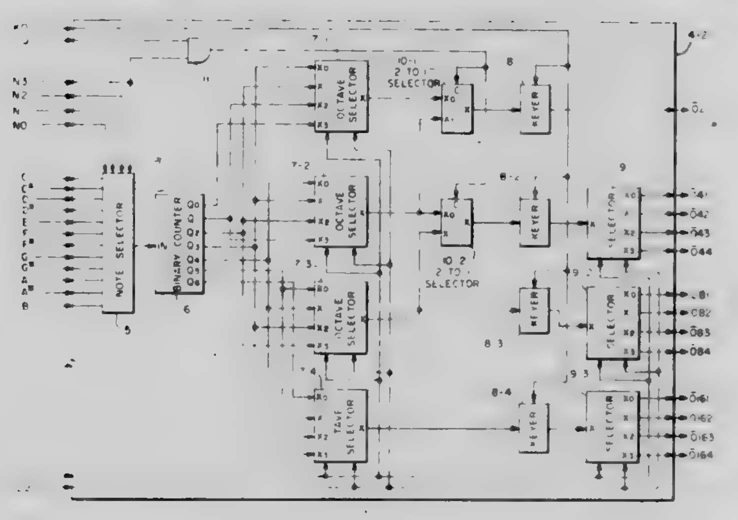
Tetsuhiko Kaneaki, Ashiya; Kazuhiko Murase, and Junnosuke Shigeta, both of Hirakata, all of Japan, assignors to Matsushita Electrical Industrial Co., Ltd., Osaka, Japan

Filed Apr. 14, 1981, Ser. No. 254,152

Claims priority, application Japan, Apr. 17, 1980, 55-51216; Apr. 18, 1980, 55-52035

Int. Cl.³ G10H *5/06*

U.S. Cl. 84—1.01 **7 Claims**



1. An electronic musical instrument comprising: a generator assigner which outputs assignment signals composed of note data representing the name of the particular note whose tone signal has been designated by a particular key stroke, and octave data representing the octave number of the selected tone; and at least one tone generator which has at least one pitch signal generating means and at least one octave controlling means, wherein said pitch signal generating means is controlled by said note data and generates the highest frequency pitch signal corresponding to the note name of the tone selected, and wherein at least one of said at least one tone generators produces plural signals by dividing said highest frequency pitch signal, and wherein said octave controlling means is controlled by said octave data and selects pitch signals from said plural signals, and said pitch signals have octave numbers corresponding to the tone selected, and said octave controlling means contains means for modifying the octave number of the pitch signals in accordance with said note data.

4,380,185

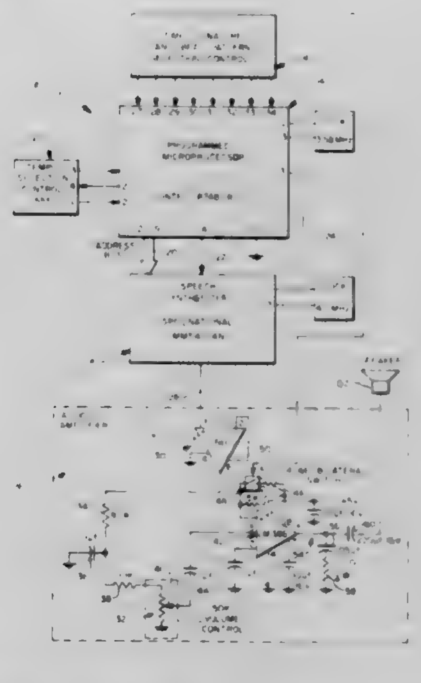
TALKING METRONOME

Gayle Holcomb, Frankfort, Ky., assignor to V-T Rhythms, Inc., Frankfort, Ky.

Filed Nov. 16, 1981, Ser. No. 321,627

Int. Cl.³ G10F *1/00*

U.S. Cl. 84—1.03 **12 Claims**



1. A metronome comprising:

(a) means for selecting a tempo at which human voice patterns will be reproduced, the selected tempo being variable between a minimum and a maximum frequency;

(b) means for selecting a combination of time signature beat pattern at which the human voice patterns will be produced; and

(c) means responsive to the means for selecting a tempo and the means for selecting a combination of time signature and beat pattern for producing a human voice pattern comprised of a sequence of successive numbers enunciated at the selected tempo and time signature and beat pattern, the frequency of enunciation of the successive numbers per measure of the selected time signature and beat pattern being equal to the selected tempo and the successive numbers enunciated per measure being a function of the selected time signature.

4,380,186

METHOD AND APPARATUS FOR FABRICATING PIPELESS EXPLOSIVE AND PROPELLANT CHARGES

Richard Bührer, Thun, Switzerland, assignor to Schweizerische Eidgenossenschaft, represented by Eidg. Munitionsfabrik Thun der Gruppe für Rüstungsdienste, Thun, Switzerland

Filed Aug. 31, 1981, Ser. No. 297,629

Claims priority, application Switzerland, Sep. 15, 1980, 6889/80

Int. Cl.³ F42B *1/00*

U.S. Cl. 86—20 D **13 Claims**

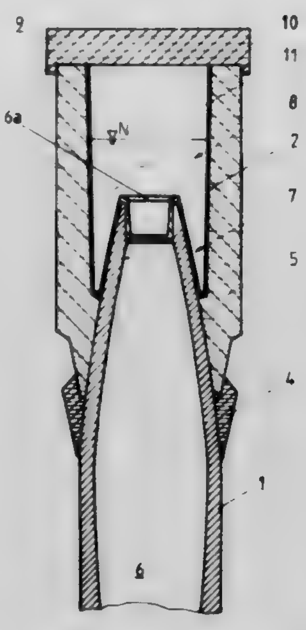
1. An apparatus for fabricating pipeless explosive charges and propellant charges of a predetermined spatial configuration and composition by molding, wherein the solidification phenomenon within the melt is performed with increasing delay from the bottom towards the top, comprising:

an insulation sleeve arranged externally of a mold intended to receive the charge;

said insulation sleeve being structured to possess a radial thermal conductivity which in any horizontal plane is at least approximately equal to the radially outflowing quantity of heat in the cross-section of the same horizontal plane; and

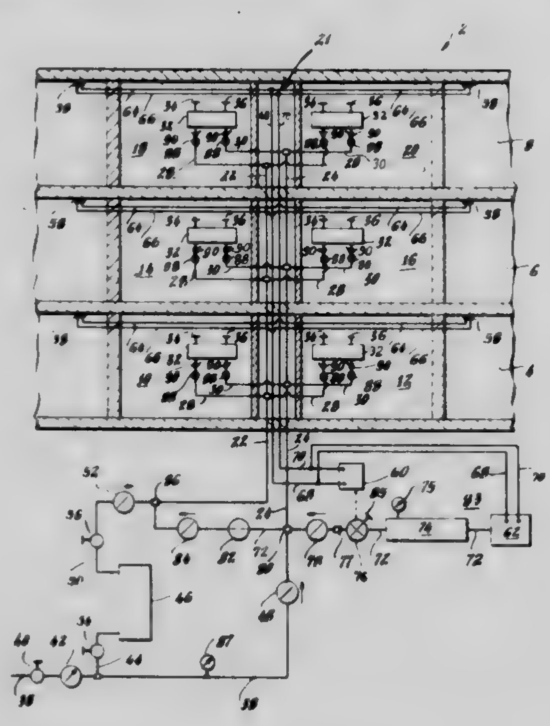
said quantity of heat being released during the solidification of the melt.

11. A method for fabricating pipeless explosive charges and propellant charges comprising the steps of:
heating an insulation sleeve containing a heat carrier for at least one hour to at least the melting temperature of a heat storage;



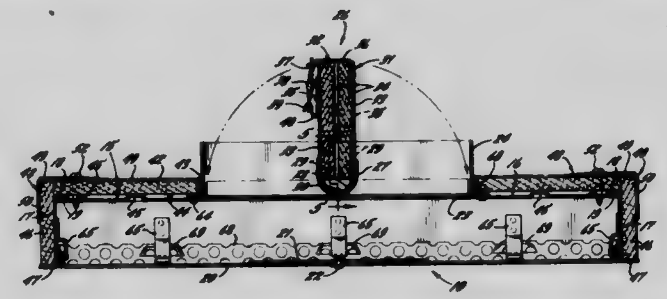
casting the charge into a casting mold; and
cooling the casting mold during at least two temperature steps.

4,380,187
METHOD AND SYSTEM FOR PROVIDING LIFE-SUSTAINING AIR TO PERSONS ENTRAPPED WITHIN A BURNING BUILDING
Edward A. Wicks, 93 Long Ridge Rd., Danbury, Conn. 06810
Filed May 6, 1981, Ser. No. 260,903
Int. Cl.³ F24F *7/06*
U.S. Cl. 98—39 21 Claims



21. A system for providing pressurized air to preselected rooms in a building for sustaining the life of occupants trapped therein by a fire, said system utilizing at least one of the water feed pipes supplying water to the rooms of the building for supplying air to said rooms, said system comprising:
a source of pressurized air adapted to be selectively coupled in fluid flow relationship to at least one of the water feed pipes that supplies water to said preselected rooms, the pressure of said air from said source being greater than the normal water pressure within said at least one water feed pipe to which said source is selectively coupled, and
means for feeding said pressurized air from said source through said at least one of the water feed pipes for providing said air from said source to said preselected rooms in the event of a fire,
whereby life sustaining air from said source can be provided to said preselected rooms through said at least one water supply feed pipe.

4,380,188
HEAT-RETARDING AIR DISTRIBUTION UNIT
Richard K. Nichols, Huntsville, Ala., assignor to Barber-Colman Company, Rockford, Ill.
Filed Jan. 28, 1981, Ser. No. 229,300
Int. Cl.³ F24F *13/08*
U.S. Cl. 98—40 D 13 Claims



1. A heat-retarding air distribution unit comprising a downwardly opening box made of sheet metal, said box having a generally rectangular and horizontal top wall and having side walls depending from said top wall, an air inlet opening in said top wall, a damper disposed adjacent said opening and normally located in an open position, means for causing said damper to close said opening automatically when the temperature therein exceeds a predetermined value, a grille secured to the lower end of said box adjacent the lower margins of said side walls and operable to diffuse air flowing downwardly through said box from said inlet opening, a relatively rigid top panel of heat insulating material lining the upper side of said top wall, relatively rigid side panels of heat insulating material lining the outer sides of said side walls, an outwardly projecting lip formed intergrally with the lower margin of each of said side walls, the lower edges of said side panels resting on said lips, and means for securing said panels to said walls, said securing means comprising a rectangular array of inverted L-shaped bars, said bars having horizontal flanges overlying said top panel and having vertical flanges lying alongside the outer sides of said side panels, and screws extending through the horizontal flanges of said bars, through said top panel and threaded into the top wall of said box.

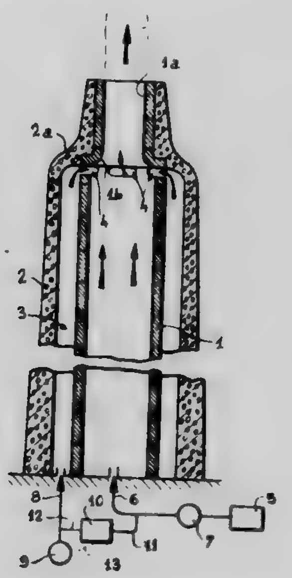
4,380,189
INDUSTRIAL CHIMNEYS WITH FORCED DRAUGHT
Jean-Francois Vicard, Lyons, France, assignor to Societe Lab, Lyons, France
Filed May 4, 1981, Ser. No. 260,442
Claims priority, application France, May 9, 1980, 80 10971
Int. Cl.³ F23L *17/02*
U.S. Cl. 98—58 1 Claim

1. A forced-draught chimney for the discharge of gaseous products from a source into the atmosphere, comprising:
a substantially vertical column having a lower end and an upper end, and the column defining an inner space having a first inner diameter at its upper end;
a substantially vertical discharge nozzle extending coaxially upwardly from said column, the nozzle having a lower portion joining the upper end of the column and having an opening therethrough communicating with the inner space of the column, the lower portion of the nozzle opening being rounded to decrease upwardly from a lower inner diameter of the nozzle equal to said first diameter of the column to a second inner diameter of the upper

portion of the nozzle which is smaller than said first diameter;

an outer wall surrounding and enclosing the upper end of the column and defining with the column an intermediate annular space which is closed at the top of the column;

the upper end of the column having around its entire periphery centripetally directed apertures extending therethrough immediately below the rounded lower portion of the nozzle, and communicating from the intermediate space into the inner space of the column where it joins the nozzle;



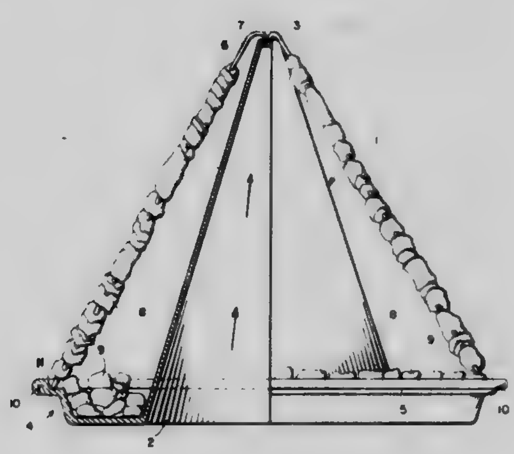
means operative to force gaseous products under pressure into the inner space of the column; and

means operative to force an auxiliary gas under pressure into the intermediate space, the auxiliary gas pressure being slightly greater than the pressure of the gaseous products in the column to cause said auxiliary gas to flow centripetally through said apertures and thereafter to surround said gaseous products with a continuous thermally-insulating sleeve and to rise with said gaseous products upwardly through the decreased diameter nozzle which transforms static gas pressures into upward kinetic energy.

4,380,190
COOKING CONE

Robert J. Adamis, 3425 Monterrey St., San Mateo, Calif. 94403

Filed Feb. 17, 1981, Ser. No. 234,878
Int. Cl.³ A47J *37/04*
U.S. Cl. 99—345 **4 Claims**



1. A cooking cone comprising:

a hollow frustro-conical body open at its larger bottom and at its top to permit the rising of heated air through the inside thereof;

an annular dish around the bottom of said cone to accommodate portions of food to be basted by juices dripping from the food along the exterior of said conical body;

said dish being formed on an annular bottom plate integral with and extending outwardly from the lower edge of said cone;

a plurality of skewers;

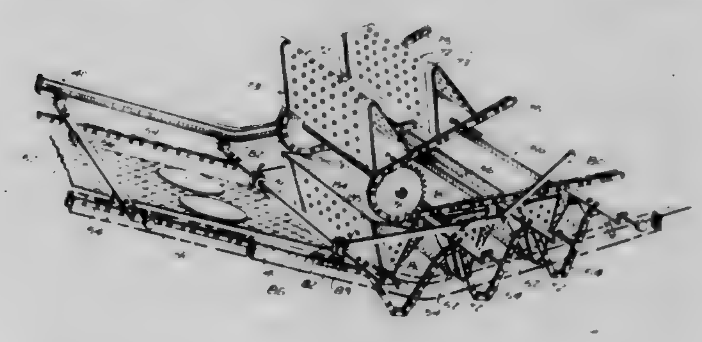
a hook on each of said skewers for hooking over the edge of the open top of said cone for hanging food around the exterior body of said cone whereby said food is exposed simultaneously to external and internal heat;

a source of heat applied to the bottom of said cone and said dish.

4,380,191
DOUGH FORMING AND COOKING APPARATUS

Rafael C. Gallegos, 1018 E. 21st St., Santa Ana, Calif. 92706; Antonio Gallegos, 9411 Brewer Way, Villa Park, Calif. 92667; Robert M. Gallegos, 17961 Darmel Pl., Santa Ana, Calif. 92705; Jess E. Gallegos, deceased, late of Santa Ana, Calif., and by Adeline Gallegos, legal representative, 1707 W. Flora, Santa Ana, Calif. 92704

Filed Mar. 25, 1977, Ser. No. 781,434
Int. Cl.³ A47J *37/12*
U.S. Cl. 99—404 **15 Claims**



13. Apparatus for forming and cooking articles made from material of dough-like consistency, comprising:

(a) means adapted to contain a fluid cooking medium at at an elevated temperature;

(b) an endless belt means adapted for continuous operation;

(c) a plurality of convex porous mold members arranged on a surface of said belt means;

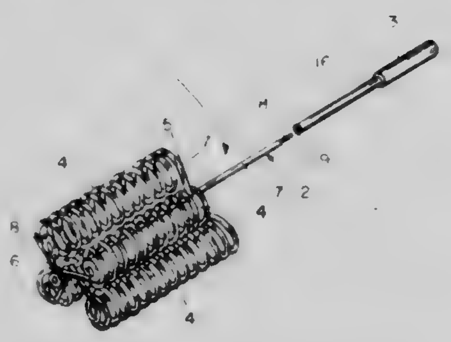
(d) a web-like articulated continuous conveyor means adapted to receive finite quantities of amorphous dough-like material; said web-like conveyor means comprising an endless belt of chain mesh, a continuous chain member attached to and contiguous with each of the two lateral edges of said chain mesh belt, and a plurality of bar members arranged transversely across said chain mesh belt to form a plurality of junctions between parallel portions of said two chain members through said bar members;

(e) means for intermittently positioning consecutive portions of said web-like conveyor means into operative engagement with consecutive mold members arranged on said continuous belt means to shape each of said quantities of material of amorphous, dough-like consistency into articles of desired configuration, said engaged portions of said conveyor and belt means thereafter moving into said fluid cooking medium containment means;

(f) guide means arranged interiorly and exteriorly of said fluid cooking medium containment means and adapted to direct the transportation of said operatively engaged article-containing portion of said conveyor and belt means through said fluid cooking medium containment means in a submerged position and to thereafter facilitate their separation as they emerge from said cooking medium containment means, said articles being removed on said conveyor means in an attitudinal orientation promoting optimal drainage and return of entrained fluid cooking medium to the cooking medium containment means, said guide means comprising continuous parallel rail members arranged on opposite lateral sides of said apparatus, a portion of each rail member being arranged within the fluid cooking medium containment means, and the remainder of each rail member being arranged exteriorly of

said containment means, and wherein said guide means include a downwardly convergent, upwardly divergent portion beginning in the vicinity where said operatively engaged article-containing portions of said conveyor and belt means begin their separation as they emerge from said fluid cooking medium containment means.

4,380,192
HOT DOG BROILER AND METHOD FOR MAKING SAME
Mark N. Doren, Grand Rapids, Mich., assignor to Markson Manufacturing Company, Grand Rapids, Mich.
Filed Aug. 14, 1981, Ser. No. 292,740
Int. Cl.³ A47J *43/18*
U.S. Cl. 99—441 **9 Claims**



8. An apparatus for broiling hot dogs and the like over an open fire, comprising:

an elongate, rigid, rod having a handle attached to one end thereof, and threads formed on the other end of said rod;

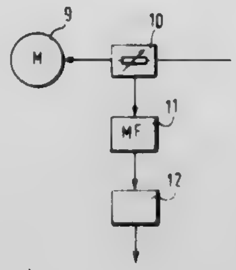
a plurality of baskets shaped to retain hot dogs therein; each of said baskets including a closed end, and an open end through which the hot dogs are inserted into said baskets; said baskets having an identical shape, whereby the same are interchangeable; each of said baskets having a support wire extending laterally from the closed end and the open end thereof for connecting said baskets to said rod; each support wire having a bent over free end which forms an eyelet shaped to receive said rod closely therethrough; each wire support eyelet disposed at the open end of said baskets being threaded over said threads, onto the other end of said rod for non-fixedly connecting the open ends of said baskets with said rod; and each wire support eyelet disposed at the closed end of said baskets being positioned on said threads in a side-by-side relationship; and

a pair of threaded nuts connected with the threaded end of said rod on opposite sides of the closed end eyelets assembled thereon, and being tightened thereagainst, whereby said closed end eyelets are securely locked in place against each other in a sandwiched fashion between said nuts, thereby fixedly connecting the closed ends of said baskets with said rod.

4,380,193
DEVICE FOR PREPARING CHOCOLATE
Jan C. Tadema, Bergen, Netherlands, assignor to Wiener & Co. B.V., Amsterdam, Netherlands
Continuation of Ser. No. 91,000, Nov. 5, 1979, abandoned. This application Feb. 25, 1981, Ser. No. 238,014
Claims priority, application Netherlands, Nov. 24, 1978, 7811567
Int. Cl.³ A23G *1/04, 1/10*
U.S. Cl. 99—452 **9 Claims**

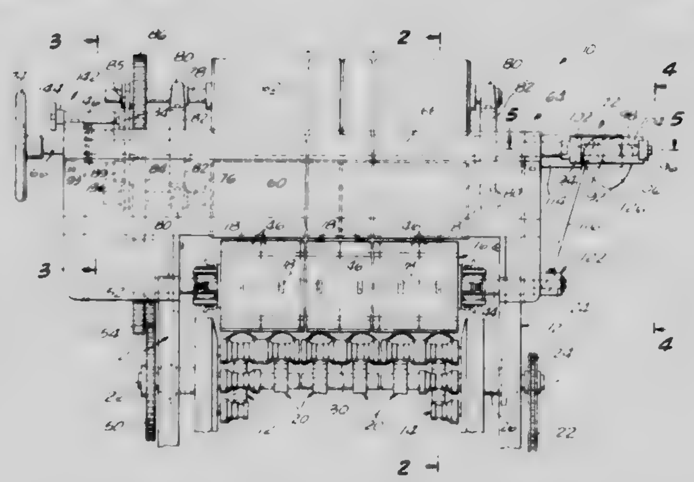
1. A device for batch treatment of ingredients for the manufacture of chocolate, which comprises the combination of:

milling means for grinding a quantity of the ingredients and mixing means for mixing the ground ingredients, first means for continuously circulating the ingredients from said milling means to said mixing means and second means for continuously circulating said ingredients back to said milling means from said mixing means whereby to form a closed recirculating system in which the viscosity of the ingredients tends to rise incidental to the milling and mixing thereof during each cycle of circulation; and



dosing means for introducing a predetermined small amount of viscosity reducing agent other than cocoa butter into the circulating ingredients only when the viscosity of the ingredients exceeds a selectable threshold value.

4,380,194
APPARATUS FOR PRINTING INDICIA ON OBJECTS
Ned C. Carter, Chino, and Jerry W. Cramer, Upland, both of Calif., assignors to Sunkist Growers, Inc., Sherman Oaks, Calif.
Filed Oct. 12, 1978, Ser. No. 950,784
Int. Cl.³ B41F *17/34*
U.S. Cl. 101—35 **6 Claims**



1. In apparatus for printing indicia on objects in which a conveyor successively transports the individual objects to a printing station and a die roll in the printing station is synchronously rotatable to successively move printing dies arranged upon its periphery from an inking roll into printing engagement with the objects as they are delivered to the printing station, the improvement comprising:

a plurality of inking rolls each supported upon a drive shaft and being adapted to be charged with inks having different characteristics, said drive shafts being journalled on a turret mounted on a manually rotatable supporting shaft and in fixed circumferentially and radially spaced relation;

means for releasably locking said turret in positions of rotation wherein a selected inking roll is in operative engagement with the die roll;

means for establishing a driving connection with the drive shaft of the selected inking roll in its operative position for driving it in synchronized relation to the die roll; and

said locking means including adjustment means for circumferentially varying the radial angular locked position of the turret within predetermined limits in order to adjust the engagement pressure between the selected inking roll and the die roll.

4,380,195

TYPE SETTING DEVICE FOR PRINTERS

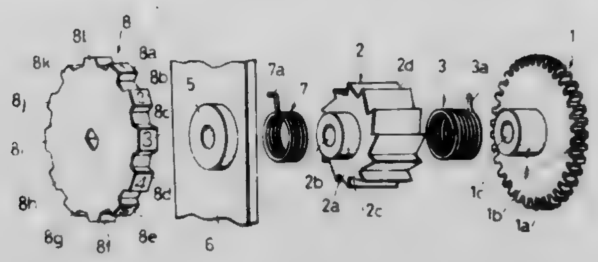
Fumihisa Hori, Tamayama, and Mikio Miyajima, Nishine, both of Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed May 30, 1980, Ser. No. 155,147

Claims priority, application Japan, May 31, 1979, 54-73643[U]

Int. Cl.^{3} B41J *1/24*

U.S. Cl. 101—93.17 **10 Claims**



1. A device for positioning a selected one of a plurality of type elements carried on the circumference of a type wheel in a printing position along a line to be printed, including a ratchet gear connected for rotation with said type wheel, a motor adapted to be driven continuously in one direction during printing along said line, a drive gear connected for rotation continuously with said motor, clutch means including a first spring element connected to said ratchet gear for connecting the torque of said motor to said ratchet gear in a manner normally rotating said ratchet gear in a first direction during rotation of said drive gear by said motor to continuously rotate said type wheel in said first direction but allowing the torque of said motor to be disconnected from said ratchet gear to enable the rotation of said ratchet gear to be stopped, means operated electromagnetically for disconnecting the torque of said motor from said ratchet gear and stopping rotation of said ratchet gear when a selected type element is in a printing position along said line, and means including a second spring element engaged with said ratchet gear for allowing free rotation of said ratchet gear in said first direction but preventing rotation of said ratchet gear in a direction opposite that of said first direction during operation of said stopping means.

4,380,196

PLATE FOR LITHOGRAPHY OR OFFSET PRINTING

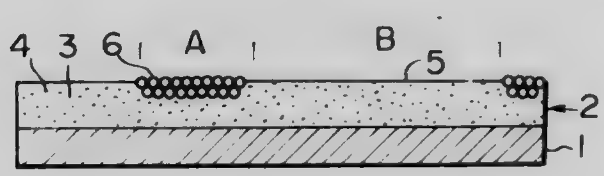
Yoshiaki Kato, Neyagawa; Akira Fushida, Suita; Yasuo Ueda, Kobe; Yasusuke Tohi, Sakai, and Tatsuo Aizawa, Osaka, all of Japan, assignors to Mita Industrial Company Limited, Osaka, Japan

Filed Apr. 15, 1977, Ser. No. 788,088

Claims priority, application Japan, Apr. 26, 1976, 51-46515

Int. Cl.^{3} B41N *1/14*

U.S. Cl. 101—453 **5 Claims**



1. A plate for lithography or offset printing comprising a flexible substrate and a water-resistant coating layer formed on said flexible substrate, said water-resistant coating layer being composed of a water-insoluble resin binder comprising 5 to 45% by weight of a wax and 55 to 95% by weight of a water-insoluble resin, and dispersed in said binder, an inorganic pigment capable of being rendered hydrophilic by an etching treatment, said water-resistant coating layer including an oleophilic ink-supporting portion and an etched hydrophilic ink-repelling portion, wherein said oleophilic ink-supporting portion is formed by applying to said water-resistant coating layer magnetic developer particles comprising 100 parts by weight of triiron tetroxide, 10 to 150 parts by weight of a binder, and 1 to 20 parts by weight of carbon black, said developer particles consisting essentially of nuclear particles composed of said triiron tetroxide, said binder and a part of carbon black and the remainder of carbon black crumbed on the nuclear particles, and passing the water-resistant layer having the image of the developer particles thereon between a pair of rollers whereby the magnetic developer particles are tightly embedded in the water-resistant coating layer and the water-resistant coating layer is smoothened and rendered compact in said hydrophilic ink-repelling portion.

4,380,197

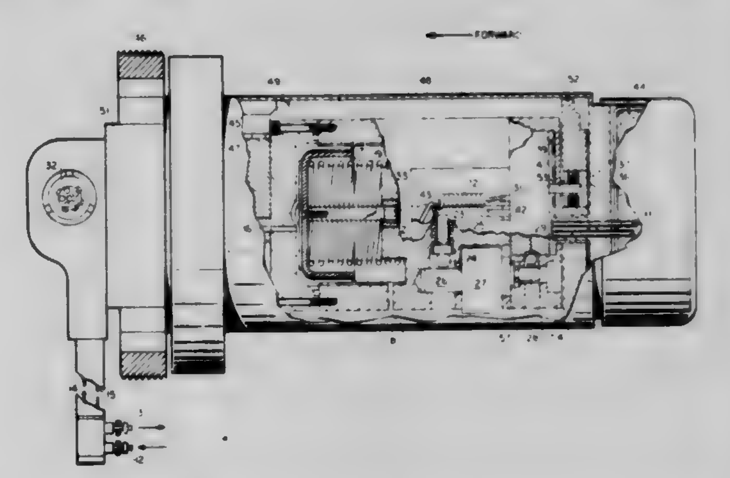
SAFETY AND ARMING DEVICE/CONTACT FUZE

Jefferson O. Eaton, Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 26, 1978, Ser. No. 915,030

Int. Cl.^{3} F42C *5/00, 15/00*

U.S. Cl. 102—228 **8 Claims**



1. A pneumatically operated safe and arm device for use in an ordnance item in a fluid environment, comprising:

a housing having an interior chamber;

a piston sealingly retained within said housing and dividing said chamber into first and second volumes, said piston including a rigidly attached output rod having a free end, said piston and output rod being movable linearly between first and second positions and resiliently urged toward said first position;

a disk mounted to said housing and rotatable about an axis between safe and armed positions, said disk including at least two explosive paths, each path having at least two exposed ends, and said disk being resiliently urged toward said safe position;

resilient force transmission means linking said rod and said disk for converting linear rod motion to rotational disk motion;

dynamic pressure means communicating between said fluid environment and said interior chamber for supplying fluid dynamic pressure to said first volume;

static pressure means communicating between said fluid environment and said interior chamber for supplying fluid static pressure to said second volume;

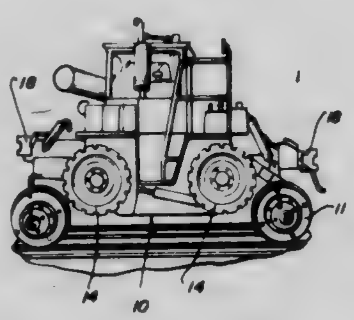
first interlock means releasably engaging said rod in a locking position for preventing said linear rod motion, said first interlock means being movable between said locking position and a releasing position, and resiliently urged toward said releasing position;

second interlock means releasably engaging said disk in a jamming position for preventing rotation of said disk, said second interlock means being movable between said jamming position and a freeing position;

a rotary solenoid attached to said housing, having a shaft configured for rotation between preventing and enabling positions, and being resiliently urged toward said preventing position, said shaft having first and second camming

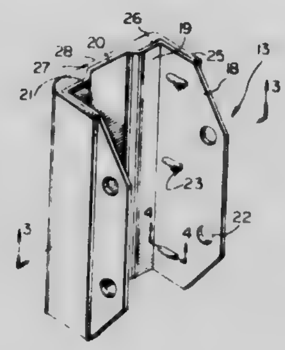
lobes contacting and operating said first and second interlock means respectively in response to rotation of said shaft;
disk latching means pivotally attached to said housing and releasably engaging said disk in a storing position, said disk latching means being pivotal between said storing position and a tripping position, and resiliently urged toward said storing position, for releasing said disk in response to said output rod moving from said first position to said second position;
instantaneous detonation means attached to said housing and positioned in alignment with one end of one of said explosive paths in said disk in said armed position for instantaneously detonating said one explosive path in response to a first signal;
delay detonation means attached to said housing and positioned in alignment with one end of the other of said explosive paths in said disk in said armed position for delayably detonating said other explosive path in response to a second signal; and
detonation output means attached to said housing and positioned in alignment with said other ends of said explosive paths in said disk in said armed position for directing detonation energy from detonation of at least one of said explosive paths to the exterior of said housing; whereby relative movement of said ordnance item in said fluid environment results in fluid static and dynamic pressures being applied to said piston, said relative movement at velocities greater than a preselected minimum causing said piston, enabled by release of said first interlock means, to load said resilient force transmission means and trigger rotation of said disk, thereby aligning an explosive train.

4,380,198
VEHICLE HAVING IMPROVED COUPLING SYSTEM AND SYSTEM FOR ABSORPTION OF SHOCK ON COUPLING
Eugene B. White, Jr., Park Forest, Ill., assignor to White Machinery Corporation, Joliet, Ill.
Continuation-in-part of Ser. No. 40,855, May 21, 1979, Pat. No. 4,355,584. This application Sep. 2, 1980, Ser. No. 183,053
Int. Cl.[3] B60F *1/04*
U.S. Cl. 105—26 R **12 Claims**



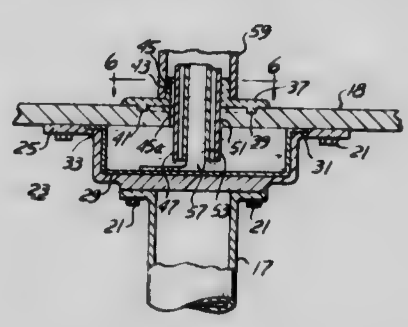
1. A railcar moving vehicle comprising, in combination, first frame means having mounted thereon a plurality of road and rail wheels, engine and drive components, and an operator's cab, second frame means having a pair of couplers mounted thereon, one adjacent each end thereof for coupling with a railcar to be moved, said second frame means being carried on said first frame means and being vertically movable relative to said first frame means, whereby upon elevating said second frame means said coupler means may be raised beneath the coupler of a railcar to be moved thereby transferring a portion of the weight of such railcar to said second frame means, and means for raising and lowering said second frame means relative to said first frame means.

4,380,199
RAILROAD VEHICLE PEDESTAL WEAR LINER
George A. Thomson, and Robert Haynes, both of Burlington, Canada, assignors to Thomson-Gordon Limited, Burlington, Canada
Filed Feb. 19, 1981, Ser. No. 235,833
Claims priority, application Canada, Sep. 18, 1980, 360679
Int. Cl.[3] B61F *5/32;* **F16C** *27/02, 33/20*
U.S. Cl. 105—225 **3 Claims**



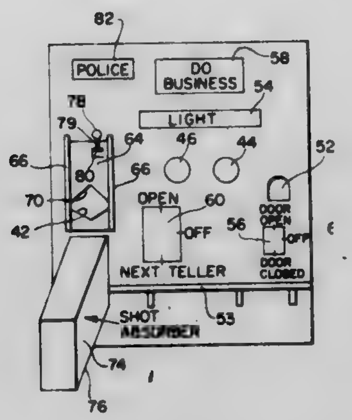
1. A railroad vehicle pedestal wear liner for attachment to the pedestal leg of a truck of a railroad vehicle which includes a journal box having a journal box wear plate facing said pedestal leg, said pedestal wear liner comprising a unitary metallic support structure generally U-shaped in cross section with a central web portion and a pair of mounting legs for mounting the pedestal wear liner on a pedestal leg; said central web portion having a pair of flat portions adjacent said mounting legs and a central flat portion outwardly offset from said pair of flat portions, means in each of said mounting legs for receiving fastening elements for securing said legs to the sides of a pedestal leg and a solid, hard, elastomeric urethane polomer forming a synthetic elastomer layer bonded to the outer face of said metallic support structure, said elastomer layer forming an outer flat wear surface across the entire central web of the metallic support and extending continuously over at least part of said mounting legs and filling openings in said legs to provide a mechanical interlock between the elastomer and the metallic support.

4,380,200
CANDLELAMP-TABLE
James D. Reninger, 115 Fiesole St., Venice, Fla. 33595
Filed Oct. 2, 1980, Ser. No. 193,203
Int. Cl.[3] A47B *35/00*
U.S. Cl. 108—23 **9 Claims**



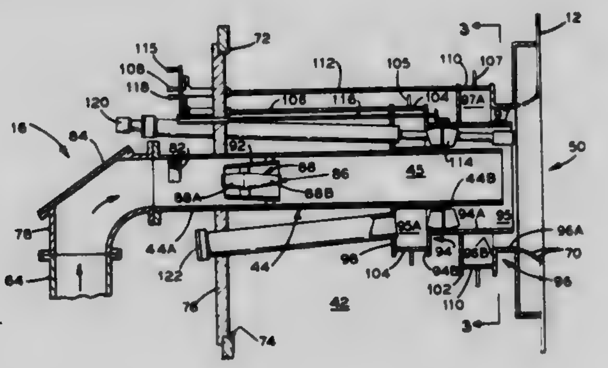
1. A candlelamp-table comprising:
(a) a horizontal top;
(b) means for supporting said top above a supporting surface;
(c) a reservoir carried by and beneath said top and adapted for holding liquid combustible fuel, said reservoir including an outer shell and a liner adapted for holding said fuel; and
(d) a candlelamp removably supported on said top and having a wick extending upwardly and downwardly into said reservoir.

4,380,201
BANK CONSTRUCTION
Exsior Dion, 547 River Rd., Lincoln, R.I. 02865
Filed Mar. 10, 1981, Ser. No. 242,288
Int. Cl.^{3} E06B *9/04;* **E05G** *5/02;* **G08B** *13/00*
U.S. Cl. 109—17 **6 Claims**



1. A constructional assembly for conducting improved banking transactions comprising a structure having a first area generally accessible to customers and a teller's work area, said areas separated from each other by a security wall, a plurality of separate, generally fully enclosed customer booths positioned along said security wall, each of said booths having access thereto by a door opening into said first area, said door closable and lockable from said teller's work area, signal means responsive to the closing of said door to signal a teller as to readiness to transact business, communication means between said teller and said customer, a portion of the security wall of said booth having a transaction passage therethrough, said passage mutually opening into said booth and said teller's area whereby business between the teller and the customer may be transacted, and means operable from the teller's area to close said passage, including teller operational control means for signalling a normal operational sequence including that the booth is available, that a customer is in the booth, that the booth door is closable, that the booth door is closed and locked and for opening said door and initiating another sequence.

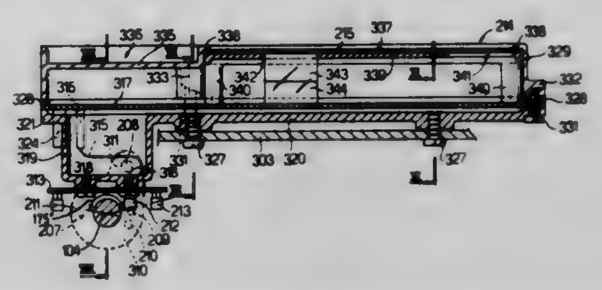
4,380,202
MIXER FOR DUAL REGISTER BURNER
Albert D. LaRue, Uniontown, Ohio, and John J. Wolf, Havertown, Pa., assignors to The Babcock & Wilcox Company, New Orleans, La.
Filed Jan. 14, 1981, Ser. No. 224,985
Int. Cl.^{3} F23D *1/00*
U.S. Cl. 110—263 **7 Claims**



1. An improved fuel burner having a tubular nozzle with an end plate attached thereto and a means for reducing the pressure loss though the nozzle and inhibiting the formation of nitric oxides, the means comprising; a deflector located downstream fuel flow-wise of the end plate and;

a diffuser disposed within said nozzle having a shroud and a plug located downstream fuel flow-wise of the deflector.

4,380,203
DEVICES GENERATING SYNCHRONIZING SIGNALS IN SEWING MACHINES
Nereo Bianchi, Pavia, Italy, assignor to NECCHI S.p.A., Pavia, Italy
Filed May 2, 1980, Ser. No. 146,126
Claims priority, application Italy, May 3, 1979, 42906 A/79
Int. Cl.^{3} D05B *3/02*
U.S. Cl. 112—158 E **41 Claims**

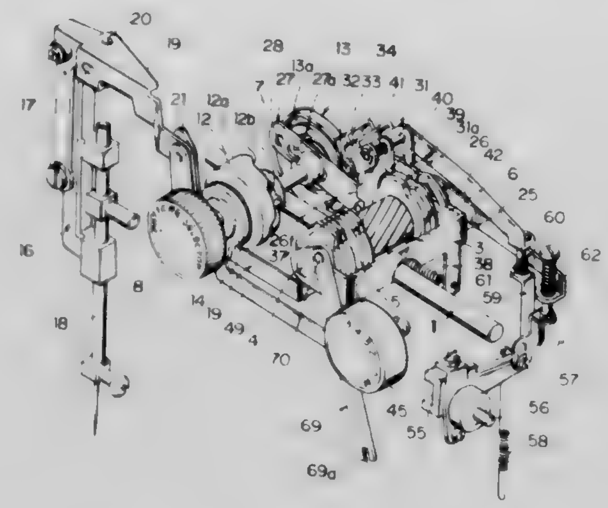


41. In a sewing machine having a needle bar means capable of transverse oscillation thereof relative to the direction of fabric feed in said sewing machine, feed means for adjusting the length and direction of said fabric feed, first actuator means for adjusting the transverse position of said needle bar means in response to control signals provided thereto, second actuator means for adjusting the positional displacement of said feed means in response to control signals provided thereto, rotatable main shaft means operatively connected to said needle bar means for enabling said transverse oscillation thereof, and main drive motor means drivingly connected to said main shaft means and said feed means for enabling sewing by said sewing machine; the improvement comprising means for generating a stop control synchronizing signal to said main drive motor means, said generating means comprising a first magnetic sensor means associated with said main drive motor means for providing said stop control synchronizing signal thereto, and a first magnet means disposed for synchronous rotation with said main shaft means for interacting with said first magnetic sensor means for a sufficient angular interval of rotation to enable stopping of said main shaft means in a predetermined arc of rotation of said main shaft means, wherein said generating means further comprises a soft iron loop substantially surrounding the area of interaction of said first magnet means and said first magnetic sensor means for facilitating closure of the magnetic path formed in said area and increasing the associated flux density within said area.

4,380,204
NEEDLE AND FEED CAM ARRANGEMENT FOR A ZIG ZAG SEWING MACHINE
Susumu Hanyu, Hachioji, and Akio Koide, Kokubunji, both of Japan, assignors to Janome Sewing Machine Co. Ltd., Tokyo, Japan
Filed Feb. 17, 1981, Ser. No. 235,136
Claims priority, application Japan, Feb. 20, 1980, 55-19737[U]
Int. Cl.^{3} D05B *3/02*
U.S. Cl. 112—158 A **8 Claims**

1. A sewing machine comprising a machine housing; a main drive shaft (1) rotatably mounted in said housing for vertically reciprocating a needle penetrating a fabric to produce stitches therein; a shaft (4) extending transverse to the main drive shaft and rotatably mounted in said housing; means (3) between said main drive shaft and the transverse shaft for rotating the latter at a speed smaller than the rotational speed of said main shaft; a plurality of pattern cams (5) and a plurality of feed control cams (6) mounted on said transverse shaft for rotation therewith; first transmission means (19) operatively connected to said needle and having a first follower (19*a*) adapted to cooperate with a selected one of said plurality of pattern cams for controlling lateral swinging movement of the needle; fabric feed regulator means (55) tiltably mounted in said housing for regulating the amount of movement of the fabric to be stitched

in forward and rearward direction; second transmission means (**42**, **42*d***, **42*e***) for controlling tilting of said feed regulator means, said second transmission means being operatively connected to said feed regulator means and including a second follower (**39**) adapted to cooperate with a selected one of said plurality of feed control cams; and manually adjustable select-



ing means (**8**, **7**, **12**, **13**, **14**) cooperating with said first and said second transmission means for moving said follower of said first transmission into cooperative engagement with a selected one of said pattern cams (**5**) and for moving said follower (**39**) of said second transmission means into cooperative engagement with a selected one of said feed control cams (**6**).

4,380,205

GUIDANCE APPARATUS FOR A SEWING MACHINE

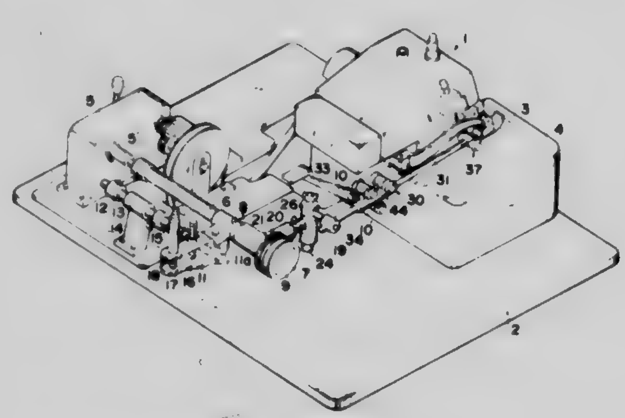
Masatoshi Nagane, Gotenba, Japan, assignor to Kabushiki Kaisha Fujimi Hoseisho, Sunto, Japan

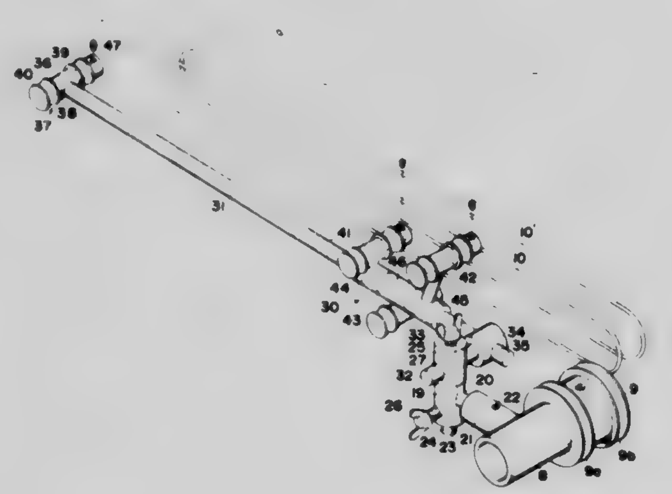
Filed Sep. 22, 1980, Ser. No. 189,303

Claims priority, application Japan, Jul. 23, 1980, 55-100910

Int. Cl.³ D05B *27/00, 27/12*

U.S. Cl. 112—304 **6 Claims**





1. A guidance apparatus for a sewing machine having a variable-speed drive unit and a working table that permits overedge stitching said guidance apparatus comprising:

a shaft rotatably connected to said variable-speed drive unit at one end thereof;

a driving pulley connected to the other end of said shaft;

an L-shaped member pivotally connected to said shaft;

said L-shaped member being pivotable laterally and vertically relative to a plane of the working table of the sewing machine,

pulley means rotatably connected to one end of said L-shaped member,

a first means for locking the lateral movement of said L-shaped member,

a second means for locking the vertical movement of said L-shaped member, said second means being positioned higher relative to the axis of said driving pulley when said second means and said pulley are in their positions of intended use, and

endless belt means operatively connecting said driving pulley with said pulley means.

4,380,206

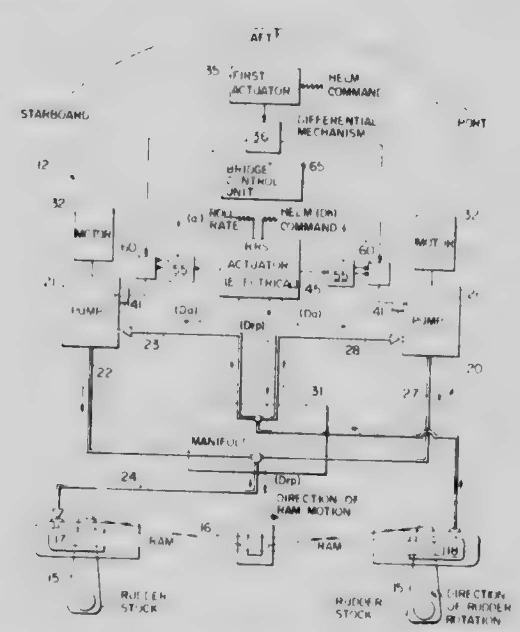
SHIP ROLL STABILIZATION SYSTEM

A. Erich Baitis, Stafford, Va., and Dennis A. Woolaver, Rockville, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 25, 1981, Ser. No. 247,484

Int. Cl.³ B63B *39/06*

U.S. Cl. 114—122 **7 Claims**



2. A ship stabilization system which utilizes the rudders to compensate for wave and wind induced roll motions, comprises:

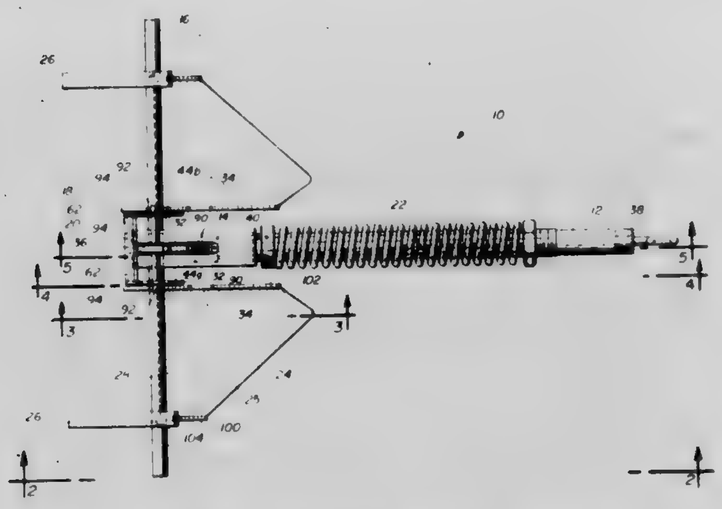
a hydraulic control means connected to the rudders for controlling the position of the rudders;

flow control means connected to the hydraulic control means for controlling the flow of hydraulic fluid in the hydraulic control means to produce a predetermined rudder movement;

a roll rate sensor for producing roll rate signals (a'); and

a roll reduction actuation means having a first input for receiving said roll rate signal and a second input for receiving helm steering command signals and being connected to the flow control means for forming a roll reduction control signal from said roll rate signal translating said helm steering command signals and said roll reduction control signals into a control impulse for the flow control means.

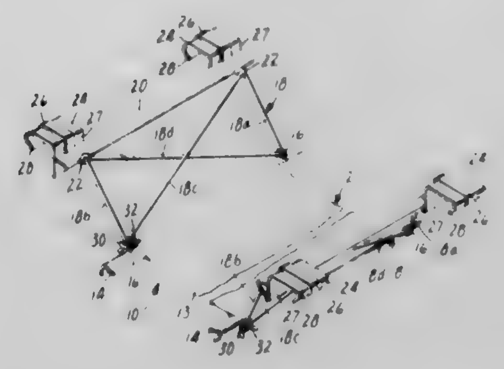
4,380,207
ANCHORING APPARATUS
Edwin B. Nolt, New Holland, Pa., assignor to Sperry Corporation, New Holland, Pa.
Filed Sep. 2, 1981, Ser. No. 298,697
Int. Cl.³ B63B *21/24*
U.S. Cl. 114—298 10 Claims



1. In an anchoring apparatus having a housing; a support extending through said housing; a fluke movably mounted on said support for movement relative to said housing between a sea bed engaging position and a release position, the improvement comprising:
- a cam assembly movably mounted on said support for movement between a first position and a second position, said cam assembly having a first portion extending through said housing and being movable relative to said fluke;
- a cam roller resiliently mounted with said housing for movement toward and away from said cam assembly, said cam roller being engageable with said first portion of said cam assembly;
- spring means connected to said roller to bias said roller into engagement with said first portion and for releasably holding said cam assembly in said first position;
- actuating means connected to said cam roller and being selectively operable to effect movement of said cam roller away from said cam assembly to permit said cam assembly to move to said second position, the release of the operation of said actuating means to permit said spring means to urge said cam roller against the first portion of said cam assembly effecting the return of said cam assembly to said first position; and
- limit means for limiting movement of said fluke relative to said cam assembly, said limit means being operable to permit said fluke to move to said release position when said cam assembly moves to said second position and to effect a movement of said fluke to said sea engaging position when said cam assembly moves from said second position to said first position.

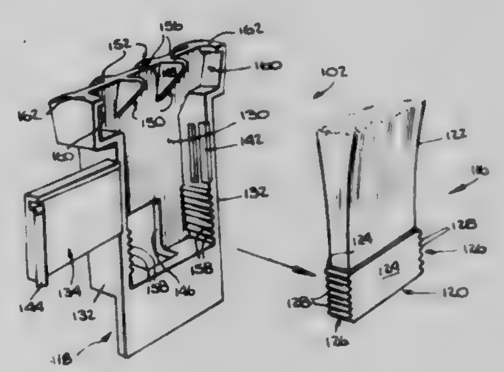
4,380,208
PORTABLE SEAT
Dean L. Goserud, 1981 Princeton Ave., St. Paul, Minn. 55105
Filed Jul. 6, 1981, Ser. No. 281,233
Int. Cl.³ B63B *17/00*
U.S. Cl. 114—363 14 Claims

5. A portable seat for suspension between spaced supports comprising a seating member having elongated rigid side edge portions, suspension means associated with and spaced outwardly from each said side edge portion, and a flexible element interconnecting each said suspension means with its associated side edge portion, each said rigid side edge portion having securing means on each end portion thereof and each said suspension means including securing means longitudinally spaced from one another, each said suspension means securing means having an element secured thereto for suspending the seat from a support, each said attached element being generally opposite the securing means of the associated side edge portion, said flexible element interconnecting each side edge portion and its associated suspension means being slidably threaded through each said securing means of each said side edge portion and its associated suspension means for varying



the distance between said side edge portion and its associated suspension means, and adjustable means engaging the end portions of said flexible elements to limit reverse passage of said flexible elements through said securing means and thereby adjustably fix the distance between each side edge portion and its associated suspension.

4,380,209
WORKPIECE MOISTENING APPARATUS
Robert R. Reid, Stamford, Conn.; Edward Winkler, Armonk, N.Y., and Stephen E. Girard, Milford, Conn., assignors to Pitney Bowes Inc., Stamford, Conn.
Filed Dec. 21, 1981, Ser. No. 332,626
Int. Cl.³ B05C *1/06*
U.S. Cl. 118—253 12 Claims



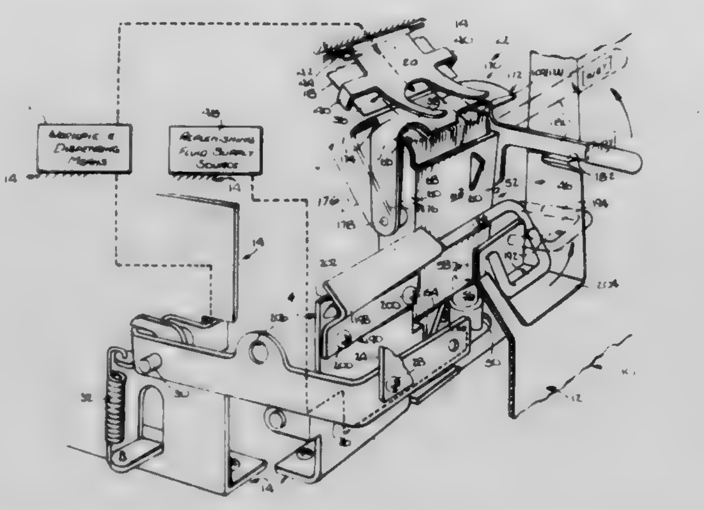
1. Apparatus for applying moisture to a workpiece, said apparatus comprising:
- a. a brush including a base and a moisture carrier extending therefrom, said moisture carrier having a free end for contacting a workpiece to apply moisture thereto, said base including a plurality of teeth; and
- b. brush holding means including a plurality of teeth, said brush teeth and said brush holding means teeth respectively constructed and arranged for separable engagement with each other for removably attaching said brush to said brush holding means in one of at least two positions.

4,380,210
WORKPIECE MOISTENING SYSTEM
David R. Auerbach, Georgetown, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.
Filed Dec. 21, 1981, Ser. No. 332,627
Int. Cl.³ B05C *1/06*
U.S. Cl. 118—253 8 Claims

1. In a machine including framework and means for dispensing a moistenable workpiece, improved workpiece moistening means comprising:
- a. a source of supply of moistening fluid, said supply having

an upper end and a lower end, means for pivotably attaching the lower end of said supply source to said framework;

b. means for moving the upper end of said supply source between a first position wherein said supply source is inaccessibly disposed and a second position wherein said supply source is accessibly disposed;



c. applicator means removably mountable in said supply source; and

d. means for disabling said moving means until said workpiece dispensing means is disabled.

4,380,211

VACUUM EVAPORATION SYSTEM FOR DEPOSITION OF THIN FILMS

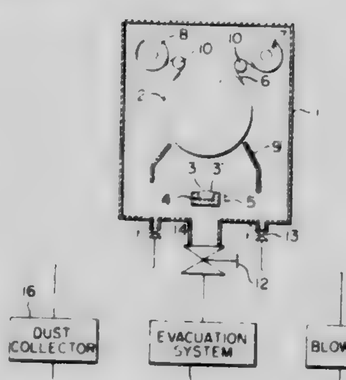
Koichi Shinohara, Kobe, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 3, 1981, Ser. No. 299,188

Claims priority, application Japan, Sep. 17, 1980, 55-129737

Int. Cl.³ C23C *13/10*

U.S. Cl. 118—718 **4 Claims**



1. A vacuum evaporation system for the deposition of thin films comprising:

a blower and dust collector in communication through valve means with an evacuated process chamber in which are disposed at least one set of a film substrate holder and an evaporation source whereby the gases in the evacuated process chamber can be filtered while the vacuum is maintained.

4,380,212

ARRANGEMENT FOR UNIFORMLY COATING SURFACES OF REVOLUTION BY VAPOR DEPOSITION IN A HIGH VACUUM

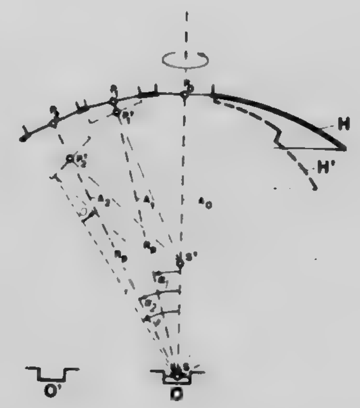
Thaddäus Kraus, Triesen, Austria, assignor to Balzers Aktiengesellschaft, Liechtenstein

Filed Sep. 3, 1981, Ser. No. 299,061

Claims priority, application Switzerland, Sep. 26, 1980, 7216/80

Int. Cl.³ C23C *13/08*

U.S. Cl. 118—720 **17 Claims**



1. An apparatus for uniformly coating a number of substrates with surfaces of revolution by vapor deposition in a high-vacuum container by means of at least one evaporative source for producing a vapor stream comprising a structure for supporting all the substrates to be coated which is rotatable about a fixed axis, and at least one corrective mask for intercepting the vapor stream and which also is rotatable about a fixed axis, wherein the apparatus is structured so that:

(a) all substrate axes (A_1, A_2) intersect at a single point (S);

(b) all substrate poles (P_1, P_2) are equidistantly spaced from the point of intersection (S) of the substrate axes;

(c) an axis of rotation (A_0) of the structure supporting the substrates passes through the point of intersection (S) of the substrate axes;

(d) an axis of rotation of the at least one corrective mask coincides with the axis of rotation (A_0) of the structure supporting the substrate, which structure rotates in opposite direction;

(e) the distance between the evaporative source and the point of intersection (S) of the substrate axes corresponds to less than 15% of the distance between the point of intersection (S) of the substrate axes and the substrate poles (P_1, P_2);

(f) the distance between the corrective mask and the substrates corresponds to less than 15% of the distance (R_p) between the point of intersection (S) of the substrate axes and the substrate poles (P_1, P_2); and

(g) the contour of the at least one corrective mask is determined empirically from the distribution of the vapor radiation in the container space, to the effect that on a spherical surface on which all the substrate poles are located, an even coating is produced.

4,380,213

ROTATABLE FISH CAGE

Albert Blair, and Patrick T. Grant, both of Aberdeen, Scotland, assignors to National Research Development Corporation, London, England

Continuation of Ser. No. 122,490, Feb. 19, 1980, Pat. No. 4,351,268. This application Jan. 26, 1982, Ser. No. 342,802

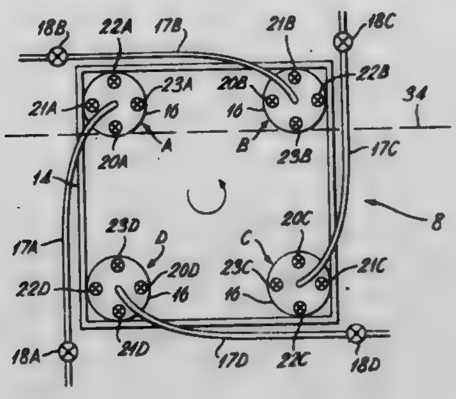
Claims priority, application United Kingdom, Feb. 21, 1979, 7906044

Int. Cl.³ A01K *61/00*

U.S. Cl. 119—3 **6 Claims**

1. A fish cage comprising perforated walls for the flow into or out of the cage of ambient water in which the cage will be located in use, said cage being substantially coincident with an

imaginary rectangular box having four long corner edges, a plurality of water-tight control devices disposed along the said four long corner edges which are coincident with the perforated walls of said cage and secured relative to said walls with at least one said control device being wholly immersed in the



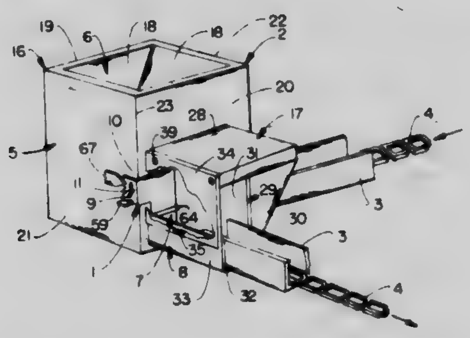
ambient water at any given moment, each said control device having inlet and outlet valve means for allowing ingress and egress of air and/or water to provide in situ control of the overall buoyancy and/or the flotation attitude of the cage thereby to allow buoyancy-controlled rotation of the cage.

4,380,214

FEED GATE FOR POULTRY CONVEYOR FEEDERS AND THE LIKE

William R. Williams, Roswell, Ga., assignor to U.S. Industries, Inc., New York, N.Y.

Filed Jan. 19, 1981, Ser. No. 226,414
Int. Cl.[3] **A01K** *39/01*
U.S. Cl. 119—51 CF **12 Claims**



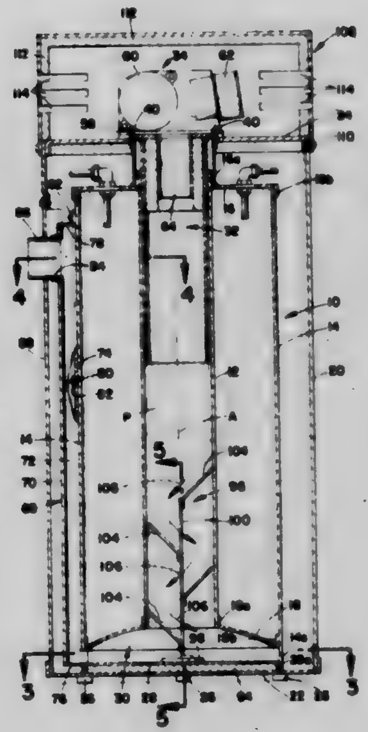
1. In a feeder unit for automated poultry systems and the like of the type having at least one feed conveyor with a moving feed carrier; said feeder unit comprising a housing through which said feed carrier translates, means for adding feed to a return area of said feed carrier, and an outlet trough disposed downstream of said feed adding means, the improvement of an adjustable feed gate comprising:
   - a valve plate having means for slidably mounting the same in said outlet trough for translation along a generally vertical plane; said valve plate having a lower, free edge disposed a preselected distance from the feed carrier in said output trough for metering the flow of feed from said feed adding means onto said feed carrier;
   - an adjustment tab attached to and moving with said valve plate; said adjustment tab extending laterally from said valve plate, and overlying an exterior surface of said feeder unit housing;
   - means for detachably anchoring said adjustment tab to said housing at selected vertical positions for varying the conveyor feed level from the exterior of said feeder unit; said anchoring means comprising:
     - a plurality of detents spaced along a side edge of said adjustment tab; and
     - a stop fixedly attached to said housing and having a portion thereof shaped for mating reception in said detents, whereby said stop in conjunction with said adjustment tab detents both indicates the level setting of said feed gate, and interconnects said plate with said housing.

4,380,215

LIQUID FUEL-FIRED WATER HEATING TANK

Walton L. Mendelson, 3161 Yorkshire, Cleveland Heights, Ohio 44118

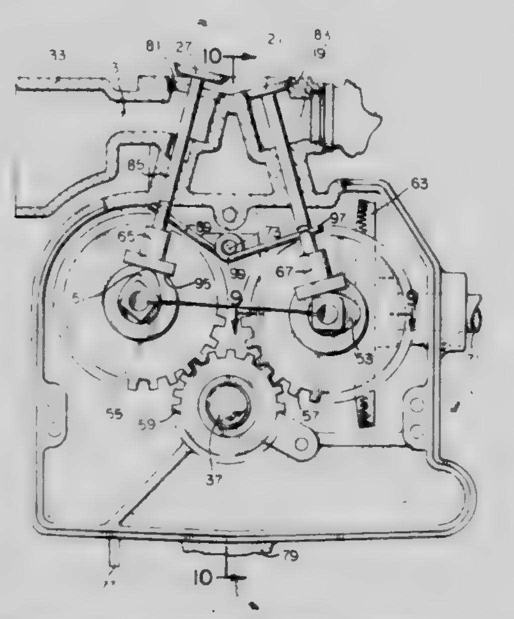
Filed Jul. 16, 1981, Ser. No. 284,064
Int. Cl.[3] **F22B** *5/00*
U.S. Cl. 122—13 R **2 Claims**



1. A liquid fuel-fired water heating tank comprising housing means including an upwardly extending annular housing wall, an annular water receptacle in said housing means, said receptacle including radially spaced apart coaxial inner and outer side walls having corresponding upper and lower ends, said outer side wall being spaced inwardly from said housing wall, said receptacle further including annular upper and lower end walls, said upper end wall being between said upper ends of said side walls, said lower end of said outer side wall being spaced axially below said lower end of said inner side wall, said lower end wall of said receptacle being between said lower end of said inner side wall and said outer side wall at a location providing an axial portion of said outer side wall below said lower end wall, a planar bottom wall spaced below said lower end wall, said bottom wall extending transverse to the axis of said outer side wall and closing said lower end thereof, said lower end wall of said receptacle together with said planar bottom wall and said axial portion of said outer side wall defining a plenum chamber, said inner side wall opening downwardly into said plenum chamber and providing the only inlet passageway thereinto, combustion chamber means extending downwardly into said inner side wall of said receptacle from said upper end thereof, liquid fuel-fired burner means including burner tube means, means supporting said burner means above said upper ends of said inner and outer receptacle side walls with said burner tube means extending downwardly into said combustion chamber means, whereby combustion gases from combustion of fuel in said combustion chamber means during operation of said burner means flow downwardly from said combustion chamber means and through said inner side wall means of said receptacle therebelow into said plenum chamber, exhaust flue means including circumferentially spaced apart flue side walls extending upwardly along the outer surface of said outer side wall of said receptacle and an outer flue wall between said flue side walls and spaced radially outwardly from said outer surface of said outer side wall of said receptacle, said exhaust flue means having a circumferentially narrow inlet end opening radially into said plenum chamber through said axial portion of said outer side wall of said receptacle and

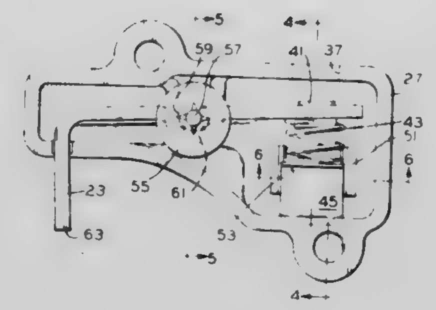
an outlet end adjacent said upper end of said outer side wall of said receptacle and opening radially outwardly through said housing wall, said exhaust flue means providing the only exhaust passageway for combustion gases from said plenum chamber and said inlet end of said exhaust flue means restricting flow of said combustion gases from said plenum chamber into said exhaust flue, removable baffle means including a support member having a lower end resting on said planar bottom wall of said plenum chamber, said support member extending upwardly into said inner side wall of said receptacle, a plurality of baffle plates axially spaced apart on said support member along the length thereof, axially adjacent ones of said baffle plates being on opposite sides of said support member, said baffle plates being inclined downwardly and radially inwardly of said inner side wall of said receptacle, the lowermost one of said baffle plates being inclined downwardly and radially inwardly in the direction away from said inlet end of said exhaust flue, said means supporting said burner means including means removably mounting said burner means and said combustion chamber means on said water receptacle, and said combustion chamber means including coaxial first and second tubular portions of refractory material, said first portion surrounding said burner tube means and said second portion extending downwardly into said passageway from said first portion.

4,380,216
ECONOMICAL ENGINE CONSTRUCTION
William C. Kandler, New Holstein, Wis., assignor to Tecumseh Products Company, Tecumseh, Mich.
Filed Sep. 17, 1980, Ser. No. 188,135
Int. Cl.³ F01L *3/10*
U.S. Cl. 123—90.65 **20 Claims**



1. In an internal combustion engine having a valve train including a pair of stems and valves connected to each of the stems for controlling intake and exhaust ports respectively of the engine, cams for imparting reciprocating opening motion to each valve by way of the valve train, and a spring for biasing the valves closed and the valve train into tracking relation with the cams, the improvement wherein the spring comprises a coiled wire spring having an anchored central bight portion and outwardly extending legs, each engaging one of the pair of stems to urge the respective valves toward a closed position, the cams for imparting reciprocating motion comprising a pair of non-metallic radial cam surfaces shaft driven by a like pair of non-metallic spur gears, the cams being driven by a common spur gear fixed to the crankshaft of the engine which gear meshes with each of the like pair of gears.

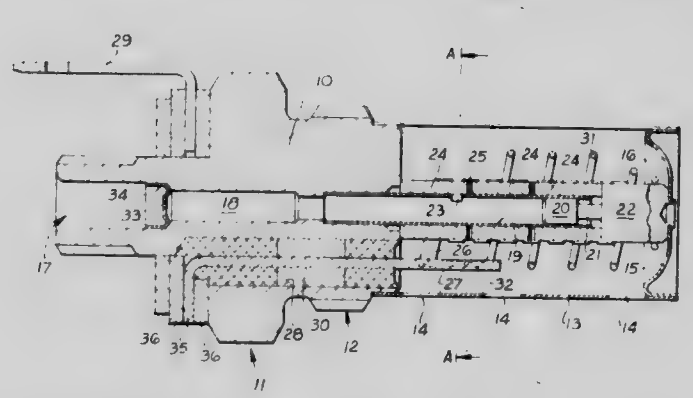
4,380,217
BREAKER POINT SYSTEM
Anthony E. Wasmer, and Stephen L. Koenigs, both of New Holstein, Wis., assignors to Tecumseh Products Company, Tecumseh, Mich.
Filed May 18, 1981, Ser. No. 264,976
Int. Cl.³ F02P *17/00, 1/00*
U.S. Cl. 123—146.5 A **25 Claims**



1. In an internal combustion engine ignition system, an improved contact point assembly for following a rotating cam member and periodically interrupting ignition coil primary winding current flow inducing a high voltage ignition spark producing surge in a secondary ignition coil winding comprising:

an electrically insulating housing;
a fulcrum within the housing;
a lever arm within the housing having an electrical contact near one end thereof and with the other end extending beyond the housing to engage the cam member;
a threaded member passing into the housing and comprising an adjustable stationary contact; and
a spring for urging the lever arm into engagement with the fulcrum, the lever arm contact toward the stationary contact, and the lever arm other end into engagement with the cam member.

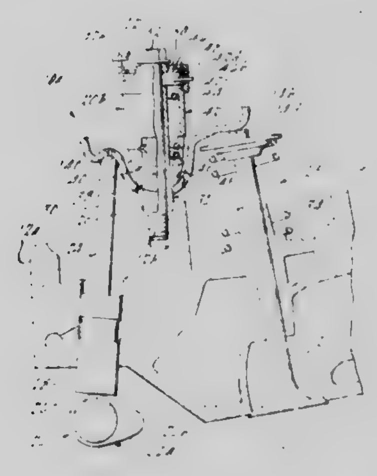
4,380,218
STARTING AID FOR INTERNAL COMBUSTION ENGINES
Malcolm W. Munro, London, England, assignor to Lucas Industries Limited, Birmingham, England
Filed May 7, 1981, Ser. No. 261,474
Claims priority, application United Kingdom, Jul. 2, 1980, 8021633
Int. Cl.³ F02N *17/00*
U.S. Cl. 123—179 H **9 Claims**



1. A starting aid for assisting the starting of an internal combustion engine and of the kind which is located in the air inlet manifold of the engine and to which liquid fuel is supplied, the fuel being vapourised and ignited so that a flame is produced which heats the air flowing to the engine, the aid comprising a tubular body which is closed at one end, a fuel inlet to the other end of the body, a stack of electrically insulating rings mounted about the body defining narrow gaps therebetween, said rings being formed from a material which can withstand high temperature, an electrical heating element wound about said rings, an aperture in the wall of said body

and through which fuel can flow to the peripheral surfaces of said rings by way of the gaps therebetween, said element acting to vapourise the fuel and means for igniting the vapourised fuel.

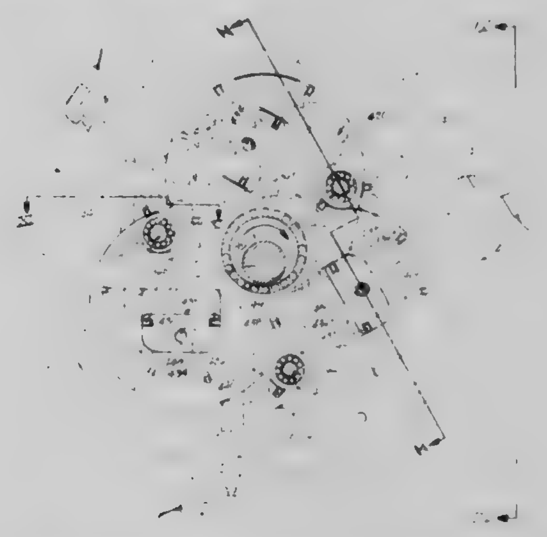
4,380,219
VALVE DISABLING MECHANISM
Michael M. Walsh, Northville, Mich., assignor to Eaton Corporation, Cleveland, Ohio
Filed May 16, 1975, Ser. No. 578,295
Int. Cl.³ F02D *13/06*
U.S. Cl. 123—198 F 36 Claims



1. A device for changing the fulcrum of an engine valve rocker arm to selectively disable and enable the valve, said device comprising:
support means adapted for attachment to the engine;
fulcrum means slideably mounted on said support means, said fulcrum means defining a pivot surface adapted to contact said valve rocker arm;
first means mounted for sliding movement with said fulcrum means and retained against rotation relative to said support means, said first means defining a first abutting surface;
second means rotatably mounted on said support member and retained against sliding movement relative to said support means, said second means defining a second abutting surface for contacting said first abutting surface and adapted to react engine valve drive train forces which effect normal opening of the engine valve; and
actuation means selectively operative to apply a force to rotate said second means to a valve enabling position drivingly connecting said abutting surfaces for effecting normal valve opening and closing in response to engine valve train driving forces and selectively operative to apply a force to rotate said second means to a valve disabling position drivingly disconnecting said abutting surfaces for effecting disablement of said valve by allowing movement of said surfaces relative to each other in response to the valve train driving forces.

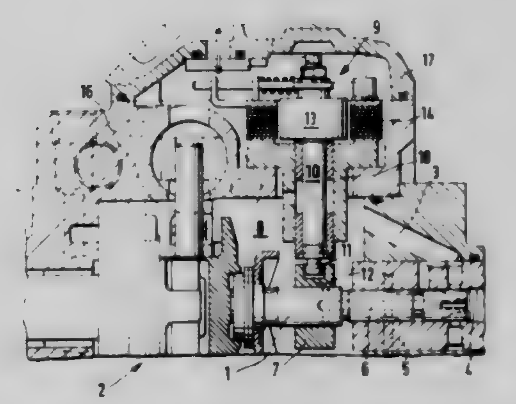
4,380,220
INTERNAL COMBUSTION ENGINE
James R. Gurley, Rte. 5, Box 42, Rutherfordton, N.C. 28139
Continuation-in-part of Ser. No. 5,964, Jan. 24, 1979, Pat. No. 4,277,506. This application Sep. 22, 1980, Ser. No. 189,309
Int. Cl.³ F02B *53/00*
U.S. Cl. 123—226 17 Claims

1. An internal combustion engine comprising:
(a) a housing defining an internal compartment having at least one peripheral lobe;
(b) an inner body having at least one peripheral lobe thereon, means mounting said inner body in said compartment for non-rotational, orbital movement with said inner body lobe disposed for movement within said housing lobe during at least a portion of orbital movement;
(c) an opening located in said inner body inwardly of the periphery thereof, a movable wall member disposed in said opening, and means mounting said movable wall member for movement in said opening;
(d) portions of at least certain of movable wall member, inner body, and housing cooperatively defining a fluid intake and compression chamber, a variable-volume power chamber, and a variable-volume fluid exhaust chamber in said compartment during at least a portion of orbital movement of said inner body;
(e) intake port means and exhaust port means in said housing communicating with said compartment;
(f) passageway means comprising:



(1) said intake and compression chamber with said intake port means;
(2) said intake and compression chamber with said power chamber; and
(3) said exhaust chamber with said exhaust port means during at least some portions or orbital movement of said inner body; and
(g) a power output shaft, and means operatively connecting said inner body with said power output shaft to impart rotational movement thereto during orbital movement of said inner body.

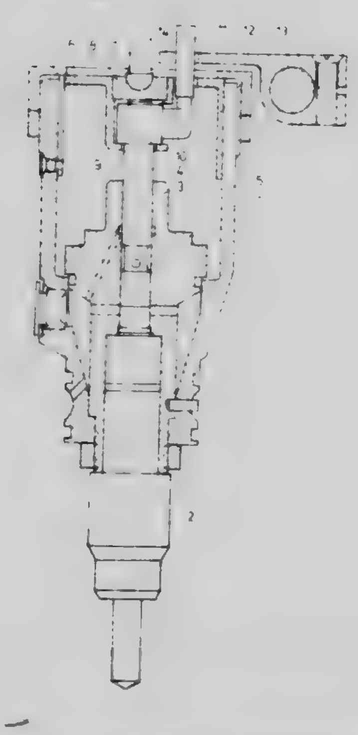
4,380,221
REGULATING DEVICE FOR A FUEL INJECTION PUMP
Franz Eheim, Stuttgart, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Fed. Rep. of Germany
Filed Feb. 5, 1981, Ser. No. 231,654
Claims priority, application Fed. Rep. of Germany, Feb. 5, 1980, 3004035
Int. Cl.³ F02M *59/20*
U.S. Cl. 123—343 17 Claims



1. A regulating device for the supply amount of a fuel injection pump for internal combustion engines including a housing, a fuel injection pump suction chamber in said housing, a pump piston, a pump operation chamber, a relief channel in said pump piston which extends to said pump operation chamber,

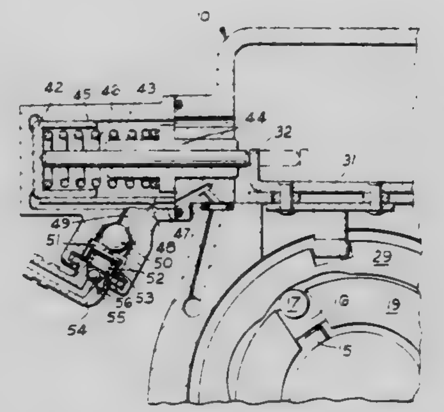
an annular slide operative on said piston for opening and closing said relief channel in said piston, a quantity control element fastening to said pump housing and including a rotary magnet having an axis and further including means connecting said axis to said annular slide to move said annular slide axially on said pump piston to regulate fuel supply onset or end thereof by opening or closing said relief channel of said pump operation chamber, and an adjustment means positioned relative to said quantity control element for moving said quantity control element for adjustment of its position relative to said annular slide while said engine is running.

4,380,222
FUEL INJECTION PUMP FOR INTERNAL COMBUSTION ENGINES
Anton Pischinger, Graz, Austria, assignor to Friedmann & Maier Aktiengesellschaft, Hallein, Austria
Filed Oct. 15, 1980, Ser. No. 197,240
Claims priority, application Austria, Oct. 15, 1979, 6716/79
Int. Cl.³ F02D *31/00*
U.S. Cl. 123—365 **3 Claims**



1. Fuel injection pump for internal combustion engines operated with fuel injection in particular Diesel engines, of the type in which fuel injection pump and fuel injection nozzles are integrated to a constructional unit associated to one engine cylinder, the pump having a housing and an internal pump piston rotatable via a regulating member by a drive member for adjusting the amount of fuel injected and being loaded by a return spring acting on the pump piston against the action of a piston drive member with interposition of a spring washer, the regulating member being formed of a crank having a crank pin parallely extending relative to the piston axis and being rigidly connected to the piston or manufactured for forming with the piston one single piece, the crank being arranged at the driven end of the piston between drive member and spring washer, and a control rod acting on the crank pin, characterized in that the crank pin protrudes through an aperture in the front end of the housing at the area of the driven end of the piston, said aperture facing parallel to the direction of the axis of the piston, said crank pin being engaged by the control rod arranged outside of the constructional unit formed of fuel injection pump and fuel injection nozzle.

4,380,223
LIQUID FUEL INJECTION PUMPING APPARATUS
John R. Jefferson, Rainham, and Robert T. J. Skinner, High Wycombe, both of England, assignors to Lucas Industries Limited, Birmingham, England
Filed Jan. 30, 1981, Ser. No. 230,270
Claims priority, application United Kingdom, Feb. 14, 1980, 8004951
Int. Cl.³ F02M *59/30*
U.S. Cl. 123—383 **4 Claims**

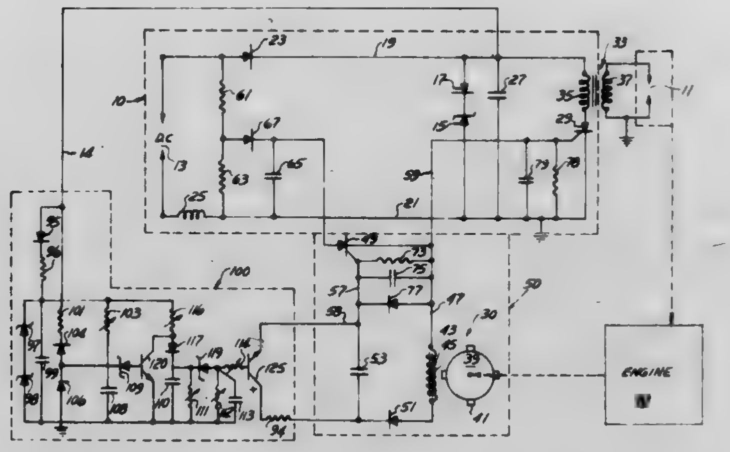


1. A liquid fuel injection pumping apparatus for supplying fuel to a turbo supercharged compression ignition engine and of the kind comprising a housing, a rotary distributor member located in the housing and adapted, in use, to be driven in time relationship with an associated engine, a reciprocable pump plunger located in a bore in the distributor member, a cam located in the housing for imparting inward movement to the plunger as the distributor member rotates, means for feeding fuel to the bore to effect outward movement of the plunger, passage means for conveying fuel from the bore to an outlet during inward movement of the plunger, a movable member operable, in use, to determine the maximum outward movement of the plunger, means responsive to the pressure of air delivered to the associated engine, in use, for determining the setting of said movable member, said pressure responsive means comprising a piston housed within a cylinder, means coupling said piston to said movable member, a source of liquid under pressure, a conduit connecting said source to said cylinder, and valve means operable to control the liquid pressure in said cylinder and, in use, being responsive to the pressure of air supplied to the associated engine, a restrictor in said conduit, said conduit being connected to said cylinder downstream of said restrictor, said valve means acting to control the flow of liquid from downstream of said restrictor to a drain and comprising a seating, a valve member, resilient means acting on said valve member to urge the valve member into contact with said seating against the action of the pressure downstream of said restrictor, and pressure responsive means subjected, in use, to the pressure of air supplied to the engine, the force exerted on said pressure responsive means by the air pressure acting to assist the action of said resilient means.

4,380,224
IGNITION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE
Howard E. Van Siclen, Jr., Unadilla, N.Y., assignor to The Bendix Corporation, Southfield, Mich.
Filed Jul. 31, 1981, Ser. No. 288,720
Int. Cl.³ F02P *5/04*
U.S. Cl. 123—602 **9 Claims**

1. In combination with a internal combustion engine ignition system having at least one spark plug, means for firing the spark plug including a first solid state electronic switching device, and a triggering circuit for switching the first electronic switching device for firing the spark plug comprising: a second solid state electronic switching device, pulse generating means for generating a succession of electrical trigger pulses in timed relation to the speed of the engine crankshaft to

trigger the second switching device electrically conductive which switches the first switching device conductive, means for biasing the second switching device, and means for automatically controlling the voltage of the bias means, the improvement wherein the means for controlling the bias means comprises:



a transistor connected in parallel with said voltage biasing means; and

means for operating said transistor in the active region of its operating characteristics wherein its resistance varies.

4,380,225

VEHICLE ENGINE IGNITION SYSTEM UTILIZING LIGHT GUIDES FOR PROTECTION AGAINST INTERFERENCE

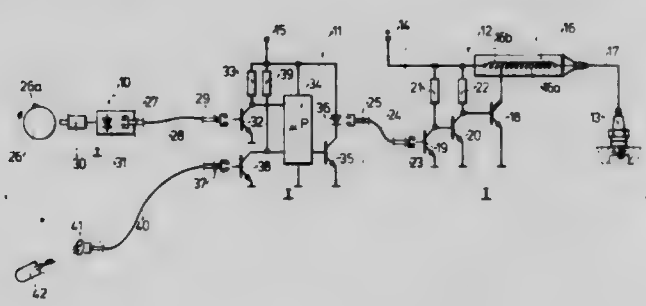
Jurgen Wesemeyer, Nuremberg; Georg Haubner, Berg, and Werner Meier, Rednitzhembach, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 18, 1981, Ser. No. 235,566

Claims priority, application Fed. Rep. of Germany, Mar. 3, 1980, 3008066

Int. Cl.³ F02P *1/00, 1/00, 5/04, 5/06*

U.S. Cl. 123—613 **8 Claims**



1. In a motor vehicle ignition system having an ignition coil (16) an ignition system comprising:

light responsive switch means (18, 19, 20) in the vicinity of said ignition coil connected to said ignition coil for interrupting flow therethrough in response to a light signal;

control circuit means (11) in a vehicle location remote from said switch means for generating a light signal at desired ignition time instants;

and light guiding photoconductor means (24) for leading light of said light signal generated in said control circuit means over a path provided by said photoconductor means to said light responsive switch means, whereby signal transmission from said control circuit means to said switch means is immune to electromagnetic and electrical interference active in the space between said control circuit means and the vicinity of said ignition coil.

4,380,226

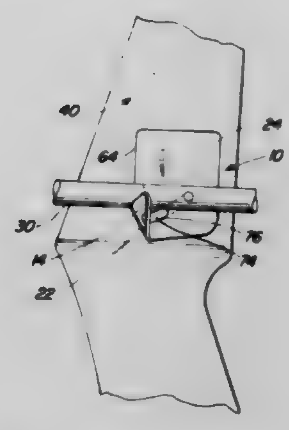
WINGED ARROW REST

Charles A. Saunders, Columbus, Nebr., assignor to Saunders Archery Company, Columbus, Nebr.

Filed May 29, 1981, Ser. No. 268,629

Int. Cl.³ F41B *5/00*

U.S. Cl. 124—41 A **8 Claims**



1. An arrow rest for use in an archery bow having a rigid mid-section including a sidewall,

said arrow rest comprising

substantially planar vertically extending panel means for attachably securing said arrow rest to the bow,

bonding means for fastening said panel means continguously to the bow on a sidewall thereof,

winged means for supporting an arrow shaft resting thereon,

said winged means having a top bearing edge for supporting an arrow shaft thereon, said edge projecting laterally outwardly and rearwardly from said panel means,

hinge means pivotally and resiliently securing said wing means to said panel means at a generally vertically extending juncture of said wing means with said panel,

said hinge means defining a hinge line angled upwardly and forwardly from a base of the juncture of said winged means with said panel means,

said bearing edge of said winged means adapted to support the arrow shaft of an arrow riding thereon and stressing downwardly thereagainst,

weight and frictional forces applied to said winged means by an arrow shaft riding forwardly therealong on said bearing edge thereof causing said winged means to pivot yieldingly and resiliently forwardly on said hinge means,

pivotal forward movement of said winged means about said upwardly and forwardly projecting hinge line of said hinge means, due to frictional drag of an arrow being projected, effecting a simultaneous downward displacement of said arrow-shaft-supporting bearing edge of said winged means away from a general center line of an in-place arrow to reduce frictional drag against an arrow shaft riding on said bearing edge and facilitating and promoting true flight of the arrow upon propulsion thereof from the bow.

4,380,227

GRINDING WHEEL DRESSING APPARATUS

Nils Hoglund, #408B, 100 E. Linton Blvd., Delray Beach, Fla. 33444

Filed May 20, 1982, Ser. No. 380,081

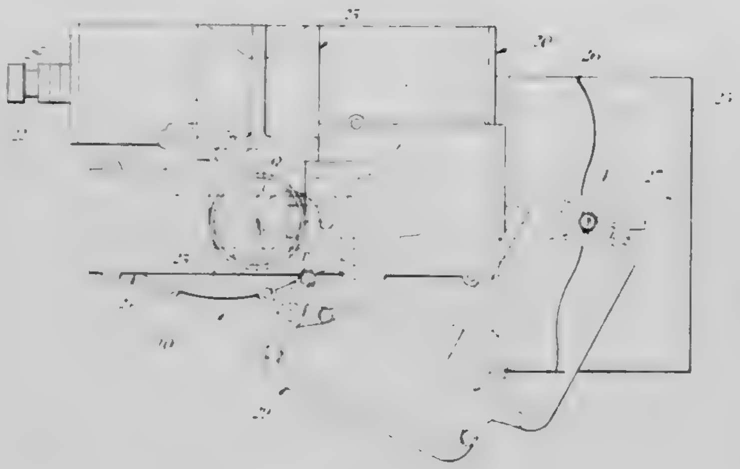
Int. Cl.³ B24B *53/08*

U.S. Cl. 125—11 PT **1 Claim**

1. In an apparatus for forming contours on a grinding wheel having a support, a housing pivotally mounted on said support, two slides mounted in said housing movable parallel to each other, a tool pivotally mounted on one of said slides, a follower pivotally mounted on the other of said slides, a pivot member mounted on each of said slides and said housing, a first link mechanism connected to said pivot member for pivotally connecting said slides and said housing to determine relative linear movement of said slides, a template mounted on said support,

said follower being adapted to contact said template, the pivot axis of said housing, said tool and said follower lying in the same plane, a second link mechanism connecting said follower and said tool for controlling pivotal movement of said tool, the improvement in said first link mechanism comprising:

a first link pivotally connected at one end to said pivot member mounted on said follower carrying slide;



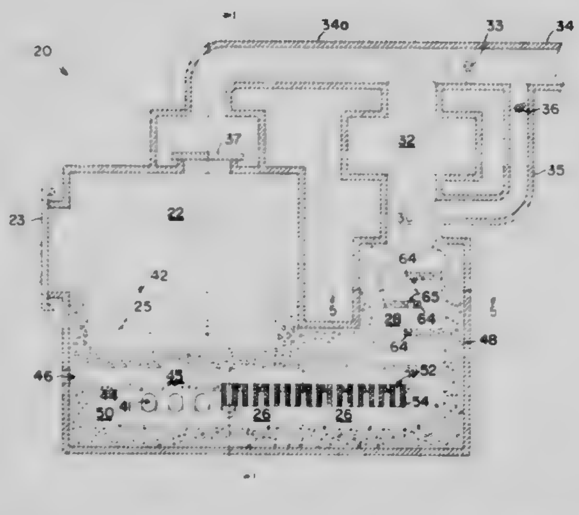
a second link pivotally connected to said pivot member mounted on said housing and the other end of said first link; and

a third link pivotally connected to said pivot member mounted on said tool-carrying slide and the mid-portion of said second link.

4,380,228

SUSTAINED IGNITION SECONDARY COMBUSTION UNIT

Leslie B. Crowley, 3 Hamor Pl., Bar Harbor, Me. 04609
Filed Apr. 21, 1981, Ser. No. 256,036
Int. Cl.[3] F24B *5/00*
U.S. Cl. 126—76 32 Claims



1. A sustained ignition secondary combustion unit for the secondary combustion of smoke products from primary fuel burning, either as a built in or retrofitted component of a furnace or stove or as a self contained separate unit comprising:

first level means for conducting secondary air comprising a secondary air inlet and channel;

second level means for conducting smoke products from primary fuel burning comprising a smoke products inlet and channel, secondary combustion zone, and exhaust outlet, said outlet defining the direction of flow of secondary combustion products;

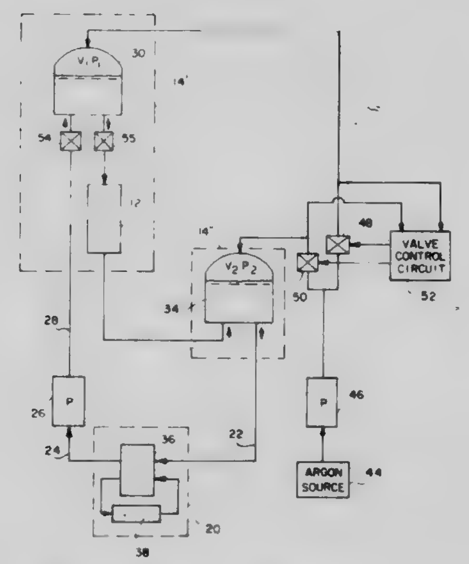
partition means separating the levels comprising a high temperature material, said partition formed with openings communicating between the levels in the area of the secondary combustion zone;

said openings between the levels being substantially surrounded or bounded by a high temperature porous or fiber-like material having surface area portions contacting the secondary air from the first level and smoke products from the second level whereby said porous or fiber-like material may be maintained at a sufficient temperature by contact and combustion of secondary air and smoke products which diffuse into the porous or fiber-like material for sustaining ignition and secondary combustion of smoke products in the second level in the vicinity of the porous or fiber-like material, and for producing high temperature products of secondary combustion in the second level at the secondary combustion zone and downstream in the exhaust outlet direction.

4,380,229

SOLAR RECEIVER PROTECTION MEANS AND METHOD FOR LOSS OF COOLANT FLOW

Lyle E. Glasgow, Westlake Village, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.
Filed Nov. 24, 1980, Ser. No. 209,921
Int. Cl.[3] F24J *3/02*
U.S. Cl. 126—418 9 Claims



3. In a solar energy collection system having at least one solar receiver for coupling reflected solar energy to a fluid passing through said solar receiver, a reflecting means for reflecting said solar energy to said solar receiver, a heat transfer means for removing thermal energy from said fluid after having passed through said solar receiver, a conduit means for transporting said fluid between said solar receiver, said heat transfer means, and back to said solar receiver, and a pump means for causing said fluid to flow through said conduit means, a protection means for preventing said solar receiver from overheating said fluid should said pump means become inoperative comprising:

a first fluid storage means in fluid communication with said conduit means for storing a portion of said fluid prior to its passing through said solar receiver;

a second fluid storage means in fluid communication with said conduit means for storing a portion of said fluid subsequent to its passing through said solar receiver; and means for maintaining a pressure differential between fluid stored in said first storage means and said second storage means whereby fluid will flow from said first storage means, through said solar receiver, and into said second storage means for a predetermined time after said pump means become inoperative.

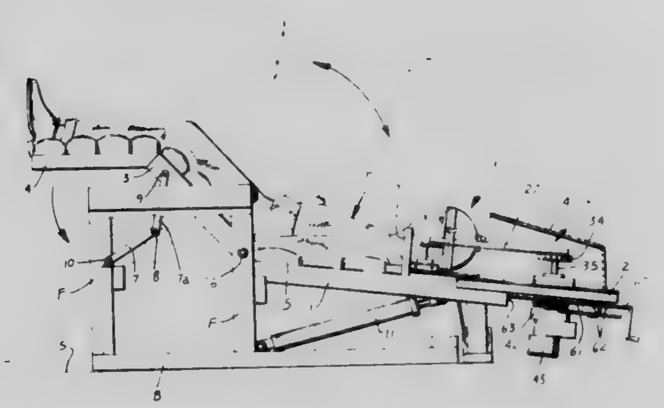
4,380,230

SCALP MASSAGING APPARATUS

Arden Williams, 3993 Plumcrest Cir., Smyrna, Ga. 30080
Filed Jul. 13, 1981, Ser. No. 283,090
Int. Cl.[3] A61H *7/00*
U.S. Cl. 128—49 5 Claims

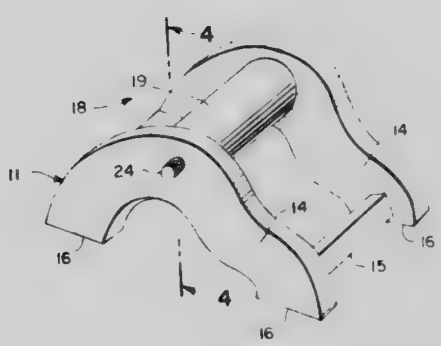
1. A scalp massaging apparatus comprising a pair of separate

complementary relatively movable helmet sections having sponge-like inner surfaces and arranged to receive the head of the user, yieldable biasing means arranged to bias said helmet sections toward each other and toward the head of the user, vibratory driving means mounted on a couch-like structure arranged to support the body of the user in a reclined position during use of the apparatus and including a pair of reciprocatory driving rods respectively interconnected with said helmet sections and effective to impart reciprocatory movement thereto thereby to massage the scalp of the user, an eccentric



driving element mounted on said couch-like structure and interconnected with each of said driving rods near one end thereof, each of said driving rods being pivotally connected at the other end thereof to a support link pivotally mounted on a support block mounted on a part of said couch-like support structure, said support blocks are movably mounted on said couch-like support structure, and an adjusting crank threadedly related with said support blocks so as to impart adjusting movement thereto thereby to accommodate different head sizes.

4,380,231
FOOT EXERCISER
Frank Rocha, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007
Filed Jan. 29, 1981, Ser. No. 229,764
Int. Cl.³ A63B *23/04*
U.S. Cl. 128—57 **1 Claim**



1. A foot exerciser, comprising in combination, a stand and a roller supported rotatably free on said stand, and means whereby said roller is eccentrically adjustable respective to a rotational axis thereof wherein said stand is comprised of a pair of inverted generally U-shaped legs each of which has a foot at each end for standing on a floor, and a pair of cross bars between said legs; said roller being supported between said legs, wherein a pair of axially aligned screws supported rotatably in said legs are each screw engaged on a rectangular block in an angularly inclined hole in said roller.

4,380,232
WHISTLE ATTACHMENT FOR A SNORKEL AND SNORKEL-WHISTLE UNIT
James J. Doyle, 699 NE. 164th St., Miami, Fla. 33162
Filed May 14, 1981, Ser. No. 263,496
Int. Cl.³ A62B *7/00*
U.S. Cl. 128—201.11 **6 Claims**

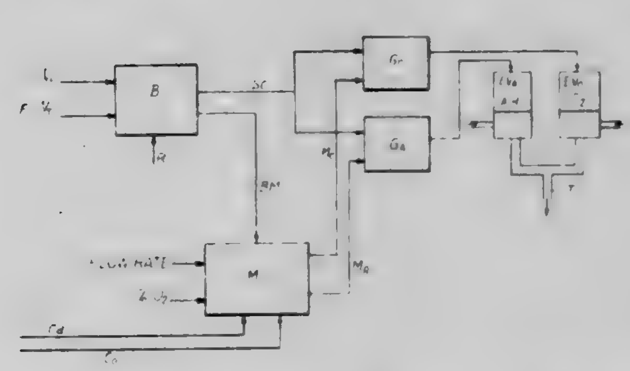
1. On a snorkel having a generally J-shaped tube with a return bend at its lower end and a mouthpiece at the extremity of said return bend, said tube defining a passage extending continuously from said mouthpiece to its upper end, the improvement which comprises:

means forming a side opening in said tube near its upper end communicating with said passage;

a breath actuated whistle mounted on one side of said tube near its upper end and having an inlet opening registering with said side opening and thereby communicating with said passage through said tube;

said tube terminating at its upper end in an unobstructed opening leading up from its passage and extending across substantially the full width of said passage to permit the user to expel water which accumulates in the lower end of the snorkel by flowing into the mouthpiece, and said opening being closable by the user's hand to direct the user's breath into the whistle when the user blows into the mouthpiece.

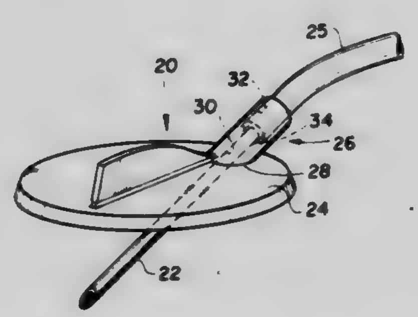
4,380,233
CONTROL DEVICE FOR AN ARTIFICIAL RESPIRATOR
Luc Caillot, Paris, France, assignor to Synthelabo, Paris, France
Filed Dec. 30, 1980, Ser. No. 221,469
Claims priority, application France, Jan. 4, 1980, 80 00096
Int. Cl.³ A61H *31/00*
U.S. Cl. 128—204.21 **4 Claims**



1. Control device for an artificial respirator, comprising: a solenoid-controlled valve for air and a solenoid-controlled valve for oxygen, both of said valves being of the variable flow type as a function of the plunger travel, and discharging into a manifold; a timebase circuit for fixing both the respiratory frequency and the ratio I/E of the inhalation time to the exha-

lation time during each period; a mixer for fixing both the overall respiratory flow and the proportion of oxygen in the gas supplied by the regulator; and two signal generators each linked to and controlling the opening of an associated solenoid-controlled valve; the timebase circuit output being connected to inputs of said generators in order that they may control the opening of the valves during the inhalation time, the generators being further connected to respective outputs of the mixer for receiving signals corresponding to the extent of opening of the valves during the inhalation period, the mixer being connected to the timebase circuit for receiving a signal therefrom corresponding to the ratio I/E to correspondingly adjust signals proportional to respiratory flow and oxygen proportion, whereby the valves are opened to an extent such that during the inhalation period, each valve allows a quantity of gas to pass which corresponds to the mean flow rate during the period.

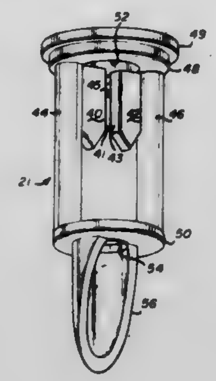
4,380,234
INFUSION NEEDLE ATTACHMENT
Dean Kamen, Hooksett, N.H., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.
Filed Aug. 16, 1979, Ser. No. 67,058
Int. Cl.[3] A61M *5/00*
U.S. Cl. 604—180 **4 Claims**



1. In combination with an infusion needle for achieving subcutaneous placement thereof incident to the dispensing therethrough of a medicament to a patient, an infusion needle attachment comprising a disk-like body of a selected size adequate for delineating an operative area for making provision for the handling and for the positioning of said infusion needle, a hollow tubular member bounding a compartment for receiving said infusion needle disposed in a peripheral location in said operative area and at an angular orientation in relation thereto so as to cause an infusion needle seated in said compartment to project at said angular orientation in depending relation from beneath said body, and an upstanding flap of a foldable construction material foldably attached to said body along a line coincident with the center of said body and in aligned relation to said projecting infusion needle, said flap being in a medial location of said operative area and extending in spanning relation from said tubular member to a point adjacent a peripheral edge of said body so as to effectively serve as a finger grip during said subcutaneous placement of said infusion needle, whereby said aligning orientations of said flap and infusion needle contributes to the proper guiding of said infusion needle into said required subcutaneous position thereof with said body in covering relation thereover masking the presence of said position needle.

4,380,235
METERED DROP DISPENSERS
Hal C. Danby, Palo Alto, Calif., assignor to Anatros Corporation, Palo Alto, Calif.
Filed May 1, 1981, Ser. No. 259,436
Int. Cl.[3] A61M *5/00;* **B65D** *47/18*
U.S. Cl. 604—251 **7 Claims**

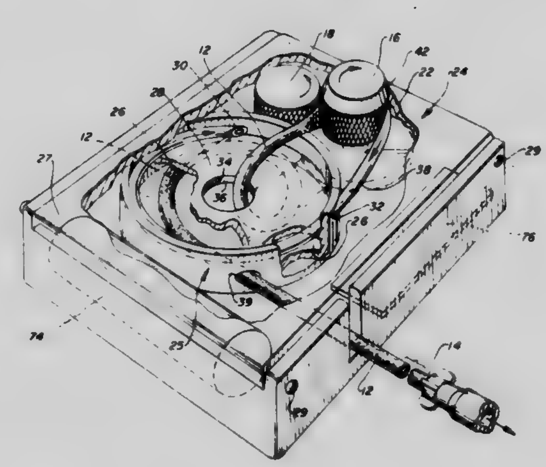
1. In a metered drop dispenser device which includes a liquid reservoir, a drop forming means connected to the reservoir having an orifice at which drops of the liquid can be formed, a drop chamber coupled to the drop forming means through which drops fall and in which drops accummulate, a discharge device coupled to the bottom of the drop chamber for conveying the liquid to a utilization means, a metering means associated with the drop chamber for determining the



drop rate, and drop rate control means to vary the drop rate, the improvement in the drop forming means comprising:

a pair of coplanar and spaced apart plate members having substantially parallel, planar facing end walls.

4,380,236
FLUID PUMP
William W. Norton, Lincolnshire, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.
Filed Sep. 14, 1981, Ser. No. 301,677
Int. Cl.[3] A61M *5/00*
U.S. Cl. 604—151 **34 Claims**



1. Apparatus for the administration of solution at a precisely controlled rate, which comprises a length of flexible, collapsible tubing filled with said solution and connectable at one end to a conduit communicating with the vascular system of a patient, roller means for gripping and squeezing said tubing, means for rotating said roller means to advance the tubing therethrough, to expel said solution through said one end at a rate proportional to the rate of advancement of the tubing through the roller means, said means for rotating the roller means comprising a shaft carrying a roller of the roller means, an arm extending normally of said shaft and carried thereby to rotate said shaft and roller means as the arm is moved in one direction, clutch means to prevent back rotation of said shaft as the arm is moved in a direction opposite to the one direction, a motor, and cam means rotatable by said motor and positioned to engage said arm, to movingly reciprocate said arm back and forth in said one and opposite directions.

4,380,237

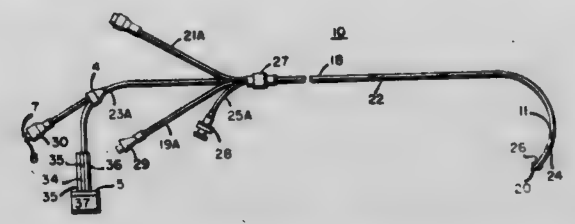
APPARATUS FOR MAKING CARDIAC OUTPUT CONDUCTIVITY MEASUREMENTS

Ronald S. Newbower, Acton, Mass., assignor to Massachusetts General Hospital, Boston, Mass.

Continuation of Ser. No. 99,710, Dec. 3, 1979, abandoned. This application Aug. 17, 1981, Ser. No. 293,198

Int. Cl.^{3} A61B *5/02*

U.S. Cl. 128—693 **12 Claims**



1. Apparatus for measuring the conductivity of vascular fluids within a vessel comprising:

a catheter having a predetermined diameter to fit within said vessel;

conductivity sensing means comprising at least two pairs of electrodes disposed on said catheter for contacting vascular fluids;

said electrodes comprising elongated conductive elements spaced apart by a predetermined distance which is both smaller than the diameter of the catheter and sufficiently small to reduce measurement fluctuations due to the fluid boundaries at the vascular walls, said conductive elements further having a length which is both larger than said predetermined distance and sufficiently large to reduce measurement fluctuations due to red blood cell density fluctuations;

means for supplying a known AC current between the electrodes of a first pair of electrodes; and

means for measuring the voltage between the electrodes of the second pair in order to provide a measure of the conductivity of nearby vascular fluids.

4,380,238

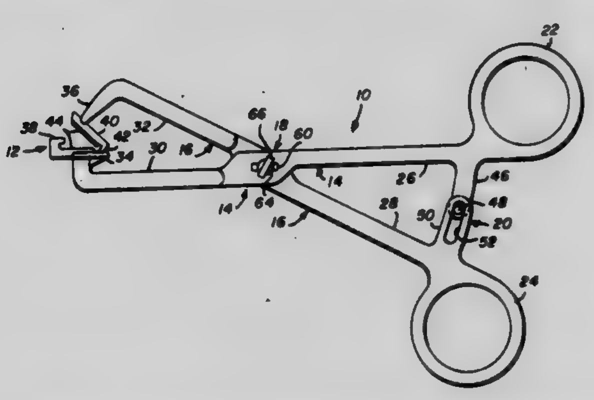
DISPOSABLE APPLICATOR FOR MINI-LAPAROTOMY USING A CLIP METHOD

Bartholomew A. Colucci, Half Moon Bay, Calif., and Pierre Comte, Waldenburg, Switzerland, assignors to Institute Straumann, Waldenburg, Switzerland

Filed Aug. 21, 1981, Ser. No. 294,915

Int. Cl.^{3} A61B *17/00*

U.S. Cl. 128—346 **7 Claims**



1. A disposable applicator for surgical tubal occlusion clips comprising:

a grasping lever for holding a hook portion of a Bleier tubal occlusion clip firmly in position, said grasping lever including in a substantially linearly attached manner, a loop handle, a grasping lever arm, a hinge area, a jaw arm, and a grasping jaw means, said grasping jaw means being formed in a shape to slidably receive the hook portion of a tubal occlusion clip and to restrict the motion of the hook portion received therein except along the slide axis;

a guiding lever for guiding and forcing a projection portion of said tubal occlusion clip from a disengaged mode to an engaged mode with regard to the hook portion, the guiding lever including, in a substantially linearly attached manner, a loop handle, a guiding lever arm, and a guide arm containing a depression at the end thereof for lightly gripping the projection portion of the tubal occlusion clip and guiding the projection portion from a uniform open position to a closed position;

hinge means connecting the grasping lever and the guiding lever and providing a mutual fulcrum for the levers; and

restrictor means interposed between the grasping lever and the guiding lever for limiting both the maximum and minimum separation of the hook portion and said projection portion of the tubal occlusion clip held therebetween.

4,380,239

INTUBATION OF LACRIMAL DUCTS

John S. Crawford, and Roy Wainman, both of Toronto, Canada, assignors to The Hospital For Sick Children, Toronto, Canada

Continuation of Ser. No. 104,793, Dec. 20, 1979, abandoned. This application Oct. 7, 1981, Ser. No. 309,527

Int. Cl.^{3} A61M *27/00*

U.S. Cl. 604—28 **8 Claims**

1. A probe set for use in the canaliculus intubation of the lacrimal duct, the probe set comprising:

a probe of a light wire which can be readily deflected through an angle of at least 90 degrees to permit the probe to pass from the nasolacrimal duct to the nasal inferior meatus, the probe having an enlarged end portion which is rounded to limit the possibility of damage to tissue when the probe is inserted; and

a very flexible tube of minimal rigidity having a first end containing an end of the probe remote from the end portion and having an outside diameter comparable to that of the end portion so that in use as the probe is inserted the enlarged end portion minimises damage to tissue and can be used to pull this end from the nasal passage to thereby draw the tube into the lacrimal duct.

4,380,240

APPARATUS FOR MONITORING METABOLISM IN BODY ORGANS

Frans F. Jöbsis; Johannes H. Keizer, and Ronald F. Overaker, all of Durham, N.C., assignors to Duke University, Inc., Durham, N.C.

Continuation-in-part of Ser. No. 188,578, Sep. 18, 1980, Pat. No. 4,321,930, which is a continuation-in-part of Ser. No. 810,777, Jun. 28, 1977, Pat. No. 4,281,645, and Ser. No. 17,727, Mar. 5, 1979, Pat. No. 4,223,680, which is a continuation-in-part of Ser. No. 810,777, Jun. 28, 1977, Pat. No. 4,281,645. This application Aug. 3, 1981, Ser. No. 289,413

Int. Cl.^{3} A61B *5/00*

U.S. Cl. 128—633 **5 Claims**

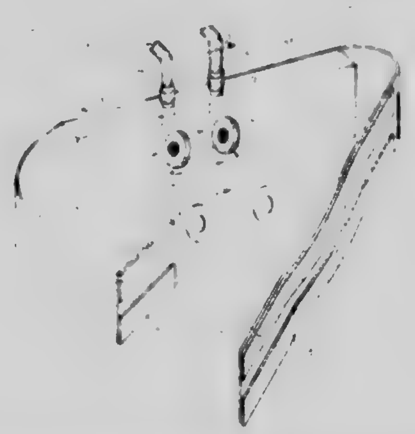
1. In a spectrophotometric reflectance apparatus for measuring in situ, in vivo, non-invasively, atraumatically, harmlessly, rapidly and continuously a local metabolic oxygen dependent

activity of a selected portion of the body where such activity bears a measurable relation to an oxygen dependent absorption characteristic of the selected portion for a particular wavelength of light transmitted therethrough having:

(a) circuitry means including:

(i) a plurality of near-infrared light sources located external of the body and having light emissions of different wavelengths in the 700–1300 nanometer spectral range and of an intensity below the level damaging to the body and said selected portion but sufficient to be detectable by a light sensor after transmission through any skin, bone and tissue included in an optical transmission-reflectance path including said selected portion thereof and extending for several centimeters between selected points of light entry and exit laterally spaced several centimeters apart and located on contiguous skin surface areas of the body and after scattering in and deep reflectance from said selected portion along said path, said emissions including at least one measuring wavelength and at least one reference wavelength within said spectral range, each said measuring wavelength being selected such that said selected portion exhibits a selected absorption therefore, the extent of which is dependent upon a specific state of a local metabolic, oxygen dependent activity of said selected portion; and

(ii) means operatively associated with said light sources to produce emissions representing at least one said measuring wavelength and at least one said reference wavelength within said spectral range for transmission along said path to said selected portion and at levels of intensity below that which would be damaging to the body and said selected portion;



(b) first optical cable means providing a bundle of optical fibers with selected fibers connected for receiving, transmitting and directing the output light emissions of said light sources at said measuring and reference wavelengths to a selected light entry point proximate said body and other selected fibers connected for receiving deeply penetrating light emissions reflected directly back from any skin, bone and tissue at or within a few millimeters of said selected point of light entry and coupling such emissions to a processing means;

(c) second optical cable means providing a bundle of optical fibers adapted for receiving deeply penetrating light emissions reflected and scattered to said selected point of light exit from said selected portion of said body and coupling such exiting light emissions to a processing means; and

(d) processing means operatively associated with said circuitry means adapted to produce from the outputs of said first and second optical cable means an electrical output signal corrected for changes in blood volume of said skin, bone and tissue during the measuring cycle and representing the difference in absorption of said measuring and reference wavelengths by said selected body portion as a function of the state of said local metabolic oxygen dependent activity and further adapted to convert said electrical output signal to a signal providing a substantially continuous and rapid measure of said activity;

(e) an improved detachable, body mountable apparatus associated with said circuitry, coupling and processing means comprising:

(i) a flexible, elongated support member adapted to be releasably secured to the body proximate a said selected portion of the body having a selected set of said light entry and exit points, said support member being adapted to provide ambient light shielding over said light entry and exit points and to conform to the curvature and shape of the body at the location thereof;

(ii) a mounting structure secured to said support member and adapted to deform in shape in correspondence with the curvature assumed by said support member when secured to the body;

(iii) a first preformed optical module mounted in said structure and providing a hollow housing enclosing first right angled light guide means formed by a bundle of optical fibers optically coupled to said first optical cable means and having an optical face centered in a slightly tapered outer face of said housing and adapted to be mated in a substantially pressed fit relation with said selected point of light entry utilizing selected fibers of said bundle for entry of light in said wavelengths to be transmitted, deeply reflected and scattered along said path and to said selected portion and other selected fibers for receiving deeply penetrating light emissions reflected directly back from any skin, bone and tissue at or within a few millimeters of said selected point of light entry;

(iv) a second preformed optical module mounted in said mounting structure and providing a second hollow housing enclosing second right angled light guide means formed by a bundle of optical fibers optically coupled to said second optical cable means and having a second optical face centered in a slightly tapered outer face of said second housing and spaced several centimeters away from said first optical face and adapted to be mated in a substantially pressed fit relation with said selected point of light exit for receiving deeply penetrating light emissions reflected and scattered to said selected point of light exit from said selected portion of said body.

4,380,241

SMOKING ARTICLES

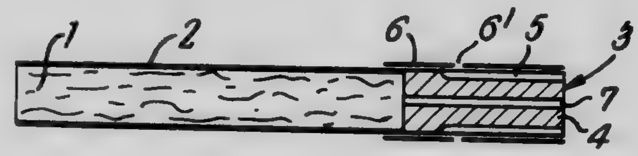
Henry G. Horsewell, Totton, England, assignor to British-American Tobacco Company Limited, London, England

Filed Apr. 17, 1981, Ser. No. 255,091

Claims priority, application United Kingdom, May 1, 1980, 8014455

Int. Cl.³ A24D *3/04, 3/18*

U.S. Cl. 131—336 **11 Claims**



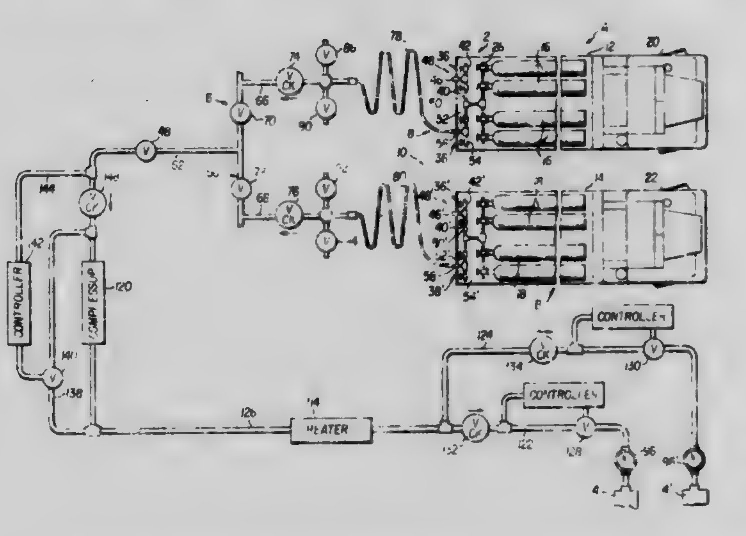
1. A smoking article comprising a smoking-material rod and, to one end thereof, a flow-impedance device comprising a rod-like element of foam or fibrous material impervious to the flow of smoke therethrough and at least one open-ended smoke-flow passage means extending from one end to the other of the element, the pressure drop of the said passage means, determined at a flow rate through the device of 17.5 cm^3 per second, being in the range from 40 to 200 mm water gauge and said device being enclosed in a wrapping permitting inward flow of ambient air therethrough into the device, the said device having air-conducting means whereby air flowing inwardly through the said wrapping can be conducted to and outwardly from the mouth end of the said device, which de-

vice is effective to remove not more than 25% of the total particulate matter of the smoke passing through the device when the smoking article is smoked.

4,380,242
METHOD AND SYSTEM FOR DISTRIBUTING NATURAL GAS

Don A. Bresie; Donald W. Fowler, and Jack M. Burns, all of Austin, Tex., assignors to Texas Gas Transport Company, Tex.

Division of Ser. No. 88,516, Oct. 26, 1979, abandoned. This application May 28, 1981, Ser. No. 267,998
The portion of the term of this patent subsequent to Jul. 22, 1997, has been disclaimed.
Int. Cl.³ F17C *5/02*
U.S. Cl. 137—113 **10 Claims**

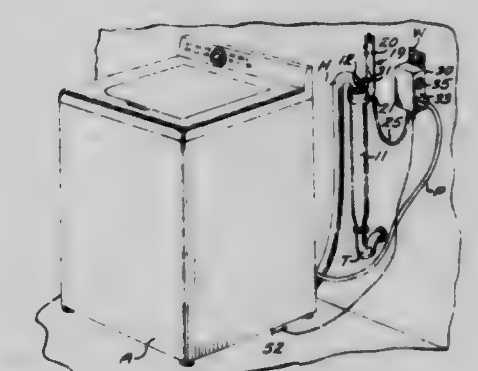


1. A system for continuously distributing natural gas from a supply terminal to a user terminal in an amount adequate to assure the maintenance of a preselected, preferred rate of supply to said user terminal, including:
at least two separate pressure vessel means, at least one of which is movable between said supply terminal and said user terminal, and both of which are capable of containing a discrete batch of natural gas under a pressure in excess of about 800 psi, the specific number of separate pressure vessel means being chosen in accordance with a distribution plan that takes into account the preferred rate of natural gas production from said supply terminal and the selected rate of supply of natural gas to said user terminal, and being adequate to assure the maintenance of said selected rate of supply said separate pressure vessel means being initially filled with natural gas at said supply terminal; and
an off-loading manifold system connected with said user terminal, and including:
at least two off-loading stations, for simultaneously receiving said separate pressure vessel means;
at least two supply conduit means, one for each of said off-loading stations, said supply conduit means being connectable with said separate pressure vessel means;
a one-way check valve in each of said supply conduit means, arranged to prevent a backflow of natural gas therethrough;
an off-loading manifold connected with said two supply conduits downstream of said check valves;
a feed conduit connected with said off-loading manifold between said two supply conduit means;
distributor conduit means connected with said feed conduit, and with said user terminal;
means connected in said distributor conduit means for regulating the flow of natural gas therethrough;
valve means for controlling the flow of natural gas from said supply conduit means to said user terminal; and
means located downstream of said check valves arranged and operable to switch natural gas flow from a first separate pressure vessel means connected with a first one of said supply conduit means, to natural gas flow from a second separate pressure vessel means connected with the other of said supply conduit means, with no significant interruption of natural gas flow to said user terminal to assure the maintenance of said selected rate of supply.

4,380,243
OVERFLOW CONTROL SYSTEM

Charles A. Braley, 5602 Palos Verdes Blvd., Torrance, Calif. 90505

Filed Jan. 16, 1980, Ser. No. 112,641
Int. Cl.³ H01H *35/18, 29/06*
U.S. Cl. 137—312 **1 Claim**



1. In an appliance adapted to be powered from an electrical outlet and conformed to receive from a water supply predetermined amounts of water at automated first intervals and to drain into a drainage system said amounts of water at automated second intervals, the improvement comprising:
a tubular stand pipe interposed between said drainage system and said appliance aligned in a substantially vertical alignment above said drainage system for receiving in a portion of the upper opening thereof a drain hose from said appliance conveying said amounts of water therethrough and for venting to the atmosphere through the remaining portion of said upper opening;
level sensing means received in said upper opening and conformed to produce a switching signal indicative of the collection of water in said stand pipe above a preselected level, said level sensing means including a tube segment open at both ends conformed for insertion into said remaining portion of said upper opening of said standpipe and for suspended engagement thereat, a weighted rod received in said tube segment, a spring loaded switch assembly deployed to support the upper end of said weighted rod, said switch having a spring coefficient selected for switching thereof to produce said switching signal upon a partial immersion of said rod in said collection of water; and
interrupting leakage means interposed between said appliance and said electrical outlet and connected to receive said switching signal for disrupting the receipt of electrical power upon the occurrence of said switching signal.

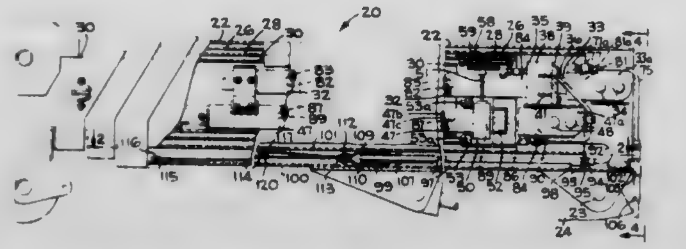
4,380,244
HOSE CONTROL SYSTEM

Stanley D. Caudill, and Frederick R. Goode, both of Lexington, Ky., assignors to FMC Corporation, Chicago, Ill.

Filed Mar. 5, 1981, Ser. No. 240,726
Int. Cl.³ F16L *33/00*
U.S. Cl. 137—355.16 **2 Claims**

1. In a boom structure wherein a first boom section is mounted for movement relative to a second boom section and a freely rotatable guide wheel is positioned between adjacent walls of said sections; the improvement which comprises:
a flexible resilient conduit disposed around said wheel;
means anchoring one portion of said conduit to said first section and another portion to said second section;
non-resilient connecting means resisting a pull of sufficient

force on said wheel in a direction to stretch said resilient conduit a sufficient amount to provide a conduit tensioning force sufficient to maintain said conduit taut on said wheel during relative movement of said boom sections;



said first and second boom sections each including a lower wall, which walls are spaced from each other, and wherein;

said guide wheel, said resilient flexible conduit and said means resisting a pull on said wheel are all disposed between said lower walls.

4,380,245

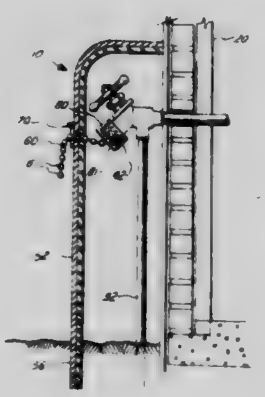
ANTIFREEZE COVER ASSEMBLY FOR EXTERNAL FAUCETS

Irving V. Hefner, 1429 Huron Ave., New Orleans, La. 70005

Filed Jan. 26, 1981, Ser. No. 228,629

Int. Cl.³ F16K *49/00*

U.S. Cl. 137—375 **4 Claims**



1. An antifreeze cover assembly for protecting external water faucet and riser pipe assemblies adjacent building walls comprising:

a. a cover, said cover providing an internal space normally occupied during operation by an exterior faucet and a riser pipe on a home, said cover providing a back flange portion which during operation contacts the flat wall surface of the building, and a lowermost portion which communicates with the earth and continuously covering the riser pipe;

b. a cap member having internal threads and being connectable during operation to the external threads of the faucet to be protected;

c. a connector affixed at one end portion to said cap, said connector extending to said cover removably attaching thereto, securing said cover to the building wall; and

d. detachable locking means carried by said cover for removably securing said connector to said cover.

4,380,246

BUTTERFLY VALVE AND METHOD OF MAKING SAME

Thomas M. Casale, Arlington Heights; Frederick J. Schmitz, Jr., Chicago, and Victor Pauperas, Oak Lawn, all of Ill., assignors to Dayco Corporation, Dayton, Ohio

Filed Mar. 20, 1981, Ser. No. 245,844

Int. Cl.³ F16K *1/22*

U.S. Cl. 137—375 **3 Claims**

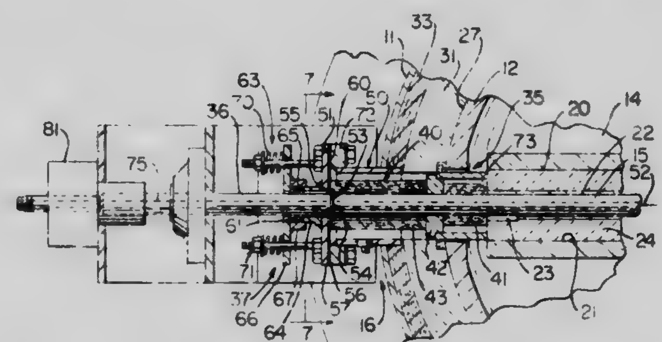
1. In a butterfly valve for controlling flow therethrough of a high temperature fluid, said valve comprising

an outer metal housing, a ceramic lining carried by said housing and defining a substantially right circular cylindrical fluid flow passage through said valve, a valve closure member which is a disc of substantially circular outline, a rotatable metal shaft embedded on a diametrical line of said disc, and means rotatably supporting said shaft on said housing to enable rotation of said member within said flow passage from an open to a closed position to open and close said flow passage, said member being made of a ceramic material and said shaft being embedded substantially centrally between opposed surfaces of said member,

said member having a roughly cylindrical diametrical opening therethrough defining a corresponding cylindrical inside surface and further comprising a tubular metal sleeve disposed concentrically around said shaft, a key connecting said sleeve and shaft and preventing relative rotation therebetween, and a refractory material disposed between said sleeve and said inside surface fixing said member to said sleeve and shaft,

said member having a plurality of angularly spaced rectilinear grooves extending radially from its inside surface and said refractory material having integral portions thereof disposed within said rectilinear grooves which help hold said member and refractory material together as a unitary structure,

said lining being initially made independently of said housing and having an outside surface, a plurality of axially spaced grooves in said lining extending inwardly from said outside surface, and further comprising a thickness of refractory material disposed against said outside surface with portions thereof received within said axially spaced



grooves, said portions of refractory material in said axially spaced grooves helping to hold said lining and refractory material together as a unitary structure,

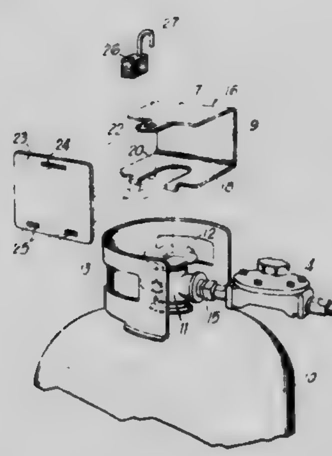
a thermal insulating material disposed between said thickness of refractory material and said metal housing,

two sets of aligned openings in said metal housing, thermal insulating material, refractory material, and ceramic lining at diametrically opposed positions on said valve; said shaft having opposite end portions with each end portion extending through an associated set of aligned openings and outwardly of said metal housing; and a support and seal assembly for each of said end portions of said shaft, each assembly serving to support its shaft end portion while preventing leakage out of said valve of fluid flowing in said flow passage, and

a tubular flange structure fixed at its inner end in sealed relation to said housing and having a planar outermost surface which is disposed perpendicular to a central longitudinal axis of said shaft, an annular groove in each of said shaft end portions, a snap ring disposed in each groove and having an outside diameter which is greater than the outside diameter of its shaft end portion thereby defining a corresponding annular portion thereof, each groove and snap ring having associated outer surfaces disposed substantially coplanar with said planar surface, a high temperature gasket covering said planar surface and said annular portion of said snap ring, said gasket having a central bore defining a right circular cylindrical surface disposed in sealed relation against the outside surface of its associated

shaft end portion, an annular plate structure disposed axially outwardly of said gasket along its shaft end portion and having a gasket engaging surface sandwiching same against said planar surface, high temperature packing ring means disposed in sealed relation concentrically around and against the outside surface of its associated shaft end portion, and a spring assembly yieldingly urging said packing ring means in sealed relation against said annular plate structure.

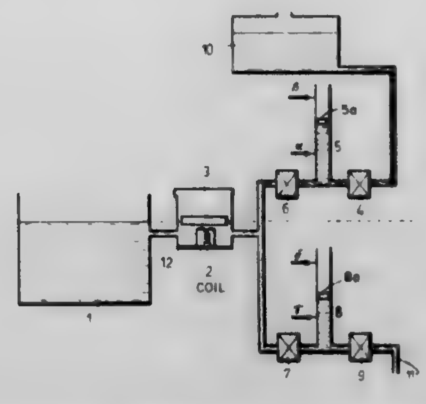
4,380,247
SAFETY GUARD FOR VALVE
Fred O. Douglas, Columbus, Ga., assignor to W. C. Bradley Co., Columbus, Ga.
Filed Apr. 2, 1981, Ser. No. 250,203
Int. Cl.[3] F16K *35/00*
U.S. Cl. 137—382 **3 Claims**



1. A two part separable safety guard for a valve comprising a substantially U-shaped body portion having spaced top and bottom walls which are disposed horizontally in use and a connecting vertical wall, the opposite ends of the body portion being open, the bottom wall of the body portion having a central slot opening through its leading end to receive the base of a valve to which the guard is applied, the leading edges of the top and bottom walls of the body portion being in vertical alignment, locking elements on the leading edges of the top and bottom walls of the body portion, and a substantially flat locking plate adapted to be placed against the leading edges in spaced substantially parallel relationship to the connecting vertical wall, and said locking plate having apertures formed therethrough receiving said locking elements of the top and bottom walls lockingly.

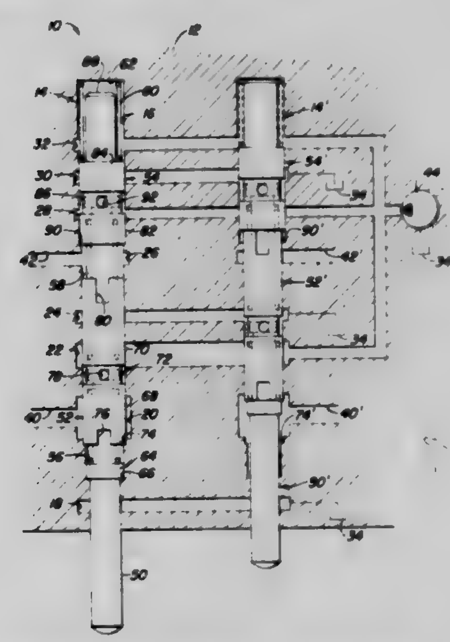
4,380,248
EQUIPMENT FOR THE MEASUREMENT OF EVAPORATION AND/OR PRECIPITATION
Valeria Ambrus, and Henrik Karsai, both of Budapest, Hungary, assignors to Ganz Muszer Muvek, Budapest, Hungary
Filed Jul. 21, 1980, Ser. No. 171,641
Claims priority, application Hungary, Jul. 21, 1979, KA 1532
Int. Cl.[3] F16K *31/32*
U.S. Cl. 137—428 **2 Claims**

1. Apparatus for the measurement of evaporation and precipitation, comprising an open-topped pan for a quantity of water, said pan fluidly connected to feeding and tapping means for detecting a predetermined water level in the pan, means responsive to a fall in the water level in the pan below said predetermined level to feed a first plurality of quantities of water of predetermined volume to the pan until said predetermined water level is restored, means responsive to a rise in water level in the pan above said predetermined level to tap from the pan a second plurality of quantities of water of predetermined volume until said predetermined water level is restored, a float chamber connected in fluid communication with said pan through a tube of relatively small cross section disposed below said predetermined level, a float in said float chamber, means responsive to the height at which said float floats in said float chamber to control said feeding means and tapping means, and means for counting and recording as evaporation said first plurality of quantities of water of predeter-



mined volume and for counting and recording as precipitation said second plurality of quantities of water of predetermined volume and providing a continuous measurement.

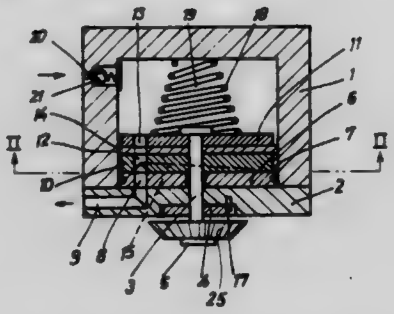
4,380,249
STEERING CLUTCH AND BRAKE CONTROL VALVE
Wilbur D. Behlmer, and John J. Kass, both of Dubuque, Iowa, assignors to Deere & Company, Moline, Ill.
Filed May 21, 1981, Ser. No. 265,935
Int. Cl.[3] F15B *13/07*
U.S. Cl. 137—596.2 **1 Claim**



1. A hydraulic control valve for effecting the sequential actuation of pressure-released steering brakes and pressure-engaged steering clutches, comprising: a valve body having a valve bore therein; said valve bore forming, at axially spaced locations thereof, a brake service recess, a first pressure recess, a first sump recess, a clutch service recess, a second pressure recess, a second sump recess, a third pressure recess and an abutment surface facing in the direction of the recesses arranged in serial order proceeding from a first toward a second end of the bore; a spool valve means reciprocably mounted in the bore and comprised of three separate sections including a valve operating plunger extending through the first end of the bore, a brake spool located next to the plunger for selectively connecting the brake service recess with one or the other of the first pressure and sump recesses, and a clutch spool located next to the brake spool for selectively connecting the clutch service recess to one or the other of the second pressure recess and sump recess; first, second, and third coil compression springs located in the bore with the first spring having opposite ends engaged with the plunger and brake control spool, with the second spring having opposite ends engaged with the brake spool and the clutch control spool and with the third spring

having one end engaged with the clutch spool and another end engaged with the abutment surface presented by the bore.

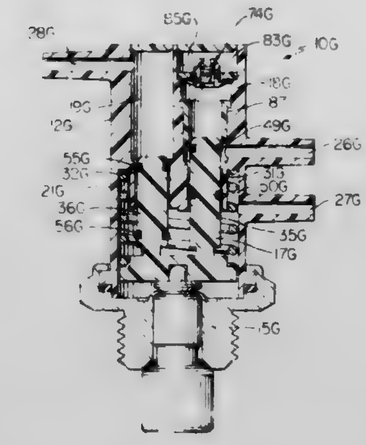
4,380,250
CHOKE UNIT
Kurt Stoll, Lenzhalde 72, 73 Esslingen/N., Fed. Rep. of Germany
Filed Mar. 24, 1981, Ser. No. 247,022
Claims priority, application Fed. Rep. of Germany, Mar. 28, 1980, 3012059
Int. Cl.³ F16K *3/34*
U.S. Cl. 137—599 **12 Claims**



1. In a choke apparatus for gases having a housing, an inlet duct in said housing and an adjustment system for changing the choking effect, said system communicating with an outlet opening, the improvement comprising wherein said adjustment system includes:
(a) a rotatable adjustment plate, a shaft able to be turned from without said housing and having said plate keyed thereon,
(b) means defining an outlet duct in communication with said outlet opening, one side of said adjustment plate facing said outlet duct and having formed therein a groove extending less than 360° around the axis of rotation of said plate, said groove having a cross-section which changes in area along its length, and
(c) a fixed cover plate covering said side of said adjustment plate with said groove, said cover plate having an outlet hole which is aligned with said groove and communicates with said outlet duct, said plate with said groove being able to be rotated from a starting position with the lowest choking effect to a position with the largest choking effect, the end of said groove with the largest cross-section communicating with an inlet opening in said adjustment plate which by way of an inlet space in said housing communicates with said inlet duct.

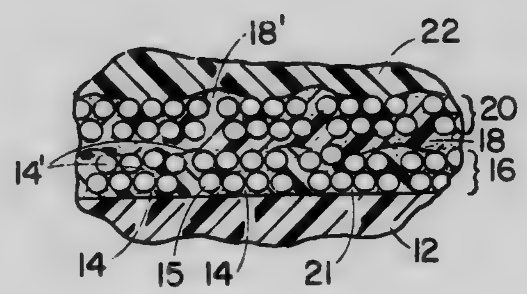
4,380,251
VALVE CONSTRUCTION HAVING MULTIPLE PISTON MEANS AND METHOD OF MAKING THE SAME
Marvin P. Weaver, Knoxville, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.
Continuation of Ser. No. 126,836, Mar. 3, 1980, abandoned, which is a continuation-in-part of Ser. No. 911,403, Jun. 1, 1978, Pat. No. 4,228,817. This application Dec. 9, 1981, Ser. No. 328,934
Int. Cl.³ F16K *15/18*
U.S. Cl. 137—877 **6 Claims**

1. In a self-contained temperature responsive valve construction having a housing means provided with a pair of ports separated by a first valve seat means that is opened and closed by a valve member means in response to temperature sensed by a piston and cylinder type temperature responsive device carried by said housing means and being operatively associated with said valve member means to control the same through axial movement thereof, the improvement wherein said housing means has a by-pass passage means therein separate from said valve member means and adapted to interconnect said pair of ports together independently of said first valve seat means when said first valve seat means is closed by said valve member means, and a one-way check valve means carried by said housing means and being separate from said valve member means for controlling said by-pass passage means to permit fluid flow between said ports through said check valve means in only one direction, one of said ports being disposed intermediate said



first valve seat means and said one-way check valve means, said housing means having a second valve seat means disposed intermediate said one of said ports and said one-way check valve means to be controlled by said valve member means.

4,380,252
WIRE REINFORCED HOSE AND METHOD
Herbert W. Gray, Lawson, and Roger A. Payne, Excelsior Springs, both of Mo., assignors to The Gates Rubber Company, Denver, Colo.
Filed Mar. 23, 1981, Ser. No. 246,516
Int. Cl.³ F16L *11/08;* **B32B** *5/20*
U.S. Cl. 138—125 **20 Claims**

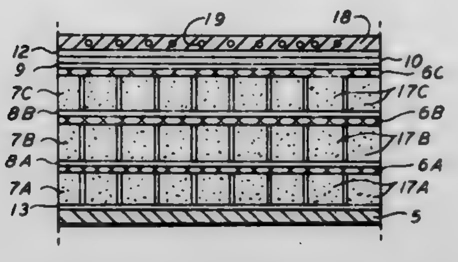


1. A hose comprising an inner polymeric tube, a substantially tightly packed stranded wire reinforcement telescoped thereover, and an expanded polymeric cushion matrix at least partially encapsulating strands of the reinforcement and filling at least a portion of interspaces between adjacent strands and filling at least a portion of interspaces between the reinforcement and the polymeric tube.

4,380,253
HEAT-INSULATED HOSE FOR LIQUEFIED GASES
Howard B. Mead, Tarporley, and Graham L. Williams, Whitby, both of England, assignors to Shell Research Limited, London, England
Filed Feb. 17, 1981, Ser. No. 234,977
Claims priority, application United Kingdom, Apr. 3, 1980, 8011210
Int. Cl.³ F16L *9/16*
U.S. Cl. 138—149 **15 Claims**

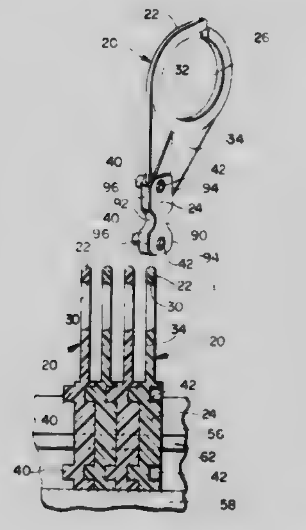
1. A heat-insulated hose for liquefied gases, comprising:
an inner hose which maintains its strength and flexibility at cryogenic temperatures;
a plurality of successive layers of heat-insulating material arranged around the inner hose;
said layers of heat-insulating material comprising helically

wound backing strips of fibre material upon which a mosiac of blocks of heat-insulating material is melted; and



an outer protective sheath arranged around the outermost layer of heat-insulating material.

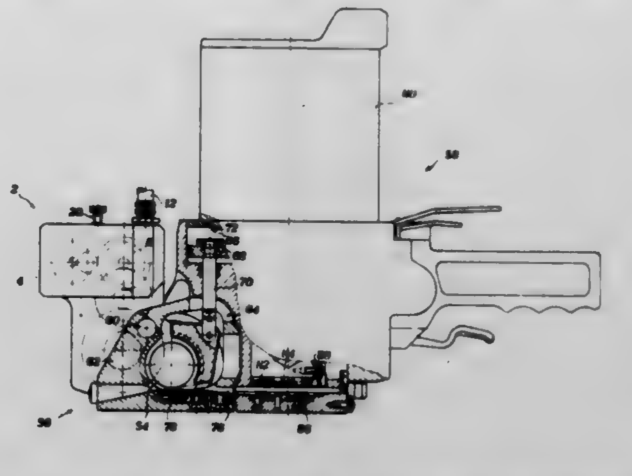
4,380,254
WEFT GUIDANCE TUBE FOR LOOMS
James H. Bonasch, East Greenwich, R.I., and William J. Bouchard, Jr., Fall River, Mass., assignors to Leesona Corporation, Warwick, R.I.
Filed Sep. 8, 1981, Ser. No. 299,848
Int. Cl.³ D03D *47/30*
U.S. Cl. 139—435 **11 Claims**



1. A weft guidance tube for a fluid weft insertion system comprising, an elongated member having a longitudinal channel therein, a plurality of segments juxtaposed in said channel, each said segment including a base and an upper end, said upper end having an aperture therethrough and an exit slot extending from said aperture, connecting means on each segment for connecting each segment to an adjacent segment with the apertures and exit slots of said segments being in alignment, the base of each said segment being wider in cross-section than the upper end thereof to thereby space said upper ends from each other when said segments are juxtaposed, and means for securing said plurality of segments in said channel.

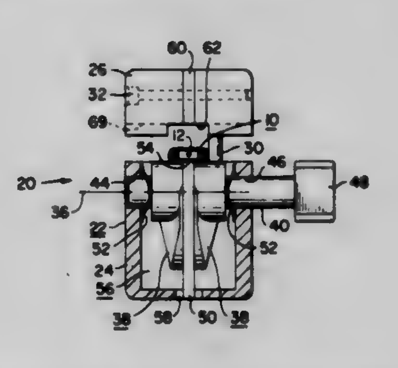
4,380,255
HOOPER APPARATUS
Peter Fromm, Uitikon, Switzerland, assignor to Fromm AG, Spreitenbach, Switzerland
Filed Aug. 19, 1981, Ser. No. 294,216
Claims priority, application Switzerland, Sep. 5, 1980, 6681/80
Int. Cl.³ B21F *9/02*
U.S. Cl. 140—93.2 **10 Claims**

1. Hooper apparatus for connecting steel bands having a band tensioning mechanism comprising tension roller means for engaging said bands, motor means including a first motor for driving said tension roller means with low speed at high torque and a second motor for driving said tension roller means with high speed at low torque, said tension roller means being prestressed toward a base support, and plural stage reduction gear means connecting said tension roller means with said motor means, said second motor being connected to any but the first stage of said plural stage reduction gear means, with



said first motor being connected via a first stage to said plural stage reduction gear means and with one of said first and second motors being connected by means of a compensating clutch to said plural stage reduction gear means.

4,380,256
CABLE SLITTING AND SPREADING TOOL
Joseph Peterpaul, West Orange, N.J., assignor to Thomas & Betts Corporation, Raritan, N.J.
Filed Dec. 30, 1980, Ser. No. 221,392
Int. Cl.³ B21F *1/00*
U.S. Cl. 140—106 **20 Claims**



1. A tool for slitting and spreading an insulating jacket surrounding an electrical conductor in an elongate electrical cable, comprising:

support means for supporting a longitudinal extent of said cable in a fixed plane thereon;

movable cutting means adjacent said support means for piercing at a point the insulating jacket of an electrical cable disposed on said support means upon movement of said cutting means toward such cable and for progressively slicing upon continued movement said insulating jacket longitudinally unidirectionally from said point; and

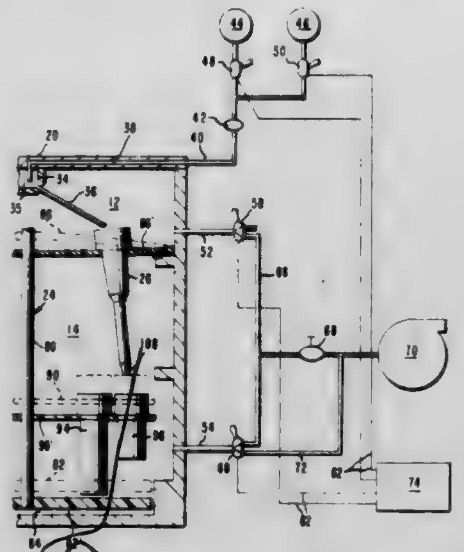
means for progressively longitudinally unidirectionally entering said sliced insulating jacket and laterally spreading portions thereof.

4,380,257
METHOD AND APPARATUS FOR PROCESSING FLUID MATERIALS
Gary W. Howell, Newark, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Feb. 2, 1981, Ser. No. 230,386
Int. Cl.³ B65B *3/04;* **B67C** *5/37*
U.S. Cl. 141—1 **21 Claims**

1. A method of switching the flow of a fluid from a first to second and third unconnected flow paths using a flexible, generally planar and horizontally disposed member defining a receptacle for removably positioning a first flow path, and first

rack means positioned below the member for removably positioning second and third flow paths comprising the steps of:

removably mounting said first flow path in said flexure member with the inlet and outlet of the first flow path located on opposite faces of the member,



positioning said second and third flow paths in the first rack means in side by side relation vertically below said first flow path with one of the second and third flow paths in flow alignment with said first flow path, and

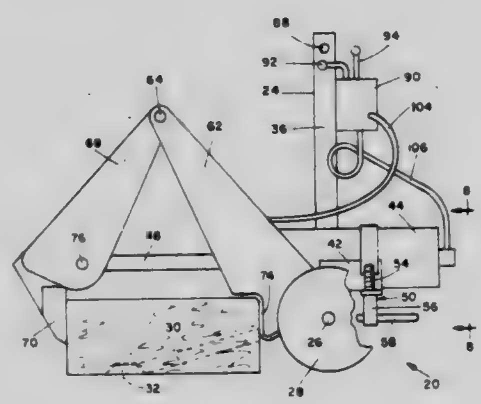
flexing said member to switch the flow alignment of said first flow path from the one to the other of said second and third flow paths.

4,380,258
LOG SPLITTER

Paul E. Hanser, Wilton, Iowa, assignor to HWH Corporation, Moscow, Iowa

Filed Apr. 9, 1981, Ser. No. 252,652
Int. Cl.³ B27L *7/00*

U.S. Cl. 144—193 A **8 Claims**



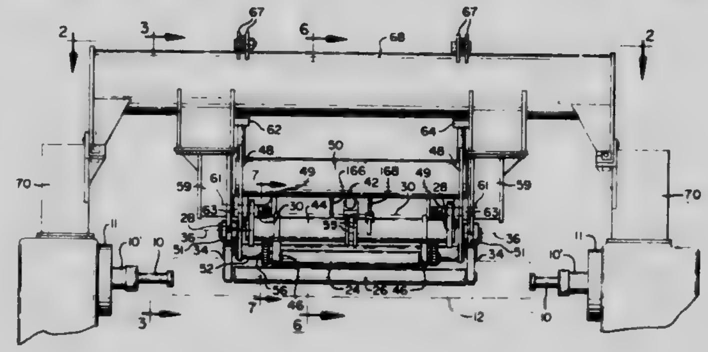
1. A log splitter, comprising: a base structure, a two-way hydraulic splitter motor having a cylinder, piston and piston rod and disposed adjacent to the base structure with the lengthwise axis of the cylinder generally horizontal and the piston rod projecting away from the base structure, a first arm having a lower end adjacent to the base structure and rising to an upper end at an elevation above that of the base structure, pivot means connecting the first arm lower end to the cylinder on a generally horizontal axis transverse to the cylinder axis, a second arm having an upper end adjacent to the first arm upper end and a lower end generally horizontally alined with the first arm lower end, means pivotally interconnecting the upper ends of the arms on an axis parallel to that of the aforesaid pivot means, means mounting the cylinder on the base structure and fixing it against movement along its axis, said means including clamp means selectively releasable and lockable to enable angular positioning of the cylinder and arms as a unit about the cylinder axis and relative to the base structure, stop means at the lower end of the first arm and facing the lower end of the second arm, a splitter blade on the lower end of the second arm and directed toward the stop means, means connecting the free end of the piston rod to the second arm, and fluid line means connected to the cylinder for extending the piston to space the splitter blade away from the stop means and for retracting the piston to move the blade toward the stop means for splitting a log received between the blade and stop means while the piston is extended.

4,380,259
VENEER LATHE APPARATUS AND METHOD USING INDEPENDENTLY ADJUSTABLE POWERED BACK-UP ROLL

Byron B. Brookhyser, Milton; Robert H. Lichlenwalter, Tacoma, both of Wash.; Arthur L. McGee, Lake Oswego, Oreg., and Darrell E. Pierson, Federal Way, Wash., assignors to The Coe Manufacturing Company, Painesville, Ohio

Filed Jan. 12, 1981, Ser. No. 224,081
Int. Cl.³ B27L *5/02*

U.S. Cl. 144—357 **27 Claims**



1. Veneer lathe apparatus, comprising:

lathe spindle means for engaging the opposite ends of a log to rotate said log;

lathe knife means for peeling a thin sheet of veneer from said log as it rotates;

first roll means for engaging the log;

powered second roll means for engaging said log between said first roll means and said knife means to assist in the rotation of said log; and

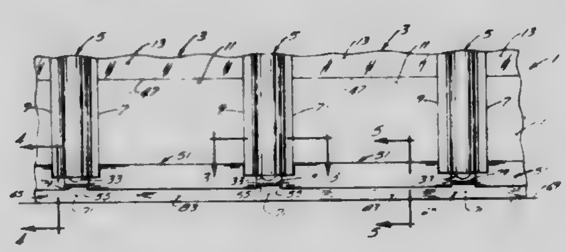
automatic control means for independently adjusting the positions of said first roll means and said powered roll means with respect to the axis of said lathe spindle means and for adjusting the spacing between the two roll means in response to reductions in the diameter of said log as it is peeled.

4,380,260
FOLDING CLOSURE WITH A SWEEPER

Henri M. R. Labelle, 50 Westmooreland Ave., Cornwall, Ont., Canada

Filed Aug. 21, 1981, Ser. No. 295,229
Int. Cl.³ E06B *3/12*

U.S. Cl. 160—235 **9 Claims**



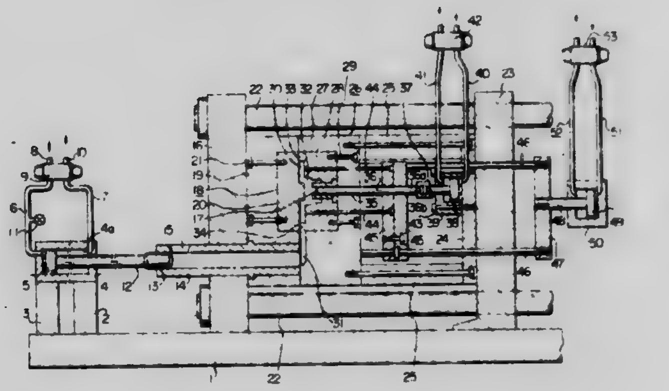
1. A folding closure having a plurality of panels arranged one after the other; a hinge located between each pair of adjacent panels, the hinge joining the adjacent panels together along their adjacent side edges while spacing the adjacent panels slightly apart to provide a gap between them; a carrier member on, and extending across, the bottom of each panel;

one or more sweeper strips slidably mounted on the carrier members to provide a sweeper extending across the bottom of the closure, each sweeper strip traversing at least several consecutive panels and passing unbroken and unsupported from one carrier member to the next across each gap between adjacent panels.

4,380,261
DIE-CASTING METHOD

Haruo Suzuki, Haruhimura, and Shigeyoshi Hashimoto, Anjo, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Continuation of Ser. No. 118,806, Feb. 14, 1979, as PCT/JP79/00035, published as WO80/01658, § 102(e) Date Apr. 24, 1979, abandoned.
Int. Cl.[3] B22D *18/02*
U.S. Cl. 164—120 13 Claims

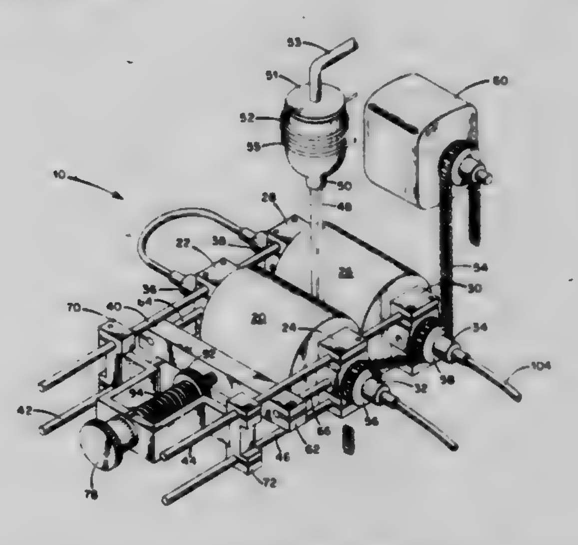


1. A die-casting method comprising:
a first step of relatively moving dies into close contact so as to form therebetween a die cavity for casting a product, a runner through which molten metal is injected into said die cavity, and a substantially non-narrowing squeeze passage connected directly to said die cavity at a point other than the point of connection between said die cavity and said runner;
a second step of injecting, by forwardly moving an injection plunger to effect a predetermined injection pressure, the molten metal from said runner via a gate into said die cavity and said squeeze passage to fill said die cavity and said squeeze passage with the molten metal;
a third step of starting a squeezing displacement of the molten metal in said non-narrowing squeeze passage by moving a squeeze plunger through said squeeze passage from a position therein remote from said die cavity toward said die cavity and at a predetermined squeezing pressure greater than said injection pressure and at a time before said gate is blocked by solidified molten metal;
a fourth step of continuing the squeezing on said molten metal by said squeeze plunger in said passage at said predetermined squeezing pressure until said cavity is filled voidlessly and, during said continued squeezing, forcing molten metal out of said die cavity through said gate into said runner by the molten metal displaced out of said squeeze passage by said squeeze plunger and until the molten metal is completely solidified at least in said die cavity while retaining said squeeze plunger substantially fully inside said passage to produce a solidified voidless die-cast product;
a fifth step of retracting said squeeze plunger to remove said squeezing pressure from said squeeze passage after the molten metal is solidified in said die cavity;
a sixth step of relatively moving said dies away from one another for the removal of said die-cast product which has been solidified in said die cavity; and
preventing said injection plunger from being moved backward during said third and fourth steps by the effect of said greater pressure applied by said squeeze plunger.

4,380,262
APPARATUS FOR DOUBLE ROLLER CHILL CASTING OF CONTINUOUS METAL FOIL

Ralph P. I. Adler, Wellesley; Thomas J. Gorsuch, Westwood; Yellapu V. Murty, Acton, and Alexander R. Woronicki, Stoneham, all of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Oct. 27, 1980, Ser. No. 200,861
Int. Cl.[3] B22D *11/00, 11/06, 11/124*
U.S. Cl. 164—423 6 Claims

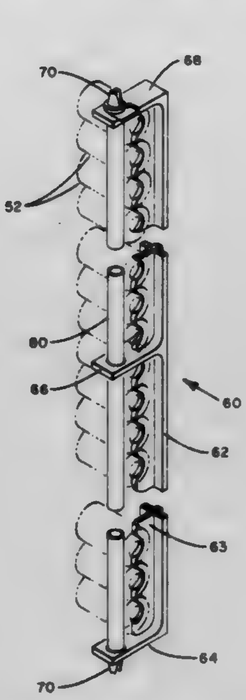


1. An apparatus for double roller chill casting of continuous metal foil comprising:
a plurality of substantially parallel mounting members;
first and second bearing members slideably mounted on said mounting members;
first rotary chill roller member rotatably mounted on said first and second bearing members;
third and fourth bearing members fixedly mounted on said mounting members;
second rotary chill roller member rotatably mounted on said third and fourth bearing members;
a yoke member fixedly mounted at each end thereof to said mounting members;
a bar member disposed laterally adjacent to and spaced apart from said first roller member, said bar member attached at the ends thereof to said first and said second bearing members;
positioning and restoring means disposed between said bar member and said yoke member for urging said bar member away from said yoke member and toward said second roller member and for maintaining said first roller spaced apart from said second roller member by a selectably variable minimum spacing;
means for synchronously contrarotating said first and said second roller members; and
means for delivering molten metal between said first and said second roller members;
whereby when molten metal is delivered between the contrarotating roller members and material between said roller members exerts a displacing force to move said first roller member away from its position of minimum spacing from said second roller member, said restoring means exerts a force on said bar member to slideably urge said first and said second bearing members and said first roller member toward said second roller member to establish a dynamic steady state spacing between said first and said second roller members to produce continuous metal foil of substantially uniform thickness equal to said dynamic steady state spacing.

4,380,263
HEAT EXCHANGER TUBE SUPPORT ASSEMBLY

William E. Wright, East Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Nov. 3, 1980, Ser. No. 202,984
Int. Cl.³ F28F *9/00*
U.S. Cl. 165—76 **5 Claims**



1. A heat exchange unit having a base pan for supporting the unit, and a fan assembly and a subassembly which comprises:

a heat exchanger formed from a plurality of runs of wound fin tubing;

a support member having a vertically extending portion extending the height of the heat exchanger and having a top lateral portion and a bottom lateral portion both extending across the runs of wound fin tubing, each lateral portion defining an opening therein;

a tubular support means extending through the openings in the lateral portions of the support member securing the runs of wound fin tubing between the tubular support means and the support member; and

means for securing the tubular support means to the base pan and to the structural assembly for incorporating the subassembly as an integral part of the heat exchange unit.

4,380,264
SURVEY TOOL STRING

William C. Lyons, and Scot L. Scurlock, both of Sante Fe, N. Mex., assignors to Drilling Development, Inc., Houston, Tex.

Filed Dec. 24, 1980, Ser. No. 219,922
Int. Cl.³ E21B *41/00, 47/00*
U.S. Cl. 166—169 **14 Claims**

1. A tool for holding a magnetic directional survey instrument comprising:

a tubular, non-magnetic housing having a central bore for holding a major portion of said survey instrument;

closure means for enclosing one end of said tubular housing, said closure means having sealing means coacting with said tubular housing to prevent fluids from entering said tubular housing and having a recess in longitudinal alignment with said bore of said housing and adapted to hold a portion of said survey instrument;

connector means connected to the other end of said tubular housing for joining said tubular housing to means for lowering said tool into a short radius curve of a deviated well;

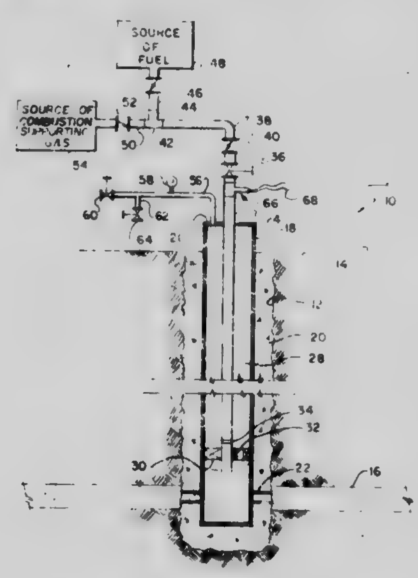
said connector means having a passageway for conducting fluids from the interior of said tool lowering means to the exterior of said tubular housing and having a recess in longitudinal alignment with said bore of said housing and adapted to hold a portion of said survey instrument, and

said connector means and said tubular housing having means to prevent fluids from entering said tubular housing.

4,380,265
METHOD OF TREATING A HYDROCARBON PRODUCING WELL

Henry H. Mohaupt, 1151 Estrella Dr., Santa Barbara, Calif. 93110

Filed Feb. 23, 1981, Ser. No. 237,538
Int. Cl.³ E21B *43/24, 43/26, 47/00*
U.S. Cl. 166—250 **12 Claims**



1. A method of treating a hydrocarbon producing well of the type having a casing string and a tubing string inside the casing string, both strings extending from the surface to adjacent a hydrocarbon bearing formation and being in fluid transmitting relation, comprising

injecting into a first of the strings, at the surface, a combustible mixture including a gaseous phase material in a quantity larger than the volumetric capacity of the first string;

monitoring the other of the strings, at the surface, to detect the presence of the combustible mixture;

igniting the combustible mixture after detecting the presence of the combustible mixture at the surface;

valving the string closed and thereby preventing backflow of gaseous phase materials from the strings toward the surface during combustion of the mixture; and

moving hot combustion products from the string into the formation.

9. A method of stimulating a hydrocarbon producing well of the type having a casing string extending from the surface to adjacent a hydrocarbon bearing formation and a tubing string, inside the casing string and communicating therewith, extending from the surface toward the hydrocarbon bearing formation, the method comprising

steps for periodically injecting hot combustion products into the formation including

(a) injecting into the tubing string, at the surface, a combustible mixture including a gaseous phase material in a quantity sufficient to substantially fill the tubing string and at least part of the annulus between the tubing and casing strings;

(b) injecting into the annulus at the surface, an accumulator gas in a quantity sufficient to fill only part of the annulus;

(c) preventing flow of the combustible mixture toward the surface;

(d) igniting the combustible mixture;

(e) combusting the mixture in the well and increasing the pressure in the well;

(f) moving hot combustion products from the well into the formation and thereby decreasing the pressure in the well; and then

(g) repeating steps (a), (c), (d), (e) and (f).

4,380,266

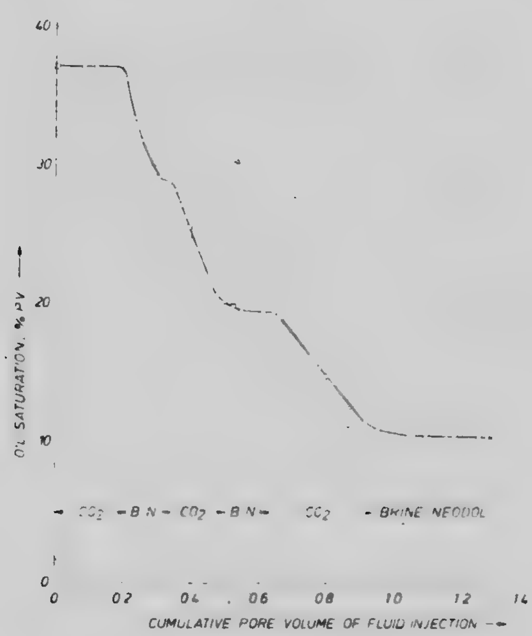
RESERVOIR-TAILORED CO_2-AIDED OIL RECOVERY PROCESS

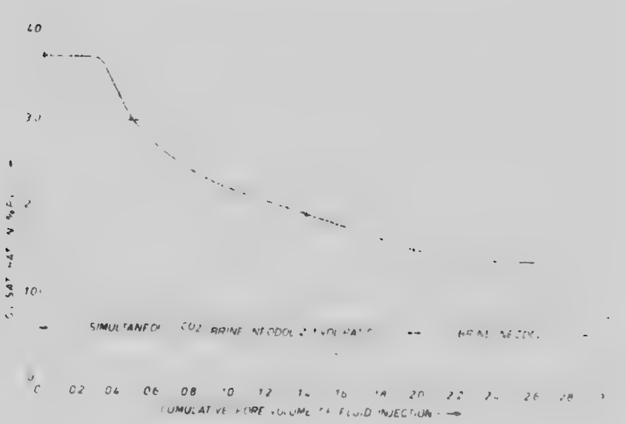
Scott L. Wellington, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Mar. 12, 1981, Ser. No. 243,164

Int. Cl.[3] E21B *43/22, 47/06*

U.S. Cl. 166—252 **2 Claims**





1. A process for formulating and injecting a CO_2-containing fluid for displacing oil within an oil and brine-containing subterranean reservoir comprising:

determining the reservoir temperature and properties of the oil and brine contained within the reservoir;

selecting a surfactant which both consists essentially of at least one polyalkoxyalcoholic surfactant and is capable of inducing the formation of substantially homogeneous dispersions of each of the specified types when said surfactant is mixed with the specified fluids at the reservoir temperature and a pressure of at least about 2000 psi at which CO_2 is substantially liquid at the reservoir temperature;

said types of dispersions being (1) CO_2 dispersed in a solution of surfactant dissolved in brine having a salinity substantially equivalent to that of the brine in the reservoir, when the volumes of the CO_2 and aqueous liquid are substantially equal and the mixture is substantially free of oil, (2) CO_2 and oil having properties at least substantially equivalent to those of the reservoir oil dispersed in a solution of the same surfactant in brine where the volume of oil is smaller than the total volume of CO_2 and brine, and (3) CO_2 and a solution of the same surfactant in brine dispersed in the same oil where the volume of oil exceeds the total volume of CO_2 and brine; and

injecting into the reservoir, at a pressure greater than about 2000 psi at which the CO_2 is substantially liquid at the reservoir temperature, CO_2, the selected surfactant, and a brine having a salinity at least substantially equivalent to that of the brine in the reservoir, in a sequence and proportion such that before, or soon after, entering the reservoir (a) the CO_2 is initially dispersed in a solution of the surfactant in brine, (b) advancing portions of the initial dispersion are converted to a dispersion of CO_2 and the reservoir oil in the solution of surfactant in brine, and (c) advancing portions of the latter dispersion are converted to a dispersion of CO_2 and a solution of surfactant in brine in the reservoir oil.

4,380,267

DOWNHOLE STEAM GENERATOR HAVING A DOWNHOLE OXIDANT COMPRESSOR

Ronald L. Fox, Albuquerque, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jan. 7, 1981, Ser. No. 222,854

Int. Cl.[3] E21B *43/24;* F22D *1/18;* F23D *15/04*

U.S. Cl. 166—303 **14 Claims**

1. An apparatus for generation of steam in a borehole for penetration into an earth formation, comprising:

a housing adaptable for insertion into the borehole;

an oxidant supply means;

a fuel supply means for supplying fuel;

a combustor assembly having a combustion chamber contained in said housing for receiving, mixing and combusting said oxidant and fuel for generating hot combustion gases;

an igniter means for igniting the fuel and oxidant mixture in said chamber;

a water supply means for injecting water into said combustion chamber to be converted to steam by the heat of combustion;

oxidant compressor means contained in said housing for compressing the oxidant prior to injection into said chamber;

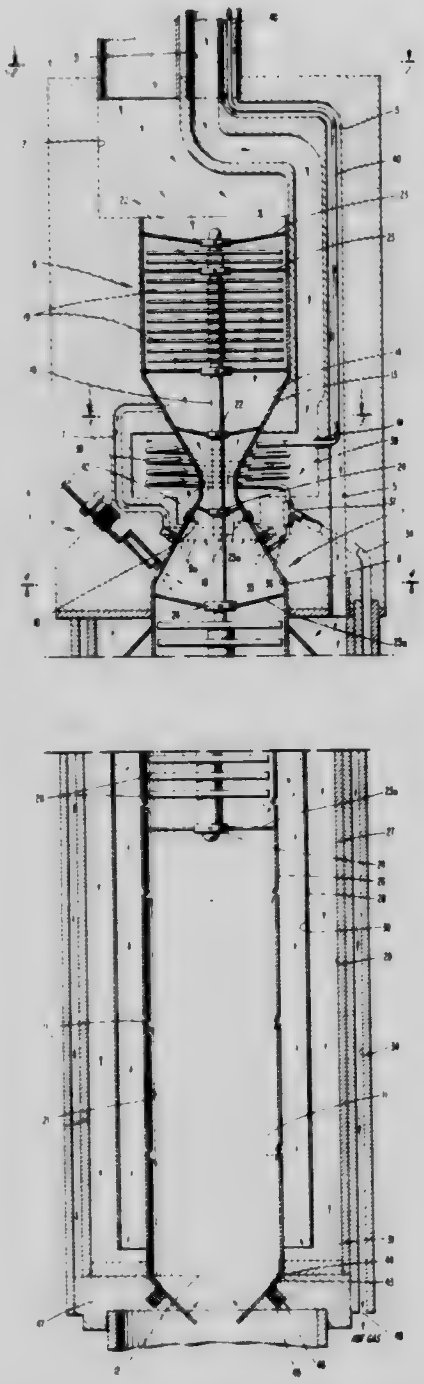
means for driving said compressor means by said hot combustion gases; and

steam outlet means for ejecting the hot combustion gases and steam for penetration into the earth formation.

14. In operation of a downhole steam generation for injecting steam into an earth formation, a method comprising the steps of:

compressing oxidant downhole to a relatively high pressure by compressor means;

injecting the high pressure oxidant into a combustion chamber;
injecting fuel into the combustion chamber to produce a fuel and oxidant mixture;
igniting the fuel and oxidant mixture thereby producing high pressure expanding combustion gases;
driving a turbine employing the driving force of the expanding combustion gases;

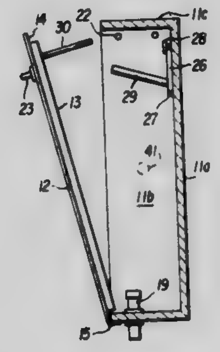


powering the compressor means by the turbine;
transferring the hot combustion gases downstream of the turbine to a steam generation zone;
injecting water into the steam generation zone to produce steam; and
injecting the steam into the earth formation.

4,380,268
PETROLEUM AND GAS WELL ENHANCEMENT AGENT
Keith R. Martin, West Chester, Pa., assignor to Uniflo Resources, Inc., Springfield, N.J.
Filed Jul. 9, 1981, Ser. No. 281,718
Int. Cl.[3] E21B *37/06, 43/00*
U.S. Cl. 166—304 **2 Claims**

1. A process for removal of paraffin from gas and petroleum wells comprising the steps of:
(a) adding to a well a mixture of 10 weight percent polymer of a primary alcohol and ethylene oxide, 2 weight percent sodium silicate and 88 weight percent water;
(b) adding water to the well;
(c) pumping the mixture up the well;
(d) discontinuing pumping of the well; and
(e) repumping the well.

4,380,269
QUICK RELEASE FIRE HOSE CABINET
John B. Petaway, 2021 Brooks Dr., Suitland, Md. 20746, and Otis C. Gabriel, Abrahms Hall Box 1448, Walter Reed Army Hospital Center, Washington, D.C. 20012
Division of Ser. No. 157,444, Jun. 9, 1980, abandoned. This application Nov. 6, 1981, Ser. No. 319,043
Int. Cl.[3] A62C *35/00*
U.S. Cl. 169—51 **2 Claims**



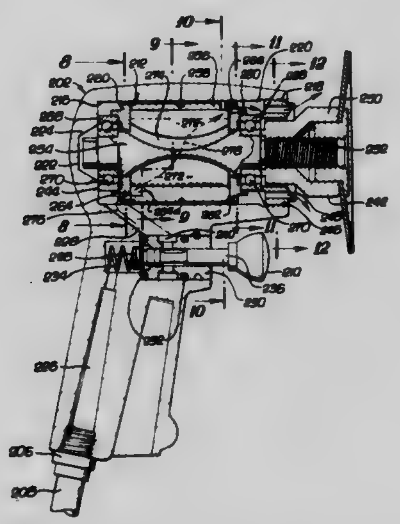
1. A fire fighting device for installation in spaces having a pressurized water supply comprising:
a storage cabinet having a plurality of means therein and thereon for attaching said cabinet to a supporting structure in an upright position;
said cabinet being formed by a storage compartment with a tightly fitting cover therefor hingedly attached along the lower side of said compartment;
the compartment further having water inlet and control means therein for connection to said water supply; and
said cabinet having therein quick release means for storing a length of flexible plastic hose, one end of which is connected to said water inlet and control means, the other end having a nozzle thereon, wherein said quick release and storage means comprises a support plate pivotally attached to the upper portion of the back wall of the installed cabinet, a plurality of upwardly sloping pegs to support an equal plurality of loops of said hose, and catch means pivotally mounted above said support plate and a catch actuating rod attached to the upper portion of the inner surface of said cover whereby when said cover is closed, said actuating rod will release said catch from said support plate to allow said plate to pivot forward until said pegs come in contact with the inner surface of said closed cover thereby retaining said hose on said pegs until such time as said cover is opened when said support plate will pivot forward to discharge said loops of hose from said cabinet.

4,380,270
TOOL DEVICE
David Ludwig, St. Louis, Mo., assignor to Allan Air Products, Inc., St. Louis, Mo.
Filed Jan. 23, 1981, Ser. No. 227,754
Int. Cl.[3] F03B *13/00*
U.S. Cl. 173—163 **1 Claim**

1. A tool device comprising:
(a) a body defining a bore having a first barrier wall end and second open end;
(b) a tool holder and motor assembly joined to said body and extending into said bore, said assembly including (i) means for joining a tool to said assembly, said tool joining means extending out of said open end of said bore, (ii) elongated rotary motor means having first and second ends, said motor means joined to said tool joining means for rotating said tool joining means, said motor means further having

a plurality of radially disposed movable vane members, and (iii) first and second end plates disposed on said motor means at each end thereof, said first end plate located adjacent said barrier wall end of said bore and having inlet openings for directing a fluid into said motor means and said second end plate located adjacent said open end of said bore and having outlet openings for directing fluid out of said motor means and toward said open end of said bore;

(c) means in said body for directing a fluid to said motor



means adjacent said barrier wall and through said first end plate; and

(d) means a ring member circumferentially disposed about said tool joining means and securing said assembly in said body, said ring member joined to said body adjacent said open end of said bore and having a plurality of openings in flow communication with and adjacent to said outlet openings on said second end plate,

whereby fluid is directed from said barrier wall end of said bore, through said motor means, and out said open end of said bore.

4,380,271

EARTH AUGER WITH REMOVABLE CUTTING TOOTH SUPPORT STRUCTURE

Donald R. Baker; Thomas R. Barr, and Paul C. Smith, Jr., all of Denison, Tex., assignors to Blue Streak Industries, Inc., Denison, Tex.

Filed Apr. 17, 1981, Ser. No. 255,129
Int. Cl.³ E21B *10/44*
U.S. Cl. 175—391 6 Claims

1. An earth drilling tool for use with cutting teeth each having a shank portion and an enlarged body portion with cutting edges and integral with one end of the shank portion comprising:

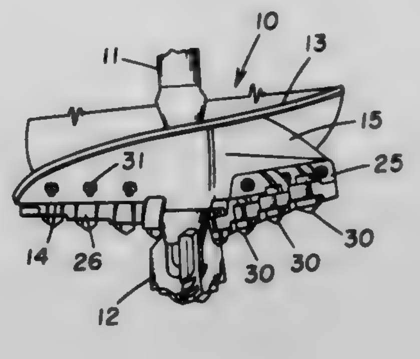
an upstanding axial stem having a bottom pilot bit attached to the bottom of said stem,

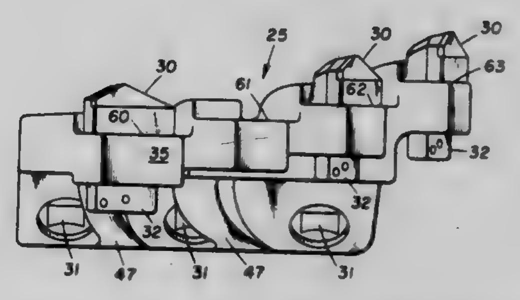
a downwardly spiraling flight structure affixed to said axial stem and having a leading edge terminating in the vicinity of said pilot bit, and

cutting teeth holder structure removably secured to said leading edge of said flight structure and extending from a position adjacent said stem above said pilot bit to a position approximate to the perimeter of said flight structure,

said holder structure having a plurality of spaced apart pockets extending through said structure for receiving shank portions of cutting teeth whereby the shank portions will pass through the pockets from one side of the structure to the other side,

said holder structure including reinforcing webs having raised ends proximate to each of the cutting tooth receiving pockets for engagement with the body portion of the cutting teeth and extending to a position for contact with





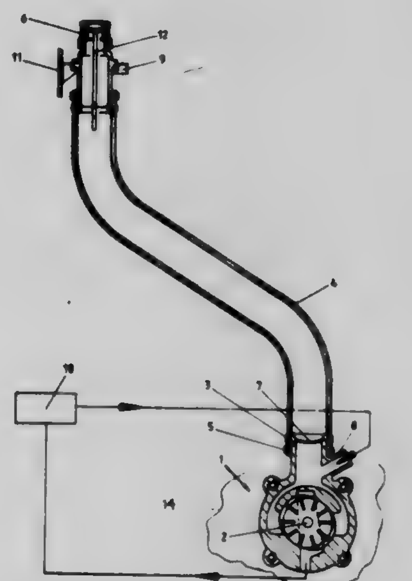
the leading edge of said flight structure to provide back supports for cutting teeth.

4,380,272

OIL RESERVOIR PARTICULARLY FOR HYDRAULIC STEERING SYSTEM

Johann Merz, Bopfingen, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen AG, Friedrichshafen, Fed. Rep. of Germany

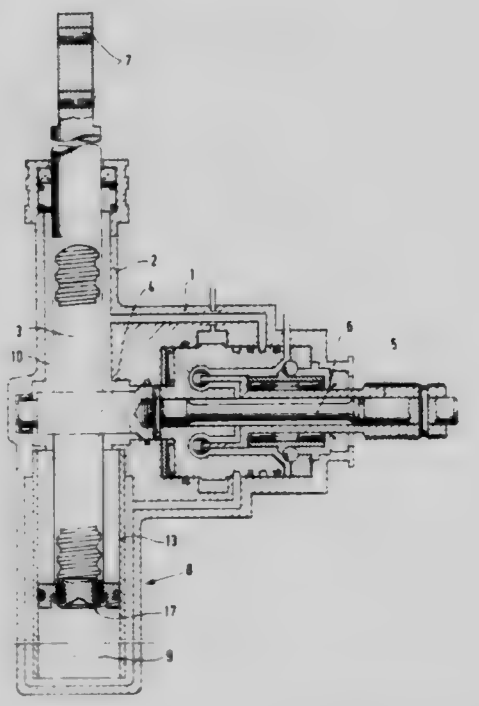
Filed May 1, 1980, Ser. No. 145,796
Claims priority, application Fed. Rep. of Germany, May 19, 1979, 2920321
Int. Cl.³ B62D *5/06*
U.S. Cl. 180—132 8 Claims



1. In an automotive vehicle having an engine compartment enclosing a fluid powered mechanism (10) to which pressurized fluid is supplied by a vehicle engine driven pump (1) having an intake fitting (3), and a fluid reservoir enclosing a required storage volume from which the fluid is exclusively withdrawn by the pump, the improvement residing in said fluid reservoir being formed by an elongated flexible hose (4) having opposite open ends between which said required storage volume of the fluid is confined, clamp means (5) connecting one of said ends of the hose to the intake fitting of the pump, means (9) fixedly anchoring the hose adjacent the other end thereof at an accessible location (11) above the pump within the engine

compartment, and a removable cap (6) closing said other end of the hose adjacent said accessible location.

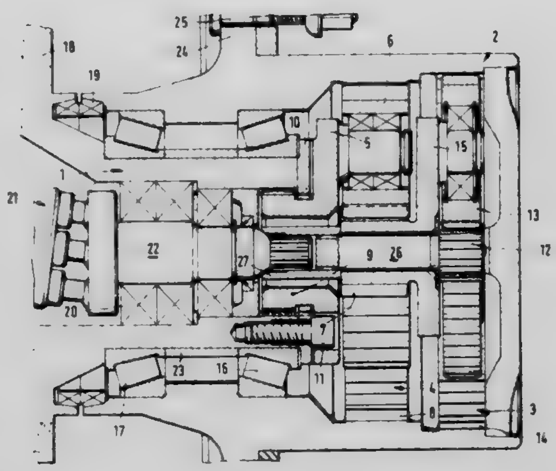
4,380,273
SPUR RACK HYDROSTEERING
Wolfgang Walter, Schwabisch Gmund, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen, AG., Friedrichshafen, Fed. Rep. of Germany
Filed Aug. 1, 1980, Ser. No. 174,555
Claims priority, application Fed. Rep. of Germany, Aug. 1, 1979, 2931184
Int. Cl.³ B62D *5/008;* **F16J** *9/002*
U.S. Cl. 180—132 **1 Claim**



1. In a hydrosteering device having a housing (1), a rack (3) and a double-acting piston assembly (8) mounted on the rack, and means for sealing pressure spaces within the housing from each other on opposite axial sides of the piston assembly, the improvement comprising a stop surface (14) formed on the rack, a relatively rigid piston ring (11) exposed to pressures in both of said pressure spaces, mounting means (15,16) assembled on the rack for floating support of the piston ring with axial clearance (20) relative to said stop surface, and relatively flexible means (12) mounted on the piston ring for engagement with the housing in response to radially outward displacement of the piston ring by said pressures exerted thereon, said mounting means comprising a reduced diameter end portion on the rack extending axially from the stop surface, a mounting ring (15) having a stop portion (21) axially spaced from the stop surface, elastic support means (16) on the end portion of the rack axially between the stop surface and the stop portion for floating support of the piston ring, and fastening means (17) on the end portion of the rack for holding the mounting ring in axial abutment with the stop surface.

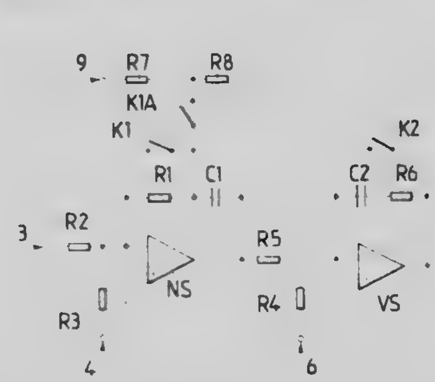
4,380,274
HOLDING A PLANETARY GEAR CARRIER RELATIVE TO AN AXLE
Uwe Abraham, Mittelstr. 18, 4350 Recklinghausen; Karl-Heinz Jakubowski, Tilsiter Str. 22, 4620 Castrop-Rauxel, and Wilhelm Köster, Hagemer Kirchweg 11, 4354 Datteln, all of Fed. Rep. of Germany
Filed Apr. 22, 1981, Ser. No. 256,677
Claims priority, application Fed. Rep. of Germany, Apr. 22, 1980, 3015818
Int. Cl.³ B60K *7/00*
U.S. Cl. 180—308 **4 Claims**

1. Connection of a hollow shaft to a planet gear carrier for preventing the carrier from turning relative to the shaft having an internal spline gearing near one end, comprising:
a sleeve being secured to or integral with said planet gear carrier, the carrier resembling a flange at the sleeve, the sleeve being provided with an external spline, there being an annular recess between the spline and the carrier;
said shaft having an end portion provided with an internal spline, for coupling with the external spline of said sleeve; and



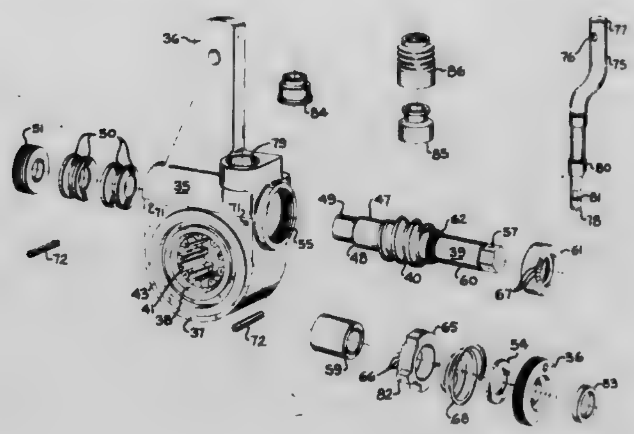
a gear disk having internal teeth and being disposed so that the teeth extend into the recess, the teeth being aligned with ridges of said external spline, the disk being releasably secured to said shaft, an axial length of the recess being larger than the thickness of said disk, so that the carrier can axially move relative to the shaft and the disk over a limited range.

4,380,275
APPARATUS FOR INTERFACING WEIGHING DATA WITH A LIFT CONTROL SYSTEM
Matti Kähkipuro, Hyvinkää, Finland, assignor to Elevator GmbH, Baar, Switzerland
Filed Jun. 24, 1981, Ser. No. 277,021
Int. Cl.³ B66B *1/44*
U.S. Cl. 187—29 R **1 Claim**



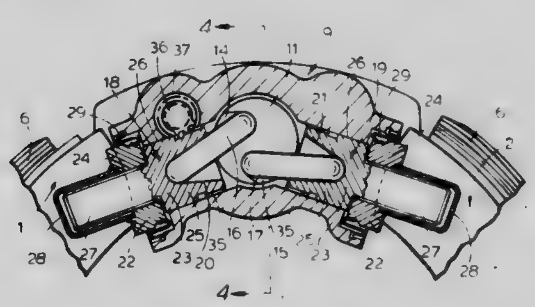
1. Apparatus for interfacing weighing data with a lift control system that has been carried out with an operator amplifier circuit comprising a speed controller amplifier (NS) of which the plus terminal has been connected to ground and at the minus terminal enter the speed set-point value and the current speed value and further from the minus terminal has been connected to the output of the speed controller amplifier a stabilizing resistor (R1), a stabilizing capacitor (C1), a start switch (K1) which short-circuits the stabilizing resistor (R1), and an auxiliary start switch (K1A) which connects the juncture of the stabilizing resistor (R1) and capacitor (C1) to the terminals of the weighing data resistors (R7) and (R8), the other end of the latter weighing datum resistor (R8) being connected to the output of the speed controller amplifier (NS) and to the other end of the foremost weighing datum resistor (R7) being connected the external weighing datum.

4,380,276
SLACK ADJUSTER FOR VEHICLE BRAKES
Roger Sweet, Fowlerville, and Leonard T. Tribe, Ann Arbor, both of Mich., assignors to Kelsey-Hayes Co., Romulus, Mich.
Filed Jul. 21, 1980, Ser. No. 167,308
Int. Cl.[3] F16D *65/56*
U.S. Cl. 188—79.5 K **4 Claims**



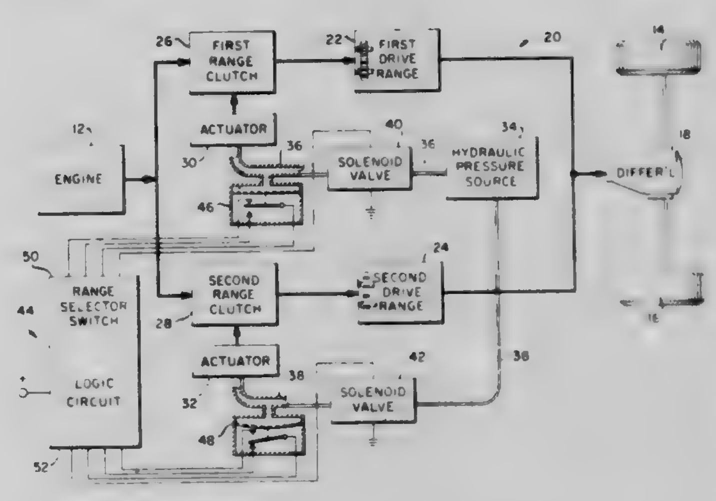
1. A slack adjuster for connecting an air actuated piston rod to rotate a cam shaft in a vehicle brake system comprising a housing, a worm gear mounted to rotate in said housing, means for connecting said worm gear to the cam shaft, said worm gear and said cam shaft rotating together about a first axis, a shaft mounted in said housing to rotate about a second axis perpendicular to said first axis, said shaft having first and second ends and defining a worm intermediate said ends engaged with said worm gear, a drive and a coupling each mounted coaxially to rotate on said shaft, ratchet means interconnecting said drive and said coupling for allowing said drive to rotate about said shaft axis relative to said coupling in only one direction, slip means interconnecting the coupling and said shaft, said slip means slipping when a predetermined rotational force is exerted between said coupling and said shaft, clevis means connecting said housing to the piston rod at a predetermined point spaced from said first axis, a link connected to said clevis means at a point spaced from the connection between said clevis means and said housing, and means interconnecting said link and said drive for rotating said drive and said coupling as the vehicle brakes are applied.

4,380,277
AUTOMATIC SLACK ADJUSTERS FOR VEHICLE SHOE-DRUM BRAKES
Brian Ingram, Warwickshire; David A. Harries, and Michael J. England, both of West Midlands,, England, assignors to Lucas Industries Limited, Birmingham, England
Filed Oct. 9, 1980, Ser. No. 195,428
Claims priority, application United Kingdom, Oct. 10, 1979, 7935130; Dec. 13, 1979, 7943037
Int. Cl.[3] F16D *51/00*
U.S. Cl. 188—329 **8 Claims**



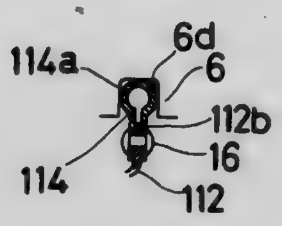
1. A vehicle shoe-drum brake of the one-leading, one-trailing shoe-drum simplex type comprising a rotatable drum, a relatively stationary torque-plate, brake shoes mounted on said torque plate and carrying friction linings for engagement with said rotatable drum, an actuating cam disposed between adjacent ends of said shoes, a cam shaft carrying said cam and which is journalled in said torque plate for rotation about a fixed axis to enable said cam to separate said adjacent ends of said shoes, and a slack adjuster, said slack adjuster comprising a housing mounted on said torque plate and fixed relative to said shoes, a pair of thrust assemblies guided to slide axially in bores in said housing, each said thrust assembly being adapted to act between said cam and said end of a respective one of said shoes, and each said thrust assembly comprising first and second interengaged screw-threaded members which are relatively rotatable to increase the effective length of said thrust assembly to compensate for wear of said friction lining of said respective one shoe, a rigid strut interposed between said cam and each said second member and through which said cam acts on said thrust assemblies to separate said adjacent ends of said shoes in response to rotation of said cam shaft, complementary recesses of part-spherical outline in said cam and in said second members and in which opposite ends of said struts have rocking engagements, means for holding each said first member against rotation with respect to said end of said respective shoe, and gear teeth provided on each said second member, a drive mechanism in constant meshing engagement with said gear teeth of both said second members so that both said second members are adapted to rotate together whereby the effective lengths of both said assemblies are increased by equivalent amounts, and means for rotating at least one of said second members when adjustment to compensate for wear is required.

4,380,278
MULTIPLE CLUTCH CONTROL SYSTEM EMPLOYING CLUTCH STATUS MONITOR
Richard D. Lasken, Bartlett, Ill., assignor to International Harvester Co., Chicago, Ill.
Filed Mar. 6, 1981, Ser. No. 241,264
Int. Cl.[3] B60K *41/22;* **F16D** *25/10*
U.S. Cl. 192—3.58 **18 Claims**



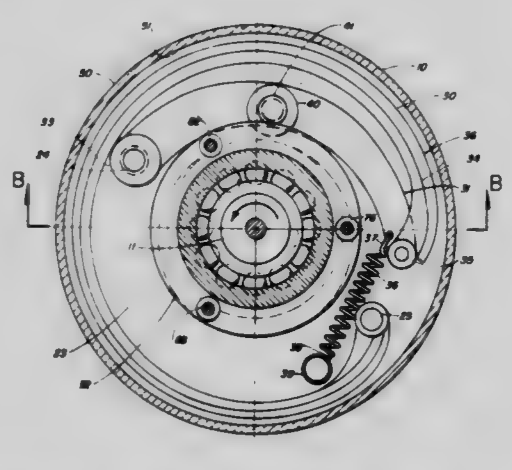
1. In a rotary power transmission of the type having a plurality of gears and first and second clutches cooperating with said gears for shifting the transmission from a first gear ratio to a second gear ratio by engaging the first clutch and disengaging the second clutch after a transitory operational period of clutch overlap, the improvement comprising means responsive to the engagement of said first and second clutches for preventing said first and second clutches from being simultaneously engaged for more than a predetermined time interval, said simultaneous engagement preventing means having monitor means (**48,84,87,80** pin **5**) effective to afford operation thereof and connected to continuously monitor the second clutch, throughout said predetermined time interval, for failure to in fact disengage therewithin, whereupon the monitor means is effective so as to afford the desired operation of the simultaneous engagement preventing means.

4,380,279
VISCOUS FLUID COUPLING DEVICE
Hiroto Masai, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan
Filed Dec. 4, 1980, Ser. No. 213,024
Claims priority, application Japan, Dec. 26, 1979, 54-180878[U]
Int. Cl.[3] **F16D** *35/00, 43/25*
U.S. Cl. 192—58 B **3 Claims**



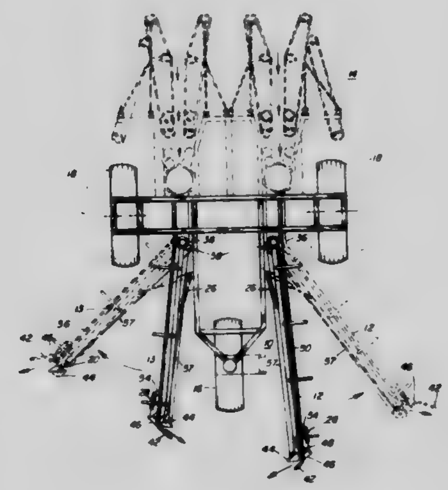
1. A viscous fluid coupling comprising:
a drive member;
a casing member rotatably mounted on said drive member and provided with a fluid working chamber and a fluid reservoir wherein said casing member has an insert depression formed therein;
a rotor fixed to said drive member and located in said fluid working chamber and rotatable relative to said casing member;
a shaft rotatably and sealingly mounted on said casing member;
a valve plate fixed to an inner end of said shaft and operable to control fluid communication between said fluid working chamber and said reservoir;
a helically wound bimetal element located on an exterior portion of said casing member, said bimetal element having an inner end portion connected to an outer end of said shaft and an outer end portion of said bimetal element being connected to a portion of said casing member; and
a resilient member having a rigidity less than the rigidity of said bimetal element and made of leaf spring steel and located between said outer end portion of said bimetal element and said casing member, wherein said resilient member further comprises a hair-pin shaped member having a round head and being fixed to said outer end portion by means of a rivet and located in said insert depression formed on the casing at said round head of said resilient member.

4,380,280
CAM OPERATED FRICTION CLUTCH
John D. Walters, Rte. 1, Box 244H, New Orleans, La. 70129
Filed Jan. 2, 1979, Ser. No. 107
Int. Cl.[3] **F16D** *13/14, 13/75*
U.S. Cl. 192—78 **10 Claims**



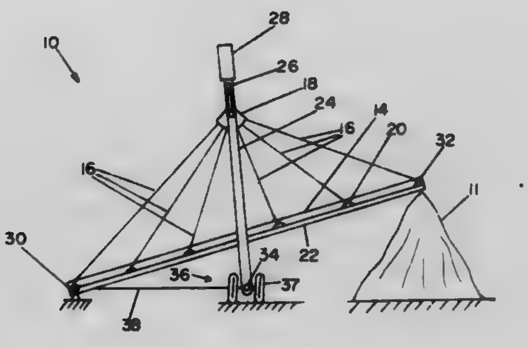
1. An improved externally engagable clutch having cam actuated expandable clutch shoe means for frictional coupling to clutch drum means, wherein the improvement comprises:
multiple face cam means wherein each cam face contact surface is oriented essentially parallel to the axis of rotation of the clutch and each cam face contact surface is positioned axially adjacent to each other; and
cam follower means rotatably mounted in a plane essentially perpendicular to the axis of rotation of the clutch and operably connected to the expandable clutch shoe means for expanding it into contact with the clutch drum means, said cam follower means and said multiple face cam means being laterally displaceable relative to each other and the axis of rotation of the clutch.

4,380,281
ASSOCIATED RUNNING GEAR AND PILER IMPROVEMENTS IN A TWO ROW HARVESTER AND PILER
Richard A. Duncan, Thibodaux, La., assignor to Cane Harvest Inc., Thibodaux, La.
Filed Dec. 12, 1980, Ser. No. 215,999
Int. Cl.[3] **B65G** *41/00, 65/06*
U.S. Cl. 198—304 **3 Claims**



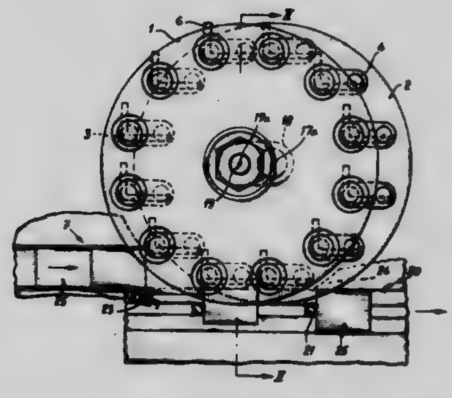
1. In a two row harvester and piler, associated running gear and pilers comprising:
(a) tricycle running gear, having two fixed front wheels and a smaller centered and steerable rear wheel, fixed as a movable supporting part of said harvester and piler for moving it from plact to place;
(b) similar front wheel hydraulic motor means for driving said front wheels;
(c) rear wheel hydraulic motor means, smaller than said front wheel motor means, for driving said rear wheel;
(d) variable volume, two way hydraulic pump means connected to said front and rear wheel hydraulic motor means in closed loop and parallel hydraulic systems for supplying said wheel motor means with pressure fluid in volumes to rotate said wheels to move said harvester at common linear speeds, and at pressures in combination with relative difference in sizes of front and rear wheel motor means to rotate said front wheels with greater torque than said rear wheel;
(e) piler means pivotally mounted on said tricycle running gear behind and inboard of said fixed front wheels to extend on each side of said centered rear wheel and rearwardly therebeyond for piling cut cane behind and to respective sides of said tricycle running gear.
(f) cane fall directing means pivotally mounted on each of the free ends of said piler means for defining therebetween movable cut cane exit terminals and directing fall of cane therefrom; and
(g) auxiliary hydraulic power means mounted on said tricycle running gear for pivoting said piler means to respective positions for piling behind and to the sides of said harvester and for conforming cane fall directiing means to said piling positions.

4,380,282
CABLE SUSPENDED CONVEYOR
Hans de Bruijn, Lancaster, Pa., assignor to Aggregates Equipment, Inc., Leola, Pa.
Filed Mar. 13, 1981, Ser. No. 243,459
Int. Cl.³ B65G *21/10*
U.S. Cl. 198—318 10 Claims



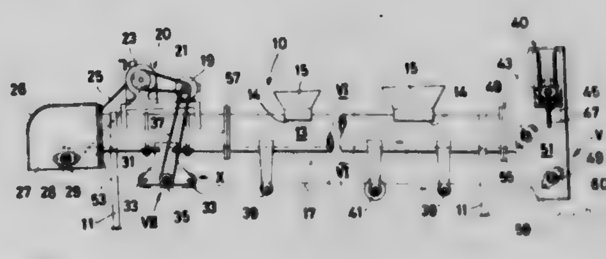
1. In a stacker for moving aggregate material to and from piles of varying heights wherein a mast located between the ends of a conveyor supports the conveyor at varying angles to the horizontal, the conveyor is anchored at its lower end by a conveyor pivot point, the conveyor is supported from the mast and raised and lowered by cables, and the lower end of the mast is restrained to prevent radial movement relative to the conveyor pivot point, the improvement comprising:
- the mast oriented at an angle to the vertical with its top end leaning in toward the conveyor pivot point and the mast anchored at its lower end at a mast pivot to permit variations in its angle to the vertical;
- the conveyor suspended from the mast by cables of nonvarying length, with the vectors of the forces on all the cables converging at a single point and the cables attached to a cable anchor means;
- a cable anchor means located on and movably attached to the mast to permit raising and lowering of the cable anchor means on the mast;
- a motor means attached to the cable anchor means and capable of raising and lowering the cable anchor means on the mast; and
- a radial force means attached near the lower end of the mast to maintain an inward force on the lower end of the mast.

4,380,283
DEVICE FOR PUSHING OBJECTS OFF A CONVEYOR
Johannes D. van Maanen, Berkel, Netherlands, assignor to Tevopharm-Schiedam B.V., Schiedam, Netherlands
Continuation of Ser. No. 60,002, Jul. 24, 1979, abandoned, which is a continuation of Ser. No. 821,945, Aug. 4, 1977, abandoned. This application Feb. 27, 1981, Ser. No. 239,027
Int. Cl.³ B65G *47/31*
U.S. Cl. 198—456 3 Claims



1. A device for pushing objects having a length 1 and a width b and lying end to end on a conveyor, essentially horizontally off from said conveyor one at a time so that they become separated from each other, said device comprising: two discs arranged parallel to and in spaced relationship to each other and one on top of the other, said discs being rotatable about axes of rotation extending perpendicular to their centers, said axes being disposed in a substantially vertical plane extending in spaced relationship parallel to said conveyor and said axes being offset with respect to each other in said vertical plane, a plurality of first pins situated at equal distances from each other and pivotally secured in the upper one of said two discs at equal distances from the center of said upper disc and relatively near the circumference of said upper disc, a plurality of second pins corresponding in number to said plurality of first pins and being pivotally secured in the lower one of said two discs relatively near its circumference and at the same radial distances from its center as the first pins are from the center of the upper disc, a plurality of connecting members respectively connecting the lower ends of the plurality of first pins with the upper ends of the plurality of second pins, said second pins extending through said lower disc, a plurality of push plates respectively connected to the lower ends of said second pins, each of said push plates forming one leg of a rectangularly bent plate, the other leg of said bent plate being directed transverse to said conveyor, each of said push plates having a length not exceeding the length 1 of the objects to be pushed off, the distances in a straight line between the center lines of the second pins equaling said length 1 of the objects, said discs overlapping said conveyor to such an extent that when the discs are rotating the push plates will brush over the conveyor over a distance at least equal to said width b of the objects, the radial distance between each pin and the center of the disc to which it is connected exceeding $(4b^2+1^2)/8b$.

4,380,284
CHIP CONVEYER
Takeshi Ito, Tama; Shuzo Ishizuka; Keiichi Goto, both of Sagamihara, and Keiki Saito, Yokohama, all of Japan, assignors to Caterpillar Mitsubishi Ltd., Japan
Filed Sep. 22, 1980, Ser. No. 189,297
Claims priority, application Japan, Sep. 28, 1979, 54-135582[U]
Int. Cl.³ B65G *45/00*
U.S. Cl. 198—494 9 Claims



1. A chip conveyor for receiving metal chip material at a multitude of feed openings and transmitting said chip material to a discharge gate comprising,
- a cylindrical, lengthy trough substantially closed continuously along its length and having a discharge gate at one end and a plurality of hoppers for receiving said chip material disposed between both ends of said trough,
- a plurality of endless chains running within the lower part of said trough in its loaded run and running outside of said trough in its return run,
- means for tensioning said chains disposed at one end of said trough,
- a driving means for driving said chains, and
- a cam means for giving vibration to said chains disposed outside of said trough and powered by said driving means.

4,380,285

APPARATUS FOR ALIGNING CHIPS DURING THE MANUFACTURE OF CHIPBOARDS

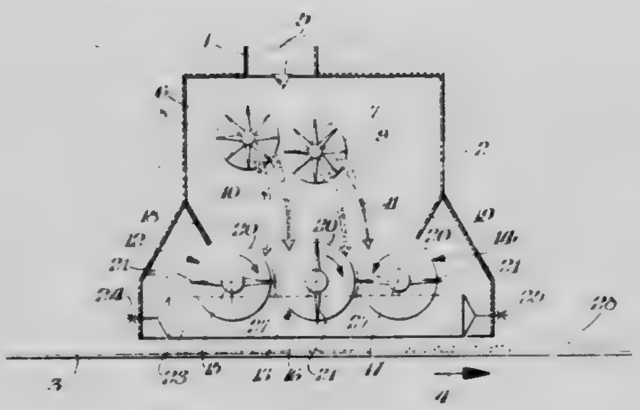
Wolfgant Bürkner, and Franz-Josef Ebert, both of Darmstadt, Fed. Rep. of Germany, assignors to Carl Schenck A.G., Fed. Rep. of Germany

Filed Jan. 28, 1981, Ser. No. 229,102

Claims priority, application Fed. Rep. of Germany, May 16, 1980, 3018683

Int. Cl.³ B65G *47/18*

U.S. Cl. 198—533 **10 Claims**



1. An apparatus for aligning particles in a preferred longitudinal direction on a moving substrate comprising a housing having an inlet and an outlet, the outlet being disposed above the moving substrate, a set of parallel substantially vertical aligning plates spaced from each other being mounted immediately within the outlet, sets of solid discs flanked by spiked discs being rotatably mounted above the set of aligning plates and substantially parallel to the preferred longitudinal direction and the sets of discs being spaced from each other and disposed at least in part above and over the aligning plates, whereby the particles are fed to the aligning plates in a substantially aligned manner which is maintained by the aligning plates.

4,380,286

CONVEYOR SYSTEM FOR BAR-SHAPED ARTICLES, PARTICULARLY CIGARETTES

Enzo Seragnoli, Bologna, Italy, assignor to G. D. Societa' per Azioni, Bologna, Italy

Filed Nov. 5, 1980, Ser. No. 204,344

Claims priority, application Italy, Nov. 14, 1979, 3542 A/79

Int. Cl.³ B65G *15/14*

U.S. Cl. 198—605 **12 Claims**

1. A conveyor system for bar-shaped articles, particularly cigarettes, comprising at least one inlet, an exit, a channel connecting said inlet to said exit, and ffed means disposed along said channel to move said articles along it from said inlet to said exit, said channel comprising a substantially vertical portion connected upperly to said exit, characterized in that said channel also comprises a substantially U-shaped curved portion with its concavity facing upwards, of which a first end communicates with said inlet and the second end communicates with the lower end of said vertical portion; and said feed means comprise a first conveyor belt defining an outer curved wall of said curved portion and a first wall of said vertical portion, a second conveyor belt mobile at the same speed as said first conveyor belt and defining, at least partly, a second wall of said vertical portion facing said first wall, and a rotatable drum constituting a support for said first conveyor belt along said curved portion and rotatable by said first conveyor belt; said drum defining an inner curved wall of said curved portion which faces and is parallel to said outer curved wall, and is in bar-shaped article delivery communication with said second wall.

4,380,287

OSCILLATING-ACCUMULATING CONVEYOR SYSTEM

William L. Smock, 5831 S. Meridian St., Indianapolis, Ind. 46217

Filed Dec. 8, 1980, Ser. No. 213,796

Int. Cl.³ B65G *37/00*

U.S. Cl. 198—648 **17 Claims**

1. In a conveyor system including a horizontally elongated conveyor unit having a plurality of parallel spaced-apart freely-rotatable conveyor rolls, driving means for cyclically reciprocating the conveyor unit back and forth in the elongated direction thereof through a predetermined stroke, and a skid adapted to be conveyed by said conveyor unit, said skid including a base rollingly supported on said conveyor rolls, the improvement comprising:

elongated stationary reaction means positioned adjacent said conveyor unit and extending longitudinally therealong;

one-way holding means mounted on said skid and coacting with said reaction means for permitting said skid to be moved forwardly during the forward stroke of said conveyor unit while preventing rearward movement of the skid during the rearward stroke of said conveyor unit, whereby the skid is intermittently advanced in a steplike manner along the conveyor unit due to the cyclic reciprocation thereof; and

means mounting said one-way holding means on said skid for permitting said holding means to be selectively moved between first and second positions relative to said skid when the latter is supported on said conveyor unit, said holding means when in said first position coacting with said reaction means for causing the skid to be unidirectionally stepped in one direction along the conveyor unit in response to the cyclic reciprocation thereof, and said holding means when in said second position coacting with said reaction means for causing the skid to be unidirectionally stepped in the opposite direction along the conveyor unit in response to the cyclic reciprocation thereof.

4,380,288

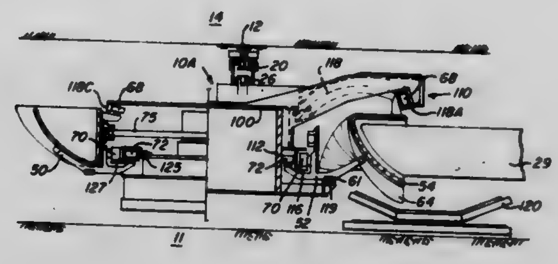
CONVEYOR

Theodore B. Bodimer; Joseph S. David, both of Franklin, and Alexander W. Calder, Pittsburgh, all of Pa., assignors to Joy Manufacturing Company, Pittsburgh, Pa.

Continuation of Ser. No. 701,770, Jul. 2, 1976, abandoned. This application Dec. 19, 1977, Ser. No. 862,254

Int. Cl.³ B65G ***15/08***

U.S. Cl. 198—820 **5 Claims**



1. A conveying apparatus comprising: an elongated frame including an elongated, endless guide means; a conveying means coextensive with said guide means and including an endless, troughed conveying element and a support means; said conveying means being orbitally movable with respect to said guide means through an elongated endless path located laterally adjacent said guide means in such a manner that seriatim portions of said conveying element traverse, in sequence, at least a first elongated portion of said endless path, a discharge portion of said endless path and a second elongated portion of said endless path, wherein a major extent of said first and second elongated portions of said endless path extend longitudinally adjacent the respective laterally opposite sides of said frame, said support means being cooperable with said guide means and said conveying element for cantilever support of said conveying element with respect to said guide means at least during movement of said conveying means through said first elongated portion of said endless path; and said support means including a portion thereof cooperable with said guide means and said conveying element to provide support for said seriatim portions of said conveying element with respect to said guide means during traverse thereby of said elongated and said discharge portions of said endless path and to effect movement of said seriatim portions of said conveying element from a first orientation thereof to a second orientation thereof for discharge of material from said seriatim portions during traverse thereby of said discharge portion of said endless path.

4,380,289

PAPERBOARD DISPENSER PACKAGE WITH REMOVABLE SCOOP PANEL

Stanley K. Bigelow, St. Joseph, Mo., assignor to Champion International Corporation, Stamford, Conn.

Filed Nov. 19, 1981, Ser. No. 322,773

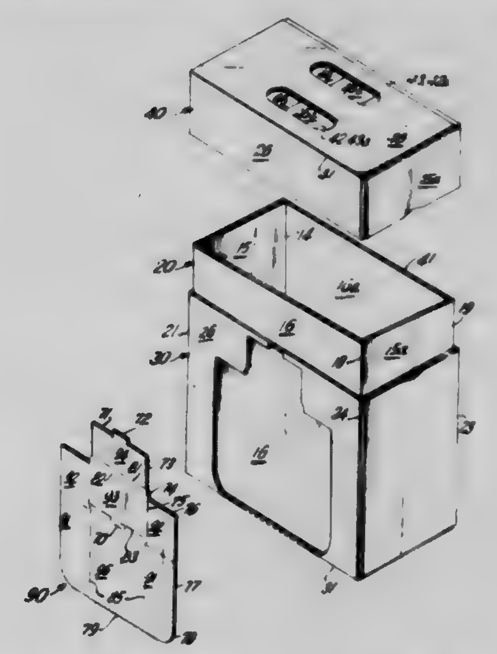
Int. Cl.³ B65D ***77/00***

U.S. Cl. 206—216 **16 Claims**

1. A rectangular-shaped paperboard dispenser package comprising:

an inner compartment formed from first and second opposed pairs of substantially rectangular, upstanding inner side panels that are alternatively foldably connected, each of said inner side panels including a horizontally disposed, substantially rectangular inner bottom flap foldably connected to the bottom edge thereof, said inner bottom flaps being folded to form the bottom surface of said inner compartment; and

an outer compartment formed from first and second opposed pairs of substantially rectangular, upstanding outer side panels that are alternatively, foldably connected, each outer side panel including a horizontally disposed, substantially rectangular outer bottom flap foldably connected to the bottom edge thereof, said outer bottom flaps being folded to form the bottom of said outer compartment, each outer side panel further including a horizontally disposed substantially rectangular outer top flap foldably connected to the top edge thereof and folded to form the top of said outer compartment, one outer side panel including a removable scoop panel for forming a scoop, said scoop panel comprising a substantially rectangular bottom surface, a first side wall foldably connected to a first edge of said bottom surface, a second side wall having substantially the same configuration as said first side wall and being foldably connected to a second edge of said bottom surface, wherein the second edge of the bottom surface is opposite the first edge thereof, first and second substantially rectangular end flaps foldably con-



nected to said first and second side walls, respectively, said foldable connection between said side walls and said end flaps being substantially perpendicular to said foldable connection between said side walls and said bottom surface, a substantially rectangular exterior end wall foldably connected to a third edge of said bottom surface and disposed between said end flaps, a substantially rectangular interior end wall foldably connected to the edge of said exterior end wall opposite said bottom surface, said end walls being adapted to foldably engage said end flaps to secure said end flaps in perpendicular disposition to both said bottom surface and said side walls for forming said scoop panel into a scoop.

4,380,290

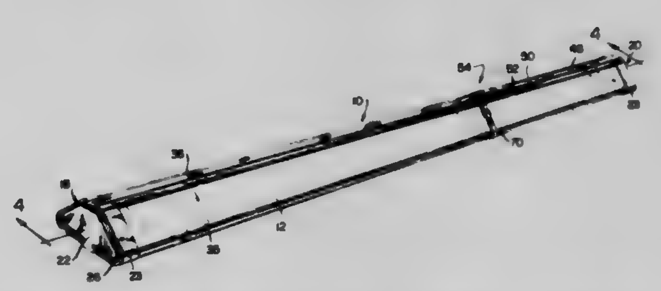
SHIPPING AND STORAGE CONTAINER

Randall A. Luebke, 311 5th St., Huntington Beach, Calif. 92648

Filed Apr. 9, 1981, Ser. No. 252,384

Int. Cl.³ B65D ***25/04***

U.S. Cl. 206—315 R **6 Claims**



1. A shipping, storing and carrying container comprising:

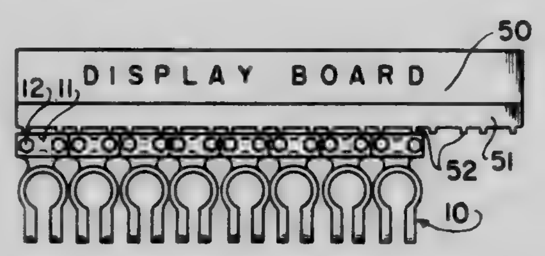
an elongated, monolithic, tubular housing having oppositely disposed open ends;

a pair of cap members adapted to be removably mounted to said housing, to cover each of said open ends thereof;

a releasable locking means positioned between said cap

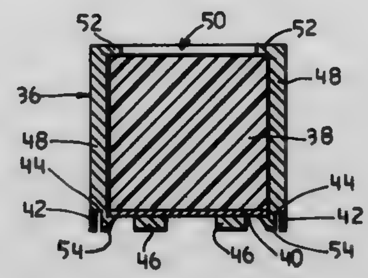
members and said housing, to lock said cap members to said housing;
a slidably adjustable partition positioned within said housing;
a first and second chamber in said housing defined by said partition;
means for adjusting said partition to a selected position within said tubular housing;
means for securing said partition in said selected position;
each of said cap members comprising:
a closure wall having an outwardly projecting peripheral flange member;
a peripheral rib formed in said closure wall adjacent said peripheral-flange member, thereby defining a peripheral groove adapted to receive said open end of said housing therein; and
a slot disposed in said closure wall, to allow said adjusting means of said partition to extend outwardly from said housing;
wherein said adjustable means of said partition comprises an elongated longitudinal strap member attached to said partition, wherein the ends of said strap member are passed through said slots in said cap members, and are adapted to be secured to each other on the outer surface of said housing, after said partition is arranged in a selected position, and wherein said securing means is mounted to said strap member.

4,380,291
BATTERY TERMINAL CONNECTOR AND METHOD
John K. Shannon, 200 S. Vincermes Cr., Racine, Wis. 53402
Filed Dec. 18, 1980, Ser. No. 217,705
Int. Cl.³ B65D *85/28*
U.S. Cl. 206—343 **18 Claims**



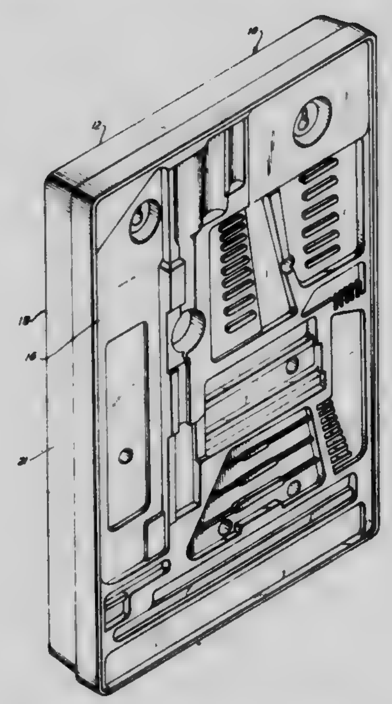
1. A battery terminal having a reinforcement strip for a plurality of terminals which assists in orienting the strip for casting metal thereabout to form a plurality of severable terminals comprising, in combination,
an interior reinforcement strip for a plurality of terminals formed of a conductive metal defining a terminal aperture at a mid-portion,
said reinforcement being formed with a plurality of units terminating in a cable connector portion remote from the terminal aperture,
each cable connector portion being substantially rectangular and having connector holes,
each of said terminals being separated from the adjacent terminals by a line of weakness along an edge portion of the adjacent reinforcement portions formed in said reinforcement strip,
said connector and holes serving to orient the reinforcement in a plurality of mold cavities,
a connector body material formed to encase each of the plurality of members, the size and proportion of which defines the completed terminal connector,
each of said terminals being readily severable from the adjacent unit by breaking along the line of weakness.

4,380,292
PARENTERAL NEEDLE RECEPTACLE
Kathleen J. Cramer, 4240 Crooked Tree Apt. #7, Wyoming, Mich. 49509
Filed Mar. 10, 1981, Ser. No. 242,345
Int. Cl.³ B65D *85/24;* **B65F** *7/00;* **A61C** *17/02;* **B65D** *81/00*
U.S. Cl. 206—366 **17 Claims**



1. A parenteral needle receptacle comprising:
a base;
a case releasably mounted on said base, said case having walls defining a first open end adjacent said base and also having a second open end opposite to and smaller than said first open end;
means operatively connected to at least one of said base and said case for mounting said receptacle on a supporting object; and
a disposable needle receiving block positioned within and substantially filling said case, said block being sufficiently small to be inserted into said case through said first open end and being larger than said second open end whereby it is retained thereadjacent.

4,380,293
SOCKET WRENCH DISPLAY PACKAGE
Donald G. Wilcox, Seymour, and Nobile Zambrano, Branford, both of Conn., assignors to Show-Pak, Incorporated, New Haven, Conn.
Filed Dec. 15, 1980, Ser. No. 216,327
Int. Cl.³ B65D *73/02*
U.S. Cl. 206—563 **5 Claims**

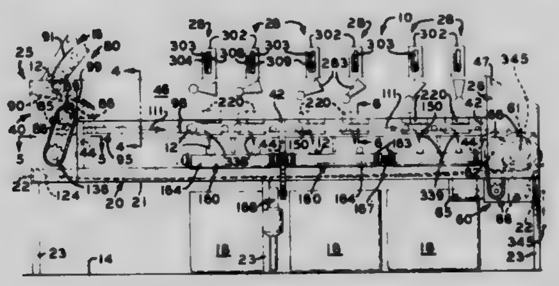


1. A display package and case comprising a blow molded plastic base having spaced upper and lower walls and a peripheral wall extending therebetween; said upper wall having a first set of a plurality of frustro-conical depressions formed therein open at the upper wall and having bases sealed to said lower wall of the base to provide reinforcement for said walls to rigidify said blow molded base, said upper wall having a

second set of depressions formed therein of predetermined shape defining flat wall portions of said upper wall therebetween all lying on the same plane, said second set of depressions being dimensioned with respect to objects to be received therein such that the outermost surfaces of objects in the depressions lie in said plane, and a transparent cover panel secured to said upper wall and supported on said flat wall portions thereof to hold said objects in said depressions; at least one of said frustroconical depressions having a key hole shaped knock-out formed therein.

4,380,294
APPARATUS FOR ASSORTING ARTICLES ACCORDING TO SIZE

Billy J. Morris, Visalia, Calif., assignor to Industrial Manufacturers of Orosi, Orosi, Calif.
Filed Feb. 5, 1981, Ser. No. 231,661
Int. Cl.³ B07B *13/05*
U.S. Cl. 209—540 23 Claims

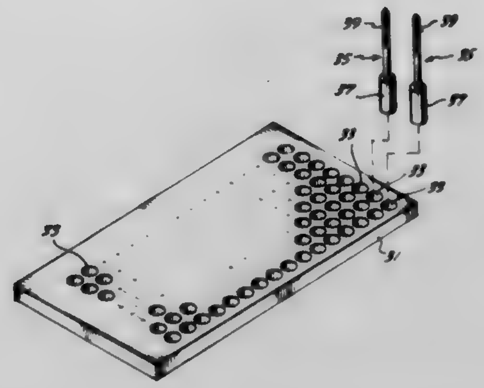


1. In an apparatus for assorting articles according to size having means for conveying such articles along a predetermined path from a receiving station through a plurality of successive assorting stations, and means at the assorting stations for removing articles from the conveyor of predetermined respective sizes decreasing in the direction of article conveyance; the conveying means comprising:
A. a pair of transversely substantially planar elongated endless belts;
B. means mounting the belts with substantially horizontal edgewardly adjacent upper runs transversely angularly related to form an upwardly disposed article transporting trough therebetween; and
C. drive means for causing the upper runs of the belts to travel longitudinally to transport the articles from the receiving station to the assorting stations.

4,380,295
AUTOMATIC DRILL DEBURRING AND SORTING MACHINE

Mark S. Soderberg, Seattle; Albert L. Hametner, West Seattle; Herman F. Leppink, Renton, and David E. Strand, Seattle, all of Wash., assignors to The Boeing Company, Seattle, Wash.
Filed Apr. 6, 1981, Ser. No. 251,190
Int. Cl.³ B07C *5/00;* B21H *3/10*
U.S. Cl. 209—558 45 Claims

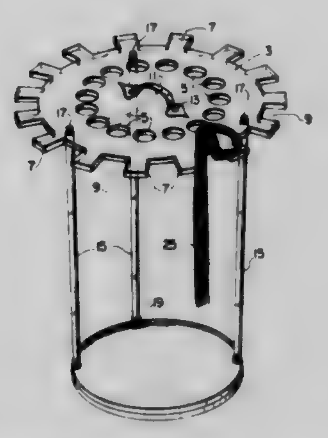
1. An automatic drill deburring and sorting machine comprising:
(A) loading station means for loading drills into said automatic drill deburring and sorting machine;
(B) measuring station means for receiving drills from said loading station means and measuring the overall length and diameter of said drills;
(C) deburring and flute length station means for receiving drills from said measuring station means, deburring the margins of said drills and determining the point on the drill drills where said flutes end;
(D) sorting station means for receiving drills from said deburring and flute length station means and directing said drills into receptacles; and,
(E) control station means connected to said loading station means, said measuring station means, said deburring and flute length station means and said sorting station means for controlling:
(1) the loading of drills into said automatic drill deburring and sorting machine by said loading station means;
(2) the measurement of the overall length and diameter of drills by said measuring station means;



(3) the deburring of drills and the determination of the point on said drills where the flute ends by said deburring and flute length station means; and,
(4) the directing of drills into receptacles by said sorting station means.

4,380,296
YARN HOLDER AND METHOD OF SEPARATING YARN BY COLOR

James F. Murray, and Geneva A. Murray, both of 4808 Sipple Ave., Baltimore, Md. 21206
Filed Jan. 16, 1981, Ser. No. 225,732
Int. Cl.³ B07C *7/04;* B65D *85/00*
U.S. Cl. 209—704 7 Claims



1. A yarn holder comprising:
(a) a substantially circular disc,
(b) a plurality of substantially circular holes formed in said disc, each of said holes being located substantially on a radius and being substantially equidistant from each other,
(c) a plurality of substantially radial tabs, equal in number to the holes located substantially on radii adjacent to respective holes, and
(d) a plurality of elongated posts having one end thereof secured to the bottom of said disc, and a base secured to the other ends of said posts.

4,380,297
PIPE STORAGE SYSTEM

Robert Frias, Odessa, Tex., assignor to Ingram Corporation, New Orleans, La.
Filed Feb. 27, 1980, Ser. No. 125,159
Int. Cl.³ B65G *1/10;* E21B *19/14*
U.S. Cl. 211—60 S 28 Claims

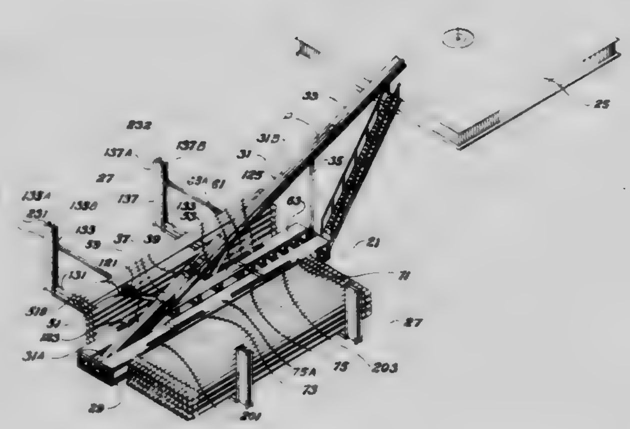
1. A storage apparatus for holding lengths of pipe or the like comprising:

a pair of vertical stanchions secured in place in spaced relation,

a plurality of pairs of horizontal rails for supporting a plurality of rows of pipe, each said rail having first and second ends,

each said pair of rails being adapted to be coupled to said pair of stanchions respectively such that each pair of rails is at a different level and said plurality of pairs of rails from two vertical rows of rails,

each said vertical rows of rails being coupled at said first end to one of said stanchions,

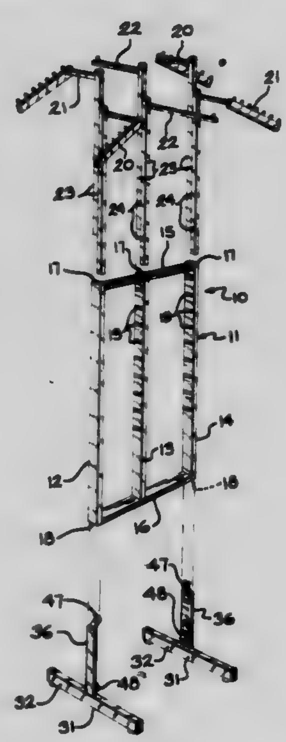


each said pair of rails being adapted to support a row of pipe and to be supported by a lower row of pipe, and

each said stanchion comprising structure which acts as a guide to allow said rails coupled thereto to be moved upward or downward to different levels, and

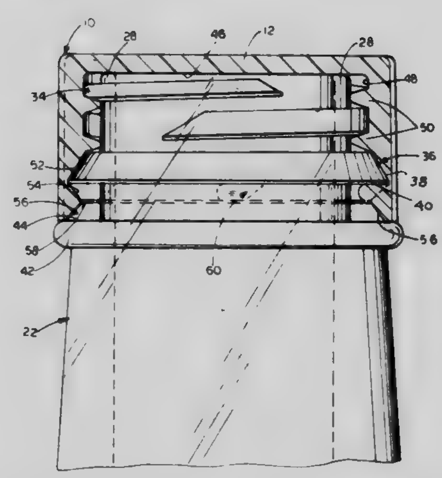
each said stanchion comprising two parallel upright members providing a vertical slot for slidingly receiving said first end of said rails, and a guide means for preventing horizontal movement of said rails beyond said guide means.

4,380,298
KNOCK DOWN STORE DISPLAY FIXTURE
Robert G. Harig, Paragould, Ark., assignor to Darling Store Fixtures, Paragould, Ark.
Filed Mar. 2, 1981, Ser. No. 239,451
Int. Cl.[3] A47F ***5/00***
U.S. Cl. 211—189 8 Claims



1. In a display fixture having a frame and at least one base, said frame including at least one hollow upright having a rectangular cross-section and an open bottom, such upright opening having a predetermined width and a predetermined depth, an improved joint for attaching said base to said frame comprising a rigid elongated flat strap having two sides and two ends, means attaching one of said strap ends to said base with said strap extending longitudinally upwardly from said base, said strap having a width slightly less than said predetermined width for telescoping from the open bottom into the upright opening with one of said strap sides abutting an interior side of said upright, two clips extending from the other of said strap sides with one of said clips located at the end of said strap spaced from said base and the other of said clips located near said base, each of said clips and said strap having a combined maximum depth slightly greater than said predetermined depth for an interference fit within the upright opening, whereby, when said strap is telescoped into the upright opening, said strap and the attached clips frictionally engage said upright.

4,380,299
TAMPER PROOF CLOSURE
Santos A. A. Alejandro Llera, Rio Piedras, P.R., assignor to Precision Plastic Products Corporation, Toa Baja, P.R.
Filed Sep. 10, 1980, Ser. No. 185,889
Int. Cl.[3] B65D ***43/14***
U.S. Cl. 215—252 26 Claims



1. A tamper proof closure for use in combination with a container with a neck finish having a threaded portion and a retaining means therebelow having a bottom surface, said closure comprising:

a body having a substantially straight side wall having an inner surface with an internally threaded portion located on said inner surface and a breakaway portion therebelow;

a frangible portion connecting said breakaway portion to said side wall;

said breakaway portion adapted to slide over said retaining means as the closure is threaded onto the container and having a ring adapted to be disposed below of and adjacent to said retaining means when said closure is fully threaded onto the container;

said ring having located thereon at least one locking means adapted to engage the bottom surface of the retaining means to secure the closure in place when the closure is fully threaded onto the container;

whereby when the closure is unthreaded from the container, the breakaway portion will be severed from the body at the frangible portion by the retaining means acting on the ring leaving said breakaway portion on said container as an indication of tampering.

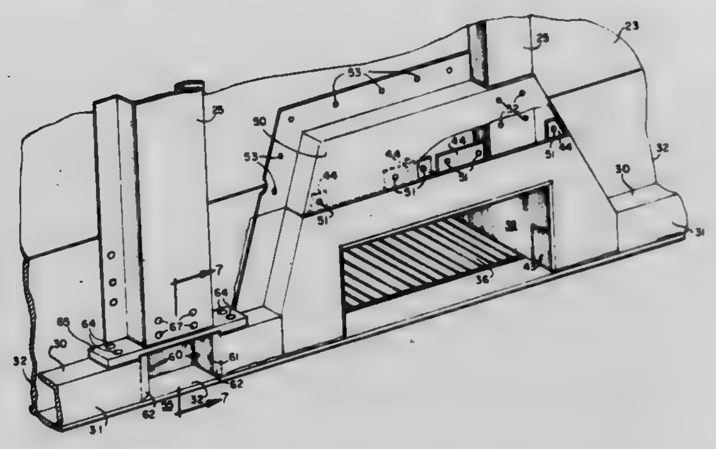
4,380,300
AIR CARGO CONTAINER

Elton E. Mountz, Morgantown, and Paul H. Martin, East Earl, both of Pa., assignors to Morgan Trailer Mfg. Co., Morgantown, Pa.

Continuation of Ser. No. 122,139, Feb. 19, 1980, abandoned. This application Aug. 3, 1981, Ser. No. 289,407

Int. Cl.³ B65D *25/00*

U.S. Cl. 220—1.5 **5 Claims**



1. In an air cargo container having a plurality of enclosing walls including a bottom wall with fork lift receiving openings on at least one side, the improvement which comprises
protective means for said openings having fork lift tongue impact resistant upright outer wall portions extending outwardly from said openings to protect said container,
said protective means comprises a lower casting through which one of said openings extends,
said lower casting is fixedly mounted on said container, and an upper casting is mounted above said lower casting and is detachably secured to a portion of the container.

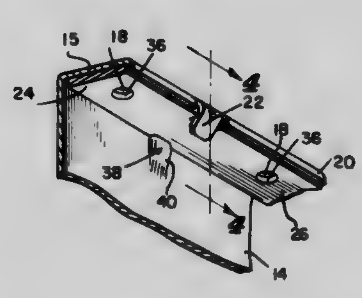
4,380,301
STAKED REINFORCED STRIPS

Norman L. Eisman, Columbus, Ind., assignor to Arvin Industries, Inc., Columbus, Ind.

Filed Dec. 24, 1980, Ser. No. 219,978

Int. Cl.³ B65D *6/36;* **F16N** *31/00*

U.S. Cl. 220—73 **15 Claims**



10. In an oil pan having a side wall, a flange extending outwardly from the side wall for mounting the pan, the flange having a substantially flat, upper planar sealing surface and a substantially flat, lower planar surface opposed to the sealing surface, a reinforcing strip on the surface opposed to the sealing surface, and a mechanical connection for securing the reinforcing strip to the flange, the mechanical connection comprising a tab formed on the outer edge of the flange, and a notch formed in the outer edge of the reinforcing strip and aligned with the tab, the notch defining an opening through the strip, the tab being staked and engaging the notch to secure the strip to the flange.

12. In an oil pan having a side wall, a flange extending outwardly from the side wall for mounting the pan, a reinforcing strip on the flange, and a mechanical connection for securing the reinforcing strip to the flange, the mechanical connection comprising a tab formed on the outer edge of the flange, a notch formed in the outer edge of the reinforcing strip, the tab being staked and engaging the notch in the outer edge of the strip, and a staked segment of the side wall engaging an inner edge of the strip to secure the strip to the flange.

4,380,302
CONTAINER CLOSURE

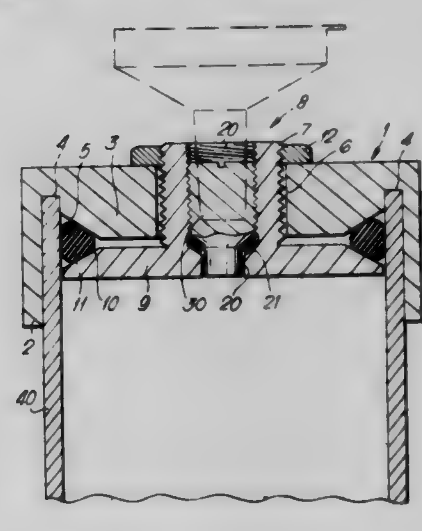
David Broad, Crawley, England, assignor to Fisons Limited, England

Filed Apr. 16, 1981, Ser. No. 254,939

Claims priority, application United Kingdom, Apr. 19, 1980, 8012969

Int. Cl.³ B65D *53/00*

U.S. Cl. 220—235 **5 Claims**



1. A closure cap having an aperture therethrough and adapted to be mounted in sealing engagement upon the open end of a tubular container, said closure cap comprising an outer member having a dependant annular skirt; a dependant central portion which together with the skirt defines an annular recess adapted to receive the open end of the container, the central portion having a substantially central longitudinal bore therethrough; a transverse member mounted substantially co-axially within the outer member and having a longitudinal stem located within the bore in the central portion and axially movable relative to the central portion; the longitudinal stem having a longitudinal bore therethrough which is the aperture of the closure cap, and wherein the aperture has a narrower diameter portion thereof extending for from 5 to 25% of the length of the aperture.

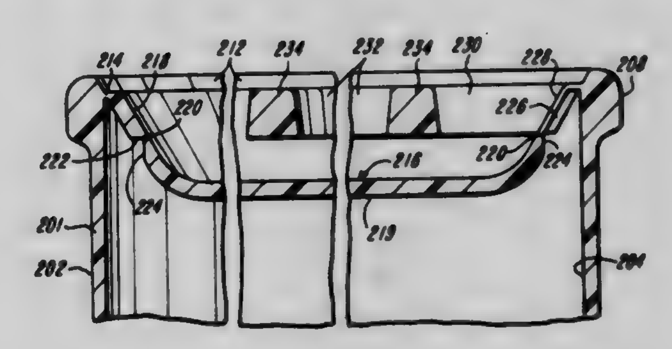
4,380,303
MOLDED CONTAINER AND OPENING MEANS THEREFORE

David O. Allen, Wilmington, and Harry A. E. Wombold, Dayton, both of Ohio, assignors to Buckeye Molding Company, New Vienna, Ohio

Filed Nov. 10, 1980, Ser. No. 205,429

Int. Cl.³ B65D *17/40*

U.S. Cl. 220—276 **21 Claims**



11. A molded one-piece plastic container blank comprising a

tubular body open at one end thereof and having integrally formed closure means closing the opposite end thereof, said body including a chime surrounding said opposite end, said closure means including a closure panel spaced inwardly of said container from said chime and a relatively thin and thereby weakened first web bridging the space between said chime and said closure panel and having uninterruptedly continuous junctures with each of said chime and said closure panel, said closure panel having an integrally formed side wall which is inwardly convergent from said web, said side wall having an outer surface notched to define a second web spaced from and extending parallel to said first web, said side wall having a groove defining a third web therein extending from said first web to said second web, and pull open means one-piece with said side wall disposed adjacent said third web and manually pullable for rupturing said first, second and third webs.

4,380,304

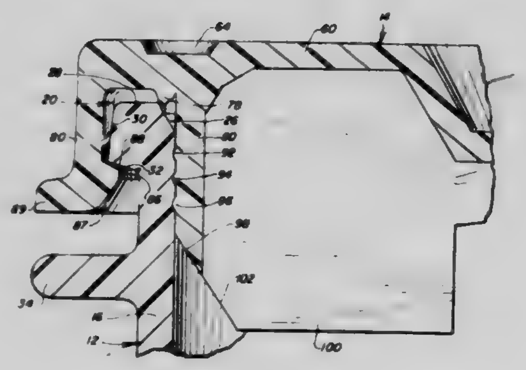
CONTAINER HAVING AN INTEGRAL HANDLE AN A CLOSURE

George C. Anderson, 212 Coventry Pl., Mt. Prospect, Ill. 60056

Filed Aug. 5, 1981, Ser. No. 290,200

Int. Cl.³ B65D *41/16, 41/18*

U.S. Cl. 220—306 **32 Claims**



1. A container including a molded resilient plastic vessel having one end open, and a molded resilient plastic cover for removably and sealingly mounting on the open end of the vessel to close the vessel for retaining within the vessel material including liquids wherein: the molded plastic vessel includes; a circular cylindrical wall; a bottom formed integral with one end of the cylindrical wall and the opposite end of the cylindrical wall being the open end; a handle assembly having a portion formed integral with the outer surface of the cylindrical wall adjacent to the open end, said handle assembly including a handle having its opposite ends formed integral with the cylindrical wall, and a top seal formed integral with the cylindrical wall defining the open end of the cylindrical wall, said top seal including, a bead formed integral with the cylindrical wall, a top surface formed integral with the bead, a side defining the outer periphery of the bead, and a lower locking face formed integral with the bead, and said cover including; a circular top; and a cover seal formed integral with the top; said cover seal including; a ring wall formed integral with the outer periphery of the top, an annular inner seal formed integral with the interior surface of the top and being engageable with the top seal of the vessel to form a seal therebetween, an annular peripheral seal formed integral with the interior surface of the ring wall and being engageable with the side of the top seal of the vessel to form a seal therebetween, and an annular lock formed integral with the ring wall and engageable with the lower locking face of the top seal to hold the cover in engagement with the vessel.

4,380,305

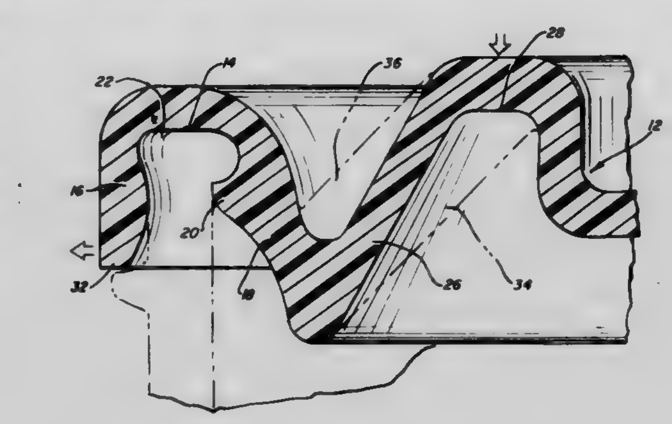
MANUALLY REMOVABLE SEAL FOR BUCKETS AND CANS

John W. Von Holdt, 7430 N. Croname Rd., Niles, Ill. 60648

Filed Dec. 10, 1981, Ser. No. 329,258

Int. Cl.³ B65D *41/16, 41/18*

U.S. Cl. 220—306 **8 Claims**



1. A bucket lid made of flexible plastic, said lid defining an annular, peripheral gripping channel for receiving and holding the lip of a bucket, said gripping channel defining an outer and inner wall, said bucket lid also defining an annular inner channel defined by the wall of the lid and projecting outwardly therefrom relative to an attached bucket, said inner channel being positioned radially inside of and adjacent said gripping channel, whereby manual depression of a point of said inner channel causes a portion of the outer wall of the gripping channel to disengage a bucket lip retained in said gripping channel, permitting the lid to be peeled off of the bucket for opening.

4,380,306

SMALL BEER CONTAINER

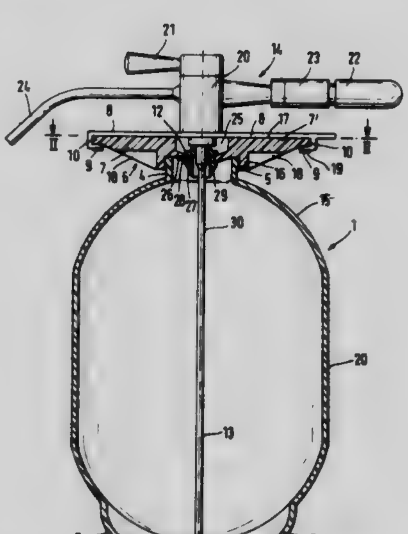
Klara Knopf, Cologne, Fed. Rep. of Germany, assignor to Karl Horst Knopf, Solingen, Fed. Rep. of Germany

Filed Feb. 12, 1981, Ser. No. 234,097

Claims priority, application Fed. Rep. of Germany, Jun. 4, 1980, 3021057

Int. Cl.³ B65D *83/00;* **F37L** *37/18*

U.S. Cl. 222—89 **5 Claims**



1. A beer container device for use with a tap fitting having opposingly projecting fastening stirrups and a descending pipe, said device comprising:

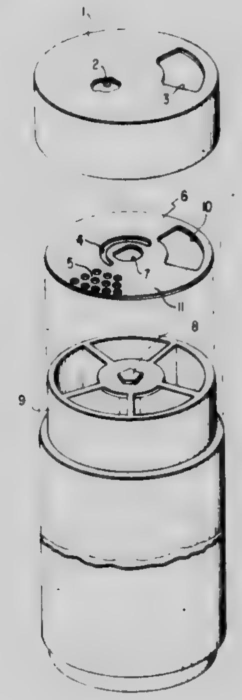
(a) a container of plastic material having a narrow neck at the top thereof,

(b) a cover mounted in gas-tight relationship on said neck,

(c) a rubber stopper being positioned in said cover and extending into said neck, said stopper being adapted to be pierced by said descending pipe,

(d) said cover having a pair of opposingly projecting arms for receiving said opposingly projecting fastening stirrups of said tap fitting.

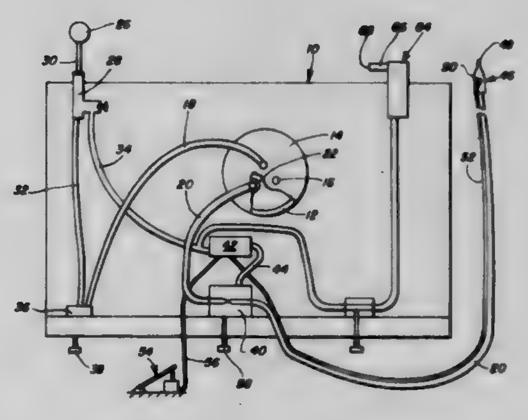
4,380,307
DISPENSING DEVICES
Scott H. Stillinger, Los Gatos, Calif., assignor to Dart Industries Inc., Northbrook, Ill.
Continuation of Ser. No. 964,715, Nov. 29, 1978, abandoned. This application Aug. 4, 1980, Ser. No. 175,216
Int. Cl.[3] B65D 83/06
U.S. Cl. 222—142.9 19 Claims



1. A closure device for a container provided with at least three compartments open at the top of the container and angularly offset from one another around the container axis, said device comprising:
cover means mounted on top of said container, and rotatable about its axis, said cover means overlying all of said compartments and presenting first and second dispensing openings having respectively different configurations and spaced apart from one another about the container axis, said cover means presenting a compartment sealing region between said openings;
cap means covering the top of said container, enclosing said cover means and provided with an outlet opening, said cap means being mounted for rotation about the axis of said container to bring said outlet opening into alignment with any selected one of said compartments; and
linkage means connected between said cover means and said cap means for permitting said cap means to rotate relative to said cover means through an angular path over which said cap means outlet opening moves between said first and second dispensing openings of said cover means and for causing said cap means and cover means to rotate as a unit when said cap means outlet opening is aligned with one of said dispensing openings and said cap means is rotating in the direction away from the other said dispensing opening with respect to the angular path.

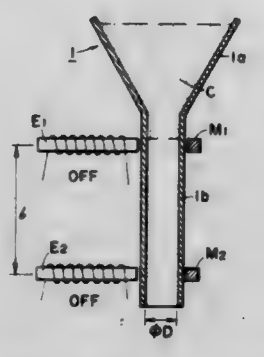
4,380,308
SELF-CLEANING ADHESIVE DISPENSING APPARATUS
David L. Greenwood, 3118 Sandy La., Glenview, Ill. 60025
Filed Dec. 23, 1980, Ser. No. 220,247
Int. Cl.[3] B67D 1/08
U.S. Cl. 222—148 5 Claims

1. A self-cleaning apparatus for dispensing adhesive materials from a sealed container of adhesive through a flexible conduit, and for purging said conduit of adhesive material when said container is replaced or refilled, comprising:
means for providing compressed air under pressure,
first and second air lines each having one end secured to said compressed air means,
pressure regulator means communicating with the opposite end of said first air line,
a normally closed solenoid valve means communicating with the opposite end of said second air line,
said container having a lid defining first and second openings,
dip tube means extending downwardly from said second opening,
a third air line having one end in communication with said pressure regulator means and an opposite end secured to said first opening in said lid for providing pressurized air to said container,
said flexible conduit having one end secured to said second opening for receiving adhesive from said container,
means for dispensing said adhesive, said dispensing means having an open end,
said flexible conduit having an opposite end secured to said adhesive dispensing means,
first valve means for opening and closing said flexible conduit,



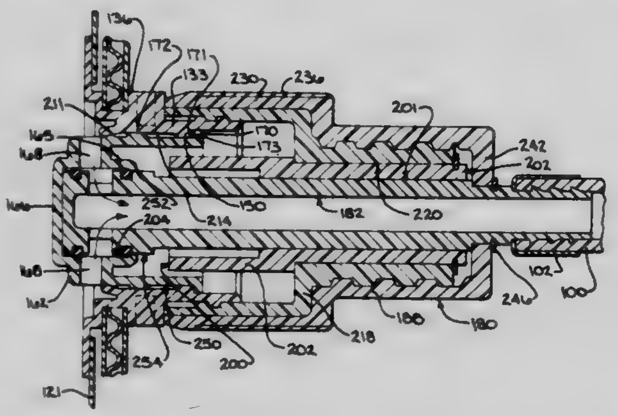
a fourth air line extending between and communicating with said solenoid valve means and said first valve means,
means for actuating said solenoid valve means for providing pressurized air to travel through said solenoid and said fourth air line to said first valve means,
a fifth air line having one end communicating with said second air line between said compressed air means and said solenoid valve means,
nozzle means secured to the opposite end of said fifth air line, said nozzle means being adapted to provide an air tight connection with said open end of said dispensing means,
second valve means for opening and closing said fifth air line,
whereby said dispensing means, said flexible conduit and said dip tube means may be purged of said adhesive when desired by connecting said open end of said dispensing means to said nozzle means, closing said pressure regulator means, and opening said first and second valve means, whereupon said compressed air travels from said means for providing compressed air, through said second air line, said fifth air line, said nozzle means, said dispensing means, said flexible conduit, said dip tube means, and into said container, thereby flushing said adhesive into said container from said dispensing means, said flexible conduit and said dip tube means.

4,380,309
DEVELOPER SUPPLY DEVICE
Yuji Takahashi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 15, 1981, Ser. No. 225,342
Claims priority, application Japan, Jan. 21, 1980, 55-5424
Int. Cl.³ G01F *11/28*
U.S. Cl. 222—450 **15 Claims**



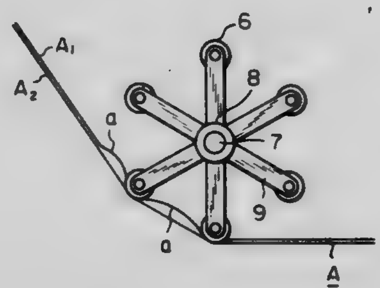
1. A developer supply device for supplying a developing device with developer consisting of a mixture of toner and carrier, said developer supply device having:
toner supply means for supplying toner;
carrier supply means having a supply port for supplying carrier;
magnetic field forming means provided near the carrier supply port of said carrier supply means and including an electromagnet and a permanent magnet disposed in opposed relation therewith; and
means for controlling the intensity of a magnetic field imparted to the supply port of said carrier supply means by said magnetic field forming means, the intensity of the magnetic field being varied by said control means so that the passage of the carrier through said carrier supply port and prevention of said passage are selectively effected.

4,380,310
FLEXIBLE CONTAINER WITH DISPLACEABLE FITTING AND PROBE COUPLER APPARATUS
John W. Schneiter, Arlington Heights; Ronald J. Reiss, Hoffman Estates, and Albert G. Enskat, Barrington, all of Ill., assignors to Container Technologies, Inc., Barrington, Ill.
Continuation-in-part of Ser. No. 285,937, Jul. 23, 1981, which is a continuation of Ser. No. 142,154, Apr. 21, 1980, abandoned.
This application Jan. 6, 1982, Ser. No. 337,392
Int. Cl.³ B65D *25/44*
U.S. Cl. 222—501 **15 Claims**



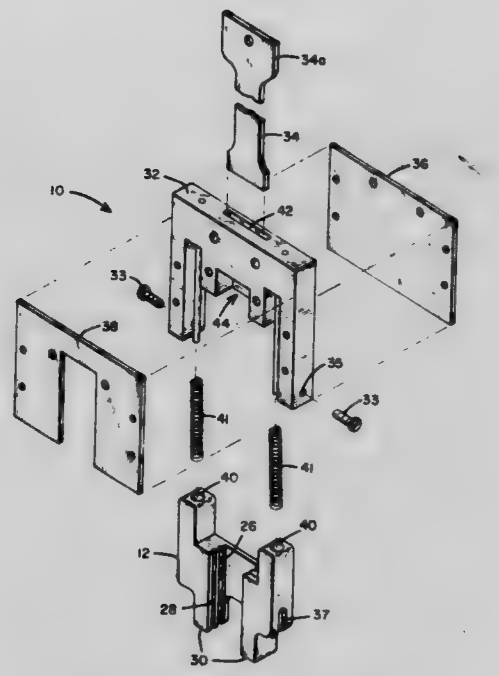
1. The combination of a closure fitment, a seal plug, and a probe connector for use with a disposable container;
said closure fitment comprising a hollow body having a portion attachable to a wall of the container and having a passageway providing communication between the exterior and the interior of the container;
said seal plug preventing external contaminants from entering the container and controlling flow of fluid from the container through a first aperture means, said seal plug comprising a body which is movable within said fitment between positions to open and close said first aperture means;
said probe connector providing means for connecting said closure fitment to a delivery tube for conveying fluid from said container to a point of use; said probe connector comprising probe means, probe adapter means, and a second aperture means; said probe adapter means being detachably connectible to said closure fitment to place said second aperture means in communication with said first aperture means; said probe means having a tubular body slidably journaled in said adapter means for axial movement between positions to open and close said second aperture means;
a manually rotatable probe actuating member connected to said probe means and threadedly engaged with said adapter means to move said probe means in an axial direction in response to rotation of said probe actuating member relative to said adapter means;
whereby forward flow of fluid is enabled from the container to the point of use by opening the first and second aperture means when the probe connector is connected to the closure fitment; and whereby further, back flow of fluid from the delivery tube is prevented by closing the second aperture means when the probe connector is disconnected from the closure fitment.

4,380,311
DEVICE FOR GUIDING A KNITTED OR WOVEN FABRIC
Soichi Torii, Kyoto, Japan, assignor to Torri Winding Machine Co., Ltd., Kyoto, Japan
PCT No. PCT/JP79/00190, § 371 Date Jul. 29, 1980, § 102(e) Date Jul. 23, 1980, PCT Pub. No. WO80/01158, PCT Pub. Date Jun. 12, 1980
PCT Filed Jul. 19, 1979, Ser. No. 204,375
Claims priority, application Japan, Nov. 29, 1978, 53-165440
Int. Cl.³ B65H *17/20*
U.S. Cl. 226—190 **9 Claims**



1. A device for guiding a knitted or woven fabric flattened or folded into a half width, to form a fabric having an inside half and an outside half, conveyed by means of a taking-up mechanism which comprises: a plurality of fabric guiding surfaces extending parallel to and arranged equidistant radially around an axis, said axis being perpendicular to the conveying direction of the fabric and parallel to the surface of the flattened or folded fabric, said fabric guiding surfaces being rotatable about said axis, for transverse contact with the inside half of the guided fabric on which inside half is superposed the outside half, and a plurality of spaces for receiving a longitudinal part of the inside half of the fabric, said spaces being formed between adjacent fabric guiding surfaces.

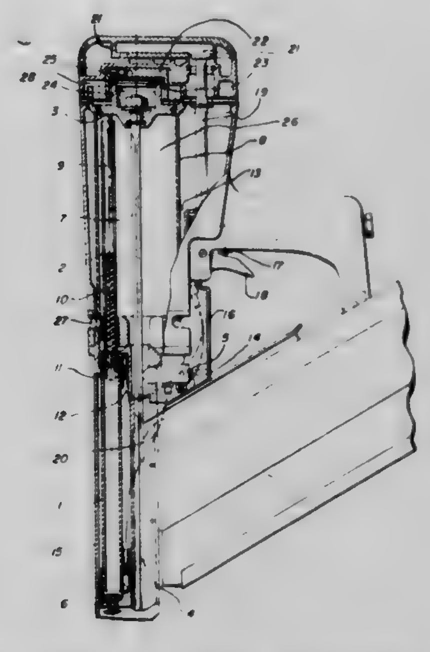
4,380,312
STAPLING TOOL
Edward L. Landrus, Coon Rapids, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Jul. 17, 1980, Ser. No. 169,796
Int. Cl.³ B25C *1/04, 1/06, 3/00*
U.S. Cl. 227—116 **19 Claims**



1. A tool for applying fasteners to fasten an article to a workpiece, comprising:
a fixed guide for holding a plurality of said fasteners therein, one of said plurality of fasteners being held in a drive position;
a compressible foot operatively coupled to said fixed guide defining a drive groove, said compressible foot adapted to contact said workpiece and be compressed into said fixed guide, said drive groove engaging the fastener located in said drive position and providing support for said fastener during a driving operation;
said compressible foot and said fixed guide cooperating with each other and with said article and said workpiece to allow said compressible foot to be compressed into said fixed guide a distance dependent upon the thickness of said article;
a plunger operatively coupled to said fixed guide for driving the fastener located in said driving position from said fixed guide through said drive groove of said compressible foot and into said workpiece; and
a drive limiting means coupled to said plunger for preventing said plunger from driving beyond a fixed predetermined position relative to said fixed guide;
whereby said fastener located in said drive position may be driven into said workpiece a distance relative to said fixed guide and into said workpiece a distance dependent upon said thickness of said article.

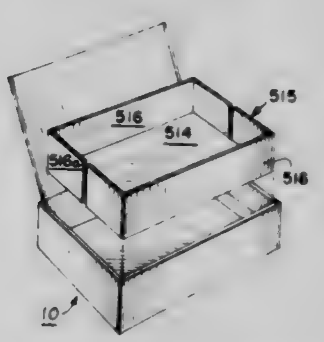
4,380,313
AIR-POWERED DRIVING TOOL, HAVING A PILOT PISTON AND CYLINDER
Arthur Klaus, Frankfurt am Main, and Horst Tacke, Bad Vilbel, both of Fed. Rep. of Germany, assignors to Signode Corporation, Glenview, Ill.
Filed Nov. 13, 1980, Ser. No. 206,388
Claims priority, application Fed. Rep. of Germany, Nov. 16, 1979, 2946387
Int. Cl.³ B25C *1/04*
U.S. Cl. 227—130 **7 Claims**

1. An air-powered driving tool, specially for long fixing parts, such as fasteners, comprising a housing including a driving barrel and defining a chamber containing air under pressure, a first cylinder in said housing, a working piston disposed within said first cylinder, a driver blade joined to said working piston and guided in said driving barrel, first valve means for controlling the flow of air under pressure to said cylinder to move said working piston from a driving to a driven position, valve regulated means for returning the working piston from the driven position to the driving position, said valve regulated means comprising a pilot cylinder, a piston operated assembly including a pilot piston disposed in said pilot cylinder and



constructed and arranged to control movement of movable means to contact said working piston to return it to the driving position and second valve means for regulating the flow of high pressure air to and from said pilot cylinder, whereby the movable means will be out of contact with said driving piston during its driving action and will be moved into contact with the driving piston after it has been driven to return it to the driving position.

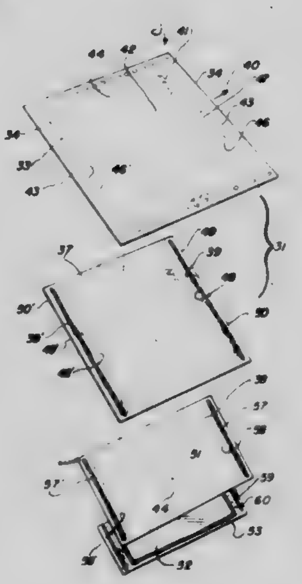
4,380,314
BOX TYPE CARTON WITH HINGED LID AND ONE PIECE REINFORCED INSERT
Joseph Langston, Jr., Jacksonville, Fla., and Robert J. Murray, Norcross, Ga., assignors to Federal Paper Board Co., Inc., Montvale, N.J.
Continuation-in-part of Ser. No. 270,594, Jun. 4, 1981. This application Jul. 23, 1982, Ser. No. 401,242
Int. Cl.³ B65D *5/64, 5/56*
U.S. Cl. 229—33 **5 Claims**



1. A box in the form of a tray with a hinged lid which is adapted for the packaging of cigars or similar articles, said box being formed from a single cut and scored blank of relatively lightweight paperboard, said box having a body portion comprising a rectangular bottom wall, front and back sidewalls and end walls which are upstanding from the peripheral edges of the bottom wall, and a planar lid hinged along one edge thereof to the top edge of the back wall, the front, back and end walls having outer and inner panels, the inner panels on the front and end walls each being folded downwardly from a top edge of the wall which top edge has substantial width and said inner panels being secured on the inside of said upstanding walls, the

front and back wall forming outer panels having hinged corner connecting panels secured between the inner and outer panels of the end walls, and a reinforcing panel insert formed from a single cut and scored paperboard blank of substantial thickness secured between the inner and outer panels of said front and end walls, said reinforcing panel comprising a rectangular bottom reinforcing wall, front and back reinforcing sidewalls and reinforcing end walls which are supported from said rectangular bottom reinforcing wall, said hinged lid comprises an outer and inner panel of substantially the same size, and reinforcing panels hinged to the opposite end edges of one of said outer and inner panels and adhesively secured between said outer and inner panels so as to form a substantially rigid reinforced, planar lid structure.

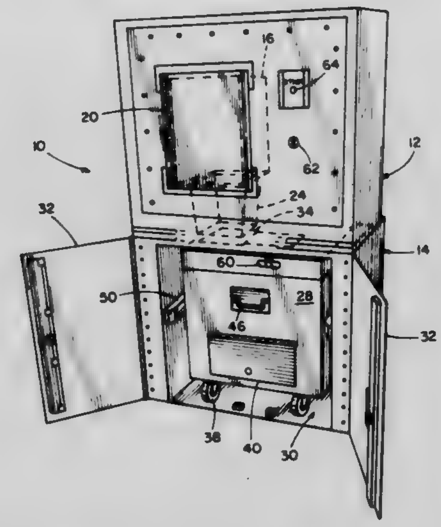
4,380,315
MAILER
Donald J. Steidinger, Barrington, Ill., assignor to Wallace Computer Services, Inc., Hillside, Ill.
Filed Jan. 14, 1981, Ser. No. 224,926
Int. Cl.³ B65D *27/10*
U.S. Cl. 229—69 22 Claims



10. A connected series of multi-ply mailer units separable into individual units each capable of being transversely folded into a size approximating a No. 10 envelope so as to avoid postal damage, each unit including an envelope-forming ply having a control margin along at least one longitudinal side edge and an information ply approximately as long as said envelope-forming ply and connected thereto along the top edge to prevent interference during computer printout, and tear-off means along one edge for removal of the folded information ply from the folded, sealed envelope forming ply, each unit being equipped with at least one line of potential folding extending transversely of said control margin to permit said unit to be folded into at least two parts with said information ply being present in both of said two parts whereby a large message-bearing ply is provided in an envelope which is approximately one-half the size of said message-bearing ply when said unit is folded into two parts.

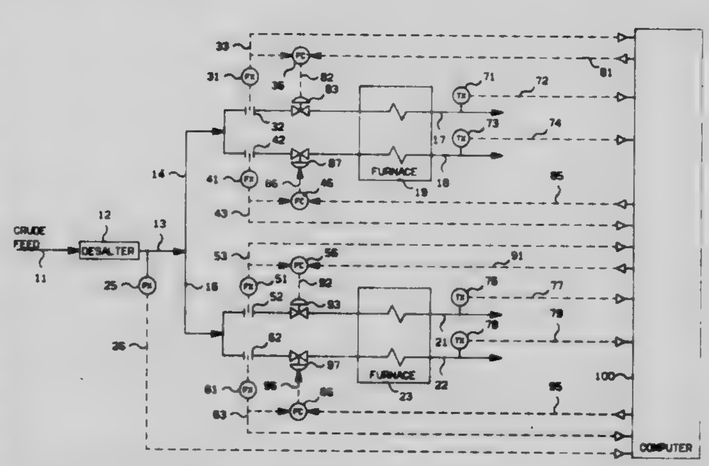
4,380,316
ELECTRONIC INTERLOCK FOR A CASH COLLECTION RECEPTACLE
John S. Glinka, Elk Grove Village, and Larry E. Zack, Cary, both of Ill., assignors to Qonaar Corporation, Elk Grove Village, Ill.
Filed Jul. 14, 1981, Ser. No. 283,228
Int. Cl.³ G05F *9/06*
U.S. Cl. 232—16 17 Claims

15. In a collection receptacle for receiving cash, said receptacle of the type including a compartment for receiving a removable cash box having a door for restricting access to cash contained therein, the improvement in an electronic interlock comprising:
(a) means for generating a coded electronic signal having a predetermined code;
(b) means physically separate from said generating means for decodng said coded electronic signal, said decoding



means responsive only to said coded electronic signal having said predetermined code;
(c) separable means for coupling said signal from the generating means to the decoding means; and
(d) means, responsive to said decoding means detecting said coded electronic signal having said predetermined code, for opening said door.

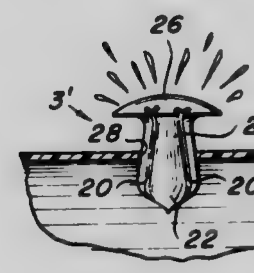
4,380,317
FURNACE CONTROL
Lawrence A. Ryan, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed Jan. 29, 1982, Ser. No. 344,145
Int. Cl.³ F23N *1/00*; G06F *15/46*
U.S. Cl. 236—15 BF 40 Claims



1. Apparatus comprising:
a furnace having at least first and second coils;
means for spliting a first fluid stream into at least second and third fluid streams, for passing said second fluid stream through said first coil of said furnace and for passing said third fluid stream through said second coil of said furnace;
means for establishing a first signal representative of the actual pressure of said first fluid stream;
means for establishing a second signal representative of the desired pressure of said first fluid stream;
means for comparing said first signal and said second signal and for establishing a third signal which is responsive to the difference between said first signal and said second signal, wherein said third signal is scaled so as to be representative of any change in the flow rate of said second and third fluid streams required to maintain said first signal substantially equal to said second signal;

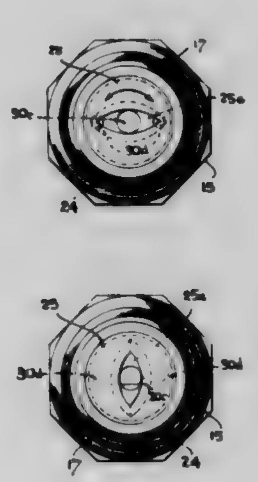
means for establishing a fourth signal representative of the actual temperature of said second fluid stream after said second fluid stream has passed through said furnace;
means for establishing a fifth signal representative of the desired temperature of both said second fluid stream after said second fluid stream has passed through said furnace and said third fluid stream after said third fluid stream has passed through said furnace;
means for comparing said fourth signal and said fifth signal and for establishing a sixth signal which is responsive to the difference between said fourth signal and said fifth signal, wherein said sixth signal is scaled so as to be representative of the flow rate of said second fluid stream required to maintain said fourth signal substantially equal to said fifth signal;
means for combining said third signal and said sixth signal to establish a seventh signal;
means for manipulating the flow rate of said second fluid stream in response to said seventh signal;
means for establishing an eighth signal representative of the actual temperature of said third fluid stream after said third fluid stream has passed through said furnace;
means for comparing said eighth signal and said fifth signal and for establishing a ninth signal which is responsive to the difference between said eighth signal and said fifth signal, wherein said ninth signal is scaled so as to be representative of the flow rate of said third fluid stream required to maintain said eighth signal substantially equal to said fifth signal;
means for combining said third signal and said ninth signal to establish a tenth signal; and
means for manipulating the flow rate of said third fluid stream in response to said tenth signal.

4,380,318
VARIABLE PRESSURE, CONSTANT FLOW DRIP EMITTER SYSTEM AND HEAD
Byron V. Curry, 1150 Oriole Rd., Santa Barbara, Calif. 93108
Filed Jul. 9, 1980, Ser. No. 167,035
Int. Cl.³ B05B *1/30*
U.S. Cl. 239—533.13 **11 Claims**



1. A drip emitter system including a line through which water may pass, the line having at least one opening, and; a drip emitter head received in the opening in the line, the head including a bulbous end received within, and larger than, the opening in the line, a flared top external of the line, and a shank portion connecting the end and the top, at least a portion of the shank tapering inwardly from the bulbous end gradually towards the top, whereby an increase in water pressure within the line forces the head more firmly into the opening, and the tapering shank gradually moves upwardly in the line to effect a throttling action to constrict the water flow past the bulbous head in proportion to the increase in water pressure to proportionally offset any increase in water flow that would be caused by such pressure increase.

4,380,319
LIQUID SPRAY NOZZLE
Leo J. Shigut, Torrance, Calif., assignor to Edward A. Sokolski, Torrance, Calif., a part interest
Continuation-in-part of Ser. No. 801,390, Jan. 16, 1978, abandoned, and Ser. No. 172,288, Jul. 25, 1980, abandoned, which is a continuation-in-part of Ser. No. 801,390,. This application Mar. 12, 1982, Ser. No. 357,786
Int. Cl.³ B05B *1/32*
U.S. Cl. 239—540 **8 Claims**



1. A nozzle for dispensing liquid comprising
tubular channel means for receiving a liquid stream at one end thereof and outletting said liquid stream at the other end thereof,
a first inner orificed member having a wall portion which forms a wall for said other end of the tubular channel means, said wall portion having a larger centrally located circular orifice and a pair of smaller circular orifices formed therein, said smaller orifices being symmetrically arranged on opposite sides of the larger orifice, the center of all of said orifices being along a common transverse axis,
a second outer orificed plate member having a generally biconvex shaped orifice formed substantially in the center thereof, said biconvex shaped orifice having major and minor axes, the minor axis of said biconvex shaped orifice being equal in length to the diameter of said centrally located circular orifice, the major axis of said biconvex shaped orifice being equal in length to the distance between the centers of said smaller orifices, and
means for supporting said second outer orificed member with the biconvex shaped orifice thereof axially aligned with the centrally located orifice of said first inner orificed member,
said supporting means for said second outer orifice member being attached to said tubular channel means for rotatable movement between the supporting and tubular channel means,
a flat fan-shaped liquid spray being produced when said inner and outer orificed members are relatively positioned in a first position whereat the corners of the elliptically shaped orifice are opposite the smaller orifices, and a narrow cylindrical liquid stream being produced when the inner and outer orificed members are relatively positioned in a second position whereat a non-orificed portion of said outer orificed member is positioned opposite the smaller orifices of the inner orificed member.

4,380,320

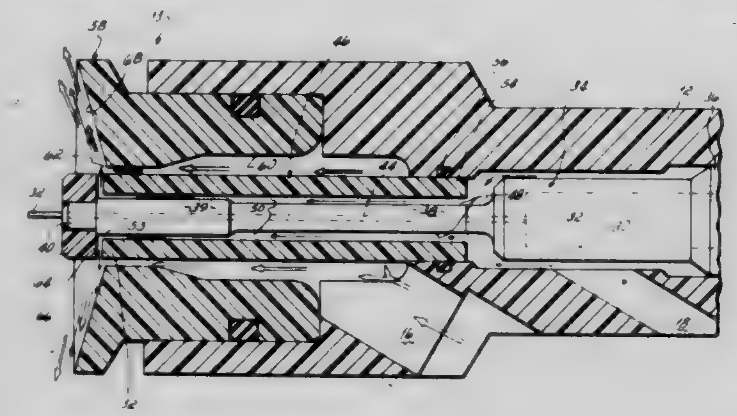
ELECTROSTATIC POWDER SPRAY GUN NOZZLE

Thomas E. Hollstein, Amherst, and Ronald J. Hartle, Lorain, both of Ohio, assignors to Nordson Corporation, Amherst, Ohio

Filed Feb. 25, 1981, Ser. No. 238,115

Int. Cl.³ B05B *5/04*

U.S. Cl. 239—697 **6 Claims**



1. Apparatus for the coating of an object with a powder spray comprising:

a gas conduit adapted to be connected to a source of pressurized gas to provide a central stream of pressurized gas emitted from said gas conduit,

a nozzle surrounding said gas conduit and defining therewith a powder coating material passageway encircling said central stream of pressurized gas, said nozzle being adapted to communicate with a source of fluidized powder coating material under pressure for emitting powder coating material therefrom through said passageway, and

deflecting means mounted centrally of said nozzle for deflecting said central stream of pressurized gas to form an outwardly moving stream of pressurized gas, the outer dimension of said deflecting means being no greater than the inner dimension of said coating material passageway where said powder coating material is emitted from said nozzle and said deflecting means being so located with respect to said nozzle that said outwardly moving stream of pressurized gas impacts said powder coating material within the confines of said nozzle to produce a conical spray pattern of said powder coating material issuing from said nozzle.

4,380,321

COLOR CHANGE VALVE STRUCTURE FOR ROTARY HEAD ELECTROSTATIC SPRAY COATING SYSTEMS

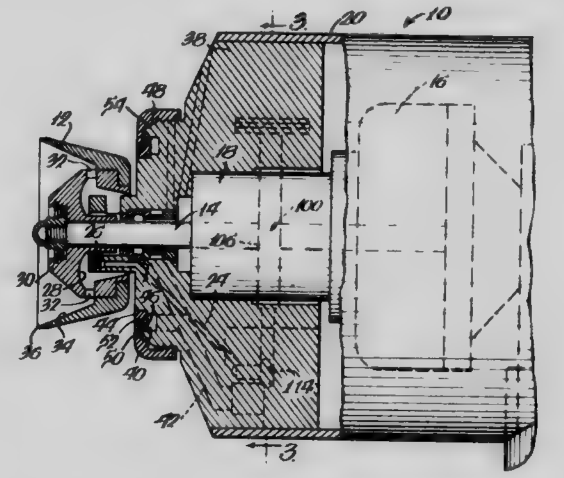
Samuel W. Culbertson, Arvada; Charles W. McCulloch, Westminster, and Keith G. Williams, Boulder, all of Colo., assignors to Binks Manufacturing Company, Franklin Park, Ill.

Filed Jan. 26, 1981, Ser. No. 228,365

Int. Cl.³ B05B *5/00*

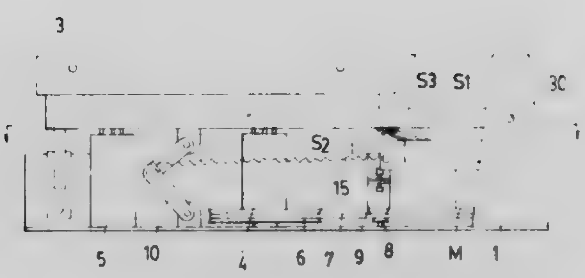
U.S. Cl. 239—700 **3 Claims**

1. In combination, rotary head electrostatic spray coating apparatus comprising a generally cylindrical body, a rotary spray head at a forward end of said body, means for imparting a rapid rotation to said spray head, nozzle means for directing a jet of coating material against said head for discharge from a peripheral edge thereof in a spray, an inlet to said body for connection through a line with either a supply of coating material of a selected color or a supply of flush for the coating material, an outlet from said body, a passage in said body between said inlet, said outlet and said nozzle means, and a color change valve structure comprising valve means contained entirely in said body and in said passage substantially immediately behind said spray head for controlling paths through said passage and for connecting and disconnecting said inlet with and from said outlet and said nozzle means, and means for operating said valve means to establish a path through said passage between said inlet and said nozzle means and to interrupt a path through said passage between said inlet and said outlet when said inlet is connected through the line with a supply of coating material of one color, so that coating material of the one color flows through the line and said passage to said nozzle means for being directed against said spray head, and to interrupt the path through said passage between said inlet and said nozzle means and to establish a path through said passage between said inlet with said outlet when said inlet is connected through the line with the supply of flush, so that flush flows through the line and from said inlet to said outlet through said passage to cleanse the same in preparation for connecting said inlet with a supply of coating material of another color, wherein said passage has a first enlarged chamber separating said passage into a first passage section between said inlet and said first chamber and a second passage section between said first chamber and said nozzle means, said second passage section forming a first valve seat whereat it communicates with said nozzle means, and a second enlarged chamber separating said passage into a third passage section between said first and second chambers and a fourth passage section between said second chamber and said outlet, said fourth passage section forming a second valve seat whereat it communicates with said outlet, said valve means comprising a material valve for controlling a path through said passage between said inlet and said nozzle means and a dump valve for controlling a path through said passage between said inlet and said outlet, said material valve including an elongate rod extending



through said first chamber and reciprocable therein, one end of said rod forming a valve for movement against and away from said first valve seat upon reciprocation of said rod, said dump valve including an elongate rod extending through said second chamber and reciprocable therein, one end of said rod forming a valve for movement against and away from said second valve seat upon reciprocation of said rod, said valve operating means, when said inlet is connected with a supply of coating material through the line, operating said material and dump valves to move said material valve rod away from said first valve seat and to move said dump valve rod against said second valve seat, whereby coating material flows through the line to said inlet and from said inlet through said first passage section, said first chamber and said second passage section to said nozzle means for being directed against said spray head, but does not flow through said third passage section, said second chamber and said fourth passage section to said outlet, and so that when said inlet is connected through the line with the supply of flush said valve operating means operates said material and dump valves to move said material valve rod against said first valve seat and said dump valve rod away from said second valve seat, whereby flush flows through the line to said inlet and from said inlet through said first passage section, said first chamber, said third passage section, said second chamber and said fourth passage section to said outlet to cleanse the same of coating material, but does not flow through said second passage section to said nozzle means.

4,380,322
TAPE REWINDING APPARATUS FOR VIDEO CASSETTE
Chun T. Yeh, No. 6, Lane 308, Bao San Rd., Hsin Chu, Taiwan
Filed Nov. 19, 1980, Ser. No. 208,190
Int. Cl.³ G03B *1/04;* G11B *15/32*
U.S. Cl. 242—198 **2 Claims**

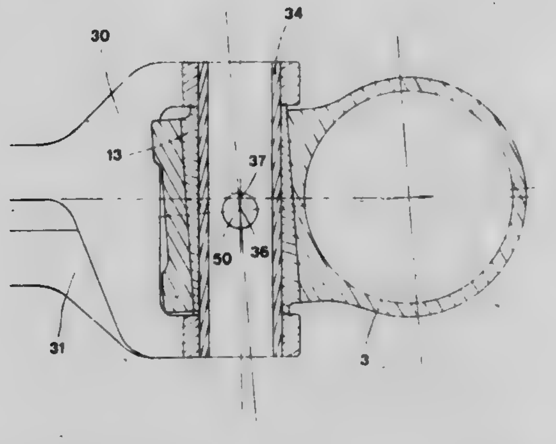


2. A tape rewinding apparatus for a video cassette having a cassette compartment lid, the apparatus comprising a tape-end detecting member which sends an electric signal as the end of a tape appears, and means for ejecting the cassette on receipt of the electric signal; characterized in that

said ejecting means comprises a catch for locking the cassette compartment lid at closed position, and a solenoid for releasing said catch to open the lid upon receipt of said electric signal; and wherein

said tape end detecting member is a centrifuge-type actuator, said apparatus further comprising a motor driving a winding spindle by means of a transmission belt, said actuator being rotatably driven, and, said apparatus further comprising a switch in circuit with said solenoid; and said centrifuge-type actuator is driven to rotate by the transmission belt, whereby the centrifuge-type actuator can activate or inactivate said switch through the the centrifugal force acting on said actuator.

4,380,323
MAIN UNDERCARRIAGE TRAIN FOR AN AIRCRAFT
Jean Masclet, Paris, and Andre Turiot, Morsang sur Orge, both of France, assignors to Messier-Hispano-Bugatti, Montrouge, France
Continuation of Ser. No. 969,173, Dec. 13, 1978, abandoned. This application Nov. 10, 1980, Ser. No. 205,174
Claims priority, application France, Feb. 2, 1978, 78 00016
Int. Cl.³ B64C *25/00, 25/10*
U.S. Cl. 244—102 R **15 Claims**



1. A main undercarriage train for an aircraft, comprising two undercarriages composed of a left-hand and a right-hand undercarriage each of which are retractable substantially from an "undercarriage down" to an "undercarriage up" position laterally and which are disposed symmetrically on respective sides of said aircraft, said left-hand and said right-hand undercarriages being interchangeable and designated in accordance with its position relative to a longitudinal plane of symmetry of the aircraft, each said undercarriage comprising:

a leg which supports a wheel carrying member carrying at least one wheel, a pivot mounting each of said undercarriage legs on the aircraft, each of said legs being symmetrically inclined along a pivot axis passing through said pivot mounting with respect to said longitudinal plane, and each said wheel carrying member having a wheel support internal bore;

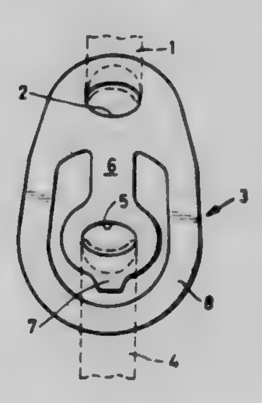
damping means and alignment means associated with each said wheel carrying member for keeping the plane of said at least one wheel parallel to the longitudinal plane of symmetry of the aircraft in the "undercarriage down" position with said leg, said damping means and said wheel-carrying member on each of said undercarriages being identical with each other;

each said undercarriage leg having a plane of symmetry which passes through the pivot axis of said pivot mounting on the aircraft;

each said undercarriage including a bush having an external cylindrical surface portion for retaining said bush in either of two determined positions in said wheel support bore in said wheel-carrying member, said bush having an internal bush bore with the axis of said internal bush bore being perpendicular to said plane of symmetry of said undercarriage leg; and,

a shaft passing through said internal bush bore, said alignment means being pivoted on said shaft, the axis of said internal bush bore being off-set with respect to the axis of said wheel support bore in which said bush is retained, thereby to compensate from the angular displacement between the longitudinal plane of symmetry of the aircraft and the inclined pivot mounting axis of said undercarriage leg, one of said two determined positions in which said bush is retained in said wheel support bore being displaced through a certain angle from the other of said two determined positions and the other of said two determined positions being obtained from the one of the positions by rotating said bush through said certain angle about the axis of said internal bush bore, whereby to provide for the interchangeability of said left-hand and right-hand undercarriages.

4,380,324
SUPPORT MEMBER FOR AN EXHAUST PIPE OF A MOTOR VEHICLE
Ehrenfried Woesler, Roerath, Fed. Rep. of Germany, assignor to Ford Motor Company, Dearborn, Mich.
Filed Sep. 22, 1981, Ser. No. 304,472
Claims priority, application Fed. Rep. of Germany, Dec. 9, 1980, 3034370
Int. Cl.³ F16M *13/00*
U.S. Cl. 248—610 **5 Claims**

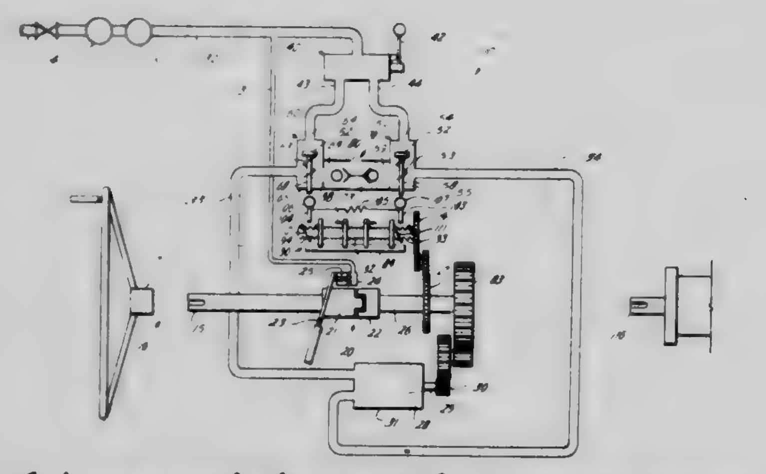


1. A suspension device for an exhaust pipe of a motor vehicle comprising a one-piece flexible mounting support member having a loop type body portion with a central opening,

an elastic tether portion depending in a cantilever manner from the body portion into the central opening for a swinging movement with respect to the body portion,

the body portion having a hole therein at one end adapted to receive a vehicle support member therethrough, and
the tether portion having a hole therein adapted to receive therethrough a portion of the exhaust pipe to provide an elastically soft suspension of the exhaust pipe from the vehicle, the tether portion being freely swingible through the central opening in either direction, and including a protuberance extending from one end a distance sufficient to overlap the body portion during swinging movement of the tether portion in one direction to thereby engage the tether portion against the body portion to resist further swinging movement of the tether portion in the one direction.

4,380,325
GAS OPERATED VALVE ACTUATOR
Thomas W. Palmer, 2907 Del Monte Crt., Missouri City, Fort Bend County, Tex. 77459
Filed Dec. 30, 1980, Ser. No. 221,461
Int. Cl.[3] F16K *31/14, 31/50, 31/52*
U.S. Cl. 251—14 **5 Claims**

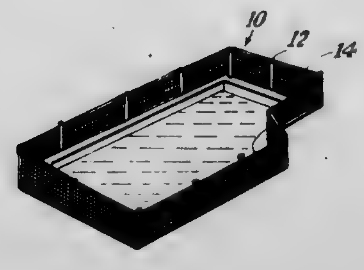


1. A gas-operated valve actuator for rotating the input shaft of a valve, the actuator comprising:
a body,
selector valve means mounted to the body for selecting and permitting gas flow through either a forward motor line connected between a gas source and a motor means or a reverse motor line connected between the gas source and the motor means,
limit valve means mounted to the body in communication with each motor line for controlling the flow of gas in the respective line,
motor means mounted to the body and operable by the gas from the gas source flowing through the selected motor-line, the motor means connected to the input shaft for rotating it, and
quick shutoff means for the limit valve means, the quick shutoff means mounted to the body and comprising:
cam screw means mounted to the body in movable coaction with the input shaft via intermediate gears there between, said cam screw means having a fine pitched threaded portion and a course pitched threaded portion and a neutral area disposed between the threaded portions,
major cam means movably mounted on the cam screw means, the major cam means provided with threads for coacting with the threaded portions of the cam screw means,
tripping cam means movably mounted on the cam screw means, the tripping cam means provided with threads for coacting with the threaded portions of the cam screw means and disposed so that the major cam means moving on the fine pitched threaded portion moves to contact and urge the tripping cam means onto the course pitched threaded portion toward limit valve support means,
limit valve support means pivotally connected to the body and supporting the limit valve means in open position, said limit valve support means disposed so that upon contact by the tripping cam means, the limit valve support means pivots thereby shutting off the limit valve means,
control means for alternately shutting off the flow in the selected motor line when the input shaft reaches its travel limit.

4,380,326
BELT TIGHTENING TOOL
Ermanno A. Marzorati, 845 Rim Crest Cir., and Murrel A. Mathis, 849 Rim Crest Cir., both of Westlake Village, Calif. 91361
Continuation-in-part of Ser. No. 161,749, Jun. 23, 1980, abandoned. This application Sep. 14, 1981, Ser. No. 301,937
Int. Cl.[3] B66F *3/00*
U.S. Cl. 254—131 **4 Claims**

1. In combination with an engine, a power generating apparatus mounted on said engine by a pivot bracket assembly, said power generating apparatus being spaced from said engine and being pivotable in respect thereto, a belt connecting said engine and said power generating apparatus, a tool to facilitate tightening of said belt, said tool comprising:
an elongated member terminating in a fore end and an aft end, said elongated member having a main body section located substantially in a first plane, a cross plate forming a second plane, said cross plate being secured to said elongated member, said fore end terminating in a hook, said hook being located within said first plane, a cut-out section formed within said said fore end adjacent said hook, said cut-out section terminating in an inner edge and an outer edge, said cross plate forming said inner edge of said cut-out section with said hook forming said outer edge, the ends of said cross plate forming first and second fulcrum points, whereby said hook is to engage with said power generating apparatus and one of said fulcrum points is to be placed against the exterior of said power generating apparatus and by exerting force against said main body section the said power generating apparatus is caused to pivot about said pivot bracket assembly thereby tightening said belt; and
said second plane being inclined in respect to said first plane so that the spacing between said first fulcrum point and said hook being less than the spacing between said second fulcrum point and said hook.

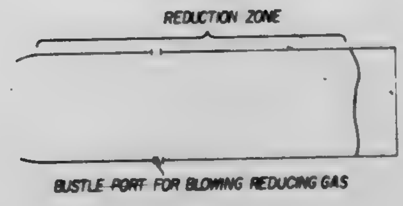
4,380,327
SAFETY BARRIER
Robert E. Fish, 454 S. Dixie Hwy., Pompano Beach, Fla. 33060
Filed May 11, 1981, Ser. No. 262,777
Int. Cl.³ E04N *17/16*
U.S. Cl. 256—24 **4 Claims**

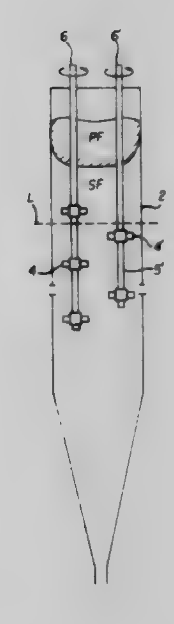


1. A lightweight, waterproof safety barrier comprising:
a plurality of spaced apart, rigid vertical support members;
at least one mesh, flexible, waterproof restraining panel;
means for connecting said panel to each of said vertical support members; and
a flexible line connected to the top of said panel;
each said vertical support means includes an aluminum mounting bracket and at least one stainless steel screw mounted to a respective said vertical support member, holding said restraining panel therebetween;
each said vertical support member being constructed of aluminum.

4,380,328
SHAFT FURNACE FOR REDUCING ORES
Hiroyuki Kohama, Daito; Masaru Tamiya, Kobe; Sunichi Mizukami, Kobe; Dentaro Kaneko, Kobe, and Yoshio Kimura, Akashi, all of Japan, assignors to Kobe Steel, Ltd., Kobe, Japan
Filed Jan. 29, 1980, Ser. No. 116,458
Claims priority, application Japan, Jan. 29, 1979, 54-9596; Feb. 23, 1979, 54-21712
Int. Cl.³ F27B *9/20*
U.S. Cl. 266—177 **1 Claim**

1. A shaft furnace for reducing ores with a gas comprising:
a reduction zone formed along a predetermined height of said furnace;
a plug flow zone formed in an upper portion of said reduction zone of said furnace during reduction operation;
a shear flow zone formed in a portion of said reduction zone of said furnace downstream of said plug flow zone; and
means operatively connected to said furnace in said reduction zone for shifting said shear flow zone to a position upstream of a portion of said reduction zone where a reduction ratio of 50 to 70% occurs, wherein said means for shifting comprises a hydraulic radius in the reduction zone where a reduction ratio greater than 50% occurs, defined by the formula:

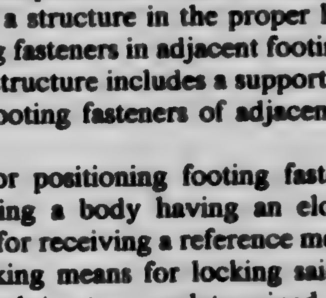




$$R \leqq 120 \exp.(8.6-0.009T),$$

wherein R is the hydraulic radius and T is the temperature (°C.) of the reducing gas.

4,380,329
FOOTING JIG FOR POSITIONING FASTENERS
Louis E. M. Nunno, P.O. Box 1785, Paso Robles, Calif. 93446
Filed Aug. 25, 1980, Ser. No. 180,628
Int. Cl.³ B25B *1/20*
U.S. Cl. 269—41 **6 Claims**



1. A system for the placement of the footing fasteners within a given footing of a structure in the proper location with respect ot the footing fasteners in adjacent footings of said structure wherein said structure includes a support element extending between the footing fasteners of adjacent footings, comprising:
a first device for positioning footing fasteners, with said device including a body having an elongated opening therethrough for receiving a reference member, said body including locking means for locking said device to said reference member at a predetermined position, and a plurality of support members fixed to said body, each said support member having an opening for receiving and

thereby positioning a respective fastener, wherein the support members are designed to receive a first end of a support element of the structure, and

a second device for positioning footing fasteners, with said device including a body having an elongated opening therethrough for receiving a reference member, said body including locking means for locking said device to said reference member at a predetermind position, and a plurality of support members fixed to said central member, each said support member having an opening for receiving and thereby positioning a respective fastener, wherein the support members are designed to receive the second end of a support element of the structure, thereby aligning said footing fasteners with respect to the support element and the adjacent footing.

4,380,330

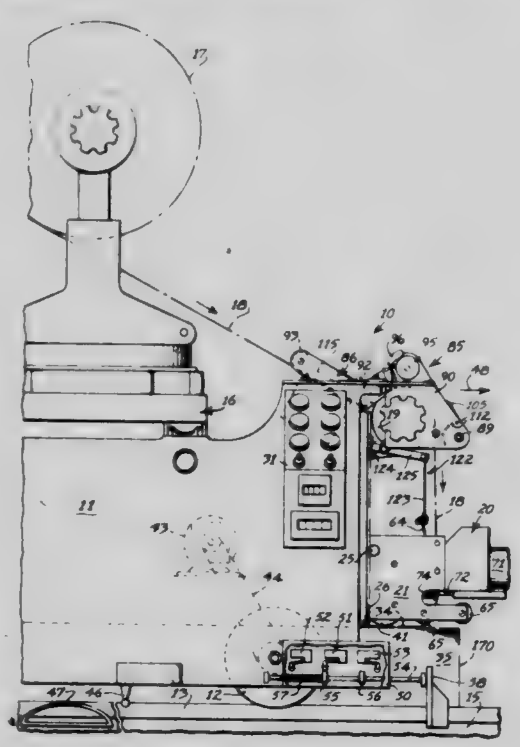
CATCHERLESS CLOTH SPREADING MACHINE

Hoyt L. Smith, Nashville, Tenn.; Cecil S. Frederick, deceased, late of Murfreesboro, Tenn., by Wallace Frederick, administrator, Readyville, Tenn., assignors to Cutters Exchange, Inc., Nashville, Tenn.

Continuation-in-part of Ser. No. 45,181, Jun. 4, 1979, abandoned. This application Sep. 22, 1980, Ser. No. 189,594

Int. Cl.³ B65H *29/46*

U.S. Cl. 270—31 **5 Claims**



4. In a cloth spreading machine having cloth supply means and a spreader frame including a vertically movable spreader element, said spreader frame having longitudinal and transverse dimensions and being movable longitudinally forwardly and rearwardly over a cloth supporting surface for carrying a cloth from the cloth supply means to said spreader element for spreading the cloth longitudinally in layers upon the supporting surface, a wind break device comprising:

(a) a wind curtain of flexible sheet material having an upper end portion, and a lower end portion,

(b) a curtain roller attached to said upper end portion for winding and unwinding said curtain,

(c) means mounting said curtain roller for rotary movement transversely on said spreader frame above said spreader element,

(d) means biasing the rotary movement of said curtain roller to wind said curtain about said curtain roller, and

(e) means attaching the lower end portion of said curtain to said spreader element for vertical movement therewith.

4,380,331

SHEET FEEDING AND ALIGNING APPARATUS FOR ROTARY PRINTING MACHINE

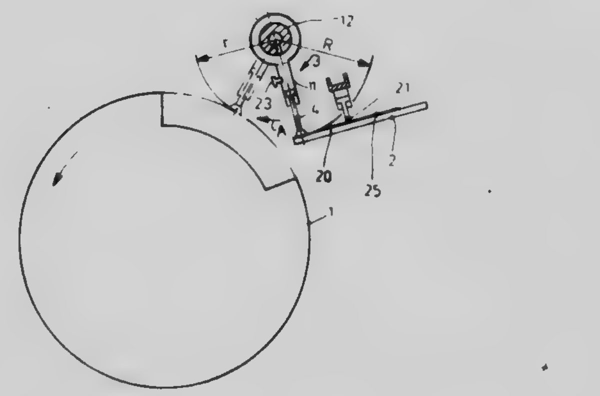
Hermann Fischer, Augsburg, Fed. Rep. of Germany, assignor to M.A.N.-ROLAND Druckmaschinen Aktiengesellschaft, Offenbach am Main, Fed. Rep. of Germany

Filed Feb. 3, 1981, Ser. No. 231,160

Claims priority, application Fed. Rep. of Germany, Feb. 6, 1980, 3004314

Int. Cl.³ B65H *5/08*

U.S. Cl. 271—11 **10 Claims**



1. Sheet feeding and aligning apparatus to pick up a sheet (20) of a printing substrate, particularly paper, for transfer to a moving sheet transport mechanism and having

a make-ready table (20);

a vacuum suction pick-up and sheet transport element (3) including

a tubular housing (11);

a suction tube (4) movably guided in said housing for telescopic movement with respect thereto;

bias means (16) for biassing the suction tube (4) towards a sheet (20) to be gripped;

and pull-in means (6) for pulling the suction tube inwardly within the tubular housing upon adhesion of a sheet thereto under vacuum applied to the interior of said tubular housing (11), so that the pick-up element (3) will be of variable length,

the pick-up element being positioned for engagement with the leading edge of the sheet (20) located on the make-ready table in aligned position and supported for pivoting movement for transporting a sheet after being picked up;

and comprising

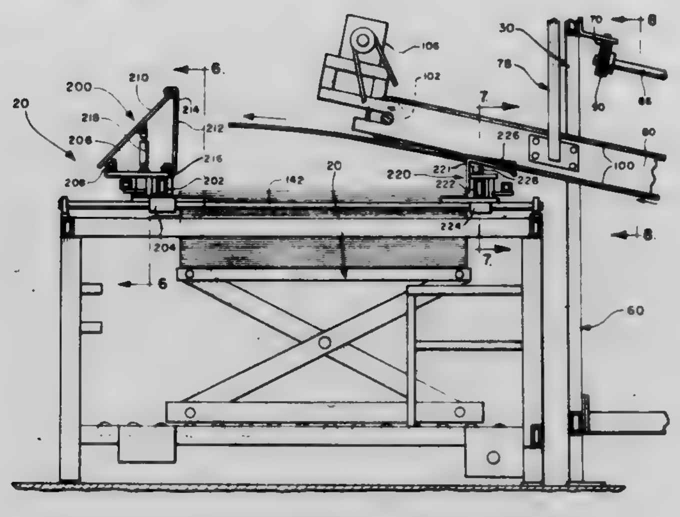
a locking element (23) selectively positionable in said housing (11) to contain telescoping pull-in motion of the suction tube within the tubular housing to a limited distance, and permit, after repositioning, continued telescoping movement of the suction tube within the tubular housing; and

means for controlling the pick-up motion of the pick-up element (3) in steps

(a) for pick-up of the leading edge of the sheet and lifting the sheet off the make-ready table (2) by the limited distance (R-1 mm) defined by the locking means by foreshortening said length by pulling in said suction tube for said limited distance; and then

(b) for lifting the leading edge of the sheet for the remaining distance (R–r) and further foreshortening the pick-up element by further pulling in said suction tube upon repositioning of said locking means and pivotally moving said pick-up element to a position required for engagement with the transport mechanism and accelerating the sheet by moving the leading edge of the sheet in a rotary path as the element foreshortens to feed the sheet to said moving transport mechanism.

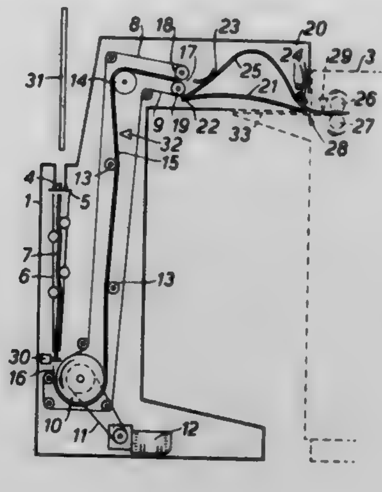
4,380,332
SNUBBING DEVICE FOR BLANK CONVEYOR APPARATUS
Dwight M. Davis, Waukegan, Ill., assignor to Stone Container Corporation, Chicago, Ill.
Filed Mar. 13, 1981, Ser. No. 243,357
Int. Cl.³ B65H *31/26*
U.S. Cl. 271—224 **3 Claims**



1. In combination with means for conveying a series of blanks, said conveying means having a release section at which blanks leave the conveying means; and means for receiving and stacking a plurality of blanks from the conveying means; the improvement comprising:
- a frame member having a first strap attachment section;
- a base member having a second strap attachment section;
- means for pivotably coupling the frame member and the base member such that pivotal movement of the frame member with respect to the base member alters the separation of the first and second strap attachment points;
- a flexible strap having a first end positioned at the first attachment section and a second end positioned at the second attachment section such that the strap is mounted between the frame member and the base member; and
- means for resiliently biasing the frame member away from the base member to maintain the strap under tension while allowing the strap to deflect and rebound when struck by a moving blank;
- said frame and base members positioned such that blanks leaving the release section of the conveying means strike the strap, and such that the strap serves to decelerate the blanks without damage to the blanks and then to rebound, thereby causing the blanks to move into the receiving and stacking means.

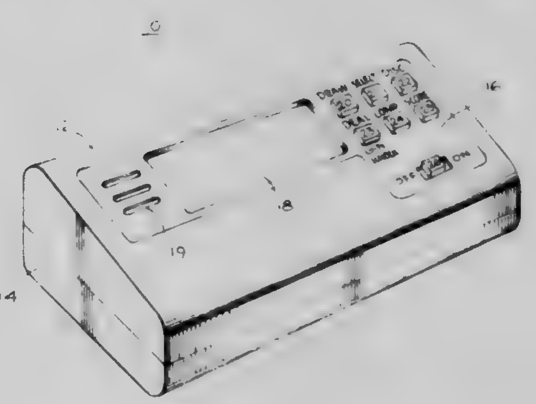
4,380,333
SHEET MATERIAL GUIDING MEANS
George F. A. M. Turner, Ingatestone, England, assignor to Ciba-Geigy AG, Basel, Switzerland
Filed Mar. 2, 1981, Ser. No. 239,714
Claims priority, application United Kingdom, Mar. 12, 1980, 8008364
Int. Cl.³ B65H *5/02*
U.S. Cl. 271—272 **5 Claims**

1. In an apparatus for receiving a plurality of sheet films from film cassettes and presenting them in seriatim to an associated film processor, the apparatus comprising a light-tight enclosure having a film cassette introduction port being adapted to receive a film sheet from a cassette which is opened when its openable end is introduced therein, a film exit port located in light-tight operational contact with an associated film processor, and means for guiding the film from said introduction port to said exit port, the improvement wherein said guide means comprises an enclosed gravity-feed entry chute below the film cassette introduction port wherein the film sheet is brought into frictional contact with at least two pairs of wheels of equal circumference mounted fixedly on a free-running non-driven axle which is transverse to the path of travel of the film sheet, the pairs of wheels being mounted in sets of



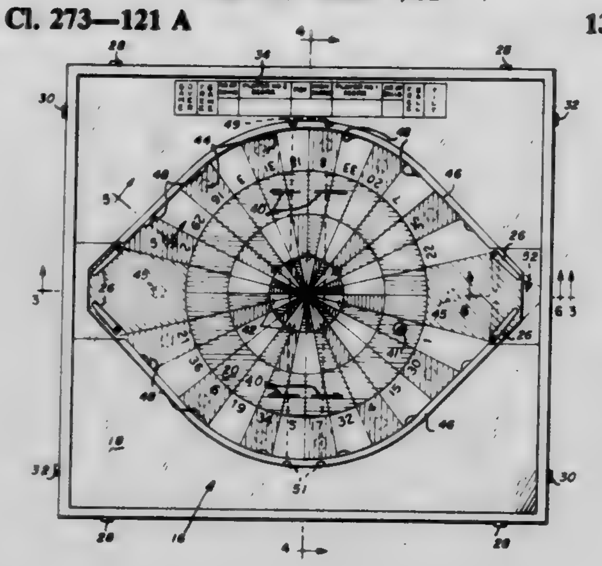
two in staggered relationship, the rims of both wheels of a pair having a high-friction surface, the film sheet passing through the chute by gravitational attraction.

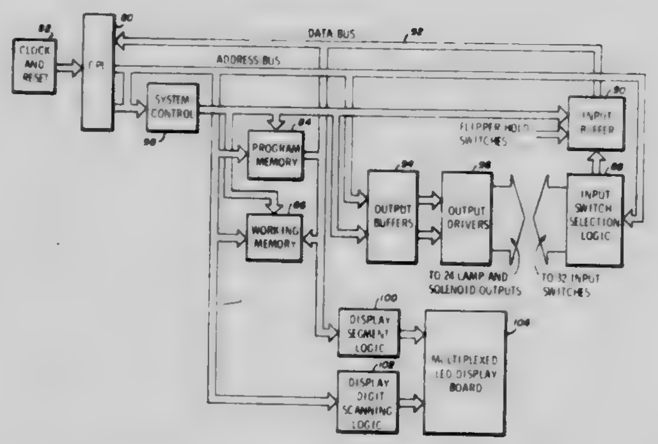
4,380,334
ELECTRONIC CARD GAME SIMULATOR
Michael D. Minkoff, and Raymond W. Kaestner, both of Torrance, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Mar. 24, 1980, Ser. No. 132,755
Int. Cl.³ A63F *1/00*
U.S. Cl. 273—1 E **6 Claims**



1. A portable machine for simulating the play of a hand of gin rummy in accordance with the rules thereof including a housing; a display mounted by the housing; an electronic data processor mounted in the housing; means for causing the processor to deal two hands and a face up card at random and to control the display to show one of the hands and the face up card; means for causing the processor to take the face up card or draw another card at random for the hand shown on the display; means for causing the processor to discard a selected card from the hand shown on the display; means for signalling that the hand shown on the display has gin or knock; means for drawing cards at random or taking a discard from the hand shown on the display for the other of the two hands; means for discarding a selected card from the other of the two hands to enhance the hand value in accordance with the rules of gin rummy; and means for causing the play of the other of the two hands to be at first or second skill levels, including means for discarding cards in the other of the two hands based on the value of the cards to the hand shown on the display.

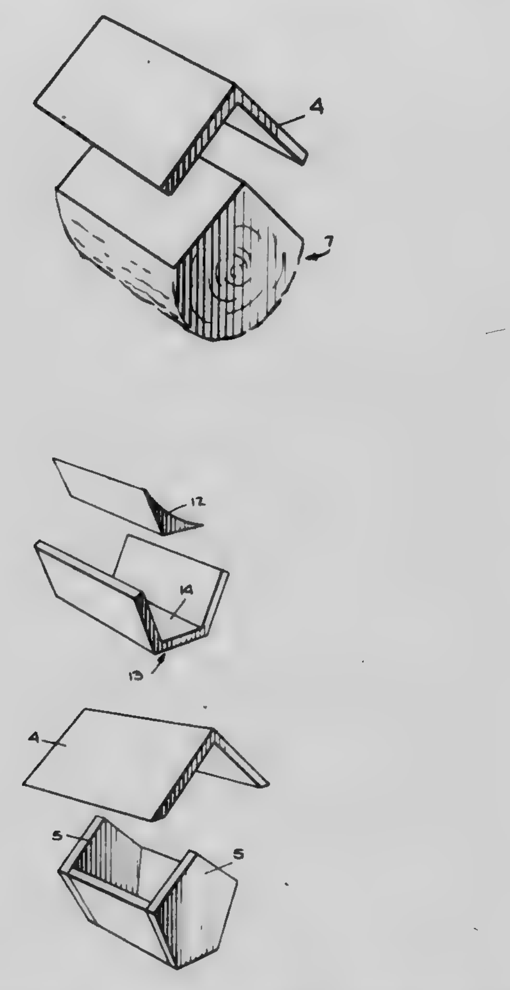
4,380,335
PINBALL GAME APPARATUS
Jagdish C. Chaudhry, and Lorena F. Chaudhry, both of Los Altos, Calif., assignors to Michael Wichinsky, Las Vegas, Nev.
Continuation-in-part of Ser. No. 933,069, Aug. 11, 1978, abandoned. This application Dec. 26, 1978, Ser. No. 972,954
Int. Cl.³ A63F *7/02*
U.S. Cl. 273—121 A **13 Claims**





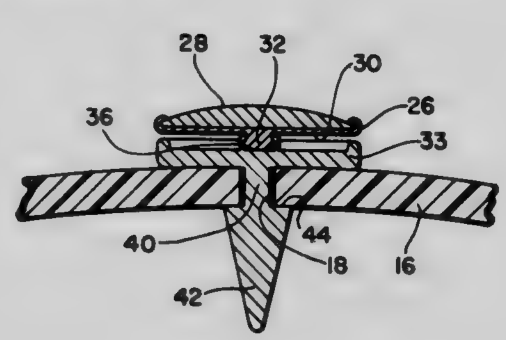
1. Pinball game apparatus comprising:
means defining a horizontally disposed domed playing field surface having a center and a generally oval-shaped perimeter with at least two goal areas provided on opposite sides thereof, such playing field surface being formed so that all areas thereof slope continuously from said center and toward an associated one of said goal areas, a curvature of said surface transverse of said goal areas being less than a curvature of said surface between the goal area;
a ball disposed to roll upon said playing field surface, the curvatures of said playing field surface insuring that said ball always rolls toward one or the other of said goal areas;
plural ball restraining barrier means disposed around the perimeter of said playing field surface, each barrier means forming a continuous, curved barrier against which said ball can roll and arranged extending between adjacent sides of said goal area;
score accumulating and display means;
a plurality of ball sensing devices disposed along said barrier and coupled to said score accumulating and display means so as to send a scoring signal thereto each time the presence of said ball is detected by one of said devices;
flipper means disposed in front of each said goal area for allowing a player to strike the ball and drive it away from his goal area in a tangential direction relative to said barrier for rolling the ball under centrifugal force along said barrier and around the perimeter of said playing field; and
ball sensing means disposed within each goal area and coupled to said score accumulating and display means so as to send a goal signal thereto each time the ball passes behind said flipper means and into one of said goal area.

4,380,336
BIRD HOUSE AND METHOD OF MAKING SAME
Charles D. Pratt, Matinicus Island, Me. 04851
Filed Sep. 28, 1981, Ser. No. 306,088
Int. Cl.³ A63F *9/12*
U.S. Cl. 273—157 R **6 Claims**



1. A method forming a bird house from a solid generally cylindrical log comprising the steps of dividing the said log into a plurality of separated nesting sections by a plurality of generally straight cuts, forming a separate house roof section, end wall sections, and a combined side and bottom wall section, and combining the sections to form the bird house.

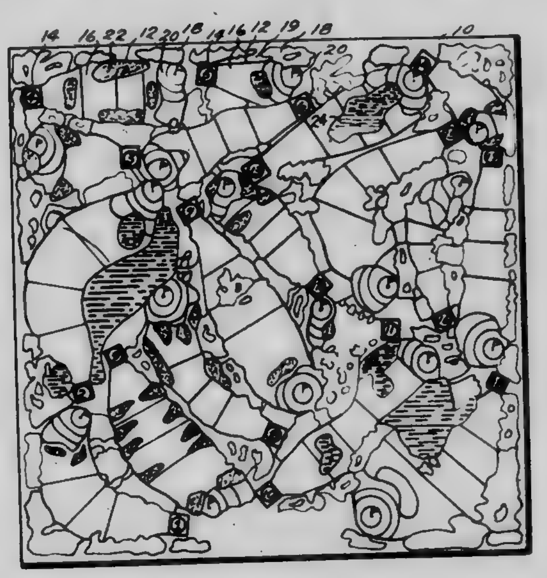
4,380,337
GOLF BALL POSITION MARKING DEVICE
Rocco J. DiMatteo, 3 Brow St., Barrington, R.I. 02806
Filed Nov. 20, 1981, Ser. No. 323,222
Int. Cl.³ A63B *53/14*
U.S. Cl. 273—162 D **2 Claims**

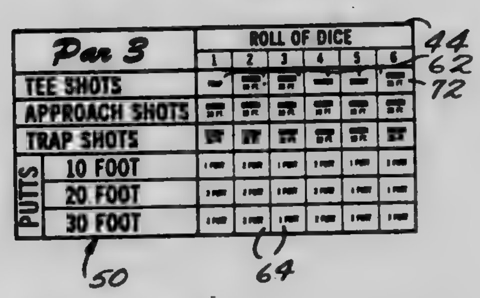


1. A device for marking the location of a golf ball on a green when such ball is removed for putting, said device adapted for use with a golf putter club of the type having a frictional handle grip of yieldable material covering the upper club end and terminating in a generally solid end cap, said end cap

including an end wall having a centrally disposed air vent bore projecting therethrough, said device comprising a substantially rigid, nonyieldable first member having a substantially planar top portion, a shaft portion downwardly extending therefrom and terminating in an enlarged lower portion of an overall conical shape and terminating at its upper end in a generally flat ledge spaced from the lower surface of said top portion a distance equal to or slightly larger than the extent of said end cap air vent bore, said shaft adapted for direct frictional receipt in said bore with said upper ledge surface of said lower portion engaging the lower surface of said end wall and the lower surface of said top portion engaging the upper surface of said end cap end wall so as to positively secure said first member to said golf club grip, said bore adapted to temporarily expand to receive said enlarged lower portion, and a second substantially rigid, disc-shaped member comprising a marker and adapted for removable attachment to said first member, the upper surface of said first member top portion and the marker cooperatively forming attachment means whereby said marker may be secured thereto as in normal play with said club and alternatively detached therefrom when it is desired to utilize the second member as a putting green ball marker said attachment means being of post and pocket construction, said post downwardly extending from the lower surface of said marker and said pocket disposed on the upper surface of said first member top portion whereby said marker is detachably frictionally snap engaged to said first member top portion with a force substantially less than that with which said first member is engaged to said golf club handle grip.

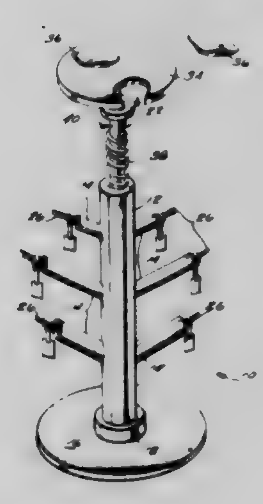
4,380,338
GOLF GAME
Jesse H. Lacy, P.O. Box 109, Moss Point, Miss. 39563
Filed Nov. 17, 1980, Ser. No. 207,360
Int. Cl.³ A63F *3/00*
U.S. Cl. 273—245 **6 Claims**





1. A golf game comprising:
a playing board carrying a pictorial configuration of a multi-hole course having associated with the holes tees, fairways, hazards, greens and pins on said greens;
at least one card having disposed thereon first indicia representing distinct areas on each hole on said playing board and second indicia corresponding to shots which advance a ball on each hole;
said first and second indicia being displayed in at least two charts respectively corresponding to at least two categories of said holes, said first indicia corresponding to each of said areas and said second indicia being correlated to said first indicia and corresponding to two or more different ones of said areas;
said at least one card having a plurality of sets of third indicia marked thereon, each set of third indicia corresponding to a different one of said holes, and to one or more of said second indicia, and a plurality of fourth indicia correlated to said third indicia and coreesponding to separate ones of at least two of said areas; and
chance means for selecting one of said plurality of second and third indicia so as to advance said ball from one of said areas corresponding to one of said plurality of first indicia to another area corresponding to said one of said plurality of second and third indicia.

4,380,339
GAME DEVICE
Andrew Jones, Jr., 608 Easton Ave., NW., Washington, D.C. 20019
Filed Aug. 13, 1981, Ser. No. 292,608
Int. Cl.³ A63F *9/02;* **F41J** *7/00*
U.S. Cl. 273—384 **15 Claims**

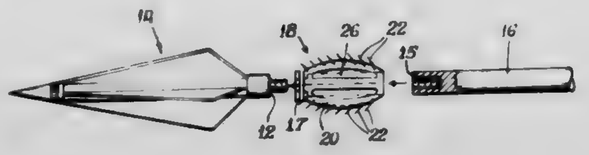


1. A game device comprising:
an elongated trunk element;
a plurality of elongated limb elements;
trunk means defining an elongated trunk cavity for axially positioning said elongated trunk element for reciprocal movement therein, said trunk means including a plurality of limb means each defining a limb cavity for axially positioning at least one of said limb elements therein;
means for hingedly connecting said plurality of limb elements to said trunk element;
platform means transversely mounted to said trunk element for supporting weighted objects thereon; and
biasing means for biasing said trunk element in an upward direction so that said trunk element will be yieldably depressed in said trunk cavity in response to successive weighted objects coming to rest upon said platform means.

4,380,340
BLEEDER ATTACHMENT FOR ARROWS
Miroslav A. Simo, 370 N. Delaplaine Rd., Riverside, Ill. 60546
Filed Sep. 10, 1981, Ser. No. 301,027
Int. Cl.³ F41B *5/02*
U.S. Cl. 273—416 **9 Claims**

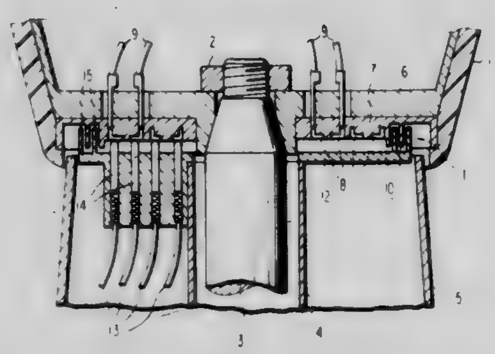
1. A bleeder attachment for fitting over the shaft portion of an arrow having a detachable arrowhead portion, said bleeder attachment comprising:
a body element of generally tubular shape having a bulbous

outer surface, a forward and a rearward end and having a cylindrical through opening centered about its long axis, the forward end of said cylindrical through opening having an inwardly extending lip; and



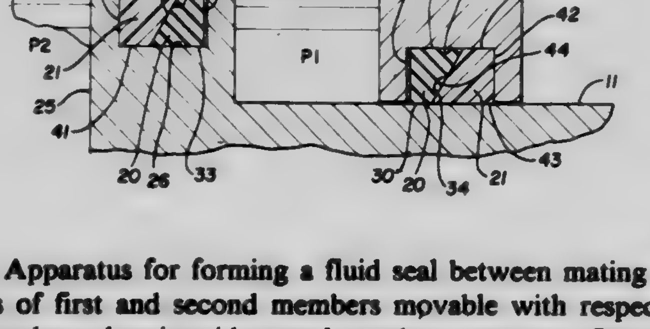
a plurality of barbs secured to said outer surface extending outwardly and disposed toward said forward end.

4,380,341
LABYRINTH SEAL FOR SLIP RING SWITCH FOR STEERING WHEELS OF MOTOR VEHICLES
Heinz Waldschütz, Ostfildern; Franz Raüner, Stuttgart, and Helmut Patzelt, Fellbach, all of Fed. Rep. of Germany, assignors to Daimler-Benz A.G., Stuttgart, Fed. Rep. of Germany
Filed Mar. 8, 1982, Ser. No. 354,919
Claims priority, application Fed. Rep. of Germany, Mar. 7, 1981, 3108757
Int. Cl.³ F16J *15/44;* **H01H** *9/04*
U.S. Cl. 277—56 **8 Claims**



1. A slip ring arrangement for a steering wheel of a motor vehicle, the arrangement including at least one slip ring, spring-mounted mating contact means cooperable with the at least one slip ring for enabling a transmitting of an electrical current to components of the motor vehicle, characterized in that a labyrinth seal means is provided for sealing the slip ring arrangement with respect to a passenger compartment of the motor vehicle.

4,380,342
FLUID SEALING DEVICES
George K. Fling, Dallas, Tex., assignor to Vought Corporation, Dallas, Tex.
Filed Sep. 22, 1980, Ser. No. 189,548
Int. Cl.³ F16J *15/09*
U.S. Cl. 277—188 A **9 Claims**



1. Apparatus for forming a fluid seal between mating surfaces of first and second members movable with respect to each other wherein said second member separates a first area, containing a fluid at a first pressure, and a second area containing a fluid at a second, lower pressure, comprising:

(a) an elastomeric sealing device which is in communication with said first area and which is substantially trapezoidal in cross-section contained within a recess in one of said mating surfaces with the shorter base thereof contacting the other of said mating surfaces, the elastomeric having a shorter leg disposed toward said first area and a diagonally extending, longer leg; and

(b) a resilient, pliable, anti-extrusion device which is more rigid than said elastomeric device and which is also substantially trapezoidal in cross-section contained within said recess, the anti-extrusion device having a diagonal leg mating with and being of equal length with the diagonal, longer leg of said elastomeric device, the longer base thereof also contacting said other of said mating surfaces, the fluid in said first area comprising means exerting force upon the shorter base of said elastomeric device for urging the elastomeric device toward said diagonal leg of said anti-extrusion device, said elastomeric device comprising means for transferring said force directly to the diagonal leg of the anti-extrusion device and for acting as a wedge against the longer base of the anti-extrusion device to urge said anti-extrusion device against said other mating surface for preventing extrusion of the elastomeric device between the anti-extrusion device and said other mating surface.

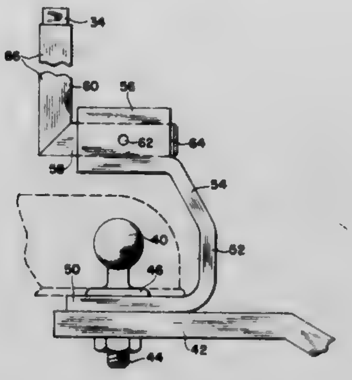
4,380,343
FOLDING SCISSOR FRAME WHEEL CHAIR
Walter Lovell, 348 Mountain Rd., and Richard Lawrence, 39 Manchonis Rd., both of Wilbraham, Mass. 01608
Filed Apr. 24, 1978, Ser. No. 898,902
Int. Cl.³ B62M *1/14*
U.S. Cl. 280—242 WC **8 Claims**

1. A wheel chair comprising a pair of generally parallel spaced vertical scissor frames extending fore and aft of the chair, a seat frame, a back rest frame, means for detachably connecting a portion of one of the scissor frames with respect to the seat frame to hold the scissor frames and the chair erect, said means being releasable to allow the scissor frames to fold into general parallelism with and in close association to the seat frame, and means pivotally mounting the back rest frame with respect to the seat frame to allow it to move into parallel relationship therewith,

hand wheels rotatably mounted on the scissor frames adjacent the point of pivotal connections of said scissor frames,

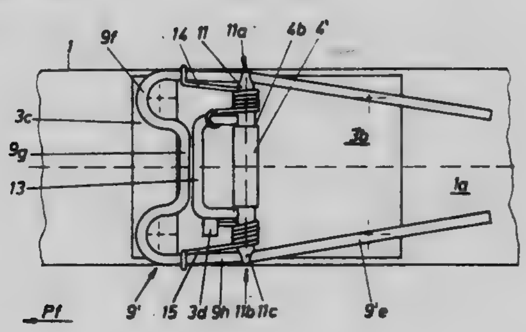
driving wheels rotatably mounted on one of said scissor frames, a chain connecting the wheels so that the hand wheels drive the driving wheels, the driving wheels being located at the rear of the chair and the hand wheel being intermediate of the ends of the frames and means to adjust the tension of the chain.

4,380,344
TRAILER HITCH CYCLE RACK
Frederick H. Abbott, Main St., East Princeton, Mass. 01517
Division of Ser. No. 84,606, Oct. 15, 1979, Pat. No. 4,301,953. This application Jun. 3, 1981, Ser. No. 269,996
Int. Cl.^{3} B60R *9/10*
U.S. Cl. 280—402 **2 Claims**



1. In combination with a trailer hitch for securing a power vehicle with respect to a trailer, said trailer hitch including a plate on the vehicle and a ball on the plate, that improvement which includes a support for a cycle rack located on said trailer hitch and leaving the hitch free of impediments so it can be used in the normal way,
said improvement comprising means forming a socket, means to connect the same with respect to one part of the trailer hitch, said socket being spaced from the operative parts of the hitch,
a cycle rack, a depending column supporting said cycle rack, and means for securing said column at the lower end thereof with respect to said socket in upright condition of said column, said socket being horizontal and said column including a foot extending at an angle thereto for reception in said horizontal socket,
means to attach the ball to the plate on the vehicle, and the socket forming means including a plate secured between the ball and the plate to which the ball is secured by the ball attaching means.

4,380,345
SKI BRAKE
Heinz Wittmann, Vienna, Austria, assignor to TMC Corporation, Baar, Switzerland
Division of Ser. No. 46,553, Jun. 7, 1979, abandoned. This application Apr. 17, 1981, Ser. No. 255,076
Claims priority, application Austria, Jun. 22, 1978, 4533/78
Int. Cl.^{3} A63C *7/10*
U.S. Cl. 280—605 **3 Claims**



1. A ski brake for use on a ski, comprising:
a base plate adapted to be mounted on said ski;
first and second bearing means on said base plate;
a pair of laterally spaced brake arms pivotally and laterally slidably mounted on said first bearing means, each of said brake arms having a brake leg portion and a pedal portion, said brake arms each being pivotal between (1) a braking position wherein said brake leg portions project beneath the running surface of said ski and said pedal portion extends upwardly inclined to the upper surface of said ski and (2) a retracted position wherein said brake leg portions and said pedal portion extend above said upper surface of said ski;
a control part and pivotal securement means pivotally securing said control part to said second bearing means, said pivotal securement means effecting, upon a pivotal movement of said control part relative to said pedal portions between an initial position wherein said brake arms are positioned in their laterally outermost position and a final position wherein said brake arms are positioned in their laterally innermost position, a laterally inward movement of said brake arms;
resilient means effecting an erection of said brake arms to said braking position and an urging of said control part to said initial position thereof to urge said brake arms to their said initial position thereof;
said pedal portions being integrally connected to each other so that said brake legs and said pedal generally define a U-shape, said first bearing means including separate axle segments on said brake legs extending inwardly toward a central longitudinal axis of said ski; and
said pivotal securement means including a hollow sleeve rotatably supported on said base plate by said second bearing means and about an axis extending perpendicular to said longitudinal axis of said ski, said hollow sleeve receiving said separate axle segments in opposite ends thereof to thereby define said first bearing means, said control part including an operating bar fixedly secured to said hollow sleeve and movable therewith.

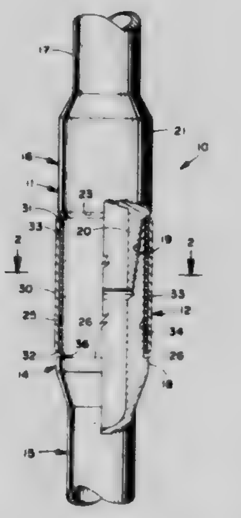
4,380,346
METHOD OF AND APPARATUS FOR SPEEDING THE RESPONSE OF AN AIR BAG INFLATOR AT LOW TEMPERATURES
Leland E. Davis, Brigham City; David P. Dahle, Logan; Fred E. Schneiter, North Ogden, and George F. Kirchoff, Brigham City, all of Utah, assignors to Thiokol Corporation, Newtown, Pa.
Filed Apr. 24, 1981, Ser. No. 257,285
Int. Cl.^{3} B60R *21/08*
U.S. Cl. 280—736 **4 Claims**

2. In an inflator for an air bag comprising housing means having wall means that define a combustion chamber, said wall means having gas discharge perforations formed therein and including rupturable means for normally sealing said perforations,
a combustible gas generant composition disposed in said combustion chamber, said composition being operable upon ignitition to produce gas and combustion products, the generation of gas within said housing being characterized in that the rise in pressure to a peak value tends to be slowed when the ambient temperature is low, said rupturable means of said wall means of said housing rupturing upon the attainment of a certain threshold value that is less than said peak value,
means for filtering the generated gas, and
means for discharging the filtered gas to an air bag,
the improvement comprising
means buttressing said rupturable means to delay the rupture

thereof unitl the pressure of the generated gas therein reaches a predetermined value that is higher than the certain threshold value thereby to shorten the time for attaining the peak gas pressure value within the combustion chamber, and resulting in faster, more satisfactory generation of gas and inflation of the air bag when the ambient temperature is low and the rate of gas generation tends to be slowed,

said means for buttressing said rupturable means comprising a layer of foil, said layer of foil buttressing said rupturable means with respect to some only of said perforations.

4,380,347
WELL TOOL
Donald E. Sable, 4413 Windsor Pkwy., Dallas, Tex. 75234
Filed Oct. 31, 1980, Ser. No. 202,795
Int. Cl.³ F16L *57/00*
U.S. Cl. 285—45 **1 Claim**



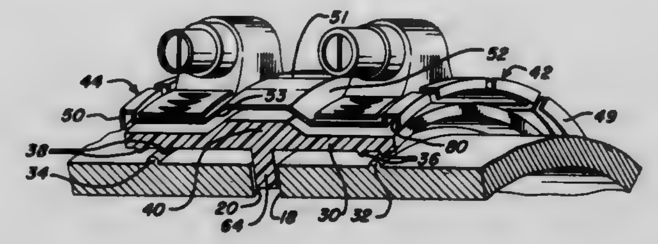
1. A well tool including: a tool joint comprising a pin half on one section of an elongate tubular member having a reduced threaded end portion, and a box half on another elongate tubular member having a threaded bore in which said reduced threaded end portion is disposed, one of said tool joint halves having an externally reduced end portion providing an annular external shoulder, the other of said joint halves having an external annular shoulder, said shoulders facing one another; and a protector longitudinally and rotatably disposed on said reduced end portion of said one of said joint halves, said protector comprising a tubular mandrel having an internal diameter greater than that of said reduced end portion of said one of said joint halves and an external diameter greater than that of said annular shoulder whereby longitudinal movement of said mandrel relative to said joint halves is limited by said shoulders; and a plurality of longitudinally extending resilient compression members circumferentially spaced in said mandrel and secured thereto, said compression members being compressed between said mandrel and said reduced end portion of said one of said joint halves, said compression members permitting rotation of said mandrel relative to said tool joint.

4,380,348
PIPE CLAMPING ASSEMBLY
Frederick R. Swartz, Needham Heights, Mass., assignor to Clamp-All Corp., Billerica, Mass.
Filed Feb. 18, 1981, Ser. No. 235,531
Int. Cl.³ F16L *21/06*
U.S. Cl. 285—236 **4 Claims**

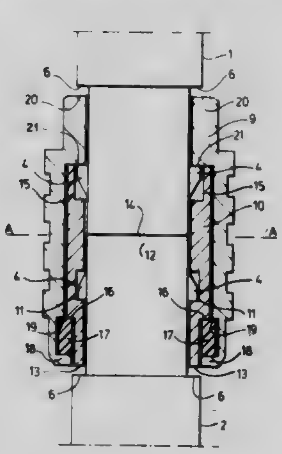
1. In a clamping assembly for joining two pipes in end to end relationship in a clamping position and having a flexible, corrosion resistant sheet metal clamping band of defined circumferential length having a first encircling end and a second encircling end axially spaced from the first encircling end, with a preformed raised central section extending generally the defined circumferential length of the clamping band,

and band strap retaining areas extending on both sides of said central section, with tension bands mounted in said retaining areas on both sides of said central section adjacent said ends, said clamping band enclosing an underlying elastomeric compressible, circumferential sealing gasket having first and second gasket end surfaces and partially mounted against movement by said central section,

the improvement comprising said first and second encircling ends extending from said retaining areas with said ends each carrying an upwardly and reversely extending section defining an inwardly directed substantially continuous, integral, bent over sheet metal flange having the thickness of said sheet metal facing said pipe positioned to extend toward an underlying pipe to grip said pipe and to prevent unwanted movement of said sealing gasket under operating conditions of said assembly with each said substantially continuous flange providing a stop against outward flow of said gasket beyond said flange by engaging substantially the entire end surface of said gasket so that said flange prevents cold flow beyond the flange.



4,380,349
COUPLERS FOR LATCHING TYPE PLUGS
John Bray, Sheffield, England, assignor to Staeng Ltd., Cornwall, England
Filed May 22, 1980, Ser. No. 152,360
Claims priority, application United Kingdom, May 23, 1979, 7918001
Int. Cl.³ F16L *21/00*
U.S. Cl. 285—417 **3 Claims**



1. A plug connector to enable the coupling of first and second plugs attached to fibre optic cables and to maintain substantial abutment between the ends of the first and second plugs, said plug connector comprising:

a first annular member having an internal diameter fractionally larger than the diameters of the two plugs;

a second annular member containing said first annular member and having a first section with an internal diameter equal to the internal diameter of the first annular member, a second section having an internal diameter fractionally larger than the external diameter of the first annular member, a shoulder defined by the intersection of said first and second sections, and a third section having a recess;

a resilient member located within said recess and protruding therefrom, said first member having shoulder means thereon to abut said resilient member, the arrangement being such that the first annular member has limited slide-

able movement within the second section of the second annular member;

a first recess provided in the first annular member at the end where it abuts against the shoulder, said first recess being provided to receive latching means of said second plug which is slideable into said second annular member;

a second recess provided in said first annular member, distant from said first recess for receiving latching means provided on said first plug which is slideable into said first annular member;

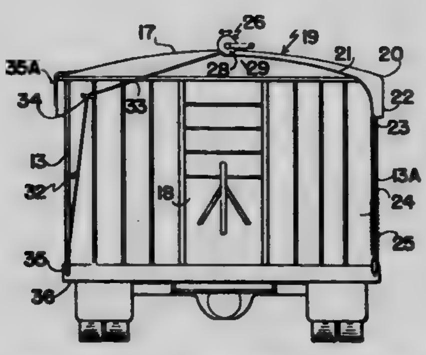
whereby said first and second plugs, first and second annular members and resilient member are so constructed and arranged that when said plugs are inserted into the coupling member said shoulder means on said first member abuts and compresses said resilient members causing said first and second member to bias and maintain said plugs in contact with one another.

4,380,350

TRUCK BOX TARPAULIN ASSEMBLY

Gordon Block, Box 265, Leroy, Saskatchewan, Canada (SOK 2PO)

Filed Dec. 31, 1980, Ser. No. 221,900
Int. Cl.[3] B60J *11/00*
U.S. Cl. 296—98 4 Claims



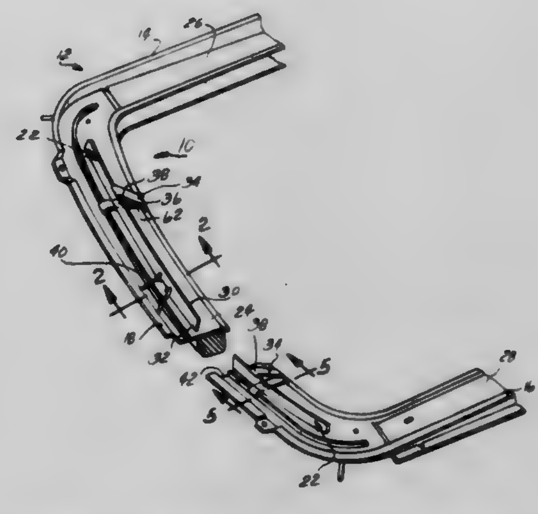
1. A tarpaulin cover assembly for the open upper side of a truck box which includes a pair of side walls, a rear end wall, and a front end wall; said tarpaulin cover assembly comprising in combination a substantially rectangular tarpaulin adapted to cover the open upper side of the truck box when in the fully extended position, means to fasten one longitudinal edge of the tarpaulin to one side wall, longitudinally extending roller means secured to the other longitudinal edge of said tarpaulin and means to rotate said roller means, said roller means being supported for transverse rolling motion upon the upper edges of the front and back end walls of the truck body, and means operatively extending between said roller means and said truck body to tension said tarpaulin transversely at all times, said means operatively extending between said roller means and said truck body to tension said tarpaulin transverely at all times including a cable and spring assembly secured upon each of the end walls of said truck box, said roller assembly including a cable drum at each end thereof to receive the cable of said cable and spring assembly and means to secure said cables one to each of said cable drums, said means to rotate said roller means including a handle secured to said roller means at least at one end thereof, a crank pin extending from said handle adjacent the distal end thereof, an elongated actuating member pivotally secured by one end thereof to said crank pin for rotating said handle of said crank pin and means detachably securing said distal end of said handle to said end wall to secure said tarpaulin in the desired position against pressure of said springs.

4,380,351

SUNROOF AIR DEFLECTOR

Norman L. Sorensen, Detroit, and Lothar Pohl, Sterling Heights, both of Mich., assignors to Wisco Corporation, Ferndale, Mich.

Filed Feb. 23, 1981, Ser. No. 236,895
Int. Cl.[3] B60J *7/22*
U.S. Cl. 296—217 6 Claims



4. In a motor vehicle having an opening formed in a roof thereof, a frame around the perimeter of the opening defining longitudinally extending edges and front and rear transverse edges, a slidable roof panel movable between a closed position closing the opening and an open position opening the opening, the improvement comprising:

an air deflector having an upper edge and a lower edge extending across the front transverse edge, said air deflector being movable from a deployed position above the roof to a retracted position;

the frame including a recessed front inward extending transverse ledge and a pair of opposed longitudinal inward extending ledges to support the panel flush with the roof; the frame further including a transverse channel formed in said front inward extending ledge, said air deflector being nestingly engageable with said transverse channel;

said air deflector being supported by a hinge, said hinge being hingedly attached at a lower end to said front inward extending ledge, and at an upper end to said air deflector upper end;

means for biasing said air deflector in the deployed position above the panel when the panel is in the open position; said biasing means including:

a spring retaining notch formed along said lower edge;

a wire spring engaging said spring retaining notch comprising a central horizontal portion positioned above the notch, a pair of opposed loops formed at the ends of the central horizontal portion extending downward then curving forward then upward to snugly embrace the notch at the inside corners thereof, said opposed loops then curving arcuately outward then extending downward linearly to define a pair of opposed legs, said opposed legs extending moderately forward and outward terminating at an outward curved end; and

said outward curved ends biased against a forward corner of said transverse channel causing an outward spreading of said opposed legs and an upward and forward biasing of said air deflector toward the deployed position;

a hinge support secured to the front inward extending ledge; said hinge support hinged to said hinge lower end;

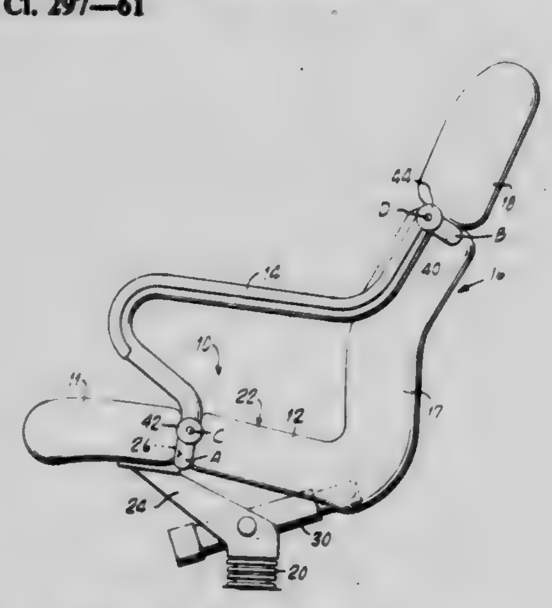
a lower stop formed on said hinge lower end, said lower stop selectively abutting said hinge support limiting the upward movement of said hinge upper end;

a pair of transversely aligned apertures formed in said hinge upper end;

a hinge notch formed in said upper edge to slidingly received said hinge upper end;

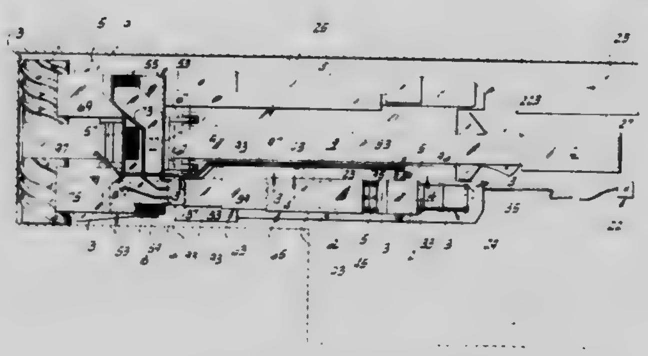
a hinge notch formed in said upper edge to slidingly receive said hinge upper end;
a hinge pin slidingly supported by said transversely aligned apertures with a pair of pin opposed ends projecting transversely from said aligned apertures;
a pin receiving groove formed along said upper edge to securely receive said pin opposed ends hingedly securing said upper edge to said hinge upper end;
said hinge upper end including an upper stop formed integrally therewith selectively abutting an edge of said hinge notch limiting the forward movement of said deflector lower edge; and
whereby said lower stop limiting the upward movement of said hinge upper end and said upper stop limiting the forward movement of said deflector lower edge defines the air deflector deployed position; and
means for automatically retracting said air deflector to the retracted position when the panel is moved to the closed position.

4,380,352
RECLINING CHAIR
Niels Diffrient, New York, N.Y., assignor to Knoll International, Inc., New York, N.Y.
Continuation-in-part of Ser. No. 47,120, Jun. 11, 1979, abandoned. This application Sep. 30, 1980, Ser. No. 192,377
Int. Cl.³ A47C *1/02*
U.S. Cl. 297—61 **16 Claims**



1. An articulated chair or the like, comprising:
(a) a base;
(b) a seat element, supported on the base, having a forward portion and a rearward portion tiltable about a first, horizontal axis relative to the forward portion;
(c) a backrest element, supported on the seat, having a lower portion tiltable relative to the base about said first axis and an upper portion tiltable relative to the lower portion about a second axis parallel to the first axis; and
(d) a pair of unitary rigid armrests respectively disposed on opposite sides of said seat;
wherein the improvement comprises:
(e) each of said armrests having a forward end portion connected to said base for pivotal movement relative thereto about a third axis spaced from and parallel to said first axis and a rearward end connected to said upper backrest portion for pivotal movement relative thereto about a fourth axis spaced from and parallel to the second axis, such that said armrests constitute a linkage for tilting the backrest upper portion forwardly relative to the backrest lower portion upon rearward tilting movement of the backrest lower portion relative to the base, and
(f) the seat and backrest elements each comprising
(i) a peripheral frame divided, along the axis of tilting of one portion of the element relative to the other portion of the element, into two rigid frame parts pivotable relative to each other about the last-mentioned axis and cooperatively surrounding a central area of the element extending through the locality of the last-mentioned axis;
(ii) a flexible load-bearing diaphragm extending substantially entirely over said area and fastened to said frame, such that when the one portion of the element is tilted relative to the other, the central portion of the diaphragm assumes a compound curved configuration comfortably supporting the user; and
(iii) an upholstery body extending over and supported by the diaphragm and the frame.

4,380,353
DUST CONTROL SYSTEM AND METHOD OF OPERATION
John A. L. Campbell, Mascoutah; Daniel J. Moynihan; William D. Roper, both of Belleville, and Earl C. Willis, Benton all of Ill., assignors to Peabody Coal Company, St. Louis, Mo.
Continuation of Ser. No. 20,280, Mar. 14, 1979, abandoned. This application Jul. 13, 1981, Ser. No. 282,430
Int. Cl.³ E21C *7/08;* **B01D** *47/06*
U.S. Cl. 299—12 **23 Claims**



1. A machine comprising a vehicle having at one end constituting its forward end a boom pivoted for up and down swinging movement about an axis extending transversely of the vehicle and extending forward from the vehicle, a cutter head carried by the boom, and means for carrying away material cut by the cutter head comprising a conveyor extending longitudinally of the vehicle for conveying the material back toward the rearward end of the vehicle, said cutter head when operated to cut causing dust to be present in the air at the forward end of the vehicle, which dust may include particles in the size range below 5 microns, and a dust control system for said machine comprising:
a fan mounted on the vehicle adjacent one side of the vehicle alongside the conveyor toward the rearward end of the vehicle, said fan comprising a housing having an inlet and an outlet and means in the housing for causing a flow of air from the inlet to and out through the outlet;
a system of ductwork forming a passage for induced flow of air from the vicinity of the forward end of the vehicle to the inlet of the fan housing, said ductwork system comprising an air intake section associated with the boom and swingable up and down with the boom, said air intake section having bottom inlet openings for upward flow of dust-laden air from below the boom into said air intake section, and having an air outlet at its rear at said one side of the vehicle, said ductwork system further comprising a telescoping duct section and a fixed duct section extending longitudinally of the vehicle alongside said conveyor adjacent said one side of the vehicle from said air outlet of said air intake section to the inlet of said fan housing, said telescoping section being hinged at its forward end to said air outlet of said air intake section and hinged at its rearward end to the forward end of said fixed duct section;
a flooded bed scrubber in said fixed duct section for effecting entrainment in droplets of water of dust, including respirable dust in said range, which is in the air flowing through said fixed duct section as a result of the cutting of the material, said flooded bed scrubber comprising a bed of

fibers extending across said fixed duct section through which the air may flow, and means for maintaining the fibers of said bed wetted with water, for entrainment in droplets of water of dust including respirable dust in said range by inertial impaction of the dust on the wetted fibers of the bed on drawing air through the bed at a sufficiently high velocity for said inertial impaction, the fan having the capacity for drawing the air through the bed at such velocity, the dust-laden droplets passing through the bed and downstream from the bed in the air flowing through said fixed duct section;

means in the fixed duct section between the bed and the inlet of the fan housing for separating the dust-laden droplets of water from the air flowing through the fixed duct section before the droplets reach the fan, said separating means being constructed and arranged for downward flow of the dust-laden droplets;

said fixed duct section having a bottom exit at the separating means for drainage of the dust-laden water therefrom;

a sump on the vehicle below said exit for receiving the dust-laden water; and

means for pumping to a place of disposal the dust-laden water collecting in the sump.

11. A method of controlling dust generated by operation of equipment in an entry of a coal mine wherein the equipment is operated at the working face of the entry and its operation generates dust which may include respirable dust in the size range below 5 microns at said face, comprising:

passing dust-laden air from said face through a dust control system comprising a passage and a fan, the flow being from the face through the passage to the fan, and being induced by operation of the fan to draw the dust-laden air through the passage,

scrubbing dust from the air as it flows through said passage by entraining the dust, including said respirable dust in the size range below 5 microns, in droplets of water, the dust-laden droplets of water flowing downstream through said passage in the air flowing through said passage,

separating the dust-laden droplets of water from the air flowing through said passage before the droplets reach the fan, whereby the fan operates in relatively droplet-free and dust-free air,

and collecting and disposing of the dust-laden droplets.

4,380,354

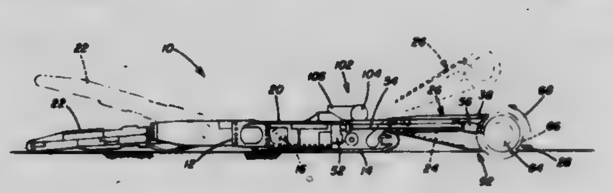
MINING MACHINE LOADING BIN MOUNTED ON BOOM STRUCTURE AND METHOD

Maurice K. LeBegue, Argillite, Ky., assignor to National Mine Service Company, Pittsburgh, Pa.

Filed Mar. 12, 1981, Ser. No. 242,832

Int. Cl.³ E21C *27/24*

U.S. Cl. 299—18 **19 Claims**



16. A method of dislodging solid material from a mine face comprising the steps of,

rotatably supporting a material dislodging device on a boom member at the front end of a mining machine,

positioning the material dislodging device opposite a mine face,

sumping the material dislodging device into contact with the mine face,

pivoting the boom member to move the material dislodging device through an arcuate path between the mine roof and floor to dislodge solid material from the mine face,

carrying a material receiving bin on the boom member rearwardly of the material dislodging device for movement with the material dislodging device as a single unit,

rotating the material dislodging device in a direction to convey the dislodged material over the material dislodging device and rearwardly into the material receiving bin,

feeding the dislodged material rearwardly through the material receiving bin and onto a conveyor extending rearwardly of the material dislodging device, and

transporting the dislodged material on the conveyor rearwardly on the mining machine.

4,380,355

GAS-LUBRICATED BEARINGS

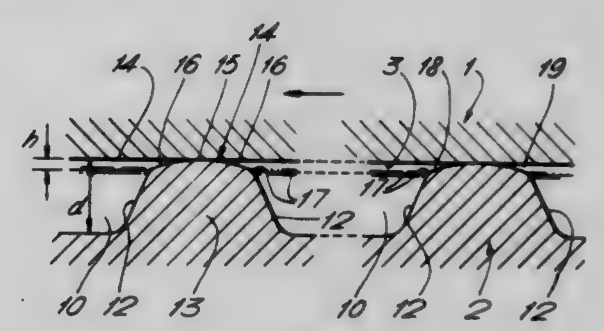
Geoffrey Beardmore, 20 Oak Manor Dr., Cheltenham, Gloucestershire, England

Filed Nov. 24, 1980, Ser. No. 210,072

Claims priority, application United Kingdom, Nov. 22, 1979, 7940407

Int. Cl.³ F16C *32/06*

U.S. Cl. 384—123 **7 Claims**



1. A gas-lubricated bearing of the kind comprising first and second bearing members having first and second respective opposed surfaces, the first surface being smooth and uninterrupted, and the second surface being provided with a region of spiral grooves separated by lands arranged such that relative movement between the first and second members causes entrainment of gas along said grooves and generation of a gas film between the members, the improvement wherein said lands each have an upper surface of convex profile, the region of the lands closest the surface of said first member being located intermediate the edges of the upper surface of the lands thereby forming substantially wedge-shaped cross-sectional regions between said first and second members on opposite sides of the region of the lands closest the surface of said first member.

4,380,356

GENERATOR ROTOR, ESPECIALLY TURBO-GENERATOR ROTOR WITH SUPERCONDUCTING FIELD WINDING

Erich Weghaupt, Mülheim, Fed. Rep. of Germany, assignor to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed May 20, 1981, Ser. No. 265,650

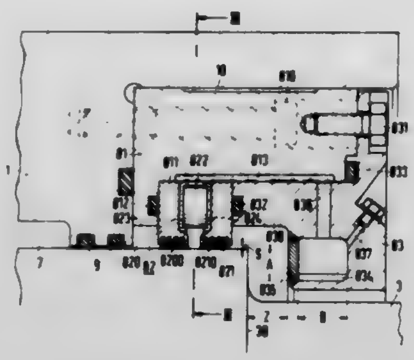
Claims priority, application Fed. Rep. of Germany, May 23, 1980, 3019864

Int. Cl.³ F16C *33/74*

U.S. Cl. 384—133 **8 Claims**

1. Generator rotor, comprising an inner and an outer concentric rotor part having a non-drive side and enclosing a high-vacuum space, a first and a second bearing disposed on said non-drive side, a hollow shaft end of said outer rotor part being supported in said first bearing, a journal of said inner rotor part being extended through said hollow shaft end and separately supported in said second bearing, a high-vacuum contactless liquid seal disposed between said hollow shaft end

and said journal and having a sealing gap formed therebetween, a co-rotating sealing-liquid reservoir connected to said



liquid seal, and magnetic field means for holding magnetic sealing liquid in said sealing gap.

4,380,357

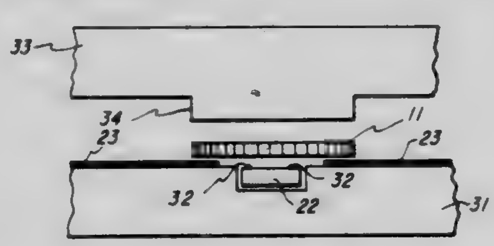
SYSTEM AND METHOD FOR EFFECTING ELECTRICAL INTERCONNECTIONS USING A FLEXIBLE MEDIA WITH RADIALLY EXTENDING ELECTRICAL CONDUCTORS

Doyle R. Evans, and Richard E. Tuthill, both of Lubbock, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 3, 1980, Ser. No. 203,020

Int. Cl.[3] H01R *9/09*

U.S. Cl. 339—17 CF **25 Claims**



1. A device for electrically interconnecting first and second sets of electrical components, said first set of electrical components disposed at first equal angular intervals about a first circle and said second set of electrical components disposed at said equal first angular intervals about a second circle, said second circle having a greater radius than and concentric with said first circle, said device comprising:

(a) a flexible media having first and second opposite major surfaces;

(b) a plurality of electrical conductors extending radially outward from a central portion of said first major surface with insulative material interposed between said conductors, said electrical conductors disposed at equal second angular intervals, said second angular intervals less than said first angular intervals, said electrical conductors further having equal width at any given radial distance from said central portion and having increasing width in a direction radially outward from said central portion;

(c) radially inward portions of selected ones of said conductors for being positioned in contact with respective ones of said first set of electrical components and radially outward portions of said selected ones of said conductors for being positioned in contact with respective ones of said second set of electrical components, thereby electrically interconnecting said first and second sets of components.

4,380,358

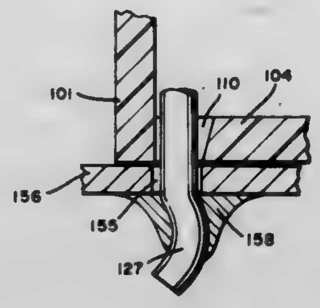
LAMP SOCKET

Larry F. Trafford, Owen Sound, Canada, assignor to General Signal Corporation, Stamford, Conn.

Filed Dec. 5, 1980, Ser. No. 213,294

Int. Cl.[3] H01R *9/12*

U.S. Cl. 339—17 D **18 Claims**



1. A lamp socket for accommodating a lamp and comprising in combination:

(a) a non-conducting housing having a side wall and a base and adapted to accommodate a lamp;

(b) a first contact member captured by cooperative coaction with said side wall of said housing and in a predetermined relationship with respect thereto and including:

(1) a first portion projecting inward from said side wall for contacting the base of a lamp inserted into said housing; and

(2) a second portion projecting through a first opening in said base of said housing for accommodating an external electrical connection;

(c) a second contact member captured by cooperative coaction with said housing and including:

(1) a first section comprising a spring projecting longitudinally upward from said base of said housing for contacting the base contact of a lamp inserted in said housing; and

(2) a second section projecting through a second opening in said base of said housing for accommodating an external electrical connection; and wherein

(d) at least one of said second portion and said second section, comprises a non-linear yielding member for coacting with a printed circuit board, when said lamp socket is placed in cooperative engagement therewith by placing said second portion and said second section through cooperating openings of the printed circuit board, each opening of which is larger in cross section than the associated second portion or second section, respectively, whereby to secure said lamp socket to the printed circuit board prior to soldering by the coaction of the yielding member with a portion of the perimeter of the associated opening.

4,380,359

ELECTRICAL CONNECTOR FOR AN INSTRUMENT PANEL

Robert P. Hoffman, Grand Blanc, and Lavern E. Chandler, Davison, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 5, 1980, Ser. No. 213,460

Int. Cl.[3] H01R *9/07, 31/08*

U.S. Cl. 339—17 F **3 Claims**

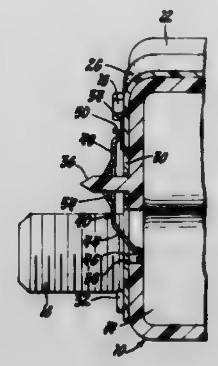
1. In a vehicle instrument panel, means for electrically connecting an instrument to a circuit comprising

an instrument panel housing formed of insulating material having an integral substantially rigid pin projecting from a surface of the housing,

the circuit including a printed circuit carried by the housing on said surface, an exposed conductor in the printed circuit adjacent and spaced from the pin,

an instrument positioned adjacent the housing and having a conductive portion facing the printed circuit, and

an elongated resilient conducting clip having free ends and a contact portion at each end, the contact portions electrically seating in flexed-down spring engagement against the said conductive portion of the instrument and the



exposed conductor on the printed circuit, respectively, for electrically connecting the printed circuit and the instrument, the clip further having means intermediate the contact portions for gripping the pin to hold the clip in bridging position.

4,380,360

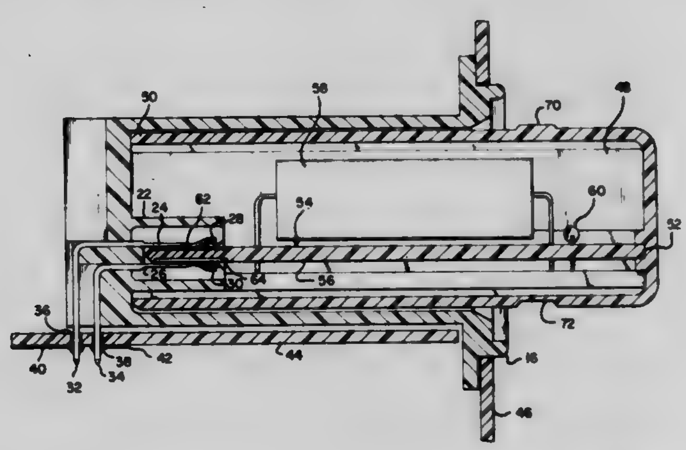
CARTRIDGE, HOLDER AND CONNECTOR SYSTEM

Kenneth R. Parmer, Harrisburg, and William J. Stape, Lewisberry, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Jun. 3, 1981, Ser. No. 269,939

Int. Cl.³ H01R *23/70*

U.S. Cl. 339—17 CF **8 Claims**



1. A cartridge receiving holder and connector system comprising:

a holder housing defining therein a cartridge receiving cavity, a front face defining a profiled opened entry to one end of said cavity, and connector means at the opposite end of said cavity directed therein and connected to circuits of external circuit means; and

a cartridge having a housing with an outer profile receivable in said holder housing cavity and defining a cavity therein, a circuit board assembly received in said cartridge housing cavity and including a circuit board with components mounted thereon, one end of said circuit board being accessible through an open end of said cartridge housing cavity,

whereby said cartridge is received in said holder cavity with the contacts of said holder engaging said circuit board through the open end of said cartridge cavity.

4,380,361

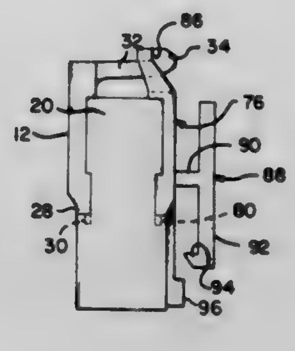
ELECTRICAL CONNECTOR COVER KIT

John C. Asick, Harrisburg; Donald A. Berry, Elizabethtown, and John E. Lucius, Enola, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 2, 1981, Ser. No. 239,809

Int. Cl.³ H01R *13/514*

U.S. Cl. 339—91 R **5 Claims**



1. A cover kit for an electrical connector said kit comprising:

a first cover and a plurality of second covers each having a profile different from the others of said second covers,

said first cover having a forward edge with means to engage a first side of a housing of an electrical connector and a plurality of parallel spaced latching legs at an opposite rear edge enclosing and extending across a rear portion of said housing,

said second cover having a forward edge with means to engage the opposite side of said housing and an opposite rear edge profiled to define a plurality of apertures for intermating engagement with said latching legs of first cover to be detachably latched thereto enclosing said housing.

4,380,362

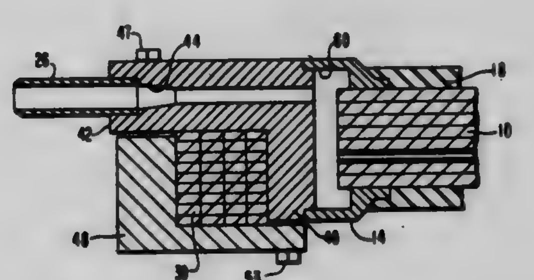
DIRECTLY COOLED BOLTED SERIES CONNECTION OF GENERATOR STATOR COILS

Roger L. Swensrud, Plum Borough; Dennis Pavlik, Murrysville, and John J. DeLuca, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 23, 1981, Ser. No. 256,634

Int. Cl.³ H01R *13/00*

U.S. Cl. 339—112 L **8 Claims**



1. A fluid cooled electrical connection apparatus, comprising:

a conductive first member, said first member having a tubular hole therethrough, said tubular hole having a first and a second terminus;

a nozzle, said nozzle having a first and a second terminus, said first nozzle terminus being connected to said first terminus of said tubular hole, said nozzle being in fluid communication with said tubular hole;

a second member, said second member being connectable to said first member, said second member being generally L-shaped;

a first conductor, said first conductor having one terminus disposed between said first and second member;

means for causing said first and second members to be pulled

together and to secure said first conductor between said first and second member;

a second conductor, said second conductor having fluid channels therethrough said second conductor being connected to said first member, said fluid channels of said second conductor being in fluid communication with said second terminus of said tubular hole, whereby said fluid channels of said second conductor are in fluid communication with said nozzle; and

whereby said second conductor is in electrical communication with said first conductor.

4,380,363

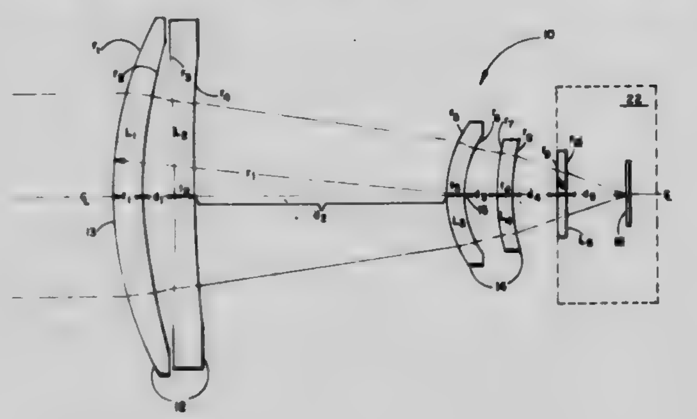
FOUR ELEMENT INFRARED OBJECTIVE LENS

Thomas P. Fjeldsted, West Covina, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Apr. 3, 1981, Ser. No. 251,026

Int. Cl.³ G02B *1/00*

U.S. Cl. 350—1.3 **2 Claims**



1. An infrared lens system comprising:

a forward assemblage and a rearward assemblage,

said forward assemblage including a lens L1 composed of silicon and a lens L2 composed of germanium,

said rearward assemblage including a lens L3 composed of germanium, a lens L4 composed of silicon and a window L5 of sapphire,

said lens L1 having forward and rearward radii r1 and r2, respectively,

said lens L2 having forward and rearward radii r3 and r4, respectively,

said lens L3 having forward and rearward radii r5 and r6, respectively,

said lens L4 having forward and rearward radii r7 and r8, respectively,

said window L5 having forward and rearward radii r9 and r10, respectively,

the thickness of said lens L1, L2, L3, L4, and window L5 being designated by t1, t2, t3, t4, and t5, respectively,

the distances between said lens L1 and L2 being designated d1,

the distance between said lens L2 and L3 being designated d2,

the distance between said lens L3 and L4 being designated d3,

the distance between said lens L4 and window L5 being designated by d4,

the relationship among said lenses being as set forth in the table following:

TABLE

Lens Element	Radius	Thickness and Spacing	Material
L_1	$r_1 = 1.838 \pm 0.002$	$t_1 = 0.125 \pm 0.004$	Si
	$r_2 = 2.674 \pm 0.005$	$d_1 = 0.125 \pm 0.006$	Air
L_2	$r_3 = 121.0 \pm 2.4$	$t_2 = 0.125 \pm 0.010$	Ge
	$r_4 = 14.882 \pm 0.031$	$d_2 = 1.217 \pm 0.020$	Air
L_3	$r_5 = 0.587 \pm 0.001$	$t_3 = 0.100 \pm 0.002$	Ge
	$r_6 = 0.504 \pm 0.001$	$d_3 = 0.129 \pm 0.004$	Air

TABLE-continued

Lens Element	Radius	Thickness and Spacing	Material
L_4	$r_7 = 0.907 \pm 0.001$	$t_4 = 0.100 \pm 0.002$	Si
	$r_8 = 1.289 \pm 0.002$	$d_4 = 0.200 \pm 0.030$	Air
L_5	$r_9 = \infty$	$t_5 = 0.040 \pm 0.005$	SA
	$r_{10} = \infty$		

given the equivalent focal length f' as equal to 1.43 and r_1, r_2, r_3, r_4, r_5, r_6, r_7, r_8 being positive.

4,380,364

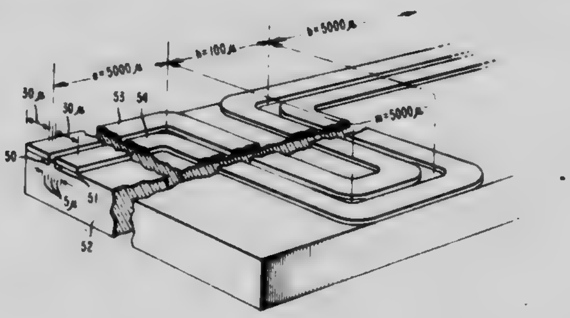
VELOCITY MISMATCHED GATE

Enrique A. J. Marcatili, Rumson, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 4, 1980, Ser. No. 174,831

Int. Cl.³ G02B *5/14*

U.S. Cl. 350—96.14 **8 Claims**



1. In combination:

a pair of coupled wavepaths (61, 62) and;

traveling wave means (63) for producing a standing wave for locally modulating the difference in the phase constants of said coupled wavepaths (61, 62);

characterized in that

said traveling wave means (63) is disposed along said coupled wavepaths so as to have first, longitudinally disposed regions (a, b, c . . .) which interact with said coupled wavepaths, separated by second, longitudinally disposed regions (m, p . . .) along which there is no interaction with said coupled wavepaths.

4,380,365

OPTICAL FIBER, HAVING ON AT LEAST ONE OF ITS FRONTAL EXTREMITIES A PLANO-CONVEX MICROLENS JOINED WITH ITS PLANE FACE TO SAID FRONTAL EXTREMITY

Daniel Gross, Carouge, Switzerland, assignor to Battelle Memorial Institute, Carouge, Switzerland

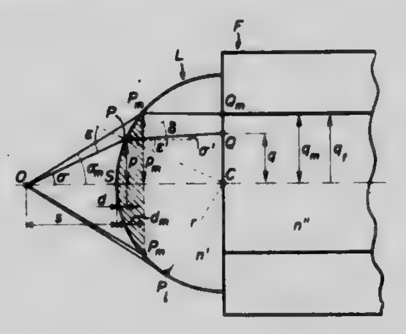
PCT No. PCT/CH79/00074, § 371 Date Jan. 23, 1980, § 102(e) Date Jan. 17, 1980, PCT Pub. No. WO79/01106, PCT Pub. Date Dec. 13, 1979

PCT Filed May 23, 1979, Ser. No. 193,529

Claims priority, application Switzerland, May 23, 1978, 5574/78

Int. Cl.³ G02B *5/172*

U.S. Cl. 350—96.18 **7 Claims**



1. In combination, a virtual point source of divergent rays

and an optical fiber having an extremity confronting said source for irradiation thereby, said fiber having an axis in line with said source and an end face at said extremity perpendicular to said axis adjoining a flat side of a plano-convex microlens of transparent thermoplastic material with a spherically curved outer surface, said fiber having a core whose cross-sectional area at said end face is completely overlaid by said flat side of said microlens,

said microlens having an apex on said axis separated from said source by a distance s related to the radius of curvature r of said outer surface by a ratio s/r approximately corresponding to the geometric mean of a first limiting value $(s/r)_p = 1/(n'-1)$ and a second limiting value $(s/r)_l = 1/\{\cos[\arcsin(1/n')] - 1\}$, n' being the refractive index of said thermoplastic material and being at least equal to the refractive index of said core.

4,380,366

DETACHABLE CONNECTOR FOR OPTICAL FIBRES

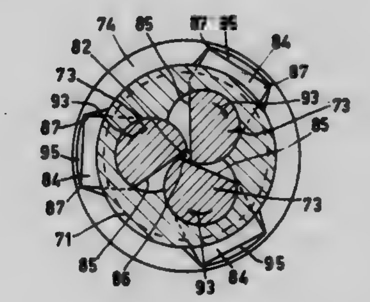
Adrianus J. J. Franken; Franciscus M. Coolen; Giok D. Khoe; Jacob Langerhorst, and Henricus W. W. Smulders, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 4, 1979, Ser. No. 35,979

Claims priority, application Netherlands, May 5, 1978, 7804825

Int. Cl.³ G02B *7/26*

U.S. Cl. 350—96.21 13 Claims



12. A connector for coupling optical fibers comprising two connector portions, each connector portion comprising:

a housing, with means for detachably connecting the housing to another housing, said housing having an inner wall, a central axis and a reference face oriented perpendicular to the central axis, said reference face contacting the reference face of another housing when the connector portions are connected, said housing also having an edge having a toothed profile for engaging a toothed edge of another housing when the connector portions are connected, each of the toothed edges having faces along which the housings contact each other, said faces being along lines which radiate from the central axis, the central axes of the connected housings being coaxial; and

centering means, arranged in the housing, for disengageably centering a fiber end with respect to a fiber end in the other connector portion, said centering means comprising at least one centering element having a first side arranged to abut against at least one side of the fiber end and having a second side arranged to abut against the inner wall of the housing;

characterized in that;

the inner wall of the housing has as many symmetry planes as there are centering elements, the central axis being situated in each symmetry plane;

the toothed edge is arranged to be resilient with respect to the reference face in a direction parallel to the central axis; and

the centering means further comprises:

a holder having three circular-cylindrical recesses each having a radius of a first length and each having an axis of a second length, the axes of the recesses being parallel to the central axis and equidistant therefrom, the distance between the axes of the recesses and the central axis being a small amount less than the radii of the recesses; and

three substantially circular-cylindrical centering elements, one centering element provided in each recess, each centering element having a flat side disposed toward the central axis, the centering elements forming a channel having a triangular cross-section around the central axis.

4,380,367

COATING MATERIAL FOR OPTICAL COMMUNICATION GLASS FIBERS

Toshio Suzuki, Ichihara, Japan, assignor to Toray Silicone Co., Ltd., Tokyo, Japan

PCT No. PCT/JP80/00050, § 371 Date Nov. 3, 1980, § 102(e) Date Nov. 3, 1980, PCT Pub. No. WO80/02078, PCT Pub. Date Oct. 2, 1980

PCT Filed Mar. 28, 1980, Ser. No. 212,712

Claims priority, application Japan, Mar. 28, 1979, 54-37259

Int. Cl.³ G02B *5/14*

U.S. Cl. 350—96.34 6 Claims

1. A coating material for optical communication glass fibers, comprising the following components (a), (b) and (c):

(a) a vinyl group terminated methylphenylpolysiloxane having a viscosity at 25° C. of 100 to 15,000 cP and with a methyl/phenyl molar ratio in the range of 1/1 to 10/1, the amount of the component (a) being 100 parts by weight,

(b) at least one organohydrogenpolysiloxane selected from the group consisting of a methylhydrogenpolysiloxane having a viscosity at 25° C. of 0.7 to 5,000 cP and containing at least three silicon atom bonded hydrogen atoms in one molecule, and a methylphenylhydrogenpolysiloxane having a viscosity at 25° C. of 0.7 to 5,000 cP, containing at least three silicon atom bonded hydrogen atoms in one molecule and with a methyl/phenyl molar ratio not smaller than 1/1, the amount of the component (b) being an amount by weight required to provide a molar ratio of the silicon atom bonded hydrogen atoms in the component (b) to the silicon atom bonded vinyl groups in the component (a) of 0.8/1 to 10/1, and

(c) platinum or a platinum compound, the amount by weight of the component (c) being 0.5 to 1,000 ppm in terms of platinum metal based on the total amount of the components (a) and (b).

4,380,368

PROJECTION SCREEN

Ken Ohmata, 69-15, Minami Iwakuni-cho 2-chome, Iwakuni-shi, Yamaguchi-ken; Hideya Aoki, Mitsui Sekiyu Kagaku Yushu Nishi Shataku C18-102, 5, Yushudai Nishi 2-chome, Ichihara-shi, Chiba-ken, and Naoyuki Tamura, 3-27, Misono-cho 1-chome, Otake-shi, Hiroshima-ken, all of Japan

Filed Aug. 20, 1980, Ser. No. 179,645

Claims priority, application Japan, Aug. 21, 1979, 54/106861

Int. Cl.³ G03B *21/60*

U.S. Cl. 350—117 12 Claims

1. A projection screen having a surface formed by a metal

plate member having a plurality of raised ridges which are substantially unidirectional with a ridge density of about 10^3 to 10^9 ridges per cm^2, said ridges each being formed by two side surfaces sloping towards one another and having a maximum width of about 0.5 to 50 microns; said ridges each having a length of approximately 100 microns or less, said projection screen further including a plurality of surface irregularities formed by crater patterns; said projection screen further including an outer coating of the oxide of the metal forming the plate member.

4,380,369

ADJUSTABLE SUPPORT SYSTEM FOR CYCLE MIRROR

Barry M. Schacht, Boulder, Colo., assignor to Mirrycle Corporation, Boulder, Colo.

Continuation-in-part of Ser. No. 95,480, Nov. 19, 1979, abandoned, Ser. No. 120,975, Feb. 13, 1980, abandoned, and Ser. No. 120,977, Feb. 13, 1980, abandoned. This application Jan. 8, 1981, Ser. No. 223,412

Int. Cl.[3] G02B *7/18*

U.S. Cl. 350—307 **17 Claims**

1. An adjustable support system for a cycle mirror which support system is designed for mounting on a standard cycle brake lever bracket assembly in a manner which will not interfer with the use or operation of said brake lever bracket assembly, wherein said brake lever bracket assembly defines at least one through hole and includes a lever bracket, a lever, and a lever pivot wherein the improvement comprises:

a base member having a first and a second end, wherein substantially adjacent said first end is included means designed for mechanical attachment or abutment of said base member at at least one of said through holes defined by said standard brake lever bracket assembly;

an arm, said arm having a first and second end said first end of said arm pivotally secured to said base substantially adjacent to said second end of said base and at an angle to said base, and

a mounting member for supporting a mirror, said mounting member pivotally connected substantially adjacent to said second end of said arm; whereby such attachment or abutment of said support system to said standard brake lever bracket assembly is in a manner which will not interfer with the use or operation of said brake lever bracket assembly, and whereby further, by adjustment of said base member, said arm and said mounting member for supporting a mirror can be adjusted to substantially any direction of rear view and then retained in that direction with a substantial amount of stability.

4,380,370

OUTSIDE REAR VIEW MIRROR FOR MOTOR VEHICLES

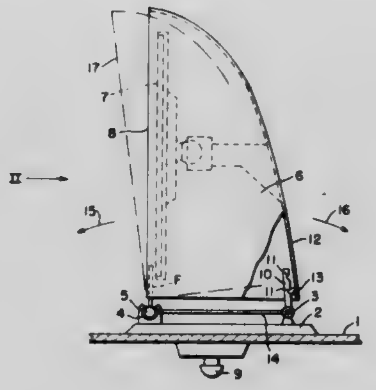
Bernhard Mittelhäuser, No. 57, D-3002 Wedemark 2, Fed. Rep. of Germany

Filed May 6, 1981, Ser. No. 261,052

Claims priority, application Fed. Rep. of Germany, May 6, 1980, 3017228

Int. Cl.[3] G02B *7/18*

U.S. Cl. 350—307 **5 Claims**



1. An external rear view mirror for motor vehicles, comprising:

a mounting support connected to said vehicle;

a housing open on one side;

a mirror body arranged in said housing;

a rotating shaft interposed between said mounting support and said housing, said housing being connected with said mounting support by said rotating shaft in such a way that said housing is pivotable about two essentially vertical axes arranged one behind the other when viewed in the longitudinal direction of said vehicle; and

at least two arresting means for releasably holding said housing, said arresting means being respectively located at different distances from said mounting support.

4,380,371

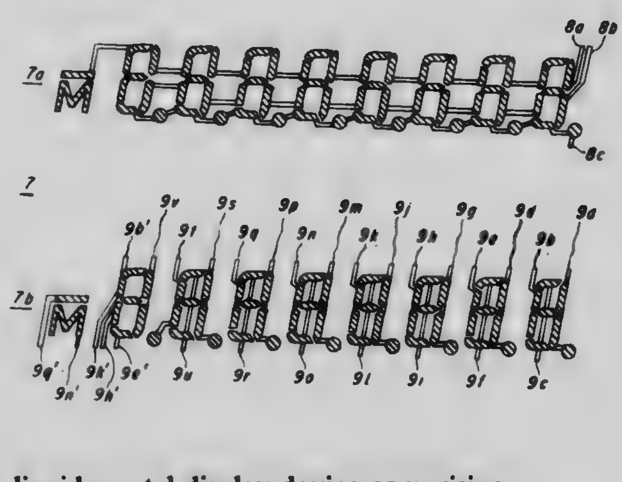
LIQUID CRYSTAL DISPLAY DEVICE

Gene A. Frantz, Irving, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 799,808, May 23, 1977, abandoned. This application Mar. 17, 1980, Ser. No. 130,780

Int. Cl.[3] G02F *1/13*

U.S. Cl. 350—336 **4 Claims**



1. A liquid crystal display device comprising:

first and second substrates;

liquid crystal material sealed between the subtrates;

a plurality of segment electrodes disposed on a major surface of the first substrate;

a plurality of segment electrodes disposed on a major surface of the second substrate in registration with the segment electrodes on the first substrate;

the segment electrodes being arranged to provide a row of

eight selectively displayable characters including an end character and seven other characters, each character being defined by a pattern of at least seven segment electrodes on each substrate disposed in separately actuable electrode pairs, each seven-segment character pattern being arranged in a figure-eight configuration;

the segment electrodes on the first substrate which define the seven other characters being devided into first, second, and third groups, each group including from one to three segment electrodes per character, each group being restricted to segment electrodes in the same relative positions of each figure-eight configuration;

a first drive conductor interconnecting the segment electrodes of the first group;

a second drive conductor interconnecting the segment electrodes of the second group;

a third drive conductor interconnecting the segment electrodes of the third group;

the segment electrodes on the second substrate which define the seven other characters being divided into first, second and third sets, each set including from one to three segment electrodes per character, each set being restricted to segment electrodes in the same relative positions of each figure-eight configuration;

a plurality of segment conductors including first, second, and third segment conductors per character respectively connected at each character to the segment electrodes of the first, second and third sets, thereby providing twenty-one segment conductors connected to twenty-one separate subsets of segment electrodes on the second substrate;

each of the segment electrodes on the first substrate which define the end character being connected to one of the drive conductors;

the plurality of segment conductors further including at least three additional segment conductors each of which is connected to at least one of the segment electrodes on the second substrate which define the end character, one or more of the three additional segment conductors being connected in common with one or more of the twenty-one segment conductors of the seven other characters;

such that the total number of electrically separate segment conductors plus the number of drive conductors is less than or equal to twenty-six, and the segment conductors and drive conductors are connected to the segment electrodes of the eight characters in such manner that each segment electrode pair is actuable by a unique combination of one of the drive conductors and one of the segment conductors.

4,380,372

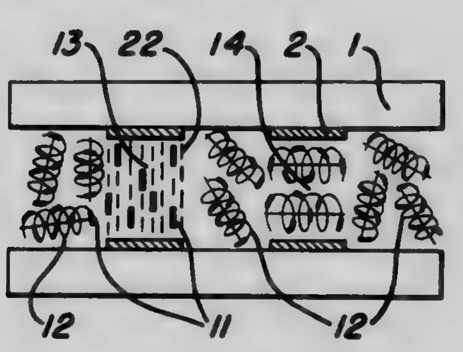
PHASE TRANSITION MODE LIQUID CRYSTAL DISPLAY DEVICE

Masaaki Taguchi, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Japan

Filed Aug. 20, 1980, Ser. No. 179,815

Int. Cl.³ G02F *1/13*

U.S. Cl. 350—346 **26 Claims**



15. A phase transition mode liquid crystal display device comprising: a liquid crystal mixture comprised of a nematic liquid crystal mixed with at least one of a cholesteric liquid crystal and a chiral nematic liquid crystal, the liquid crystal mixture having a thermally established psuedo-focal-conic state in which the liquid crystal mixture exhibits in the absence of an electric field a light-scattering characteristic effective for use as the display background; and means including electrodes arranged to define a pattern of picture elements against the display background and coacting with the liquid crystal mixture for selectively applying electric fields to the liquid crystal mixture to display selected picture elements, said means comprising means for applying a relatively strong electric field to the liquid crystal mixture in the regions of selected picture elements to transform the selected picture element regions to a homeotropic light-transmitting state and for applying a relatively weak electric field to the liquid crystal mixture in the regions of non-selected picture elements to transform the non-selected picture element regions to a focal-conic light-scattering state; whereby the light-scattering states of the display background and the non-selected picture element regions exhibit a generally similar appearance which contrasts with that of the light-transmitting state of the selected picture element regions.

4,380,373

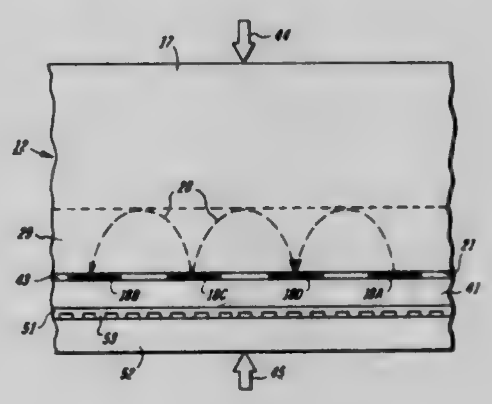
CONFORMABLE PROXIMITY COUPLED ELECTRO-OPTIC DEVICES

Robert A. Sprague, Saratoga, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 6, 1980, Ser. No. 194,525

Int. Cl.³ G02F *1/03*

U.S. Cl. 350—356 **8 Claims**



1. In an electro-optic device including
an electro-optic element,
a flexible member, and
a plurality of electrodes supported in spaced apart relationship on said flexible member, said electrodes facing a surface of said electro-optic element and being intimately coupled thereto to proximity couple electric fields into said electro-optic element;
the improvement comprising
a rigid base plate, and
resilient means compressed between said flexible member and said base plate for applying a distributed bias to said flexible member, said bias urging said flexible member toward said surface, thereby causing said electrodes to generally conform to said surface.

4,380,374

VARIABLE FOCAL LENGTH PROJECTION LENS FOR USE ON OVERHEAD PROJECTORS

Dennis F. Vanderwerf, Cottage Grove, Minn., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn.

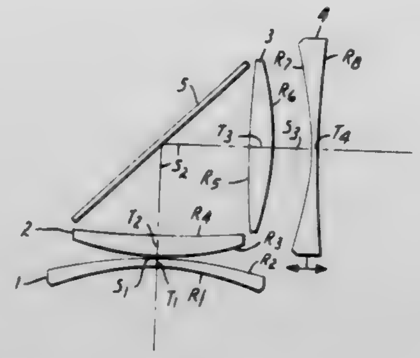
Filed Apr. 16, 1981, Ser. No. 254,947

Int. Cl.³ G02B *9/58, 15/14*

U.S. Cl. 350—423 **4 Claims**

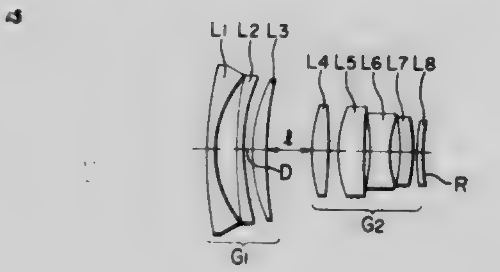
1. A lens assembly for use in an overhead projector having a variable focal length to afford changes in magnification with fixed object-to-image distances as between the stage and the

screen, said lens assembly comprising a first negative meniscus lens airspaced from a positive meniscus lens which is airspaced from a second positive double convex lens which is airspaced from a movable lens element which is a negative double con-



cave lens affording a range of movement to change the focal length between about 276 mm to 356 mm and afford a change in the magnification by a factor of between 1.4× and 1.5×, and a mirror positioned between said positive lenses to fold the light path.

4,380,375
WIDE ANGLE ZOOM LENS OF TWO-GROUP CONSTRUCTION
Satoshi Mogami, Kodaira, Japan, assignor to Nippon Kogaku K. K., Tokyo, Japan
Filed May 27, 1980, Ser. No. 153,788
Claims priority, application Japan, Jun. 8, 1979, 54-71112
Int. Cl.[3] G02B *15/14*
U.S. Cl. 350—426 4 Claims



1. In a wide angle zoom lens system which comprises, in succession from the object side, a divergent lens group and a convergent lens group and in which magnification change is effected by relative movement of said two groups and the absolute value of the focal length of said divergent lens group is greater than 1.12 times the longest total focal length of the entire system, the improvement residing in

that said divergent lens group includes, in succession from the object side, at least two negative meniscus lenses having their convex surfaces facing the object side and only one positive meniscus lens having its convex surface facing the object side, and

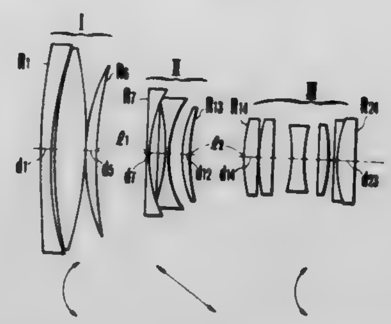
that said lens system satisfies the following conditions:

$$\frac{D}{|f_1|} < 0.1 \qquad \text{(I)}$$

$$0 < \frac{1}{R} < \frac{2.5}{|f_1|} \qquad \text{(II)}$$

where D is the air space between said positive meniscus lens and the negative meniscus lens immediately before said positive meniscus lens, f_1 is the focal length of said divergent lens group, and R is the curvature radius of the surface of said convergent lens group which is most adjacent to the image side.

4,380,376
ZOOM OBJECTIVE
Shigeyuki Suda, Ohashi, and Kazuo Tanaka, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 16, 1980, Ser. No. 159,492
Claims priority, application Japan, Jun. 18, 1979, 54-76528
Int. Cl.[3] G02B *15/18*
U.S. Cl. 350—427 3 Claims



1. A zoom objective comprising:

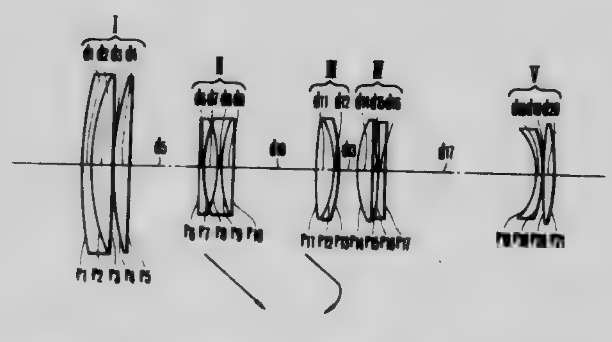
a first lens group, a second lens group and a third lens group arranged in the order mentioned from an objective end to an image end;

said first lens group having a positive refractive power and being axially movable forward and then rearward when zooming from a wide angle to a telephoto setting;

said second lens group having a negative refractive power and being axially movable from the objective end to the image end when zooming from the wide angle to the telephoto setting; and

said third lens group having a positive refractive power and being axially movable forward and then rearward when zooming from the wide angle to the telephoto setting.

4,380,377
COMPACT ZOOM LENS
Yasuhisa Sato, Kawasaki, and Sadahiko Tsuji, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 16, 1980, Ser. No. 187,707
Claims priority, application Japan, Sep. 17, 1979, 54-119053
Int. Cl.[3] G02B *9/64, 15/18*
U.S. Cl. 350—427 2 Claims



1. A compact zoom lens comprising:

a first group having a positive refractive power, including a cemented positive lens of a negative lens and a positive lens, and a positive lens, and movable for focusing;

a second group having a negative refractive power, comprising a negative lens and a cemented negative lens of a negative lens and a positive lens, and movable for variation of magnification;

a third group having a positive refractive power, comprising a cemented positive lens of a positive lens and a negative lens, and movable for compensation along with the second group; and

an image forming lens having a positive refractive power, positioned to the rear of the third group on an optical axis, and consisting of fourth and fifth groups,

said fourth group including, from front to rear, at least one positive lens with its front surface covex toward the front, and a negative lens; and

said fifth group consisting of, from front to rear, a negative meniscus lens of rearward convexity, and a positive lens, said zoom lens satisfying the following conditions:

$$0.7<\phi 4,5/\phi 4<0.85 \quad (1)$$

$$1.5<\phi 4s/\phi 4,5<2.2 \quad (2)$$

$$N4n>N4p \quad (3)$$

$$1.76<N5n<1.85 \quad (4)$$

$$30<\nu 5p<45 \quad (5)$$

where

$\phi 4$ is the refractive power of said fourth group;

$\phi 4,5$ is the overall refractive power of said fourth and fifth groups;

$\phi 4s$ is the refractive power of the first surface of the positive lens of said fourth group;

N4p is the refractive index of the positive lens in said fourth group (when the positive lens is plural in number, the average value thereof);

N4n is the refractive index of the negative lens in said fourth group;

N5n is the refractive index of the negative lens in said fifth group; and

$\nu 5p$ is the Abbe number of the positive lens of said fifth group.

4,380,378

CONTROL MECHANISM FOR A ZOOM LENS

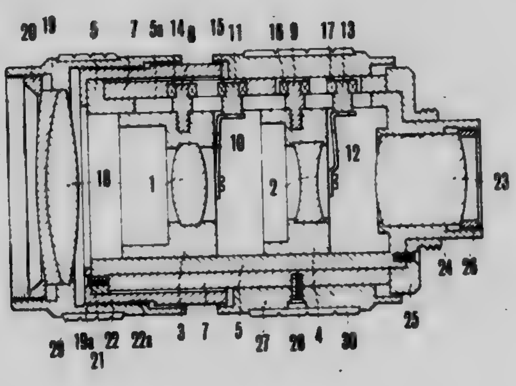
Tetsuo Tamura, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 20, 1980, Ser. No. 151,757

Claims priority, application Japan, Jun. 13, 1979, 54-74314

Int. Cl.³ G02B *7/10*

U.S. Cl. 350—429 8 Claims



1. A control system for a zoom lens comprising:

(a) a cam member fitted on a tubular body having defined therein a linear guide slot and arranged to be rotatable about an optical axis of said lens by actuation from outside of said lens, said cam member having a first camming slot for providing a primary camming surface and a second camming slot for providing a supplementary camming surface;

(b) lens holding means for containing a lens component which contributes to effect the functions of change of focal length and image shift compensation of said zoom lens, said lens holding means having engagement means extending through said linear guide slot to said first camming slot; and

(c) resilient means fixed to said lens holding means and having an engaging member extending through said linear guide slot of said tubular body and engaging with said supplementary camming surface to exert a spring force acting between said lens holding means and said supplementary camming surface through said engagement member to continuously urge said engagement means against said primary camming surface.

4,380,379

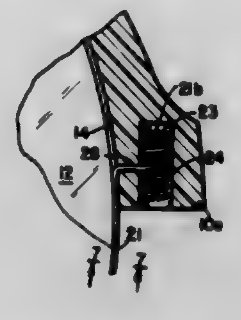
OPTOMETRIC DEVICE

John Ahern, Barrington; Wayne Farmer, Lincoln, both of R.I.; David Hawes, Fairhaven, and Herbert J. McEvoy, Jr., North Attleboro, both of Mass., assignors to Fairfield Optical Company, Inc., Mansfield, Mass.

Filed Aug. 25, 1980, Ser. No. 181,452

Int. Cl.³ G02C *1/04, 5/00*

U.S. Cl. 351—106 10 Claims



1. An optometric device comprising:

a semi-rimless plastic two lens frame having two rim surfaces;

two lenses for mounting in the frame each having a circumferential groove therearound; and

means for mounting the lenses in the frame comprising for each lens means forming a rib projecting from the rim surface and integral therewith and configured to engage with a portion of the lens groove to axially fix the lens and means connected to the frame for releasably engaging a remaining portion of the groove of the lens to radially fix the lens, wherein the releasably engaging means comprises a flexible line, means connecting the line is extendable along a portion of the remaining lens groove and receivable therein and winding means mounting in the frame and connected to the other end of the line for maintaining the line in a taut state, the winding means comprising means forming an unthreaded bore in the frame and a threaded rod having means disposed at one end for engaging said other end of the line and configured to tightly fit in the bore when the line is wrapped in the threads thereof and having means disposed at the other end effecting the turning thereof to simultaneously wrap the line therearound and insert the rod in the bore until the line is taut.

4,380,380

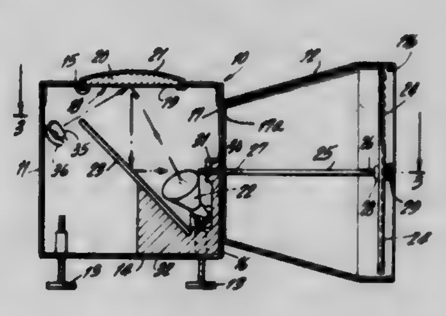
EPISCOPIC PROJECTOR

Frank G. Back, 5596 Soledad Mt. Rd., La Jolla, Calif. 92037

Filed Jun. 11, 1981, Ser. No. 272,506

Int. Cl.³ G03B *21/06*

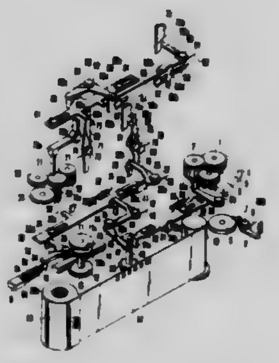
U.S. Cl. 353—66 9 Claims



1. An episcopic projector comprising an opaque hollow lamp housing having a top member, a bottom, a front, a back and opposed sides, a window in the top member, a field flattening lens in the top member window to receive an image source thereon, an opening in the front of the lamp housing, a lens housing having a rear and a front opening secured to the lamp housing with the opening at the rear of said housing in communication with the interior of the lamp housing, a light source carried within the lamp housing and directed at the field flattening lens, a Fresnel lens carried in the lens housing front opening to receive light reflected from the image source

through the field flattening lens, an angularlary disposed mirror in the light path between the said lens and the Fresnel lens to receive the reflected light and direct it through the Fresnel lens and means to move the Fresnel lens along the optical axis of the projector to focus the Fresnel lens.

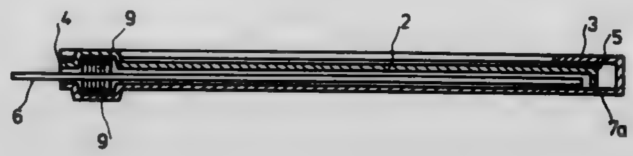
4,380,381
CAMERA WITH MOTOR DRIVEN WINDING-UP DEVICE
Nobuo Tezuka, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 5, 1981, Ser. No. 318,584
Claims priority, application Japan, Nov. 7, 1980, 55-156847; Nov. 7, 1980, 55-156849; Nov. 7, 1980, 55-156850; Nov. 7, 1980, 55-156851
Int. Cl.³ G03B *17/38, 17/42*
U.S. Cl. 354—173 **10 Claims**



1. A motor driven winding-up device for a camera with a shutter including:
(a) an electric motor;
(b) a spool arranged to be driven by said motor for winding up film in the camera;
(c) clutch means for transmitting driving torque of said motor to said spool so that said spool is driven to rotate when said clutch means is actuated, said clutch means being placed in a non-actuated state when a film is wound up by a length of one frame;
(d) switching means for controlling a supply of current to said motor when said switching means is actuated, said switching means being placed in a non-actuated state corresponding to completion of energizing the shutter;
(e) an actuating member for selectively actuating said clutch means and said switching means by shifting in a prescribed direction; and
(f) a latch member engageable with said actuating member, and arranged to be disengaged from said actuating member when operation of the shutter is completed, for initiating shifting of said actuating member.

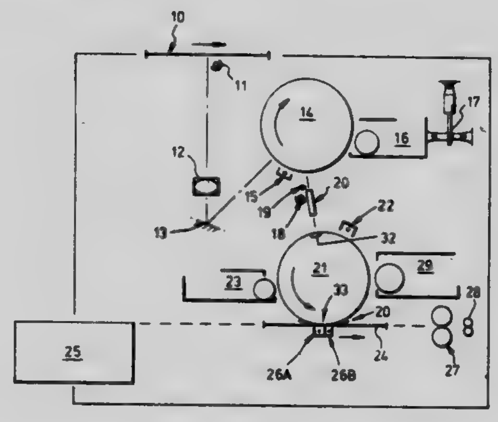
4,380,382
FILM CASSETTE FOR A PHOTOSENSITIVE FILM STRIP
Dieter Engelsmann, Unterhaching; Franz Hoffacker, Langenfeld; Guido Kovacic, Unkel; Peter Lermann, Naring; Hermann Lührig, Leverkusen, and Karl Wagner, Munich, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Jun. 17, 1981, Ser. No. 274,555
Claims priority, application Fed. Rep. of Germany, Jun. 25, 1980, 3023819
Int. Cl.³ G03B *17/26*
U.S. Cl. 354—275 **7 Claims**

1. A film cassette for a photosensitive film strip suitable for taking several pictures, consisting of a light-proof, flat flexible case substantially equal in length to the strip of film and a cassette opening which extends perpendicularly of the length of the case and which is provided with light-sealing means, characterised in that the case comprises a top part and a bottom part, the top part and the bottom part being fixedly intercon-



nected solely in the vicinity of the cassette opening and the top part being surrounded by the bottom part and arranged for displacement therein in such a way that light-proof labyrinths are formed at the three edges of the bottom part and top part which are displaceable relative to one another and, even if the case is bent, the strip of film retains its freedom of movement.

4,380,383
COPYING METHOD AND APPARATUS
Joseph W. Daintrey, London; John Rushton, Wickford, and Michael Willis, London, all of England, assignors to Gestetner Manufacturing Limited, London, England
Filed Nov. 14, 1980, Ser. No. 206,904
Claims priority, application United Kingdom, Nov. 16, 1979, 7939698
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—3 R **19 Claims**

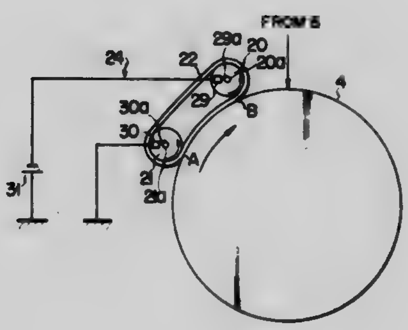


1. A copying system comprising in combination a first, memory, photoconductive surface, means to form and develop an electrostatic image of an original on said first, memory, photoconductive surface, a second photoconductive surface, positioned adjacent said first photoconductive surface means repeatedly forming on said second photoconductive surface second electrostatic images of the developed image on the first surface by illumination of the first surface, said second electrostatic images being identical with each other and corresponding to the first electrostatic image, means to transfer the second images from the second surface to copy material, and means to develop said second images.

4,380,384
CHARGING DEVICE FOR ELECTRONIC COPIER
Tsuyoshi Ueno, Fujisawa, and Hideo Mukai, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Jan. 23, 1981, Ser. No. 227,779
Claims priority, application Japan, Jan. 25, 1980, 55-7511; Jan. 25, 1980, 55-7512; Jan. 25, 1980, 55-7513; Jan. 25, 1980, 55-7824[U]; Jan. 25, 1980, 55-7825[U]
Int. Cl.³ G03G *15/02*
U.S. Cl. 355—3 CH **9 Claims**

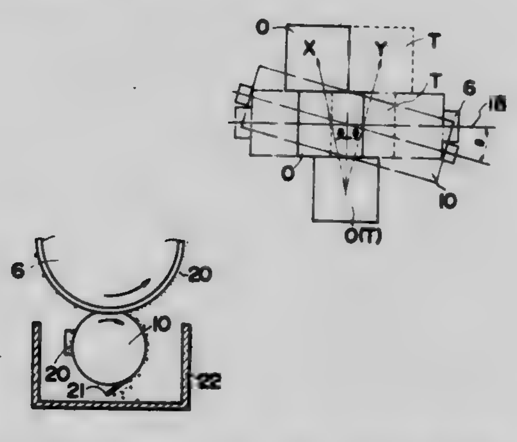
4. An electronic copier comprising:
(a) a photosensitive medium;

(b) endless charging belt means, provided in contact with said photosensitive medium and having a characteristic resistance ranging from about 10^4 to about 10^{10} Ω.cm, for charging said photosensitive medium;
(c) drive mechanism means for driving said charging belt at a peripheral speed different from that of said photosensitive medium;
(d) power supply means for applying a voltage to said charging belt means such as to produce a potential gradient therein;



(e) exposure device means for forming an electrostatic latent image on said photosensitive medium;
(f) developing device means for developing the electrostatic latent image formed on said photosensitive medium to obtain a visible image;
(g) transfer device means for transferring the visible image formed on said photosensitive medium onto a recording sheet; and
(h) fixing device means for fixing the visible image transferred onto said recording sheet.

4,380,385
METHOD OF TRANSFERRING TONER POWDER IMAGE BY PRESSURE AND APPARATUS THEREFOR
Yoshihiro Ozaki, Isehara; Shuichiro Kaneko, Mitaka; Masayuki Kuniyoshi, Sagamihara; Shoji Kondo, Tokyo, and Yasukuni Omata, Hachioji, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Jan. 27, 1981, Ser. No. 228,806
Claims priority, application Japan, Feb. 18, 1980, 55-18875
Int. Cl.[3] G03G *15/16*
U.S. Cl. 355—3 TR 8 Claims

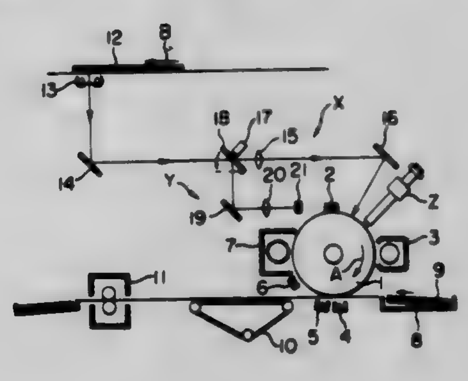


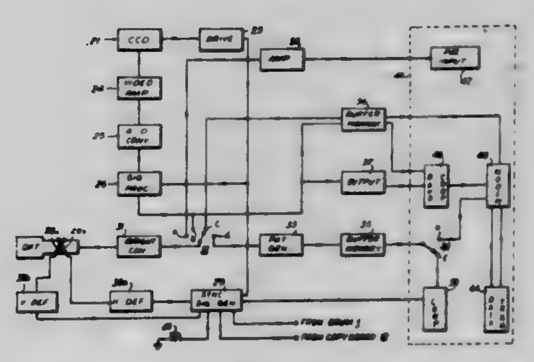
1. A method of transferring a toner powder image formed on a rotatable drum to an image receiving member by pressure, which comprises pressing a pressure roller against said rotatable drum under a pressure of at least about 20 kg/cm^2 and disposing said pressure roller to intersect its rotating axis with the rotating axis of said drum at an angle of about 0.5° to 2° for producing sliding between said rotatable drum and said image receiving member as said image receiving member is transported between said drum and said pressure roller.

4,380,386
METHOD FOR CONTROLLING PREFATIGUING ILLUMINATION OF A PHOTOSENSITIVE MEMBER
Kazuo Yasuda; Akihiko Tamura, and Yoshimitsu Nakamura, all of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Hino, Japan
Filed Jul. 16, 1981, Ser. No. 283,811
Claims priority, application Japan, Jul. 29, 1980, 55-104025
Int. Cl.[3] G03G *21/00*
U.S. Cl. 355—3 R 4 Claims

1. In a copying machine which includes a photosensitive member for receiving a latent image in the course of a copying operation during which a reproduction is produced by the machine, and an auxiliary light source operable to illuminate the photosensitive member and thereby prefatigue the member prior to a copying operation during which a latent image is received thereon, the improvement comprising a method of controlling the operation of the auxiliary light source, comprising:
measuring the time interval between the completion of each copying operation and initiation of the next succeeding copying operation; and
controlling the operation of the auxiliary light source at the initiation of each copying operation in accordance with the latest measured time interval such that the amount of prefatiguing illumination on the photosensitive member is varied in substantially direct relation to the length of the measured time interval, whereby the photosensitive member is appropriately prefatigued in accordance with the measured time interval between successive copying operations.

4,380,387
COMPOSITE INFORMATION RECORDING APPARATUS
Tatsuo Yajima, Hino, Japan, assignor to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 50,616, Jun. 21, 1979, abandoned. This application Oct. 19, 1981, Ser. No. 312,709
Claims priority, application Japan, Jun. 26, 1978, 53-77258
Int. Cl.[3] G03G *15/00*
U.S. Cl. 355—3 R 4 Claims





1. A composite information recording apparatus having an optical system for projecting an image of an original supported on a copy board onto a light sensitive medium, means for reproducing an electrical information signal as an electrostatic latent image on said medium, and means for producing a visible recording by developing either image on the light sensitive

medium, the improvement comprising a second optical system, an optical switching mirror for transferring the image on said copy board to said second optical system, a photoelectric converter located at the imaging portion of said second optical system, external signal transmitting apparatus, and means switching the input of said signal reproducing means to the output of photoelectric converter or to the output of said external signal transmitting apparatus.

4,380,388

CYCLIC ELECTROPHOTOGRAPHIC COPYING PROCESS

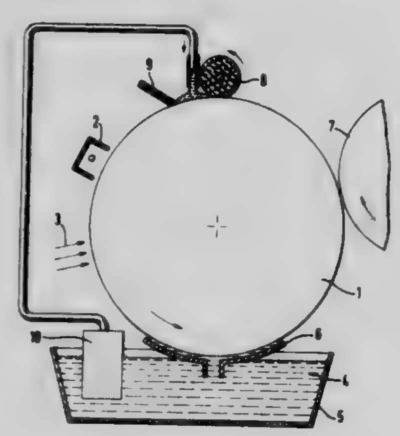
Roland Moraw, and Günther Schädlich, both of Wiesbaden, Fed. Rep. of Germany, assignors to Kalle, Niederlassung der Hoechst AG, Wiesbaden, Fed. Rep. of Germany

Filed Dec. 17, 1980, Ser. No. 217,423

Claims priority, application Fed. Rep. of Germany, Dec. 17, 1979, 2950769

Int. Cl.[3] **G03G** *21/00*

U.S. Cl. 355—15 **16 Claims**



1. An electrophotographic copying process comprising the steps of:

performing a cleaning operation on a recording element by carrying out at least one rinsing operation of the element utilizing a first quantity of a developer liquid;

performing a series of copying cycles comprising charging, exposing, developing with a liquid developer, transferring and fixing; and

after at least one copying cycle, performing additional cleaning operations by rinsing the element with a second quantity of developer liquid which is between "0" and "a" wherein "a" is an amount less than said first quantity and "0" means a completely omitted rinsing of developer liquid; the supply of developer liquid for rinsing said element being at least partially interrupted during said series of copying cycles.

4,380,389

DOCUMENT TRANSPORT FOR RASTER SCANNERS

William Kingsley, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Calif.

Filed Jul. 27, 1981, Ser. No. 286,726

Int. Cl.[3] **G03B** *27/48, 27/50*

U.S. Cl. 355—50 **3 Claims**

1. In a raster input scanner having at least one array for scanning documents line by line, the combination of;

(a) means forming a surface for supporting a document to be scanned, said surface forming means having a slit-like scanning aperture therein through which said array scans said document, the longitudinal axis of said aperture being substantially parallel to the direction of scan by said array;

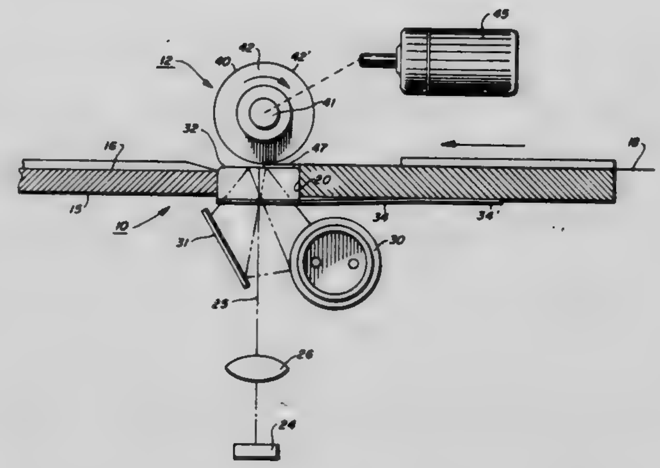
(b) transport means for moving a document to be scanned along said surface forming means and across said scanning aperture in a direction substantially perpendicular to the direction of scan by said array;

(c) means forming a transparent viewing window in said scanning aperture;

(d) said transport means including a document feed roll, the periphery of said feed roll cooperating with said viewing window to form a nip through which a document to be scanned passes;

(e) bias means for releasably biasing said viewing window and said document feed roll periphery into contact; and

(f) drive means for rotating said document feed roll to transport the document to be scanned along said surface form-



ing means and across said viewing window for scanning by said array, tangential contact of said document feed roll with said viewing window imparting constant velocity to said document while said bias means permits said nip to expand to accommodate passage of said document therethrough while minimizing velocity variations of said document as said document enters and leaves said nip.

4,380,390

EXPOSURE CORRECTING DEVICE

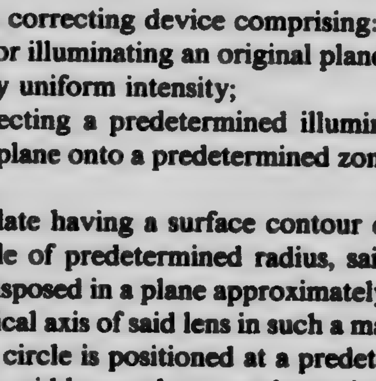
Masamichi Tateoka, Tokyo, and Kazuo Minoura, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 22, 1980, Ser. No. 199,505

Claims priority, application Japan, Oct. 29, 1979, 54-140044; Sep. 24, 1980, 55-133202

Int. Cl.[3] **G03B** *27/72*

U.S. Cl. 355—71 **4 Claims**



1. An exposure correcting device comprising:

a light source for illuminating an original plane with light of longitudinally uniform intensity;

a lens for projecting a predetermined illuminated zone of said original plane onto a predetermined zone of an image plane; and

a light-shield plate having a surface contour defined by an arc of a circle of predetermined radius, said light-shield plate being disposed in a plane approximately perpendicular to the optical axis of said lens in such a manner that the center of the circle is positioned at a predetermined axial distance from said lens and at a predetermined perpendicular distance from the optical axis of said lens, to thereby produce a substantially uniform exposure on said image plane;

wherein said light-shield plate is positioned between said

original plane and said lens in such a manner that the radius R of said circle, the axial distance L of the center of said circle from the front face of said lens and the perpendicular distance H of said center from the optical axis are selected so as to satisfy the following relations represented in centimeters:

$$\frac{13.5}{32}L^2 - \frac{1}{5.3} < H < \frac{29}{32}L^2 - \text{[illegible]}$$

and H−R<0.2.

4,380,391

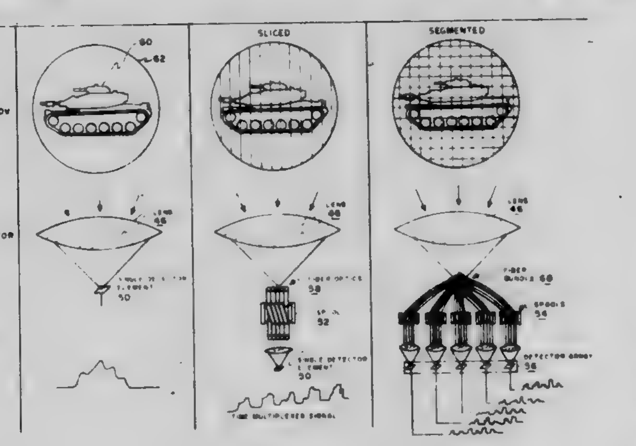
SHORT PULSE CO_2 LASER FOR RANGING AND TARGET IDENTIFICATION

Rudolph G. Buser, Wall, N.J.; Robert S. Rohde, Springfield, and Neal T. Nomiyama, Reston, both of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 30, 1980, Ser. No. 192,275

Int. Cl.[3] G01C *3/08;* **G02B** *5/14;* **H01S** *3/00;* **G06K** *9/00*

U.S. Cl. 356—5 **10 Claims**



1. A high precision pulsed CO_2 laser rangefinder and target identifier device comprised of:

a linearly polarized CO_2 TEA laser triggered by firing logic to produce a train of laser beam gain switched spikes therefrom;

an electrooptics Pockels Cell modulator in optical alignment with said train of laser beam gain switched spikes;

means for activating said electrooptics Pockels Cell modulator in synchronism with each spike of said train of laser beam gain switched spikes to chop each of said spikes into a train of short evenly spaced linearly polarized laser pulses at the output therefrom;

a circularly polarizing quarter wave plate in optical alignment with the output of said electrooptics Pockels Cell modulator for transforming said train of linearly polarized laser pulses into a train of circularly polarized laser pulses;

common transmitter and receiver optics means for transmitting said train of circularly polarized laser pulses therefrom to a target scene and for receiving target return signals representing time broadened reflected signals that indicate the finite depth of the target and unique signature therethrough wherein said target return signals are converted back to linearly polarized light pulses by passing back through said quarter wave plate;

a wide bandwidth receiving means that is range gated by said firing logic in synchronism with the triggering of said linearly polarized CO_2 TEA laser, said receiving means receiving said target return signals resolving into range resolved cross sections to gather target signatures from different zones in the target plane and signal processing said target signatures; and

a pattern recognition means having known target signatures stored therein for comparison with target signatures obtained from said target return signals to identify the target being pulsed by said train of circularly polarized laser pulses.

4,380,392

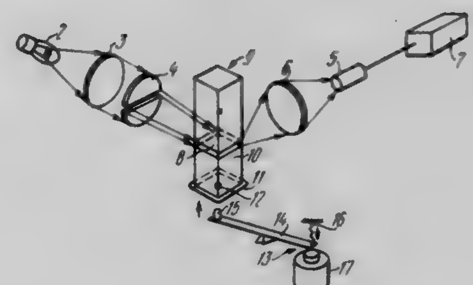
METHOD AND APPARATUS FOR CALIBRATION OF INSTRUMENTS SERVING TO COUNT AND TO DETERMINE THE SIZE OF PARTICLES SUSPENDED IN DISPERSION MEDIUM

Mikhail A. Karabegov, ulitsa Mardzhanishvili, 35; Aram G. Ovanesian, ulitsa Sundukiana, 22; Eduard A. Mesropian, prospekt Plekhanova, 151; Georgy T. Metreveli, Gldansky massiv, 7 mikroraion, 10 korpus, kv. 153; Anatoly A. Karpeev, Kakhetinskoeshosse, 38; Boris K. Khoshtaria, ulitsa Dadiani, 8, and Tatyana I. Gventsadze, ulitsa Kamo, 79/81, kv. 19, all of Tbilisi, U.S.S.R.

Filed Mar. 18, 1981, Ser. No. 245,122

Int. Cl.[3] G01B *11/10*

U.S. Cl. 356—243 **11 Claims**



1. A method for calibrating an optical sensing apparatus which counts particles suspended in a fluid by (i) passing said fluid through a measuring tube having a transparent portion, and (ii) passing a transverse plane of light through said transparent portion of said tube to impinge upon a photodetector, so that particles in said fluid intercept said light and vary the output of the photodetector, said method comprising the steps of:

providing a vertically oriented calibration tube having a transparent portion aligned with said light plane, said calibration tube having closed upper and lower ends and containing a certified particle; and

vibrating said lower end of said calibration tube to cause said particle to repetitively intercept said light plane at a predetermined frequency, to cause the output of said photodetector to vary in accordance therewith.

4,380,393

GRAZING INCIDENCE SPECTROMETER

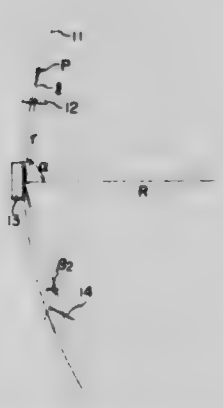
Hiroshi Nagata, Tokyo; Kazuo Sano; Jiro Morimoto, both of Kawasaki, and Makoto Shibo, Tokaimura, all of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Mar. 26, 1981, Ser. No. 247,757

Claims priority, application Japan, Mar. 31, 1980, 55-40295

Int. Cl.[3] G01J *3/38*

U.S. Cl. 356—328 **6 Claims**



1. In a grazing incidence spectrometer provided with an

entrance slit and a diffraction grating for diffracting the light rays incident thereon from said entrance slit and for imaging said light rays as a plurality of spectral lines, the improvement residing in that

said diffraction grating is a curved diffraction grating having a predetermined principal radius of curvature and the groove patterns thereof are formed at unequal intervals so as to make the image plane thereof substantially planar,

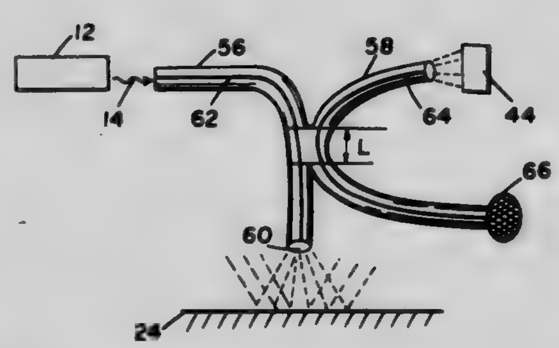
said entrance slit is disposed on a line segment l at a position satisfying a relation:

$$0.7 \leq r/R \cos \alpha \leq 0.9,$$

where R is said principal radius, α is angle of incidence of the principal ray incident from said entrance slit onto said curved diffraction grating, l is the line segment connecting between the center of said curved diffraction grating and a point on a Rowland circle of the curved diffraction grating, said point being distant from the center of said curved diffraction grating by R cos α, and r is a distance on the line segment l between said entrance slit and the center of said curved diffraction grating,

the ray incident through said entrance slit being diffracted by said curved diffraction grating and imaging on said image plane within said Rowland circle.

4,380,394
FIBER OPTIC INTERFEROMETER
David W. Stowe, Buffalo Grove, Ill., assignor to Gould Inc., Rolling Meadows, Ill.
Filed May 26, 1981, Ser. No. 266,773
Int. Cl.³ G01B *9/02*
U.S. Cl. 356—358 **2 Claims**



1. An inteferometer for measuring displacements of a surface to be measured, said interferometer comprising:

an optical energy source;

a first fiber optic waveguide having a finite length with a first end and a second end, light from said optical energy source entering said first end of said first fiber optic waveguide and being transported to said second end of said first fiber optic waveguide, said second end internally reflecting at least a portion of the light back towards said first end of said first fiber optic and projecting the remainder of said light; and

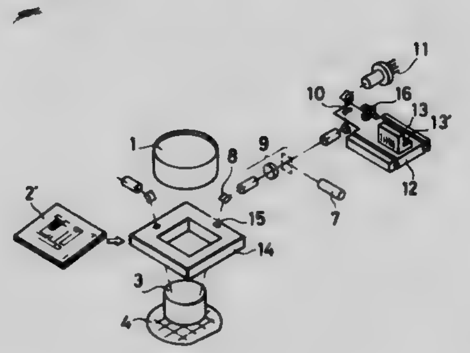
a second fiber optic waveguide having a finite length with a first end and a second end;

said first and said second fiber optic waveguide being in juxtaposition such that evanescent wave coupling occurs between their respective cores over a predetermined length;

said second end of said first fiber optic being in such spatial relationship with said surface to be measured that said projected light strikes said surface and reflects therefrom with at least a portion of said reflected light from said surface entering said second end of said first fiber optic and combining with said internally reflected light within said first fiber optic waveguide thus defining an optical information wave, said optical information wave being evanescently coupled to said second fiber optic waveguide such that said optical information wave is transported to said second end of said second fiber optic waveguide, and

an optical energy absorber fixedly attached to said first end of said second fiber optic waveguide to prevent internal back reflection within said second fiber optic waveguide.

4,380,395
REDUCTION PROJECTION ALIGNER SYSTEM
Shinji Kuniyoshi, Tokyo; Akihiro Takanashi, and Toshiei Kurosaki, both of Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed May 23, 1980, Ser. No. 152,844
Claims priority, application Japan, Jun. 4, 1979, 54-69771
Int. Cl.³ G01B *11/27*
U.S. Cl. 356—401 **5 Claims**

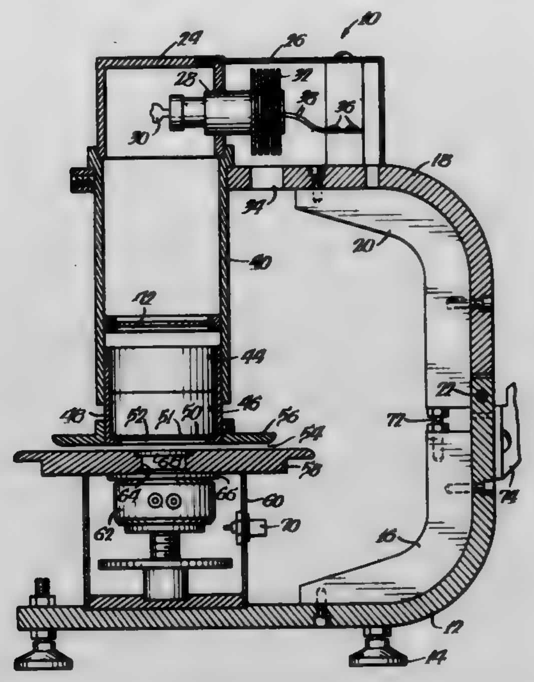


1. In a reduction projection aligner system wherein a pattern on a reticle is formed directly on a wafer by reducing and projecting the pattern on the wafer through a reduction projection lens; the improvement comprising means to optically magnify and project and then focus a positioning pattern provided on the wafer onto a focal plane, means to scan the focal plane with a slit, an origin sensor provided with a mechanical origin on a body of said system for determining the initial position of said slit, means to measure the distance from the mechanical origin to said positioning pattern provided on said wafer on the basis of the extent of movement of said slit necessary to align said slit with said positioning pattern to thereby determine the position of said wafer relative to the body of said system, and means to relatively move and position the reticle so as to cause it to coincide with the position of said wafer on the basis of the measurement by said distance measuring means.

4,380,396
METHOD AND APPARATUS FOR MEASURING THE OPACITY OF SHEET MATERIAL
William A. Arndt; Wayne A. Damrau, and Donald J. Gunderson, all of Wisconsin Rapids, Wis., assignors to Consolidated Papers, Inc., Wisconsin Rapids, Wis.
Filed Dec. 29, 1980, Ser. No. 220,432
Int. Cl.³ G01N *21/01*
U.S. Cl. 356—432 **4 Claims**

1. A method of measuring the opacity of sheet material, such as a sheet of paper, comprising the steps of directing a beam of light onto an area of the material on one side thereof; sensing on an opposite side of the material the intensity of any light transmitted through the material; and generating an indication, in accordance with the sensed intensity of light, of the opacity of the area, wherein a plurality of measurements of the opacities of different areas of the sheet material are made, including

the further steps of counting the number of opacity measurements made; averaging the values of the measured opacities



and, upon occurrence of a selected count, generating an indication of the average opacity of the areas.

4,380,397

DUPLEX TYPE CONTINUOUS MIXER

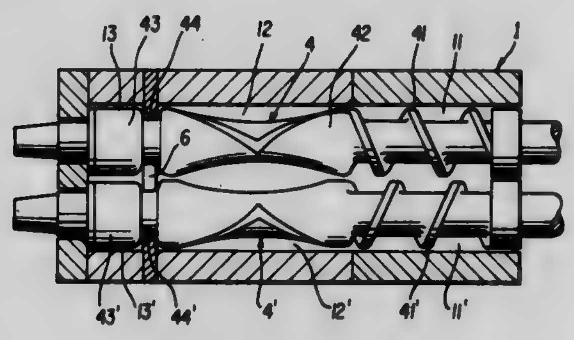
Shinji Hashizume, and Shinichi Fukumizu, both of Kobe, Japan, assignors to Kobe Steel, Ltd., Kobe, Japan

Filed Jan. 16, 1981, Ser. No. 225,774

Claims priority, application Japan, Jan. 16, 1980, 55-3827; Jan. 20, 1980, 55-10612[U]

Int. Cl.³ B28C *7/16*

U.S. Cl. 366—77 **3 Claims**



1. A duplex type continuous mixer, comprising:

a casing having an inlet and an outlet at opposite ends thereof and defining a pair of parallel cavities extending between said inlet and outlet;

a pair of mixing shafts rotatably received in said cavities and each having a feed portion, a mixing portion, a discharge portion and an annular groove separating said mixing and discharge portions; and

a weir member projected upwardly from the bottom walls of said cavities at a position corresponding to said annular groove of said mixing shafts so as to prevent the short-passes of unmelted materials, wherein the cross sectional profile of the top surface of said weir member is identical to the cross-sectional profile of said bottom walls of said cavities.

4,380,398

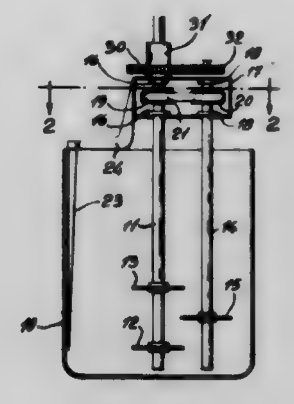
DISPERSION MIXER

Basil A. Burgess, 163 Bedbrook Ave., Montreal West, Quebec H4X 1R7, Canada

Filed Sep. 16, 1980, Ser. No. 187,709

Int. Cl.³ B01F *7/26*

U.S. Cl. 366—261 **4 Claims**



1. A dispersion mixer for operating in a container the mixer comprising

a first rotor shaft extending downwards into the container at the container's approximate center,

a second rotor shaft, substantially parallel to the first rotor shaft, spaced from the first rotor shaft and extending downwards into the container,

at least one mixing rotor disc mounted on the first rotor shaft, and at least one mixing rotor disc mounted on the second rotor shaft,

first drive means including first motor means for rotating the first rotor shaft about its own axis, and the second rotor shaft about its own axis, and

second drive means including second motor means independent of said first drive means for moving the second rotor shaft in a circumferential path about the first rotor shaft, the first rotor shaft rotating at substantially the same rotational speed as the second rotor shaft, and in the same direction whereby the first drive means rotates the rotor shafts at high speed to develop maximum shear and the second drive means orbits the second rotor shaft about the first rotor shaft at a low speed.

4,380,399

MIXER FOR HOMOGENIZING A MIXTURE OF PRODUCTS CONTAINED IN A VESSEL

Jean Godat, Olivet; Daniel Parmenon, Orleans la Source; Alain Krzywdziak, Saint Denis en Val, and Daniel Boudin, Orleans, all of France, assignors to Fonderie et Ateliers des Sablons, Orleans, France

Filed Dec. 31, 1980, Ser. No. 221,717

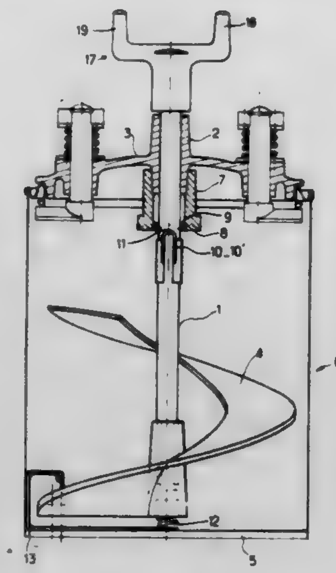
Claims priority, application France, Jan. 7, 1980, 80 00199; Dec. 9, 1980, 80 26095

Int. Cl.³ B01F *7/24*

U.S. Cl. 366—289 **8 Claims**

1. A mixer for homogenizing a mixture of products in a vessel having a detachable lid, comprising, a mixer shaft mounting a helical blade, having mounted at its base a scraping device for scraping the inside walls of the vessel comprising a spring exerting an essentially constant pressure on the bottom and side walls of the vessel, said helical blade being rotatively mounted at its top about a substantially vertical axis by a bearing disposed in the lid of the vessel, said mixer further comprising means for vertically moving said helical blade with a vibratory movement having a relatively small vertical amplitude, said moving means comprising a tubular coupling sleeve disposed in said bearing whose lower lip forms a notched crown

presenting a sinusoidal cam configuration bearing upon at least one stop integral with said shaft, said at least one stop being



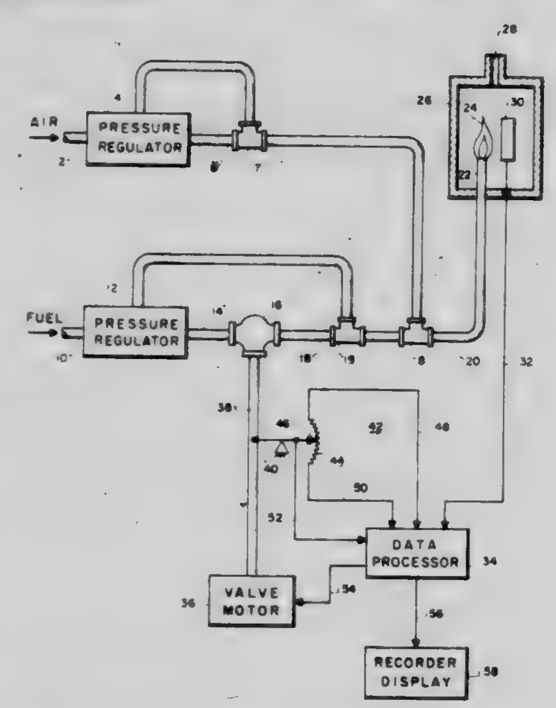
maintained in contact with said notched crown by said spring of the scraping device.

4,380,400
COMBUSTIBLE GAS ANALYZER

John L. Searle, Camden, N.J., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Mar. 17, 1981, Ser. No. 244,538
Int. Cl.[3] G01N 25/22

U.S. Cl. 374—37 6 Claims



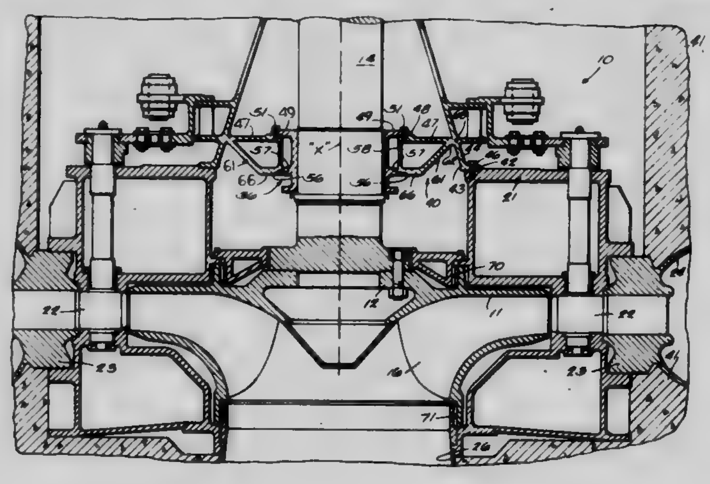
1. A combustible gas analyzer comprising
first pressure control means for supplying combustion air at a predetermined flow rate,
second pressure control means for supplying a combustible gas to be analyzed at a controlled flow rate, said second control means having an input, an output and a pressure feedback,
gas mixing means for mixing air from said first pressure control means and a combustible gas to be analyzed,
valve means located at said output of said second control means for performing a valving operation on a flow of a combustible gas to be analyzed from said second control means, said valve means including a valve stem and a valve stem drive motor,
feedback pressure means connected between an output of said valve means and said feedback of said second control means for providing a feedback pressure signal to said second control means to control the pressure of said combustible gas at said output of said second control means,
combustion means connected to an output of said mixing means for producing a combustion of a mixture of said air and said combustible gas from said mixing means,
detector means for detecting the oxygen content of combustion products from the combustion of said air and said combustible gas by said combustion means,
control means responsive to said detector means for producing a control signal for controlling said valving operation of said valve means to achieve a preselected oxygen content of said combustion products,
circuit means for applying said control signal to said valve motor to effect a corresponding motion of said valve stem,
valve stem movement monitoring means connected to said valve stem for producing a signal representative of the position of said valve stem and
display means for displaying said signal from said monitoring means as an indication of the calorific content of said combustible gas.

4,380,401
BEARING SUPPORT

Selim A. Chacour, and John R. Degnan, both of York, Pa., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed May 15, 1981, Ser. No. 264,218
Int. Cl.[3] F16C 35/02

U.S. Cl. 384—438 4 Claims



1. A bearing support for the rotatable drive shaft of a hydraulic turbine machine having a head cover structure which is grounded to a turbine supporting structure through which the drive shaft extends;
a circular bearing surrounding the shaft;
a circular bearing support means in which said bearing is carried in position for close clearance with the drive shaft said circular bearing support comprising a cylindrical frustrum of a cone, the axis of which is concentric with respect to the axis of the drive shaft, said conic frustrum being operably connected to receive a lateral load from the bearing and transfer the load as shear to the grounded head cover;
operable means between said bearing and said bearing support means to transfer bearing load to said bearing support means comprising first and second radial rib members, said first rib member being in a horizontal plane and said second rib member being inclined at an angle, both of said ribs interconnecting in a common plane with the top portion of said cylindrical conic frustrum; and,
the base of said cylindrical conic frustrum is provided with a radial flange which is constructed and arranged to engage with the head cover surface; and,
there is provided bolt means operably disposed to secure said cylindrical conic frustrum to the grounded head cover, in a manner to permit said cylindrical conic frus-

trum to follow a radial defection of the head cover where said frustrum is rigidly connected to the head cover;

whereby an indirect relatively stiff connection is provided between the bearing and the grounded head cover while the radial movement of the head cover is effectively separated from the bearing.

4,380,402

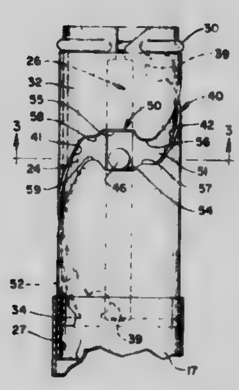
LIPSTICK-TYPE COSMETIC CASE WITH DISPLAY POSITION

Alfred G. Andrews, Wolcott, and Charles L. Sorensen, Bristol, both of Conn., assignors to Lake Eyelet Manufacturing Company, Inc., Southington, Conn.

Filed Jul. 31, 1981, Ser. No. 288,900

Int. Cl.³ A45D *40/12, 40/06*

U.S. Cl. 401—74 **4 Claims**



1. In a lipstick type cosmetic case having a generally cylindrical sleeve assembly with inner and outer, manually relatively rotatable, generally cylindrical sleeves and a cosmetic carrier axially reciprocable within the sleeve assembly between retracted and extended axial positions thereof, the carrier having a radially outwardly projecting cam follower and the two sleeves having respectively generally axially and helically extending cooperating cam track slots receiving the cam follower for manually reciprocating the carrier between its retracted and extended axial positions by manual relative rotation of the inner and outer sleeves, the generally helically extending cam track slot having helically extending cam track slot sections and an intermediate cam track slot section therebetween for selectively positioning the carrier intermediate its retracted and extended positions, the improvement wherein the intermediate cam track slot section is a circumferentially extending section having a cam track slot width greater than the width of the cam follower along the entire circumferential length of said intermediate section to permit the cam follower to freely follow therealong between said helically extending cam track slot sections and comprises a pair of axially oppositely facing generally concave cam track edges, each having a central recessed track edge portion with a circumferential length greater than the width of the cam follower and rounded convex end lobe track edge portions at the circumferential ends thereof, to form an intermediate cam track slot pocket with a pair of axially opposed end lobe track edge portions at each circumferential end thereof to retain the cam follower against inadvertent displacement from the pocket in axially upright and inverted positions of the cosmetic case and yet to permit the cam follower to move freely along the intermediate cam track slot section between said helically extending cam track slot sections upon manual relative rotation of the two sleeves.

4,380,403

CLOSURE CAP FOR A WRITING INSTRUMENT

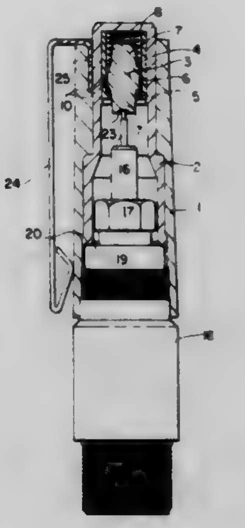
Bernhard Endres, Winkelhaid, and Klaus Glombitza, Nuremberg, both of Fed. Rep. of Germany, assignors to J. S. Staedtler K.G., Nurnburg, Fed. Rep. of Germany

Filed Jan. 14, 1981, Ser. No. 224,930

Claims priority, application Fed. Rep. of Germany, Jan. 19, 1980, 8001322

Int. Cl.³ B43K *9/00*

U.S. Cl. 401—213 **9 Claims**



1. A closure cap for a writing instrument comprising an outer cap housing, a sealing sleeve of a soft resilient durable material fitted within said cap housing, a tubular open ended slide sleeve of hard rigid material retained against axial movement within said sealing sleeve, a closure member of a soft resilient durable material confined within and axially displaceable within said slide sleeve and having an end engageable with a tip of a writing instrument inserted into said cap housing, said slide sleeve disposed between said sealing sleeve and said closure member, and spring means within said slide sleeve having one end abutting said sealing sleeve and another acting against said closure member toward said tip.

4,380,404

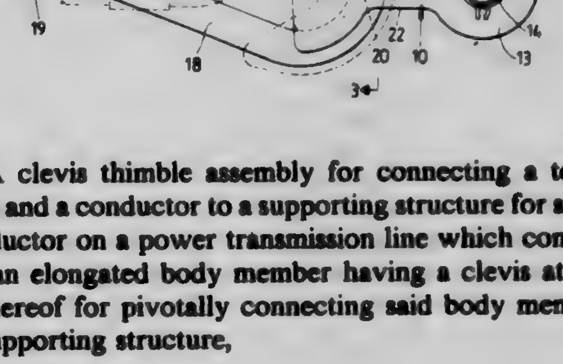
CLEVIS THIMBLE CONNECTOR

Gaddis G. Hall, P.O. Box 6699, Birmingham, Ala. 35210

Filed Nov. 19, 1980, Ser. No. 208,161

Int. Cl.³ F16C *11/00;* **F16D** *1/12*

U.S. Cl. 403—79 **1 Claim**

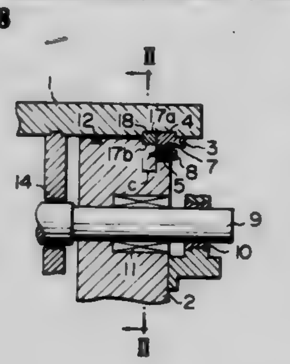


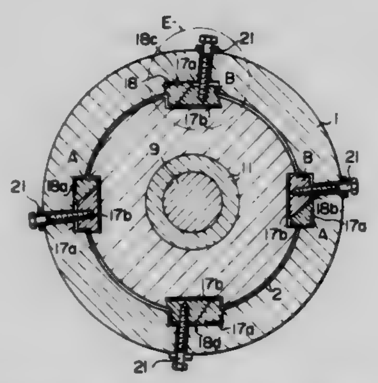
1. A clevis thimble assembly for connecting a tensioning device and a conductor to a supporting structure for sagging in a conductor on a power transmission line which comprises:

(a) an elongated body member having a clevis at one end thereof for pivotally connecting said body member to a supporting structure,

(b) a thimble carried by the other end of said body member and having a convexly curved retainer groove facing said clevis with said retainer groove defining a bearing surface,
(c) a cable-like conductor member passing around said retainer groove and secured in its position in said retainer groove,
(d) at least one laterally projecting member carried by said other end of said elongated body member at a distal point from said clevis and extending perpendicular to said retainer groove with there being an opening in said laterally projecting member in laterally spaced relation to said retainer groove and said cable-like conductor member passing around said retainer groove, and
(e) a hook-like connector element carried by said tensioning device and extending through said opening in said laterally projecting member with said hook-like connector element extending in the same direction as said cable-like conductor for tensioning said cable-like conductor to permit sagging in of a conductor on a power transmission line.

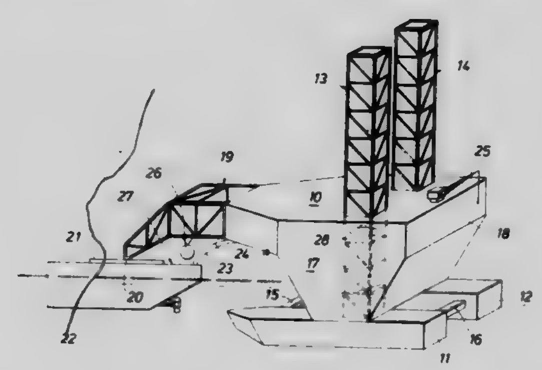
4,380,405
HEAD FLANGE MOUNTING DEVICE FOR TURBO-MACHINE
Tadashi Kaneki, Tsuchiura, and Kazuo Takeda, Shimoinayoshi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Dec. 30, 1980, Ser. No. 221,457
Claims priority, application Japan, Jan. 7, 1980, 55-150; Jan. 21, 1980, 55-4595; Jan. 21, 1980, 55-4596
Int. Cl.³ B25G *3/00;* F16D *1/00;* F16G *3/18*
U.S. Cl. 403—318 **13 Claims**





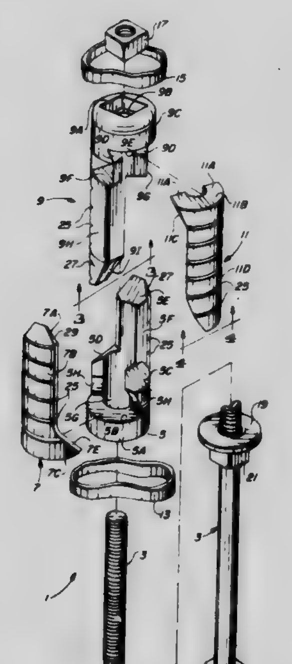
1. A head flange mounting device for a turbo-machine comprising a casing, a head flange, a shear key for mounting the head flange on the inner circumferential surface of an end portion of the casing, a rotary shaft supported by a bearing on said head flange, and a labyrinth seal supported by said casing to seal a gap between said rotary shaft and said casing, such head flange mounting device comprising:
at least two pairs of slide keyways formed circumferentially spaced apart from one another, one slide keyway of each pair being formed on the inner surface of said casing at a right angle thereto inwardly of said shear key and the other slide keyway being formed on the outer circumferential surface of said head flange at a right angle thereto so that the two slide keyways are juxtaposed against each other; and
a slide key held in each pair of slide keyways in a manner preventing the relative movement of the head flange radially with respect to the casing.

4,380,406
JACKUP PLATFORM TRAILER
Ray R. Ayers, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.
Filed Apr. 29, 1981, Ser. No. 258,855
Int. Cl.³ B63B *35/02*
U.S. Cl. 405—206 **25 Claims**



1. A jackup platform trailer comprising a deck structure supported by submersible flotation means, means for extending the flotation means downwardly beneath the deck structure, means for pivoting the flotation means and deck structure, and connecting means extending between the deck structure and the pivoting means.

4,380,407
DUAL THRUST ANCHOR SHELL ASSEMBLY
David C. Donan, Jr., Manitou, Ky., assignor to Waiamea Company, Inc., Manitou, Ky.
Filed Jul. 27, 1981, Ser. No. 287,523
Int. Cl.³ E21D *11/00*
U.S. Cl. 405—259 **9 Claims**



1. An anchor shell assembly for anchoring a bolt in a roof bolt hole, said bolt having a longitudinal axis, a lower head for forcing a roof plate against a portion of a mine roof surrounding the mouth of said roof bolt hole, and a shaft with an upper threaded portion said anchor shell assembly comprising in combination:
(a) a first upper expansion member disposed pivotally relative to said axis, said first upper expansion member including an upper portion having first and second upper camming surfaces that are sloped relative to said axis, and an elongated lower portion, said elongated lower portion

having a lower camming surface that is sloped relative to said axis;

(b) a second upper expansion member disposed pivotally relative to said axis and adjacent to said first upper expansion member, said second upper expansion member having an elongated lower portion disposed on an opposite side of said shaft from said lower elongated portion of said first upper expansion member, said lower elongated portion of said second upper expansion member having a lower camming surface that is sloped relative to said axis;

(c) a first lower expansion member disposed pivotally relative to said axis, said first lower expansion member having a lower portion having first and second lower camming surfaces that are sloped relative to said axis, and an elongated upper portion having an upper camming surface that is sloped relative to said axis;

(d) a second lower expansion member disposed, pivotally relative to said axis and adjacent to said first lower expansion member, said second lower expansion member having an elongated upper portion disposed on the opposite side of said shaft from said elongated upper portion of said first lower expansion member, said upper portion of said second lower expansion member having an upper camming surface that is sloped relative to said axis;

(e) threaded nut means disposed on said threaded portion of said shaft for forcing said first and second upper expansion members toward said first and second lower expansion members in response to tightening of said bolt; and

(f) retaining means for retaining said first and second lower expansion members in fixed longitudinal relationship to said bolt during tightening of said bolt,

said lower camming surfaces of said first and second upper expansion members engaging said first and second lower camming surfaces of said first and second lower expansion members during said tightening of said bolt, forcing said lower portions of said first and second upper expansion members outward into roof strata surrounding the portion of said bolt adjacent to said anchor shell assembly to prevent further downward movement of said first and second upper expansion members in said roof bolt hole, an initial distance between said lower camming surfaces of said first upper expansion member and one of said first and second lower expansion members being substantially less than a corresponding initial distance between said upper camming surfaces of said first upper expansion member and one of said first and second lower expansion members, whereby further tightening of said bolt forces said roof plate tightly upward against the portion of the mine roof surrounding the mouth of said roof bolt hole before said upper camming surface of one of said first and second upper expansion members engages said upper camming surface of one of said first and second lower expansion members, respectively.

4,380,408

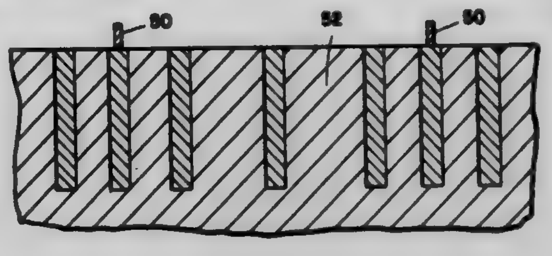
STABILIZING CLAY SOIL WITH DRY HYDROXY-ALUMINUM

Tor Loken, and Odd R. Bryhn, both of Oslo, Norway, assignors to Chevron Research Company, San Francisco, Calif.

Filed Jul. 9, 1981, Ser. No. 281,751

Int. Cl.³ C09K *17/00;* E02D *3/12*

U.S. Cl. 405—263 9 Claims



1. A method of stabilizing clay soil comprising admixing the clay soil with an effective amount of dry hydroxy-aluminum.

4,380,409

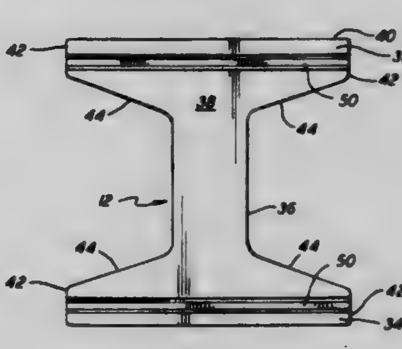
CRIB BLOCK FOR ERECTING BIN WALLS

Raymond J. O'Neill, 3 Garmony Pl., Yonkers, N.Y. 10710

Filed Aug. 17, 1981, Ser. No. 293,165

Int. Cl.³ E02D *5/00*

U.S. Cl. 405—273 4 Claims



1. A cribbing unit for use in erecting bin wall structures of the type wherein horizontal courses of aligned ones of such units are laid on top of another to establish the structure and enclose bins therein,

said unit comprising as a unitary precast component of substantially uniform vertical thickness,

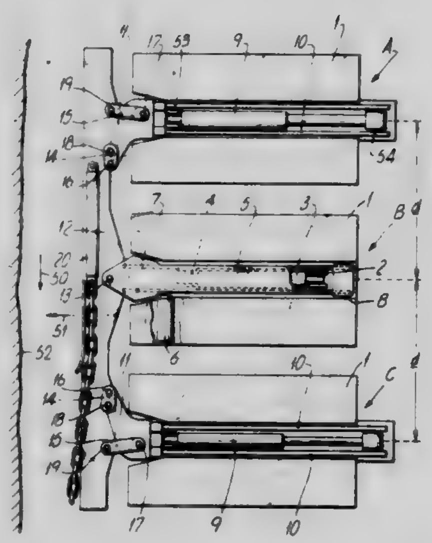
a pair of spaced side walls of equal longitudinal expanse and each having an outer vertical wall surface and transverse parallel arranged edge surfaces with the edge surfaces of one wall being in planar alignment with those of the other wall, and

a central connector arm extending between said side walls, the juncture of said connector arm with each side wall being characterized by merger segment side edges extending from the connector arm to the side walls which follow laterally widening, at least in part curvilinear courses to joinder thereof with the inner ends of the transverse edge surfaces of the respective side walls, the said merger segment side edges traversing courses of identical geometry whereby each side wall and associated merger segment is identically shaped but disposed in facing relation to the other thereby to provide such unit with identical characteristics of resistance to loading at both sides of said wall, with the transverse thickness of the side walls and merger segments from the longitudinal extremities thereof increasing toward the transverse centerline of the unit to correspondingly increase the resistance thereof to transverse bending loads applied thereto.

4,380,410
MINE-ROOF SUPPORT

Hans Büll; Gerhard Ewich, both of Wuppertal; Günther Kuschke, Castrop-Rauxel; Alfred Maykemper, and Josef Welzel, both of Wuppertal, all of Fed. Rep. of Germany, assignors to Hermann Hemscheidt Maschinenfabrik GmbH & Co., Wuppertal, Fed. Rep. of Germany

Filed Mar. 13, 1981, Ser. No. 243,432
Claims priority, application Fed. Rep. of Germany, Mar. 15, 1980, 3010082; Jul. 26, 1980, 3028394
Int. Cl.³ E21D *23/04*
U.S. Cl. 405—299 **7 Claims**



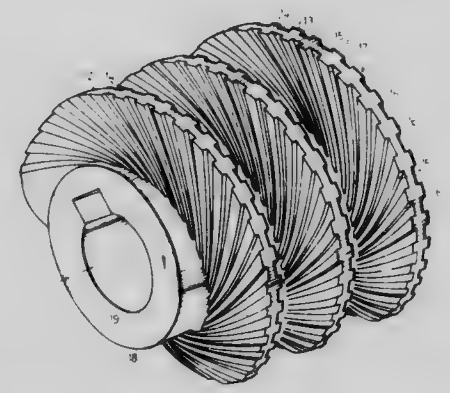
1. A self-advancing mine-roof support assembly for use in longwall mining comprising: three roof-support elements arranged side-by-side but spaced apart a predetermined lateral distance from each other measured at right angles to the direction of advance, a floor runner on each of said elements to permit movement of each element over the floor of a mine, double-acting drive means supported on each runner to move said respective runners, a rigid beam connected to the drive means of the middle one of said roof-support elements and arranged to be generally in alignment with the direction of advance of the assembly, pivot means connecting an end portion of said beam directly to an intermediate portion of an elongate abutment adapted to lie adjacent to and generally parallel to the mine work face, a first side boom connected to the drive means of an outer one of said roof-support elements, a first pair of arms pivotally connecting said side boom to an outer portion of said abutment, a second side boom connected to the drive means of the other outer one of said roof-support elements, a second pair of arms pivotally connecting said second side boom to an opposite outer portion of said abutment, said two pairs of arms being substantially equidistant from said pivot means for said beam and said abutment, whereby slanting of said abutment with respect to the direction of advance of the assembly, which slanting causes said roof-support elements to become staggered relative to each other, causes no change in the "between centres" distance between the roof-support elements.

4,380,411
SHAVING CUTTER

Masato Ainoura, 1253 Eguchi, Kita-Shigeyasu-cho, Miyaki-gun, Saga-ken, Japan

Division of Ser. No. 39,237, May 15, 1979, Pat. No. 4,280,773. This application Mar. 19, 1981, Ser. No. 245,250
Claims priority, application Japan, May 31, 1978, 53-65360; Mar. 20, 1979, 54-32469
Int. Cl.³ B26D *1/12*
U.S. Cl. 407—27 **4 Claims**

1. A shaver cutter for finishing gear teeth comprising, a rotational shaft, a helical thread integrally formed at a constant pitch on an outer periphery of said shaft to radially outwardly extend to a predetermined constant height, a plurality of cutting grooves formed on two flanks of said helical thread, the cutting grooves on each of the flanks being symmetrical relative to the cutting grooves on the other flank, each groove having a predetermined constant depth extending from and perpendicular to an outer surface of said flank to thereby define a central portion of reduced thickness between the two grooves provided on both flanks of the thread, said cutting grooves extending from an inner end adjacent to the shaft toward an outer end radially outwardly away from the shaft so that the cutting grooves are respectively inclined at angles

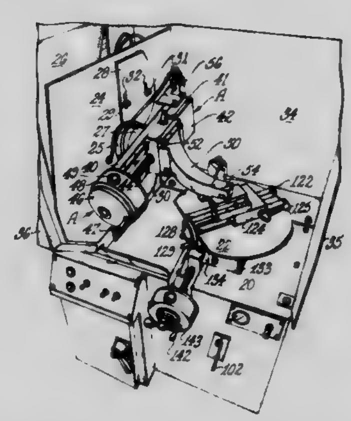


between 15° and 90° relative to lines extending radially outwardly from the shaft in the direction opposite to the rotational direction of the shaft, a plurality of lands having flat outer surfaces, said lands being located on the flanks of said thread between each adjacent two cutting grooves and having approximately the same width as that of the grooves at the inner end adjacent to the shaft, and straight cutting edges formed at front margins of said lands so that when the shaft is rotated for cutting, fluctuation due to changes in cutting resistance is eliminated.

4,380,412
LAP SHAPING MACHINE WITH OSCILLATABLE POINT CUTTER AND SELECTIVELY ROTATABLE OR OSCILLATABLE LAP

Thomas A. Walsh, Santa Ana, Calif., assignor to R. Howard Strasbaugh, Inc., Huntington Beach, Calif.

Filed Aug. 2, 1979, Ser. No. 63,036
Int. Cl.³ B23D *7/10*
U.S. Cl. 409—314 **9 Claims**



1. A lap surfacing machine useful for forming laps such as employed in the production of ophthalmic lenses, comprising a support base having a pair of individually adjustable positioning units adapted, in operation, to dispose a rotatable lap and a unidirectionally operable cutter in intermittent functional engagement, the first of said positioning units comprising a generally upstanding spindle, means for selectively attaching a lap or cutter to said spindle in position of selected radial displacement for rotation in unison therewith,

the second of said positioning units comprising an elongated arm, arcuately swingable on a pivot axis disposed generally transverse to said spindle, and distally having attachment means for selectively carrying either a cutter or a

lap, drive means for pivotal oscillation of said arm on its pivot axis whereby said distally carried cutter or lap may functionally engage the moving lap or cutter of the first positioning unit, and

drive means for said first positioning unit including shift means for selectively continuously rotating said spindle and for oscillating the spindle synchronously with oscillation of said arm.

4,380,413

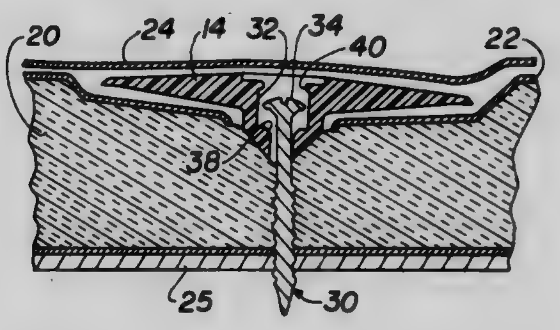
LOAD-DISTRIBUTIVE WASHER FOR USE WITH COMPRESSIBLE MATERIAL

George G. Dewey, Prospect Heights, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Nov. 3, 1980, Ser. No. 202,960

Int. Cl.³ F16B *21/07*

U.S. Cl. 411—161 **7 Claims**



1. A resilient load-distributive washer useful in conjunction with a headed mechanical fastener to secure a first compressible material to a second base member, said washer comprising an axially extending projection which has a length that extends into but is less than the thickness of the compressible material to be fastened; a load-distributing flange extending laterally outwardly from one end of the projection, the other end of the projection being free; a throughbore positioned along the central axis of the washer and extending through the projection and the flange, at least a portion of said throughbore having a first internal lateral dimension exceeding the maximum lateral dimension of the head and a length that is at least equal to the height of the fastener head; a portion of the throughbore nearest the free end of the projection having a second smaller internal lateral dimension forming a bearing surface for the fastener head; an integral flexible and resilient ring positioned above said portion of the throughbore said ring having an inner lateral dimension less than the maximum lateral dimension of said fastener head and sufficient flexibility and resilience to permit passage of the fastener head while delimiting the relative axial movement between the washer and the fastener.

4,380,414

FASTENER

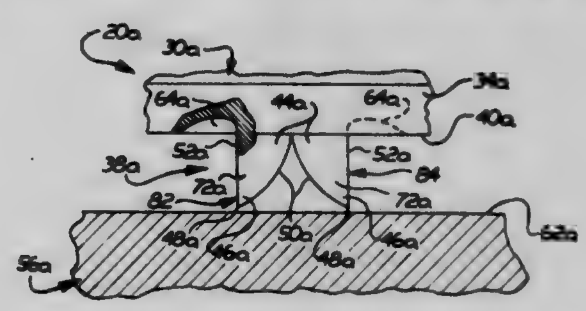
Terry D. Capuano, Hinckley, Ohio, assignor to The Lamson & Sessions Co., Cleveland, Ohio

Division of Ser. No. 26,889, Apr. 4, 1979, Pat. No. 4,289,181. This application May 18, 1981, Ser. No. 264,284

Int. Cl.³ F16B *39/282*

U.S. Cl. 411—187 **3 Claims**

1. A fastener element for use in applying a force against a member, said fastener element comprising a body having a longitudinally extending central axis, thread means connected with said body for engaging a mating thread to urge said body toward the member to thereby increase the force applied against the member, and retainer means connected with said body for retarding axial movement of said body away from the member and for retarding rotational movement of the body relative to the member, said retainer means including first and second spring retainer fingers, said first retainer finger being resiliently deflectable away from said second retainer finger from an initial position extending axially outwardly from said body to a retaining position extending transversely to the central axis of said body, said second retainer finger being resiliently deflectable away from said first retainer finger from an initial position extending axially outwardly from said body to a retaining position extending transversely to the central axis of said body, each of said retainer fingers having a base portion connected with the body and a free end portion spaced from the body, said free end portions of said first and second retainer fingers being spaced apart by a first distance when said first and second retainer fingers are in their initial positions and being spaced apart by a second distance which is greater than said first distance when said first and second retainer fingers are in their retaining positions, said free end portions of said first and second retainer fingers including means for penetrating the member at a pair of spaced apart locations, said first retainer finger including first cam surface means for cooperating with the member to deflect said first retainer finger from its



initial position to its retaining position under the influence of forces applied against said first retainer finger by the member as said first retainer finger penetrates the member, said first cam surface means including an arcuate surface which extends from the base to the free end portion of said first retainer finger and curves away from said second retainer finger, said second retainer finger including second cam surface means for cooperating with the member to deflect said second retainer finger from its initial position to its retaining position under the influence of forces applied against said second retainer finger by the member as said second retainer finger penetrates the member, said second cam surface means including an arcuate surface which extends from the base to the free end portion of said second retainer finger and curves away from said first retainer finger each of said first and second retainer fingers being substantially divided by a single imaginary circle which is concentric with the central axis of said body.

4,380,415

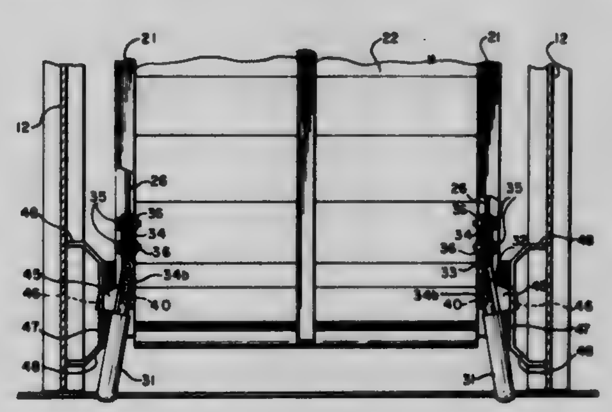
LATCH MECHANISM FOR WALK RAMPS

Roy C. Higginson, Honeybrook, and Paul L. Whiteman, Morgantown, both of Pa., assignors to Morgan Trailer MFG. Co., Morgantown, Pa.

Filed Sep. 29, 1980, Ser. No. 191,502

Int. Cl.³ B60P *1/00*

U.S. Cl. 414—537 **4 Claims**



1. Latch mechanism for a walk ramp having side rails for truck bodies and the like having longitudinal body side rails

and a floor thereabove for storage below the floor of the truck body and for movement outwardly of the walk ramp with respect to the body, which comprises

a plurality of handle members pivotally carried by the side rails of the walk ramp on vertical pivots,

said truck body side rails have spaced brackets with latch plate openings therein,

each of said handle members having a latch tongue, and resilient means for urging said handle members to position said latch tongues in said latch plate openings.

4,380,416

CENTRIFUGAL PUMPS

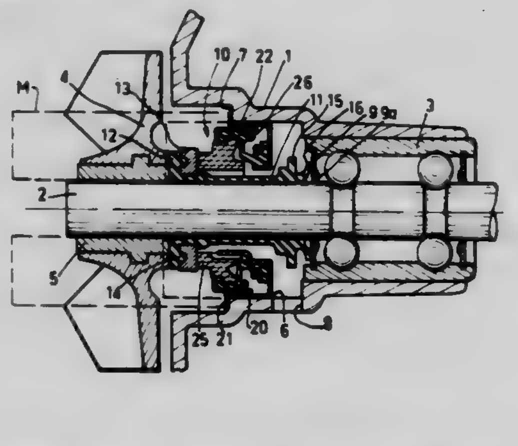
Jean Menager, Luxembourg, Luxembourg, assignor to Societe Internationale de Mecanique Industrielle S.A., Luxembourg, Luxembourg

Continuation of Ser. No. 72,617, Sep. 5, 1979, abandoned. This application Feb. 11, 1981, Ser. No. 233,307

Claims priority, application France, Sep. 25, 1978, 78 27389

Int. Cl.^{3} F01D *11/08;* **F03B** *11/00*

U.S. Cl. 415—170 A **9 Claims**



1. A centrifugal pump, of the type comprising a body, a shaft rotatably mounted in the body via a bearing, an impeller fixed on the shaft and, between the impeller and the bearing, a mechanical seal assembly comprising a pair of engaging slide rings and an inner sleeve made of elastomeric material fitted on the shaft, said sleeve comprising a portion at the end adjacent the impeller on which is fixed one of the slide rings and, at the other end adjacent the bearing, a radial flare for holding the seal assembly in the assembled state prior to its mounting and after mounting functioning as a flinger to radially throw off any liquid on its surface during operation of the pump, an axial extension on said sleeve between said radial flare and said bearing, a seal member at the bearing end of said axial extension comprising a lip member integral with said sleeve and having an axially facing portion which in use sealingly engages a part of said bearing to prevent bearing lubricant from leaking into said seal assembly, and a radially extending opening through said pump body substantially aligned with said radial flare.

4,380,417

INSTALLATION OPERATED WITH WIND OR WATER POWER

Werner Fork, Heidenheim, Fed. Rep. of Germany, assignor to J. M. Voith GmbH, Heidenheim, Fed. Rep. of Germany

Filed Jul. 2, 1980, Ser. No. 165,274

Claims priority, application Fed. Rep. of Germany, Jul. 11, 1979, 2927956

Int. Cl.^{3} F03D *7/06*

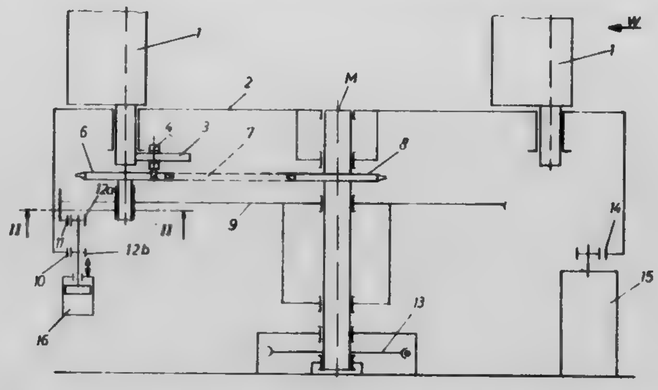
U.S. Cl. 416—108 **9 Claims**

1. A device for harnessing the energy of a fluid stream comprising:

a platform rotatably supported on a central axis;

a plurality of vanes supported on the platform for rotation about respective vane axes generally parallel to and displaced from the central axis;

means for synchronizing vane rotation about the respective vane axes relative to platform rotation about the central axis to provide each vane with the same average angular velocity as the platform including a second platform rotatable in the unison with the said platform and supporting means coupling the second platform to respective vanes,



the angular velocity of each vane about its axis exceeding the angular velocity of the platform during half of each platform revolution and being less than the platform angular velocity during the other half of each platform revolution.

4,380,418

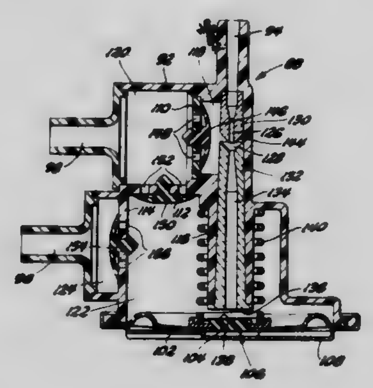
VACUUM PRESSURE SELECTION AND GENERATION DEVICE

Daniel A. Crawford, Fenton, and Wayne A. Levijoki, Clio, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 25, 1981, Ser. No. 238,141

Int. Cl.^{3} F04F *5/54*

U.S. Cl. 417—87 **3 Claims**



1. A venturi aspirator assembly for selectively generating a vacuum air pressure by use of positive air pressure to provide a sufficient vacuum air pressure output when insufficient vacuum air pressure to provide a sufficient vacuum air pressure output is generated by another source such as an engine intake manifold, said assembly comprising:

a venturi aspirator;

aspirator control valve means sensitive to vacuum air pressure generated by the other source and acting to condition said venturi aspirator to generate vacuum air pressure by positive air pressure flow therethrough only when the sensed vacuum air pressure generated by the other source is insufficient;

and check valve means sensitive to the sufficient vacuum air pressure output and the vacuum air pressure from the other source and the vacuum and positive air pressures from said aspirator and acting in response thereto to select the higher generated vacuum air pressure from which the sufficient vacuum air pressure output is then provided.

4,380,419

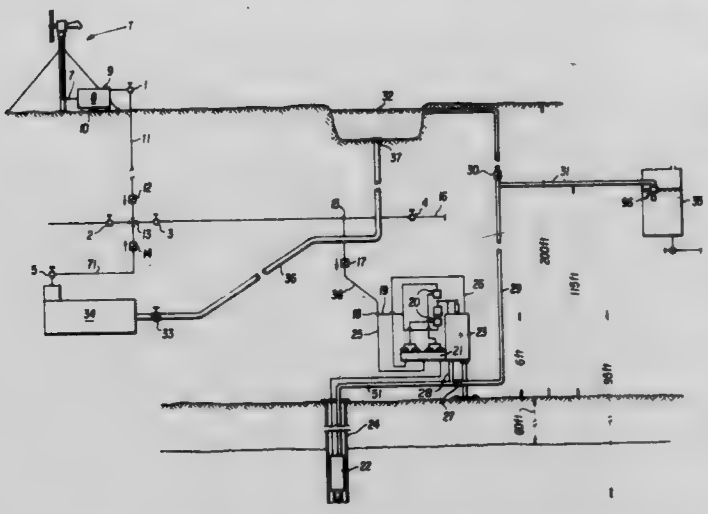
ENERGY COLLECTION AND STORAGE SYSTEM

Paul H. Morton, 180 Berkeley St., Satellite Beach, Fla. 32937

Filed Apr. 15, 1981, Ser. No. 254,503

Int. Cl.³ F04B *35/00*

U.S. Cl. 417—334 **10 Claims**



1. An energy collection and storage system, comprising:
a compressed air source;
an energy storage means for storing energy as an hydraulic pressure head;
a pneumatic water pump;
a compressed air manifold means for coupling compressed air from said compressed air source to said pneumatic water pump;
water manifold means for delivering water from said pneumatic water pump to said energy storage means; and
an hydraulic air compressor means controlled by liquid from said energy storage means for providing a supply of compressed air to said compressed air manifold.

4,380,420

INTERNAL GEAR MACHINE WITH ROTARY VALVE DISK

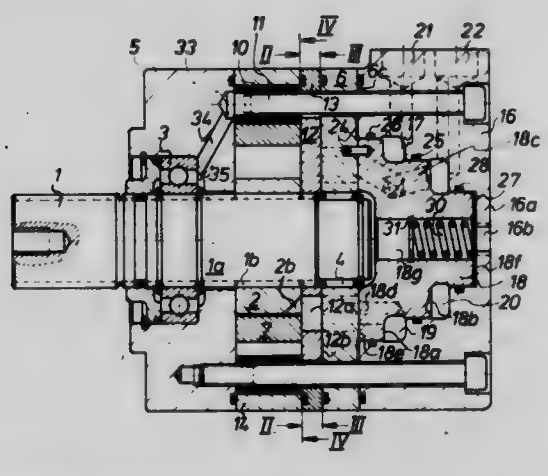
Peter Wüsthof, Lohr, and Johann Schneider, Lohr-Wombach, both of Fed. Rep. of Germany, assignors to Rexroth GmbH, Lohr, Fed. Rep. of Germany

Continuation of Ser. No. 84,114, Oct. 12, 1979, abandoned. This application Oct. 7, 1981, Ser. No. 309,395

Claims priority, application Fed. Rep. of Germany, Oct. 14, 1978, 2844844

Int. Cl.³ F01C *1/113, 21/12;* **F03C** *2/22;* **F04C** *2/113*

U.S. Cl. 418—61 B **11 Claims**



1. An internal gear machine, comprising a housing defining an intake port and a discharge port; a fluid displacement unit arranged in said housing and including a rotary shaft defining a center axis; an outer gear coupled for joint rotation to said shaft; an inner gear in sliding engagement with said outer gear and supported for performing a wobbling movement in said housing about said center axis, said inner and outer gears defining a plurality of variable chambers therebetween; and flow control means including a rotary disk coupled for joint rotation to said shaft and forming a lateral boundary wall for said chambers, said rotary disk having a plurality of first control openings each of said openings continuously communicating with interstices between the teeth of said outer gear in any position of the outer gear relative to the inner gear, and a stationary control plate adjoining said rotary disk and being formed with a plurality of second control openings cooperating with said first control openings, a part of said second control openings communicating with said intake port and another part of said second control openings communicating with said discharge port.

4,380,421

DIE FOR COMPACTION OF POWDER

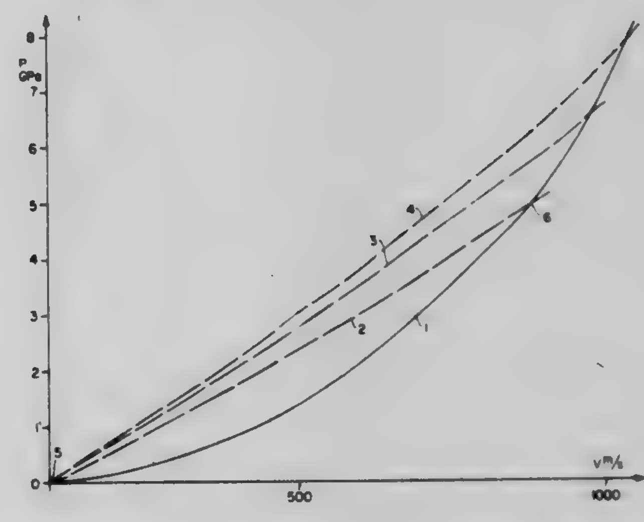
David G. Morris, Lausanne, Switzerland, assignor to Institut Cerac S.A., Ecublens, Switzerland

Filed Nov. 3, 1981, Ser. No. 317,599

Claims priority, application Sweden, Nov. 10, 1980, 8007874

Int. Cl.³ B29C *1/00;* **B30B** *11/02;* **B22F** *3/00*

U.S. Cl. 425—78 **3 Claims**



1. A die for compaction of powder by passing a shock wave, created by the impact of a punch, through the powder, characterized thereby that the density of the die before compaction of the powder is substantially equal to the density of the powder to be compacted and that the increase in the density caused by the passing shock wave in the powder and in the die are substantial equal.

4,380,422

LONGITUDINALLY EXPANSIBLE AND CONTRACTIBLE HYDROSTATIC MOLD GATE

John W. Von Holdt, 7430 N. Croname Rd., Niles, Ill. 60648

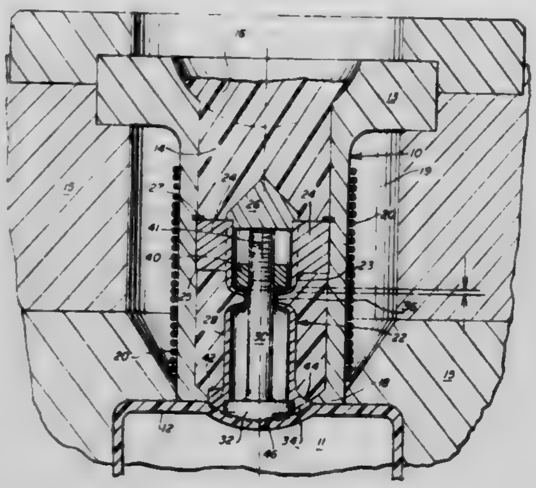
Filed Jun. 5, 1981, Ser. No. 270,973

Int. Cl.³ B29F *1/05*

U.S. Cl. 425—146 **15 Claims**

1. A gate for a mold which comprises a molding compound inlet conduit defining an outer end for communication with a source of molding compound and an inner end for communication with the mold cavity, and a plunger member mounted in said molding compound inlet conduit and adapted to prevent flow through said conduit in a first longitudinal position and to permit flow through said conduit in second longitudinal positions, said plunger defining a transversely enlarged sealing end proportioned to prevent said flow through the conduit in the first position, said transversely enlarged sealing end defining a mold cavity-facing surface which is of larger cross sectional area than the surface of the plunger opposed to said mold cavity and subject to contact with pressurized molding compound in the conduit, said plunger member comprising a sealed metal tubular wall, at least a portion of said tubular wall defining annular convolution means to provide a longitudinally expansible and contractible characteristic to said plunger mem-

ber, said tubular wall being immovably secured adjacent one end thereof, whereby pressurized molding compound in the conduit, relative to pressure in the mold cavity, causes said enlarged sealing end to longitudinally expand to spontaneously advance into a second longitudinal position by the action of



pressure on said opposed surface to open said gate, and relative equalization of elevated pressures in the mold cavity and the conduit causes said enlarged sealing end to longitudinally contract to spontaneously close to its first longitudinal position.

4,380,423

DEVICE FOR CUTTING SPRUE OF PARISON WITH BOTTOM

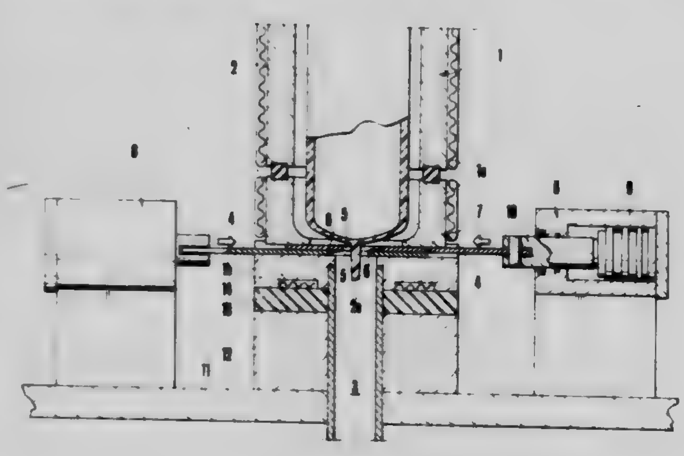
Katashi Aoki, 6037 Ohazaminamijo, Sakakimachi, Hanishina-gun, Nagano-ken, Japan

Filed Oct. 16, 1980, Ser. No. 197,558

Claims priority, application Japan, Oct. 19, 1979, 54-134936

Int. Cl.^{3} B29C *17/12;* **B26D** *1/09, 7/10*

U.S. Cl. 425—289 **5 Claims**



1. Apparatus comprising means defining a heating furnace having a closed cylindrical side wall and a bottom wall, said heating furnace having an open top dimensioned to receive an injection molded parison having a sprue at its lower end and said bottom wall containing a centrally positioned opening for receiving said sprue when the parison is positioned within the furnace, a pair of shears positiond adjacent the bottom opening movable transversely of the bottom opening in parallel relation thereto, said shears comprising face-to-face flat plates containing orifices which, when aligned, are concentric with the bottom opening and wherein the orifices are of a diameter to receive said sprue and define opposite cutting edges movable in shearing relation to each other by reciprocation and power operable means for effecting reciprocation of the blades.

4,380,424

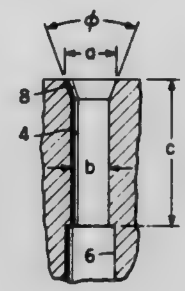
PELLET DIE

Leroy V. Skoch, Glencoe, and Keith E. Pike, Washington, both of Mo., assignors to Ralston Purina Company, St. Louis, Mo.

Filed May 28, 1981, Ser. No. 268,036

Int. Cl.^{3} A01N *35/00*

U.S. Cl. 425—331 **33 Claims**



1. A pellet mill die comprising a compression side, a discharge side and at least one die hold extending through said die, having a countersink on the compression side, said die hole having a working section for pellet formation, said section having a diameter that defines pellet size and a length that defines the effective thickness for the die hole, said die hole having ratio of effective thickness to countersink diameter which is at least about 1.8 to 1 and a countersink diameter which is between about 137% to 159% of the working section diameter.

4,380,425

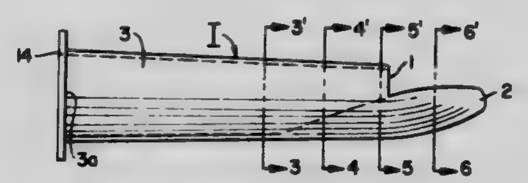
CAULKING SPOUT

David J. Edelman, 142 Flanders-Netcong Rd., Flanders, N.J. 07836

Continuation-in-part of Ser. No. 46,561, Jun. 7, 1979, abandoned. This application Feb. 17, 1981, Ser. No. 234,597

Int. Cl.^{3} B29F *3/04*

U.S. Cl. 425—458 **3 Claims**



1. An applicator for sealing compounds comprising a tubular spout having an inlet opening and an outlet orifice, an applicator tip formed integrally with said applicator extending from inside said spout inwardly of said outlet orifice to a point outwardly of said outlet orifice and being angled inwardly of said spout, the outer end of said tip converging inwardly and having a substantially oval cross-section in the vicinity of said outlet orifice to form a finger-like projection and forming a crescent-shaped opening at said outlet orifice.

4,380,426

INJECTION MOLDING VALVE PIN DIRECT PNEUMATIC ACTUATOR

William J. Wiles, R.R. 1, Cedar Valley, East Gwillinbury, Ontario, Canada

Continuation-in-part of Ser. No. 353,014, Mar. 1, 1982. This application Jul. 19, 1982, Ser. No. 399,730

Claims priority, application Canada, Feb. 24, 1982, 396997

Int. Cl.^{3} B29F *1/05*

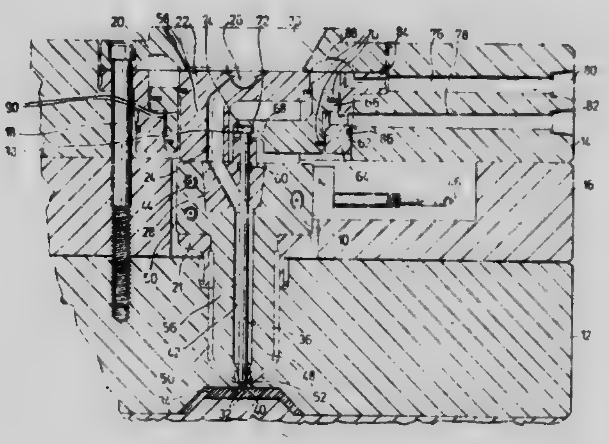
U.S. Cl. 425—566 **9 Claims**

1. In a valve gated center entry injection molding system comprising a heater cast seated in a cooled cavity plate, a gate through the cavity plate leading to a cavity, an elongated valve pin which reciprocates in a bore in the heater cast between open and closed positions, the valve pin having a driven end

and a tip end which seats in the gate in the closed position, valve pin actuating mechanism, and a melt passage which receives pressurized melt from a molding machine at a center entry and extends through the heater cast to the gate, the improvement wherein;

the valve pin actuating mechanism comprises a pneumatically operated piston which reciprocates in a cylinder generally in alignment with the valve pin and engages the driven end of the valve pin, the melt passage from the center entry to the gate disc extending through the piston cylinder.

7. In a valve gated center entry injection molding system comprising a heater cast seated between a back plate and a cooled cavity plate, a gate through the cavity plate leading to a cavity, a melt passage which receives pressurized melt from



a molding machine and extends from a center entry in the back plate through an offset portion of the back plate and the heater cast to the gate, an elongated valve pin which reciprocates in a bore in the heater cast with a central longitudinal axis in alignment with the gate and the center entry, the valve pin having a driven end and a tip end which seats in the gate in the closed position and valve pin actuating mechanism, the improvement wherein;

the valve pin actuating mechanism comprises a pneumatically operated double acting piston which reciprocates in a cylinder, the piston having an outer collar portion and a tongue portion, the outer collar portion encircling the back plate and sealingly received between the back plate and the cylinder, the tongue portion extending inwardly from the collar portion to operatively engage the driven end of the valve pin.

4,380,427

COMPACT HYDRAULIC DRIVE FOR DIE CLOSING UNIT OF INJECTION MOLDING MACHINE

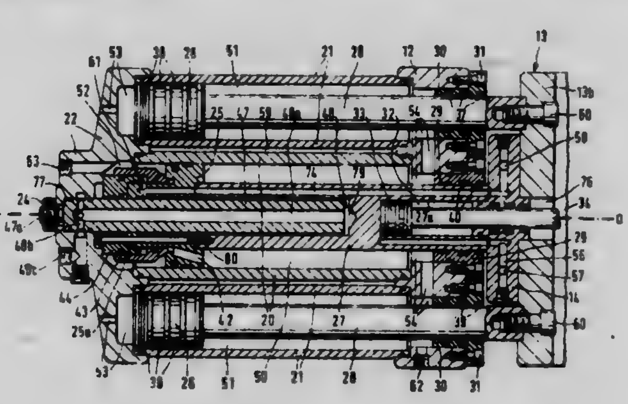
Karl Hehl, Arthur-Hehl-Strasse 32, 7298 Lossburg 1, Fed. Rep. of Germany

Filed Nov. 24, 1981, Ser. No. 324,625

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1980, 3044137

Int. Cl.^{3} B29F *1/06*

U.S. Cl. 425—590 **12 Claims**



1. A compact hydraulic actuator assembly adapted for use in a die closing unit of an injection molding machine as a rapid-travel opening and closing drive as well as a source of elevated die closing pressure, which die closing unit includes a stationary cylinder head plate and a movable die carrier member guided for die opening and closing travel along the center axis of the die closing unit, its die closing travel being a movement away from the stationary cylinder head plate in an axially forward direction, said hydraulic actuator assembly comprising in combination:

a power cylinder extending rearwardly from the cylinder head plate, in alignment with the center axis of the die closing unit, the power cylinder having a cylinder bore cooperating with a power piston on a piston rod which extends sealingly through the cylinder head plate and is connected to the movable die carrier member;

a cover on the rearward extremity of the power cylinder defining a high-pressure space between it and the power piston;

a closable power piston bypass in the form of at least one bypass channel connecting the high-pressure space of the power cylinder with a low-pressure space of the power cylinder defined between the power piston and the cylinder head plate, the effective area of the high-pressure space being larger than the effective area of the low-pressure space so that, when the power piston moves rearwardly with its piston bypass open, a volume of excess fluid corresponding to the difference between the two pressure space areas is displaced out of the power cylinder;

a travel cylinder arranged parallel to the power cylinder and extending likewise rearwardly from the cylinder head plate, the travel cylinder having a cylinder bore cooperating with a travel piston on a piston rod which extends sealingly through the cylinder head plate and is likewise connected to the movable die carrier member, for movements in unison with the power piston;

a travel cylinder pressure space defined between the travel piston and the cylinder head plate, the effective area of the travel cylinder pressure space being larger than said difference between the two pressure space areas of the power cylinder by a predetermined, relatively small net opening travel area;

a flow connection between the low-pressure space of the power cylinder and the travel cylinder pressure space so arranged that, when the pistons move rearwardly as aforesaid, said excess fluid is displaced from the low-pressure space of the power cylinder into the pressure space of the travel cylinder, and the additional entry into one of said connected pressure spaces of a pressurized fluid volume corresponding to the net opening travel area creates the rearward movements of the pistons, whereby an opening travel of the movable die carrier member is produced with a relatively small volume of pressurized fluid;

means for hydraulically closing the power piston bypass; and

means for supply pressurized fluid to the high-pressure space of the power piston, so as to create an elevated die closing pressure against the movable die carrier member in the closed position of the die closing unit, when the power piston bypass is closed.

4,380,428

SAFETY TIP-OVER DEVICE FOR PORTABLE GAS-FIRED INFRARED RADIANT HEATER

Mario Rozzi, St. Clair Shores, Mich., assignor to Detroit Radiant Products Company, Detroit, Mich.

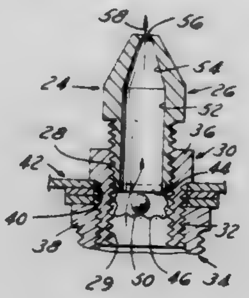
Continuation of Ser. No. 846,025, Oct. 27, 1977, abandoned. This application Aug. 26, 1982, Ser. No. 412,011

Int. Cl.^{3} F23N *5/24*

U.S. Cl. 431—88 **2 Claims**

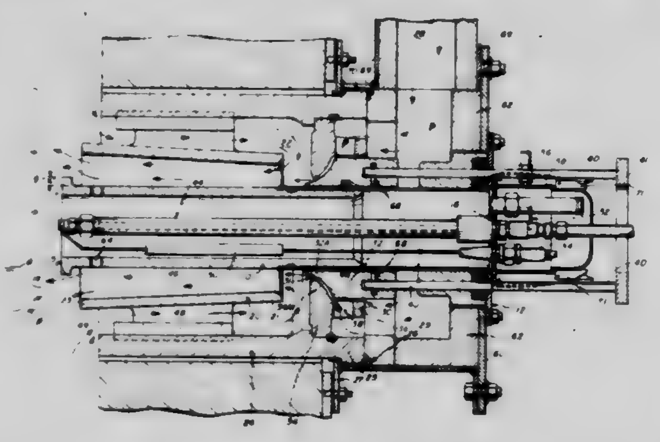
1. A safety tip-over device for a portable gas-fired radiant heater including a container for burnable gas under pressure having a burner mounted thereon, said device comprising an

orifice structure mounted on the container for emitting burnable gas into the burner, said orifice structure including a passageway having a first portion of relatively large diameter and terminating in a restricted portion having an orifice through which said burnable gas is emitted, a foraminous wall in said passageway upstream from said restricted portion, a freely movable valve element in said passageway downstream from said foraminous wall, said valve element being of lesser



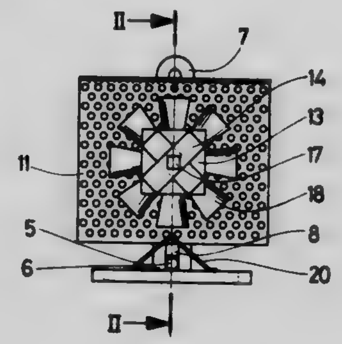
size than the diameter of said first portion of the passageway to permit free passage of burnable gas when the passageway is angled substantially upwardly, said foraminous wall permitting free passage of burnable gas but preventing said valve element from passing thereby, said valve element being of greater size than said orifice and reactive to the pressure of burnable gas flowing through the orifice structure to move into blocking position with respect to said orifice when the passageway is angled horizontally or slightly upwardly.

4,380,429
RECIRCULATING BURNER
Paul G. LaHaye, and John W. Bjerklie, both of Cape Elizabeth, Me., assignors to Hague International, Portland, Me.
Filed Nov. 2, 1979, Ser. No. 90,731
Int. Cl.³ F23L *7/00*
U.S. Cl. 431—115 **19 Claims**



1. A burner capable of operating with combustion air delivered to the burner at temperatures of from 600° F. to 2400° F. and higher, said burner comprising,
a center tube defining a forwardly extending ceramic high temperature resistant tube portion having a flame holder at a forward end of said burner,
an encircling ceramic high temperature resistant burner barrel extending about said ceramic tube,
an encircling recirculating ceramic high temperature resistant sleeve extending about said ceramic tube between said tube and said barrel and defining a recirculating gas passageway such that furnace gases can be carried from a forward end of said burner between said sleeve to a rearward area of said burner and then forwardly between said tube and sleeve completely surrounding said tube and then out of said forward end,
said rearward area encircling said center tube,
and combustion air means for providing a combustion air flow axially of said center tube between said center tube and said sleeve,
said combustion air means comprising a ceramic high temperature resistant lined chamber and a ceramic high temperature resistant annular chamber plug,
means forming an annular outlet from said chamber to said rearward area,
means for mounting said plug for movement in a direction axially of said center tube to adjust the size of said outlet and thus adjust the passage of combustion air to the rearward area between the center tube and the sleeve,
and fuel injector means positioned within said center tube and positioned to inject fuel at the forward end thereof.

4,380,430
CENTRAL HEATING APPARATUS
Constant Vuissoz, deceased, late of Grone, Switzerland (by Marie Vuissoz-de Preux, heir); by Cesarine Mosoni-Vuissoz, heir, Granges, and by Suzanne Voide-Vuissoz, heir, Rechy, both of Switzerland, assignors to Limtel, Ltd., Great Britain
Filed Mar. 9, 1981, Ser. No. 241,526
Claims priority, application Switzerland, Mar. 11, 1980, 1877/80
Int. Cl.³ F23D *13/12*
U.S. Cl. 431—347 **7 Claims**

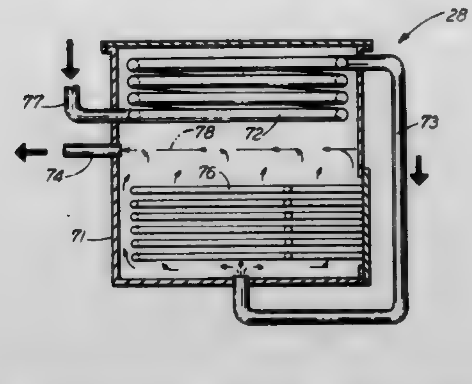


1. In a central heating apparatus comprising a boiler having walls defining a combustion chamber, a burner nozzle projecting a flame into the combustion chamber toward an opposite wall thereof, and a flame-permeable structure interposed between the nozzle and said opposite wall, the improvement that said flame-permeable structure comprises at least one flame-resistant sheet metal plate disposed in a plane approximately perpendicular to the direction of projection of said flame and having therein a multiplicity of small perforations formed by a piercing tool without removal of material to provide around the edge of each perforation protruding burs directed toward said nozzle, said burs being heated white-hot by the flame in order to improve fuel combustion and thereby reduce the release of smoke and soot deposits in the combustion chamber.

4,380,431
TECHNIQUE FOR ELEVATING THE TEMPERATURE OF A FLUID
Roy C. Carlson, Jr., Boxford Township, Essex County, Mass., and Edward J. March, Lower Makefield Township, Bucks County, Pa., assignors to Western Electric Company, Inc., New York, N.Y.
Filed Jun. 29, 1981, Ser. No. 278,152
Int. Cl.³ F26B *3/00;* **F22D** *1/28*
U.S. Cl. 432—29 **2 Claims**

1. A method of elevating the temperature of a low temperature liquid, comprising the steps of:
directing the low temperature liquid through coils mounted in the upper portion of an enclosed chamber;
passing the liquid from the coils to a reservoir in the lower part of the chamber;
heating the liquid, in the reservoir, to the elevated temperature, proximate its boiling point, which forms a vapor thereof in the upper portion of the chamber; and

condensing the vapor on the coils to transfer the latent heat of vaporization thereof to the coils to preheat the liquid



while simultaneously lowering the pressure within the chamber; and

discharging the heated liquid from the chamber.

4,380,432

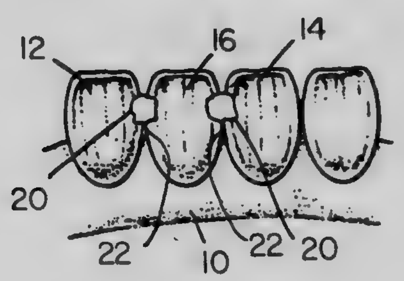
METHOD FOR ADHERING STRUCTURES TO TEETH

Jan A. Orlowski, Altadena, and David V. Butler, West Covina, both of Calif., assignors to Scientific Pharmaceuticals, Duarte, Calif. and Sankin Industries, Ltd., Tokyo, Japan

Filed Sep. 3, 1980, Ser. No. 183,743

Int. Cl.³ A61K *6/08*

U.S. Cl. 433—9 **19 Claims**



1. A method for adhesively mounting in the mouth a dental article which is a pontic or a fixed bridge of one or more pontic teeth by securing bonding surfaces on the article to be mounted in the mouth to support surfaces respectively of abutment teeth that are adjacent the mounting location of the article but at opposite sides of it respectively, comprising the steps of:

(i) etching said support surfaces of said abutment teeth with a suitable chemical etchant;

(ii) applying a curable dental adhesive to said bonding surfaces on said article and to said etched support surfaces of said abutment teeth; and

(iii) contacting said bonding surfaces with said support surfaces, each surface containing said applied dental adhesive of step (ii), whereby said adhesive hardens to bond the dental article in place,

wherein said dental adhesive is a methacrylate based dental adhesive comprising from about 2.5% to about 30% by weight of an elastomer or a mixture of two or more of said elastomers, said elastomer or elastomers being selected from the group consisting of homopolymers and copolymers of at least one conjugated diene monomer containing 4 to 10 carbon atoms.

4,380,433

DENTAL WIRE DISPENSER AND MOUNTING TOOL

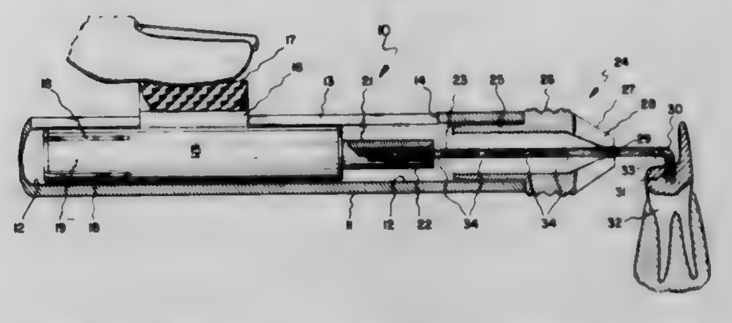
Alan G. Ellman, 1 Auerbach La., Lawrence, N.Y. 11516, and Jon C. Garito, 22 Deering La., East Rockaway, N.Y. 11558

Continuation of Ser. No. 61,276, Jul. 27, 1979, abandoned, which is a continuation-in-part of Ser. No. 917,533, Jun. 21, 1978, abandoned. This application May 26, 1981, Ser. No. 267,007

Int. Cl.³ A61C *1/10, 1/12, 17/02;* B25G *3/28*

U.S. Cl. 433—87 **13 Claims**

1. In combination with an elongated continuous strip of threaded straight dental pins of predetermined diameter notched at periodic intervals, a dental pin dispenser for dispensing and mounting said threaded pins, said dispenser comprising an elongated substantially tubular handle having a hollow interior portion for receiving the continuous strip of threaded pins and at one handle end a nozzle having an exiting orifice leading to the interior, said exiting orifice being sized and adapted to provide a snug fit with the continuous strip of pins and yet allow passage of the strip from the handle interior to the outside, said nozzle being adapted to allow a dentist holding the dispenser handle to manipulate a pin at the strip



end and which pin end protrudes from the nozzle for inserting the pin end into a predrilled hole in tooth dentin and for breaking off the pin from the strip at a notch after cementing the pin in the tooth hole, said elongated length of continuous strip of threaded pins extending lengthwise within the handle interior and aligned with the nozzle orifice, and means on the handle and connected to said strip for gripping and sliding said strip from the interior through the nozzle orifice to the outside under control of the dentist.

4,380,434

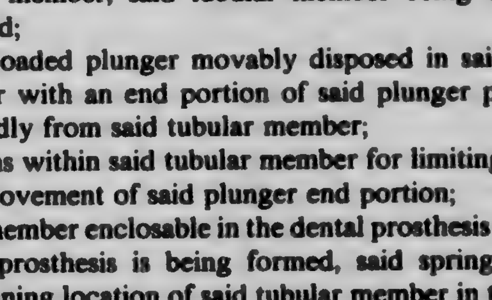
DETENT DEVICE FOR A REMOVABLE DENTAL PROSTHESIS

Bernard Weissman, 225 E. 48th St., New York, N.Y. 10017

Filed Apr. 7, 1981, Ser. No. 251,867

Int. Cl.³ A61C *13/22*

U.S. Cl. 433—177 **13 Claims**



1. A detent device for a removable dental prosthesis, said device comprising:

a tubular member, said tubular member being externally threaded;

a spring loaded plunger movably disposed in said tubular member with an end portion of said plunger projecting outwardly from said tubular member;

stop means within said tubular member for limiting longitudinal movement of said plunger end portion;

a spring member enclosable in the dental prosthesis when the dental prosthesis is being formed, said spring member determining location of said tubular member in the dental prosthesis and retaining said tubular member in the dental prosthesis;

said spring member having helical loops;

said tubular member being inserted through said loops with said loops engaging the external threads of said tubular member; and

said spring member including securing means for providing a fixed securement of said spring member in the dental prosthesis.

4,380,435

PERMANENT ONE VISIT BONDED BRIDGE NO DRILLING, AND KIT THEREFOR

Arthur Raeder, and Celia R. Raeder, both of 615 Eastern Pkwy., Brooklyn, N.Y. 11216

Continuation-in-part of Ser. No. 938,423, Aug. 31, 1978, abandoned. This application Nov. 24, 1980, Ser. No. 209,321

Int. Cl.³ A61C *13/22*

U.S. Cl. 433—180 **29 Claims**

1. A kit for making and inserting a dental bridge in a gap between natural teeth in a human mouth, said kit comprising:

a generally arch-shaped piece of a rigid material having approximately the shape of a geometric curve defined by the central fossae of the posterior teeth and the lingual surfaces of the anterior teeth of one jaw of a human mouth; said piece being adapted to have at least one artificial tooth mounted thereon and having such a cross-sectional shape that a length of said piece can be secured to at least one natural tooth to each side of said gap by means of being received in a groove formed in the surface of each of said natural teeth, and

a sufficient quantity of copolymer usable for forming an ultraviolet light transmissive matrix for aligning said at least one artificial tooth.

4,380,436

SUPPORT FOR A REMOVABLE DENTAL PROSTHESIS

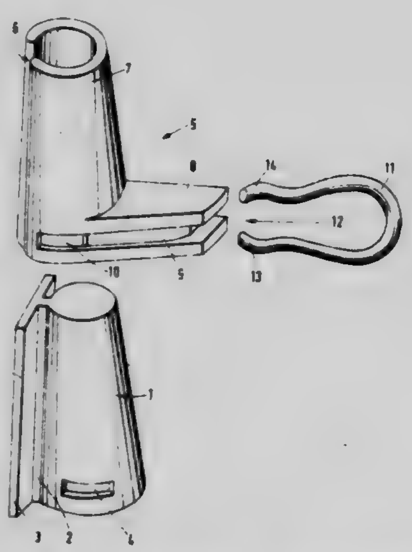
Manfred Kipp, Sande, Fed. Rep. of Germany, assignor to Dental Keramik Sande GmbH, Sande, Fed. Rep. of Germany

Filed Oct. 1, 1981, Ser. No. 307,392

Claims priority, application Fed. Rep. of Germany, Feb. 28, 1980, 3107690

Int. Cl.³ A61C *13/22*

U.S. Cl. 433—182 **2 Claims**



1. A support for a removable dental prosthesis on the remainder of the natural teeth, comprising:

a male support element and a female support element, said male support element being securable to the base of a crown of a capped tooth of one's remaining natural teeth, and said female support member being securable to a dental prosthesis, said male support element and said female support element being configured for positive locking and telescopic displacement relative to one another and, in an end position thereof, mutual interengagement therebetween, said male support element comprising a vertically-disposed, generally conical pin having a recess, and said female support element comprising a vertically-disposed, generally conical bushing configured to encompass said pin which bushing is provided with an inwardly-protruding spring element removably mounted thereon which is disposed for bias engagement with said recess of said pin when said bushing is fully received on said pin.

4,380,437

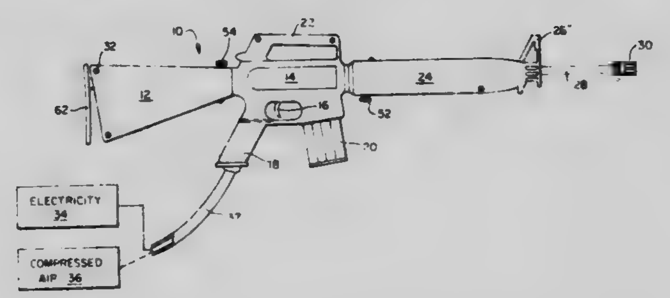
SMALL WEAPONS SIMULATOR

G. Wirth Yarborough, Jr., 1150 Dauphin St., Mobile, Ala. 36604

Filed Sep. 4, 1981, Ser. No. 299,335

Int. Cl.³ F41F *27/00*

U.S. Cl. 434—18 **2 Claims**



1. A small weapons simulator for marksmanship training, said simulator comprising:

a gun body having an external buttstock, action housing, forestock and muzzle configuration resembling a weapon to be simulated;

a transmitter supported within said body for transmitting a light beam forwardly along the barrel axis of said body;

recoil means supported within said body to develop a rearwardly directed force impulse when actuated, said recoil means comprising a pneumatic piston-cylinder module;

muzzle rise simulating means for developing a force upon actuation to lift the forward portion of said body; and

means for simultaneously actuating said transmitter, said recoil means and said muzzle rise means, said actuating means comprising means defining a supply of compressed air to said gun body and trigger actuated valve means for actuating said piston-cylinder module.

4,380,438

AUTOMATED STUDY VOICE RECORD/REPRODUCTION SYSTEM

Ikuko Okamoto, Tokyo, Japan, assignor to Yugen Kaisha Batora Konsaruteingu, Tokyo, Japan

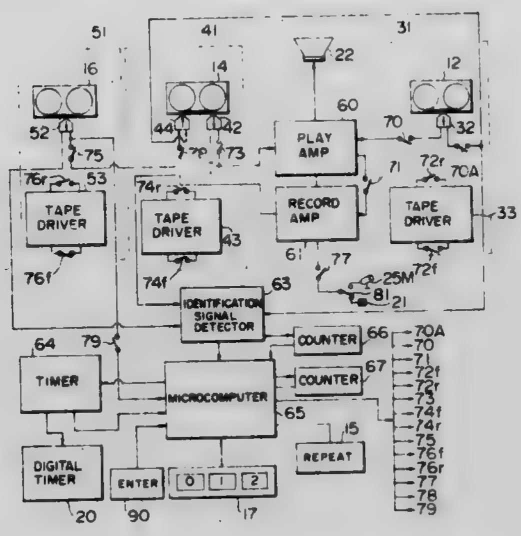
Filed Aug. 31, 1981, Ser. No. 298,216

Int. Cl.³ G09B *5/04*

U.S. Cl. 434—157 **9 Claims**

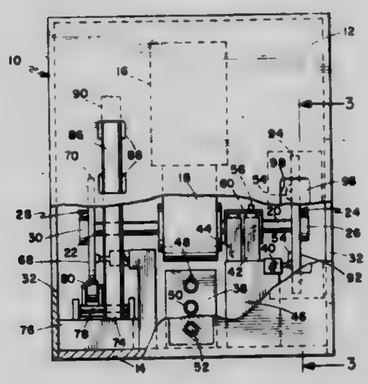
1. A study voice record/reproduction system comprising a master study materials reproduction section including a first recording medium for recording thereon master study voice signals and identification signals each inserted between blocks in said master voice signals to distinguish one block from another, first medium driving means for driving said first recording medium, and a reproduction unit for reproducing signals recorded on the first recording medium when the first recording medium is driven forward by said first driving means; a practice record/reproduction section including a second recording medium for recording thereon signals from said master reproduction section or voice signals from a microphone, second medium driving means for driving said second recording medium forward and backward, and a reproduction unit for reproducing on the second recording medium said signals from the master reproduction section or said signals from said microphone when said second medium driving means drives the second recording medium forward; a pro-

gram reproduction section including a third recording medium for recording thereon instruction voice signals, command program signals and identification signals for distinguishing between said instruction voice signals and said command program signals, third medium driving means for driving said third recording medium forward and backward, and a reproduction unit for reproducing signals recorded on the third



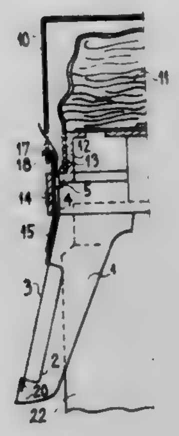
recording medium at the time of driving the third recording medium; and a control section for storing the contents of program signals read from said program reproduction means thereby to control each driving of the master study materials reproduction section, said practice record/reproduction section and the program reproduction section in accordance with said program signals.

4,380,439
NECK VENOUS AND ARTERIAL EXAMINATION TEACHING INSTRUMENT
Arthur Kreitenberg, 5860 Cozzens St., San Diego, Calif. 92122
Filed Sep. 8, 1981, Ser. No. 299,840
Int. Cl.³ G09B *23/32*
U.S. Cl. 434—268 **6 Claims**



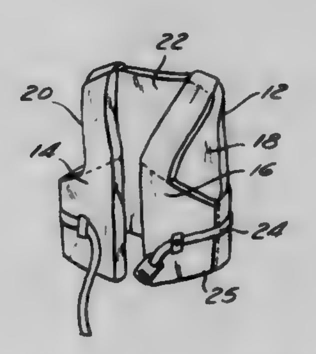
1. A neck venous and arterial examination teaching instrument comprising:
a base member,
a cover attachable to the base member and having a first surface and an adjacent second surface,
sensing means mountable in the cover for producing human sensible fluctuations in simulated blood circulatory systems in response to at least one heart beat cycle,
interchangeable cam means having undulating contours simulating normal and abnormal heart pulse wave forms for activating the sensing means,
motor means for operating the cam means, and
wherein the motor means and cam means are mountable on the base and enclosed within the cover to produce a self-contained hand portable instrument.

4,380,440
DROPPABLE AIRBORNE BUOY
Vito Suppa, Paris, France, assignor to Thomson-CSF, Paris, France
Continuation-in-part of Ser. No. 57,422, Jul. 13, 1979, Pat. No. 4,279,025. This application Aug. 26, 1980, Ser. No. 181,650
Claims priority, application France, Aug. 28, 1979, 79 21562
Int. Cl.³ B63B *21/52*
U.S. Cl. 441—30 **3 Claims**



1. A buoy capable of being dropped onto water from an aircraft, comprising: an inflatable balloon attached to a container; said balloon being inflated during its descent by a forced intake of air at the base thereof; said buoy having adjustable openings in the form of scoops; said forced intake of air taking place through the opening of these scoops; each of said scoops comprising a window covered inside by a flexible cloth; said cloth being inflated when the scoops lift up during the drop of said buoy; said cloth actuating a freeing mechanism for releasing a protecting hood capping said balloon.

4,380,441
FLOTATION VEST
Robert G. Harr, Whittier, and Gaylord T. Soll, San Marino, both of Calif., assignors to America's Cup, Inc., City of Industry, Calif.
Filed Mar. 2, 1981, Ser. No. 239,460
Int. Cl.³ B63C *9/08*
U.S. Cl. 441—112 **16 Claims**



1. A flotation vest having an outer shell including a back section and left and right front sections joined to the back section at the top and at the sides to form arm holes, and internal buoyancy means carried by the shell and including front portions formed by at least four pieces of buoyancy material which when properly fitted edgewise together form rectangular pieces such that there is no waste material in cutting the pieces from rectangular sheets, the front buoyancy portions include a lower body piece and a shoulder piece carried by each of the left and right front sections, each of said body pieces having a lower edge, a central edge, a side edge, and an upper edge, each shoulder piece including a lower edge, an arm hole edge, a neck hole edge, and an upper edge, the shoulder piece lower edge being positioned to engage the body piece upper edge with said engaging edges being formed to

engage at an angle such that the arm hole edge and the neck hole edge of the shoulder piece slope at an angle upwardly and outwardly away from the body piece central edge, the width of a shoulder piece between the arm hole and neck hole edges being considerably less than the width of a body piece between its side and central edges so that with the shoulder piece lower edge being positioned close to the body piece central edge, a portion of the body piece upper edge forms an arm hole with the arm hole edge of a shoulder piece.

4,380,442
FLEXIBLE COUPLING

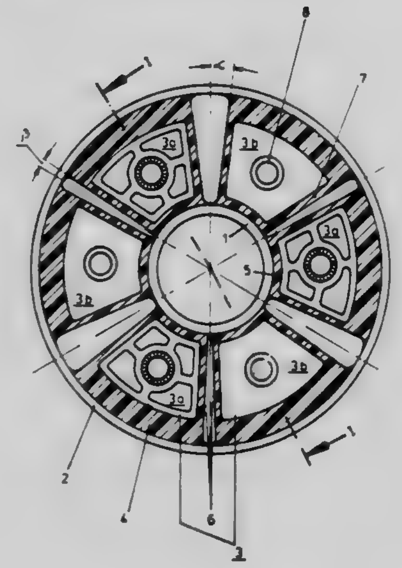
Friedrich-Wilhelm Amsel, Gorxheimertal, Fed. Rep. of Germany, assignor to Firma Carl Freudenberg, Weinheim, Fed. Rep. of Germany

Filed Feb. 20, 1981, Ser. No. 236,183

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1980, 3010127

Int. Cl.³ F16D *3/00, 3/58*

U.S. Cl. 464—93 **8 Claims**



1. In a rotary flexible coupling having first and second sets of driver blocks, the blocks of each set being spaced equally apart around the axis of rotation, the blocks of the first set being interleaved between the blocks of the second set, each of the blocks having radial end faces and having inner and outer circumferential surfaces, a first set of fastening elements to connect the first set of blocks to an input flange to receive torque therefrom, and a second set of fastening elements to connect the second set of blocks to an output flange to transmit torque thereto, the invention comprising:

a first tire of inelastic material spaced radially inwardly from the inner circumferential surfaces of the blocks;
a second tire of inelastic material spaced radially outwardly from the outer circumferential surfaces of the blocks;
an inner layer of elastomeric material comprising cylindrical segments joining the inner circumferential surface of each of the blocks with the first tire; and
an outer layer of elastomeric material comprising cylindrical segments joining the outer circumferential surface of each of the blocks with the second tire.

4,380,443
FIBER-REINFORCED DRIVE SHAFT

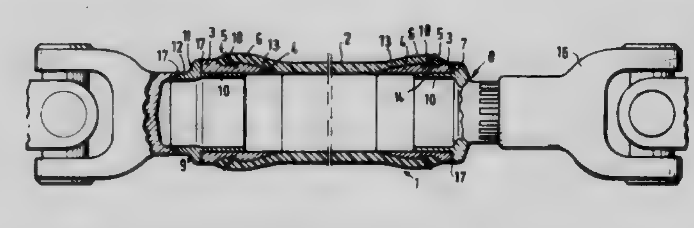
Helmut Federmann, Berg. Gladbach, and Joachim Bausch, Dürscheid, both of Fed. Rep. of Germany, assignors to Felten & Guilleaume Carlswerk Aktiengesellschaft, Cologne, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 203,669, Nov. 3, 1980. This application Jun. 9, 1981, Ser. No. 271,844

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1979, 2946530; Jul. 19, 1980, 3027432

Int. Cl.³ F16C *3/00*

U.S. Cl. 464—181 **17 Claims**



1. A drive shaft, particularly for motor vehicles, comprising a tubular shaft part having an axis and two axially spaced end portions and being composed of a fiber-reinforced synthetic plastic material; two end pieces each associated with a respective one of said end portions of said shaft and having a sleeve-shaped section extending into and surrounded by a respective one of said end portions of said shaft part, and a ring-shaped section extending axially outwardly from said sleeve-shaped section and having an inner end face which forms a stop and a protective end abutment for a respective one of said end portions of said shaft part, said end pieces being constituted of metal; and means for connecting said end pieces with said shaft part, said connecting means including a plurality of anchoring members provided in each of said end pieces, said anchoring members being arranged on said sleeve-shaped section so that they extend substantially radially outwardly at a plurality of circumferentially spaced locations in the vicinity of a transition between said sleeve-shaped section and said ring-shaped section of each of said end pieces.

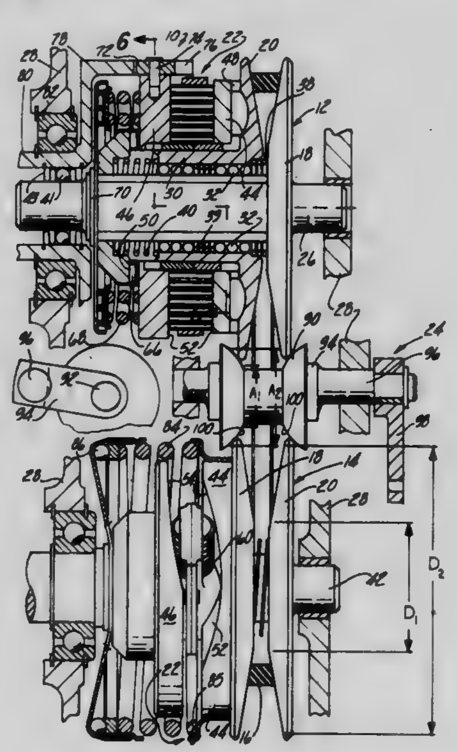
4,380,444
VARIABLE RATIO BELT DRIVE

John Dolza, 810 State Rd., Fenton, Mich. 48430

Filed Apr. 27, 1981, Ser. No. 257,526

Int. Cl.³ F16H *55/56*

U.S. Cl. 474—21 **29 Claims**



1. A variable ratio pulley for a belt drive comprising: a pair of disk-shaped flanges supported coaxially of each other for

rotation as a unit and for movement axially relative to each other, said flanges having conical surfaces converging relative to each other radially inwardly and adapted to receive a transmission belt therebetween extending around and tangentially toward and away from said flanges, ratio control means for moving said flanges axially to selected positions relative to each other to change the pitch radius at which said belt engages said opposed conical surfaces, and means urging said flanges axially toward each other with a force substantially proportional to the net tangential force between said flanges and said belt in all of said selected positions of said belt relative to said flanges, said means urging said flanges toward each other including control members having opposed control surfaces, said control members being rotatable relative to each other, one of said members being connected to one of said flanges of said pulley for movement therewith and another of said members being connected to a rotary input member, roller assemblies each including a plurality of rolling elements rotatable independently of each other on radially extending axes intersecting the axis of said pulley and disposed between and in engagement with said surfaces to move said members axially apart on relative rotation of said members to move said flanges of said pulley axially relative to each other and against said belt with a force substantially proportional to the tangential force of said belt.

4,380,445

TRANSMISSION FOR A BICYCLE

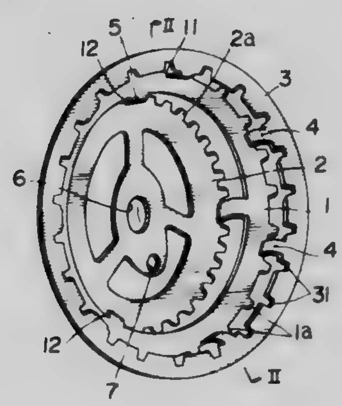
Keizo Shimano, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan

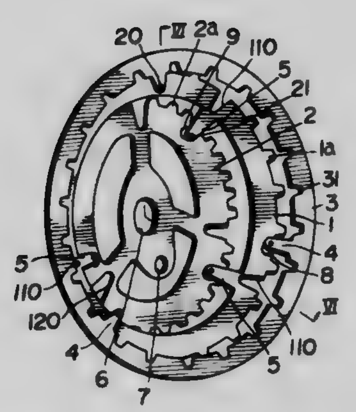
Filed Aug. 4, 1975, Ser. No. 601,652

Claims priority, application Japan, Aug. 16, 1974, 49-94477; Aug. 16, 1974, 49-94478

Int. Cl.³ F16P *1/00*

U.S. Cl. 474—144 **13 Claims**





1. A compound sprocket structure particularly advantageous for use in a bicycle or other vehicle comprising a single plate structure including at least two plate segments each of which has a peripheral edge formed to include a set of teeth, one of said plate segments being offset from the other to provide that said plate segments are arranged thereby to lie in adjacent substantially parallel planes, one of said plate segments being rimmed by and lying within the boundary of the other and the outer of said plate segments having an annular shape, and strip-like plate portions providing connector means joining the respective plate segments, as a continuing part thereof, to rigidly maintain said plate segments in their respective offset substantially parallel planes.

4,380,446

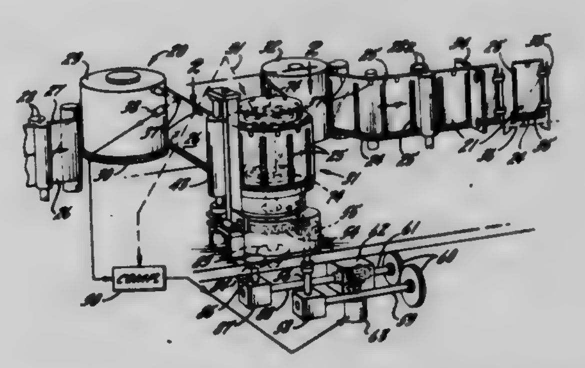
SIDE SEALING MECHANISM FOR A PACKAGING MACHINE

J. Douglas Dickson; J. David Sweeney, and Ronald K. Coleman, all of Columbus, Ohio, assignors to Rexham Corporation, New York, N.Y.

Filed Sep. 12, 1980, Ser. No. 186,697

Int. Cl.³ B31B *1/10, 1/64*

U.S. Cl. 493—11 **6 Claims**



1. Mechanism for sealing together two face-to-face strips of heat-sealable material at longitudinally spaced positions along the strips as the latter are advanced with continuous motion along a predetermined path, one of said strips having targets spaced longitudinally therealong with the spacing between successive targets being approximately equal, said mechanism comprising a frame, a drum mounted on said frame to rotate about a predetermined axis, a plurality of heat sealing bars carried by and spaced circumferentially around said drum, one of said strips engaging said sealing bars as said strips are advanced along said path, means mounting said sealing bars on said drum to move radially inwardly and outwardly relative to the drum to thereby enable the radial position and the circumferential spacing of said sealing bars to be changed, an actuator connected to said sealing bars and rotatable with said drum, said actuator also being rotatable relative to said drum and being operable when so rotated to move said sealing bars radially inwardly or outwardly relative to said drum, means for detecting said targets and for producing command signals indicative of the spacing between said targets, means for detecting said sealing bars and for producing feedback signals indicative of the circumferential spacing of said sealing bars, means for comparing said command and feedback signals, and power-operated means responsive to said comparing means and operable to rotate said actuator relative to said drum when the spacing between said sealing bars differs from the spacing between said targets.

4,380,447

METHOD OF CLOSING AN OPEN END OF A TUBE OR TUBULAR CONTAINER

Thomas VanderLugt, Jr., Kalamazoo, Mich., assignor to James River Corporation of Virginia, Richmond, Va.

Division of Ser. No. 71,242, Aug. 30, 1979, Pat. No. 4,291,829. This application Sep. 12, 1980, Ser. No. 186,416

Int. Cl.³ B31B *17/00*

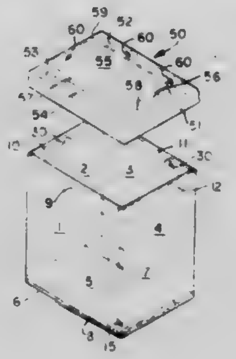
U.S. Cl. 493—102 **9 Claims**

1. A method of closing an open end of a tube or tubular container, having upstanding walls, the end edges of which walls are folded-over and adhered to said walls to form a folded-over, reinforced portion of double thickness at that end of the tube or tubular container, the inner exposed surface of said folded-over, edge-reinforced portions of the upstanding walls having areas of low resistance defined therein for facili-

tating the removable securement of a closure member thereto, comprising the steps of placing a container closure member, comprising an upstanding tubular inner wall conforming to the inner surfaces of the walls of the tube or tubular container to be closed by said closure member, and

a downstanding tubular outer wall connected thereto by a bight and conforming to the outer surfaces of the walls of the tube or tubular container to be closed by said closure member,

thereby forming a tubular channel in which said upstanding walls can be seated in frictional engagement, and



a centrally located upwardly-elevated dome portion, defined by an upstanding dome-forming wall which is inwardly spaced from the said upstanding tubular inner wall of said closure member, the said two upstanding walls of said closure member defining a tubular valley therebetween, onto the reinforced end of said tube or tubular container, and forcing lugs in the upstanding tubular inner wall of said closure member into complementary areas of low resistance in the inner exposed surface of the walls of the said tube or tubular container.

4,380,448

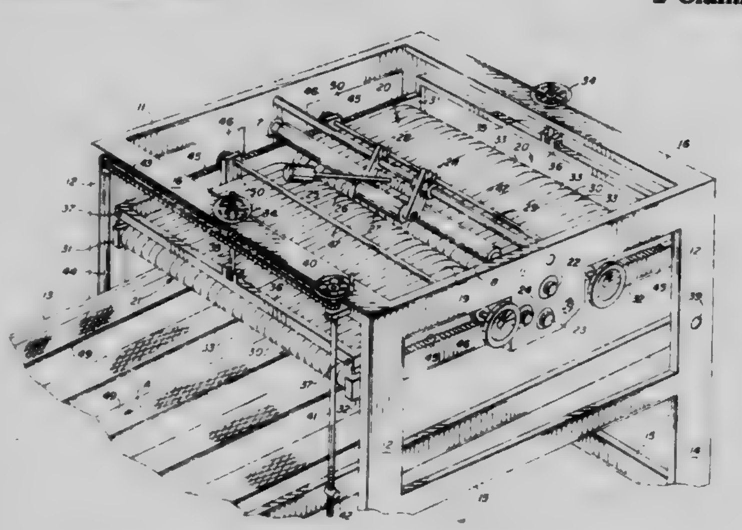
PAPER STOP ADJUSTMENT MECHANISM FOR CONTINUOUS FORM STATIONERY FOLDING MACHINE

Earnest B. Bunch, Jr., Peoria, Ariz., assignor to B. Bunch Company, Inc., Phoenix, Ariz.

Filed Sep. 22, 1980, Ser. No. 189,787

Int. Cl.³ B65H *45/00, 45/20*

U.S. Cl. 493—410 **2 Claims**



1. In combination with apparatus for producing continuous form stationery by folding a strip of paper along transverse lines of weakening formed therein, said apparatus including,

a frame;

generally horizontally disposed endless belt means mounted on said frame for alternately distributing said successive lines of weakening in said paper in substantially opposite lateral directions of travel to form creased edges in said paper along said lines of weakening, said belt means including

a pair of spaced adjacent parallelably disposed paper distribution rollers, each of said rollers having

a generally constant diameter along the length thereof, and

a longitudinal axis about which said rollers rotate, said longitudinal axes being generally horizontally disposed; and,

belts trained around said distribution rollers;

means carried on said frame for directing said continuous strip of paper between said distribution rollers and into contact with at least some of said belts for said lateral distribution in said substantially opposite directions, said lateral distribution directions being generally perpendicular to said longitudinal axes of said distribution rollers;

a support surface for receiving paper distributed by said endless belt means;

a pair of opposed assemblies carried by said frame and positioned

above said support surface, and

laterally from said distribution rollers

for periodically tamping said paper dispensed from said paper distribution rollers of said endless belt means to assist in folding and positioning said paper on said support surface, each of said tamping assemblies

being spaced apart from the other, and

located on an opposite side of an imaginary midline lying between and generally parallel to the longitudinal axes of said adjacent distribution rollers;

a pair of opposed paper stop assemblies carried for movement independently of said distribution rollers and opposed assemblies on said frame and positioned

above said support surface, and

laterally from said distribution rollers and said imaginary midline,

each of said paper stop assemblies being

spaced apart from the other, and

located on an opposite side of said imaginary midline, and

having at least one upstanding face for stopping said lateral travel of creased edges of paper distributed away from said midline by said endless belt means;

wherein the improvement comprises means for mounting said upstanding faces of said paper stop assemblies for movement between at least two operative positions,

(a) a first operative position with each of said faces of said paper stop assemblies positioned beneath and laterally adjacent one of said distribution rollers, and

(b) a second operative position with said faces moved laterally from said first position adjacent said distribution rollers in a direction of travel away from said imaginary midline,

such that said continuous form stationery folding apparatus can fold paper in lengths generally equal to or less than the sum of said diameters of said adjacent rollers, said tamping assemblies being positioned laterally out from underneath said distribution rollers when said paper stop assemblies are in said first operative positions.

4,380,449

VARIABLE SIZE FOLDER CYLINDER

Horst B. Michalik, Hochberg, Fed. Rep. of Germany, assignor to Koenig & Bauer AG, Wurzburg, Fed. Rep. of Germany

Filed Jun. 26, 1981, Ser. No. 277,538

Claims priority, application Fed. Rep. of Germany, Jul. 26, 1980, 3028468

Int. Cl.³ B65H *45/16*

U.S. Cl. 493—424 **5 Claims**

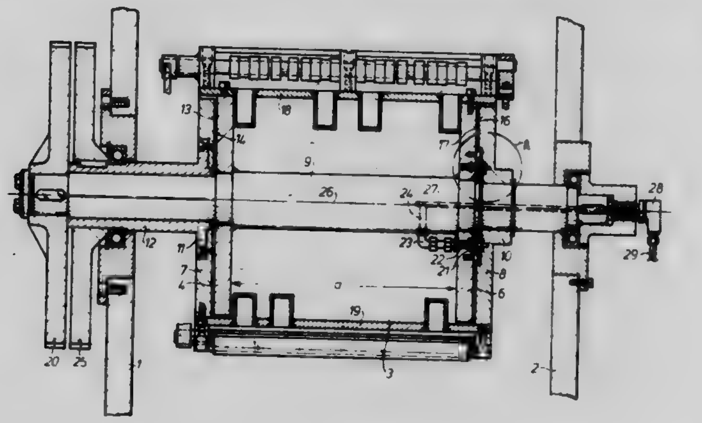
1. A clutch assembly in combination with a folder cylinder of a folder for use in a web-fed rotary printing machine the folder cylinder having an inner pair of supporting wheels and an outer pair of supporting wheels, said inner and outer pairs of supporting wheels being axially spaced from each other on an axial support shaft and being capable of being rotatably displaced with respect to each other about said axial support shaft

to permit variations in the spacing of devices carried by said inner and outer supporting wheels at the periphery of the folder cylinder, said clutch assembly being positioned between and acting on said outer and inner supporting wheels, said clutch assembly comprising:

An axially displaceable ring shaped piston positioned in a recess in a face portion of at least one of the inner supporting wheels;

a coupling ring secured on said ring shaped piston;

a return membrane ring clamped between said ring-shaped piston and said coupling ring, said return membrane ring projecting over said recess in said face portion of said inner supporting wheel, said return membrane ring having an outer rim and an inner rim to seal said recess for said ring-shaped piston, said outer rim and said inner rim of said return membrane ring being secured to said face of said inner supporting wheel;



a plurality of guide holes formed in said recess for said ring-shaped piston;

a plurality of guide bolts on a side of said ring-shaped piston facing said recess for said ring-shaped piston, said guide bolts engaging said guide holes;

means for supplying a pressurized fluid to said recess for said ring shaped piston; and

a thrust collar carried by said outer supporting wheel and co-acting with said coupling ring whereby application of fluid pressure causes said coupling ring to engage said thrust collar to join said outer and inner supporting wheels together.

4,380,450

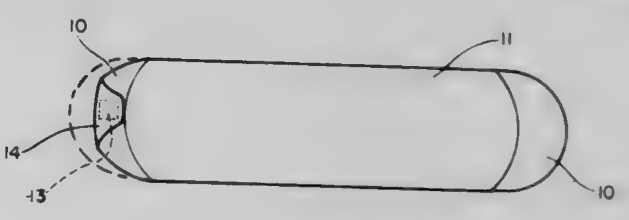
SANITARY NAPKIN WITH DISPOSAL MEANS

Jack W. Reich, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Jun. 24, 1981, Ser. No. 276,917

Int. Cl.[3] A61F *13/16*

U.S. Cl. 604—386 **2 Claims**



1. A sanitary napkin with a body facing side and a garment facing side comprising a fluid impermeable baffle, an absorbent layer and a fluid pervious wrap positioned between the wearer and the absorbent layer, said wrap and said baffle extending beyond the longitudinal ends of the absorbent layer to form the flexible longitudinal ends of the napkin at least one of said napkin ends containing a discrete adhesive area on the body facing side and having garment attachment adhesive means on the garment facing side.

4,380,451

CONTINUOUS DYEING AND SIMULTANEOUS FINISHING OF TEXTILE MATERIALS USING DEFOAMING AGENT OF POLYOXYALKYLENE POLYSILOXANE COPOLYMER AND HYDROPHOBIC SILICA

Helmut Steinberger, Leverkusen; Wilfried Kortmann, Hagen, and Jürgen Tuschen, Much, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 24, 1981, Ser. No. 305,660

Claims priority, application Fed. Rep. of Germany, Oct. 15, 1980, 3038984

Int. Cl.^{3} D06P *1/61;* **D06M** *13/00;* **B01D** *19/04*

U.S. Cl. 8—477 **4 Claims**

1. A de-foaming agent comprising by weight about

(a) 80 to 100 parts of a polyoxyalkylenepolysiloxane copolymer of the formula:

$$[R^1Si(OSiR_2)_n]_mZ_{m-1}(OR^2)_{m+2},$$

in which

R represents an optionally halogen-substituted alkyl group with up to 4 carbon atoms,

R^1 represents the substituent R or a phenyl radical,

R^2 represents a group of the composition

$$R^3(OCH_2CH_2)_x(OCH_2\underset{\displaystyle CH_3}{\overset{}{C}}H)_y—,$$

Z represents the difunctional unit —O— or

$$\left[—O—\underset{R^4}{\overset{R^4}{\underset{|}{\overset{|}{C}}}}—\right]_p O—$$

and

R^3 denotes a hydrocarbon radical with up to 6 carbon atoms;

R^4 denotes independently from one another hydrogen or R^3,

n denotes a number between 3 and 40,

m denotes a number between 1 and 15,

x denotes a number between 0 and 68,

y denotes a number between 0 and 52,

x+y denotes a number between 1 and 68 and

p denotes a number between 2 and 12,

and (b) 0.5 to 20 parts of a hydrophobic silicon dioxide.

4,380,452

DYEING AND PRINTING OF CELLULOSE-CONTAINING TEXTILE MATERIAL

Hermann Loeffler, Speyer; Werner Juenemann, Bad Durkheim, and Gunther Lamm, Hassloch, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Continuation of Ser. No. 164,005, Jun. 30, 1980, Pat. No. 4,305,718. This application Jul. 29, 1981, Ser. No. 288,209

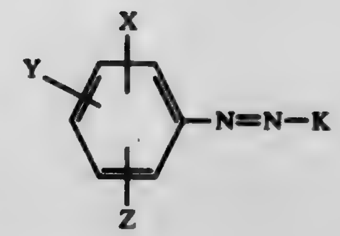
Claims priority, application Fed. Rep. of Germany, Jul. 23, 1979, 2929763

The portion of the term of this patent subsequent to Dec. 15, 1998, has been disclaimed.

Int. Cl.^{3} C09B *29/36;* **D06P** *3/60*

U.S. Cl. 8—532 **2 Claims**

1. A process for dyeing and printing water-swellable cellulosic materials and blends thereof with synthetic materials in the presence of water and a solvent that is capable of maintaining cellulose in the swollen state, wherein the dye used is a compound of the general formula I:



where K is the radical of a coupling component of the pyridone series,

one of the radicals X, Y and Z is a carboxylic acid ester group of a total of 2 to 19 carbon atoms; and,

the remaining substituents X, Y and Z are hydrogen, methyl, chlorine, bromine or nitro, with the proviso that the number of carbon atoms of the N-substituent in the pyridone moiety plus that of the carboxylic ester group is equal to or above 14.

4,380,453

EXTRANEOUS DYE OR COLORANT SCAVENGING SYSTEM IN LAUNDRY

J. Lyle Claiborne, Hixson, Tenn., assignor to Dixie Yarns, Inc., Chattanooga, Tenn.

Division of Ser. No. 119,154, Feb. 6, 1980, abandoned. This application Nov. 12, 1980, Ser. No. 206,277

Int. Cl.^{3} B08B *3/00*

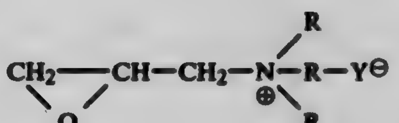
U.S. Cl. 8—606 **13 Claims**

1. A method of controlling undesirable random dye or colorant in a liquid bath containing sources of undesirable random dye or colorant and textile material of color other than the color of said undesirable dye or colorant, comprising placing in said bath a dye scavenger member comprising a cellulosic substrate material bearing a dye scavenger material, said dye scavenger material comprising a compound from the group consisting of:

a N-trisubstituted ammonium-2-hydroxy-3-halopropyl compound having the general formula

$$X—CH_2—CHOH—CH_2—\overset{\oplus}{N}(R)(R)—R—Y^{\ominus}$$

or a salt of epoxy propyl ammonium having the general formula



wherein X is a halogen radical, Y is chloride, bromide, sulfate or sulfonate, and the R's are methyl, ethyl, butyl or benzyl groups or an hydroxyl substituted derivative thereof and then using said liquid bath for its intended purpose, wherein said undesirable random dye or colorant becomes associated with said dye scavenger member.

4,380,454
COKING QUALITY OF COALS WITH INSUFFICIENT COKING PROPERTIES
Jürgen Stadelhofer, Dortmund; Heinz-Gerhard Franck, Bad Soden-Neuenhain; Karl H. Koch, and Rolf Marrett, both of Castrop-Rauxel, all of Fed. Rep. of Germany, assignors to Rütgerswerke Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany
Filed Nov. 21, 1980, Ser. No. 209,343
Claims priority, application Fed. Rep. of Germany, Dec. 19, 1979, 2951116
Int. Cl.[3] C10L *9/10, 5/16*
U.S. Cl. 44—1 B **5 Claims**

1. In a process for upgrading the coke quality of coals with insufficient coking properties, the improvement comprising mixing with said coal a coking coal improvement medium which is a pitch-like product with a softening point (Krämer-Sarnow method) of 90°-160° C., and is obtained from the highly aromatic carbonaceous material produced by the disintegration of comminuted coal and/or similar coal-like raw materials with a combination of hydrocarbon mixtures as the solvent which are aromatic residues from the steam pyrolysis of petroleum fractions in combination with coal-derived aromatic mixtures with an average boiling point above 350° as complementary solvent, with the use of elevated temperature and pressure conditions, and by distilling off 2 to 20% of light-boiling components.

5. An additive for the improvement of the coke quality of coals with insufficient coking properties, comprising the pitch-like product with a softening point (Krämer-Sarnow method) of 90°-160° C. which is obtained from the highly aromatic carbonaceous material obtained by the disintegration of comminuted coal and/or similar coal-like raw materials with a combination of hydrocarbon mixtures as the solvent, which are aromatic residues from the steam pyrolysis of petroleum fractions in combination with coal-derived aromatic mixtures with an average boiling point above 350° as complementary solvent, with the use of elevated temperature and pressure conditions, and wherein from 2 to 20% of light-boiling components are distilled off.

4,380,455
DIALKYL CARBONATES AS PHASE SEPARATION INHIBITORS IN LIQUID HYDROCARBON FUEL AND ETHANOL MIXTURES
Harry A. Smith, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Filed Mar. 1, 1982, Ser. No. 353,691
Int. Cl.[3] C10L *1/18*
U.S. Cl. 44—56 **15 Claims**

1. A method for preventing a mixture of hydrous ethanol and a liquid hydrocarbon fuel from separating into two phases comprising adding to the mixture an effective amount of a phase separation inhibitor wherein the inhibitor is selected from the group of dialkyl carbonates.

4,380,456
GASOLINE FUEL ADDITIVE COMPOSITION
William H. Taylor, 2311 Marca Pl., Carlesbad, Calif. 92008
Filed Jul. 30, 1981, Ser. No. 288,600
Int. Cl.[3] C10L *1/18, 1/30*
U.S. Cl. 44—68 **9 Claims**

1. An engine fuel composition comprising gasoline and from 0.01 to about 0.1 percent by weight of a composition comprising, in solution:

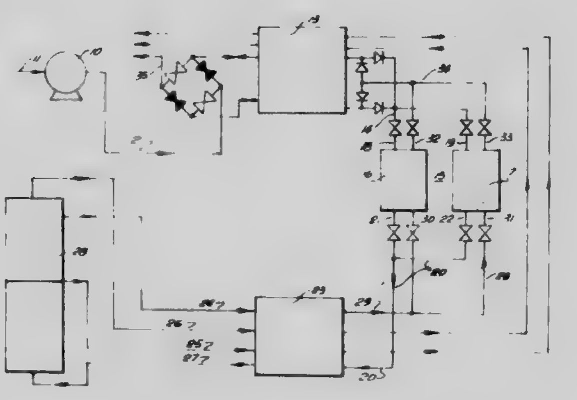
about 10 to about 35 percent by volume of a zirconium salt of an organic acid;

about 10 to 35 percent by volume of a plasticizer boiling above 300° C. and comprising as a part of its structure an acid derived ester group or an aromatic group, or both;

from 0 to about 6 percent by volume of an organic acid capable of forming a salt with zirconium; and

a solvent for said zirconium salt and said plasticizer, comprising a hydrocarbon or a halogenated aliphatic hydrocarbon, or a mixture thereof, as a major component.

4,380,457
SEPARATION OF AIR
Brian A. Rathborne, Northbridge, and Bruce R. Ryan, Woronora, both of Australia, assignors to BOC Limited, Brentford, England
Filed Jun. 1, 1979, Ser. No. 44,826
Claims priority, application Australia, May 25, 1978, PD4508
Int. Cl.[3] B01D *53/04;* **F25J** *3/04*
U.S. Cl. 55—33 **4 Claims**



1. An air separation process comprising:

(1) passing an air supply under pressure through a passage of a reversing heat exchanger to cool said air to a temperature of about 180° to 230° K. and deposit water in the form of ice in said passage and to form cooled dried air;

(2) contacting said cooled dried air with at least one bed containing an adsorbent material to remove at least a carbon dioxide component therefrom and to form a residue of cooled dried air and component adsorbed material;

(3) further cooling said residue of cooled dried air in a heat exchanger to form cooled rectifiable air;

(4) rectifying said cooled rectifiable air to form separate fractions of product gaseous nitrogen, product gaseous oxygen and waste nitrogen;

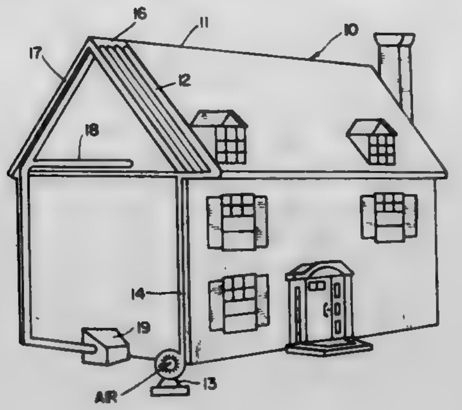
(5) treating said component adsorbed material with said waste nitrogen fraction at a pressure less than the pressure of said cooled dried air to regenerate said adsorbent material and to form a residual waste nitrogen fraction; and

(6) passing said residual waste nitrogen fraction through said passage of said reversing heat exchanger in reverse direction to the passing of said air supply to purge said water from said exchanger.

4,380,458
NOVEL DESICCANT
Clayton D. Callihan, Baton Rouge, La., assignor to Louisiana State University, Baton Rouge, La.
Filed Feb. 9, 1981, Ser. No. 232,535
Int. Cl.[3] B01D *53/02*
U.S. Cl. 55—33 **10 Claims**

1. A process for the dehydration of a fluid stream with a desiccant, and regeneration of said desiccant which comprises contacting said fluid stream with a desiccant at a temperature below its syneresis temperature, the syneresis temperature of said desiccant ranging from about 100° F. to about 195° F., said desiccant being characterized as solid methyl cellulose wherein from about 0.6 to about 1.8 of the available hydroxyl groups of the anhydroglucose units constituting the basic cellulose entity have been replaced by methyl and other hydroxy alkyl or carboxy alkyl groups containing from 2 to about 4 carbon atoms where at least one-half of the substituting

groups are methyl, and heating said desiccant above the syneresis temperature, said solid methyl cellulose desiccant having



the capacity to lose its affinity for water, and to release water when heated above its syneresis temperature.

4,380,459

METHOD FOR REDUCING THE AMOUNT OF COAL DUST IN THE ENVIRONMENT SURROUNDING COAL MINING

David I. Netting, Springfield, Pa., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Oct. 5, 1981, Ser. No. 308,222

Int. Cl.^{3} B01D *47/04;* E21C *7/06*

U.S. Cl. 55—87 3 Claims

1. In a method of reducing the amount of coal dust in the environment surrounding coal mining, cutting and handling operations by applying a layer of foam developed from an aqueous solution containing a foam generating agent to the surface of the coal, the improvement comprising using as the foam generating agent a mixture comprised of a surfactant and a high molecular weight synthetic gum, said synthetic gum being present in said mixture at a concentration of about 15 to 45 percent based on the total weight of surfactant and said foam generating agent being present in the aqueous solution at a concentration of about 0.01 to about 1 percent based on the total weight of the aqueous solution.

4,380,460

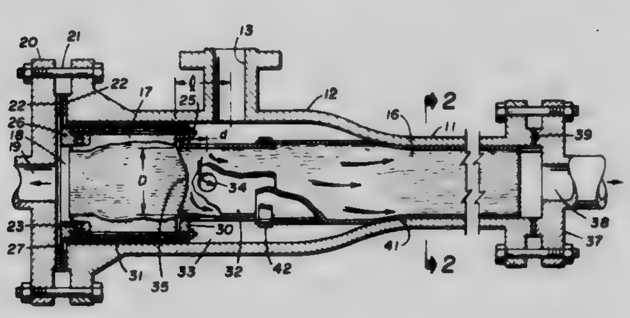
GAS SEPARATION APPARATUS

Roger S. Otstot, and Charles J. Runkle, both of Raleigh, N.C., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 21, 1981, Ser. No. 332,912

Int. Cl.^{3} B01D *53/22*

U.S. Cl. 55—158 11 Claims



1. Apparatus for separating one gas from a mixture of gases, comprising

a. a cylindrical shell having an inlet for admitting a gas mixture into the shell and an outlet for discharge of unpermeated gases from the shell,

b. a bundle of hollow fiber membranes positioned in the shell, said membranes being more permeable to one of the gases of the mixture than the others,

c. a tube sheet positioned in the shell at one end of the bundle of hollow fibers, said fibers extending through the tube sheet, and

d. a resilient sheet having the form of a slit tube positioned in the shell in a position surrounding the bundle of fibers, one end of said slit tube being secured to the tube sheet, the remainder of said slit tube being free of restraint and expanded into contact with the inner surface of the shell.

4,380,461

RECOVERY OF HYDROGEN FROM AMMONIA SYNTHESIS PURGE GAS

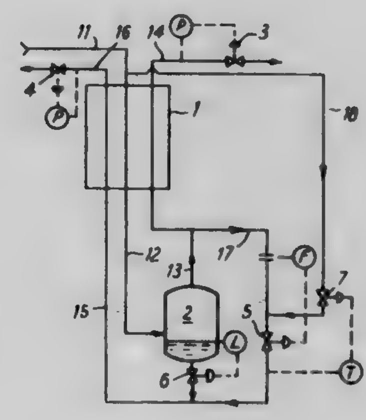
Alan A. Haslam, Stockport; Wieslaw H. Isalski, Sale, and Terence R. Tomlinson, Stockport, all of England, assignors to Petrocarbon Developments Ltd., Manchester, England

Filed Nov. 21, 1980, Ser. No. 208,940

Claims priority, application United Kingdom, May 10, 1979, 7916187

Int. Cl.^{3} F25J *3/00*

U.S. Cl. 62—11 6 Claims



1. In a process for the recovery of hydrogen from purge gas withdrawn from a recycling gas stream of an ammonia synthesis, which process comprises

at superatmospheric pressure cooling the purge gas to subambient temperature to form a condensate comprising components having a boiling point above that of hydrogen and uncondensed gas rich in hydrogen and separating said uncondensed gas from said condensate;

providing refrigeration for said cooling by expanding condensate and passing said expanded condensate and said uncondensed gas separately in indirect countercurrent heat exchange relationship with said purge gas, with evaporation of said expanded condensate; and

lowering the partial pressure of said expanded condensate by withdrawing a bleed stream from said uncondensed gas prior to said heat exchange, expanding said bleed stream and injecting it into said expanded condensate prior to said heat exchange; the improvement wherein the bleed stream contains less than 10% impurities and the minimum temperature of said bleed stream after said expansion thereof is prevented from falling below 77° K.

4,380,462

GLASS FIBER APPARATUS AND METHOD

Hiroaki Shono; Toshio Noji, and Shinzo Ishikawa, all of Fukushima, Japan, assignors to Nitto Boseki Co., Ltd., Fukushima, Japan

Continuation of Ser. No. 35,447, May 3, 1979, abandoned. This application Nov. 6, 1980, Ser. No. 204,577

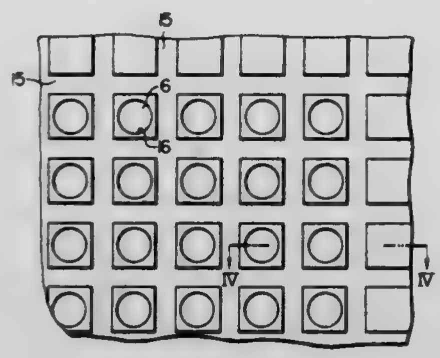
Claims priority, application Japan, May 8, 1978, 53-54192; May 9, 1978, 53-54801

Int. Cl.^{3} C03B *37/025*

U.S. Cl. 65—1 12 Claims

1. A method of forming glass fibers which comprises drawing streams of molten glass through an orifice plate having a large number of orifices arranged in flooding relationship, each of said orifices being provided on a separate projection extend-

ing downwardly from said orifice plate; and directing air upwardly to the undersurface of said orifice plate to cool the



cones of glass formed at each projection, said air impinging upon said orifice plate.

4,380,463

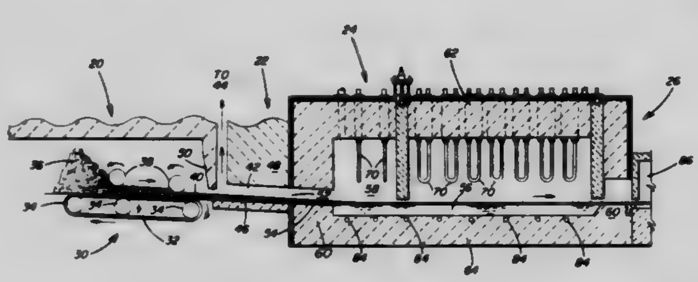
METHOD OF MELTING GLASS MAKING INGREDIENTS

Joseph M. Matesa, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Oct. 5, 1981, Ser. No. 308,302

Int. Cl.³ C03B *18/02*

U.S. Cl. 65—99.2 **8 Claims**



1. A method of melting glassmaking ingredients in a glass melting chamber, said glass melting chamber including refractory sidewalls and endwalls forming a container for containing a pool of molten metal therein, comprising the steps of:
   - feeding a coherent thin sheet of glass batch materials having a width less than the width of said molten metal pool progressively into said glass melting chamber onto the surface of said pool of molten metal;
   - advancing said coherent thin sheet along said pool of molten metal while maintaining the coherency thereof, and while maintaining the coherent thin sheet in non-contacting relation to the refractory sidewalls;
   - melting said coherent thin sheet into a layer of molten glass while practicing said advancing step; and
   - withdrawing said layer of molten glass from said glass melting chamber.

4,380,464

N,N-DIACYLAMINOPERFLUOROALKANESULFONANILIDES AND DERIVATIVES THEREOF

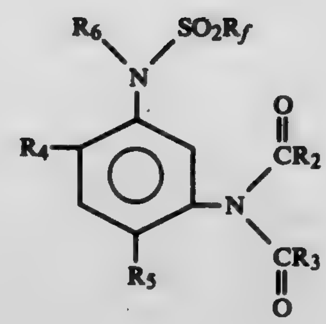
Ezzat A. Mikhail, New Brighton, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 188,535, Sep. 18, 1980, abandoned. This application Feb. 4, 1982, Ser. No. 345,738

Int. Cl.³ C07C *143/83, 143/75;* A01N *41/06*

U.S. Cl. 71—88 **23 Claims**

1. A compound of the formula:



wherein

R_f is lower perfluoroalkyl;

R_2 and R_3 each independently is
- (1) a hydrocarbon group selected from alkyl; alkenyl; cycloalkyl; phenyl; and phenyl substituted by up to 3 groups selected from alkyl, alkoxy, alkylthio, mono- or dialkylamino, and halo wherein each alkyl moiety has 1 to 4 carbon atoms;
- (2) haloalkyl;
- (3) alkoxy; and
- (4) a heterocyclic group which can contain only carbon, hydrogen, oxygen, nitrogen, and sulfur, but which must contain at least one ring atom selected from oxygen, nitrogen, and sulfur;

R_4 and R_5 each independently is hydrogen, alkyl, or halo; and

R_6 is hydrogen, alkoxycarbonyl, (alkylthio)carbonyl, (haloalkylthio)carbonyl, haloalkoxycarbonyl, or phenoxycarbonyl;

and agriculturally acceptable salts of the acid form compounds; provided that

R_f contains not more than four carbon atoms,

R_2 and R_3 individually contain not more than nine carbon atoms,

R_4 and R_5 individually contain not more than four carbon atoms, and

R_6 contains not more than twelve carbon atoms.

22. A herbicidal composition which comprises a compound according to claim 1 dispersed in an agriculturally acceptable extending medium.

4,380,465

5-ARYL-4-ISOTHIAZOLECARBOXYLIC ACIDS AND DERIVATIVES

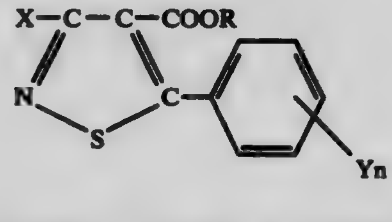
Robert K. Howe, Bridgeton, and Len F. Lee, St. Charles, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 33,779, Apr. 27, 1979, abandoned. This application Oct. 17, 1980, Ser. No. 197,833

Int. Cl.³ A01N *43/02, 37/18*

U.S. Cl. 71—90 **9 Claims**

1. A method of safening rice plants against the herbicidal action of butachlor herbicide which comprises treating the rice plant locus with an effective amount of a compound having the formula



wherein X is hydrogen or chlorine, R is hydrogen, or agriculturally acceptable cations, Y is chlorine or CF_3 and n is 0, 1 or 2.

4,380,466

HEXAHYDROISOINDOLE DERIVATIVES, AND THEIR PRODUCTION AND USE

Yasuo Ishida, Suita, Japan, assignor to Takeda Chemical Industries, Ltd., Osaka, Japan

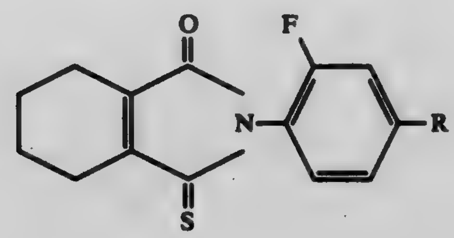
Filed May 20, 1981, Ser. No. 265,410

Claims priority, application Japan, May 26, 1980, 55-70478

Int. Cl.³ A01N *43/38;* **C07D** *209/46*

U.S. Cl. 71—96 **10 Claims**

1. A compound represented by the formula



wherein R is halogen.

4. A herbicidal composition comprising a herbicidally effective amount of at least one compound of claim 1 in combination with an inert carrier.

4,380,467

AMINE OXANILIC ACID SALTS AS HERBICIDE EXTENDERS

Rayman Y. Wong, Richmond, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

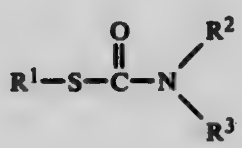
Filed Mar. 12, 1981, Ser. No. 243,008

Int. Cl.³ A01N *37/00, 37/10*

U.S. Cl. 71—100 **14 Claims**

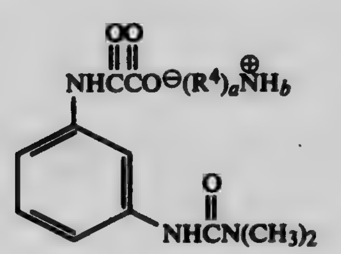
1. An herbicidal composition of extended soil life consisting essentially of

(a) an herbicidally effective amount of a thiolcarbamate having the formula



in which R^1, R^2, and R^3 are independently C_2-C_4 alkyl; and

(b) an amount of an amine oxanilic acid salt sufficient to extend the soil life of said thiolcarbamate, said salt having the formula



in which R^4 is selected from the group consisting of C_1-C_6 alkyl, C_2-C_6 alkenyl, phenyl, and benzyl, and a and b are both integers from zero to four such that the sum of a and b is four.

4,380,468

ISONITRILES AS HERBICIDE EXTENDERS

Raymond A. Felix, Richmond, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

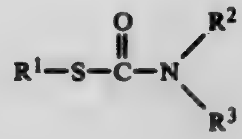
Division of Ser. No. 196,226, Oct. 14, 1980, abandoned. This application Oct. 2, 1981, Ser. No. 307,922

Int. Cl.³ A01N *37/00*

U.S. Cl. 71—100 **20 Claims**

1. An herbicidal composition comprising

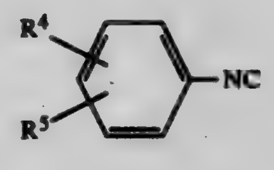
(a) an herbicidally effective amount of a thiolcarbamate having the formula



in which

R^1, R^2, and R^3 are independently C_2–C_4 alkyl; and

(b) an amount of a substituted phenyl isonitrile sufficient to extend the soil life of said thiolcarbamate, said isonitrile having the formula



in which

R^4 is selected from the group consisting of C_1–C_6 alkyl, C_1–C_6 alkoxy, C_1–C_6 alkylthio, phenyl, halogen, benzylthio, and p-chlorobenzylthio, and

R^5 is selected from the group consisting of hydrogen, C_1–C_6 alkyl, C_1–C_6 alkoxy, and halogen.

4,380,469

PROCESS AND APPARATUS FOR CONTINUOUSLY REDUCING AND MELTING METAL OXIDES AND/OR PRE-REDUCED METALLIC MATERIALS

Horst Sulzbacher, Dirnböckweg, Austria, assignor to Voest-Alpine Aktiengesellschaft, Vienna, Austria

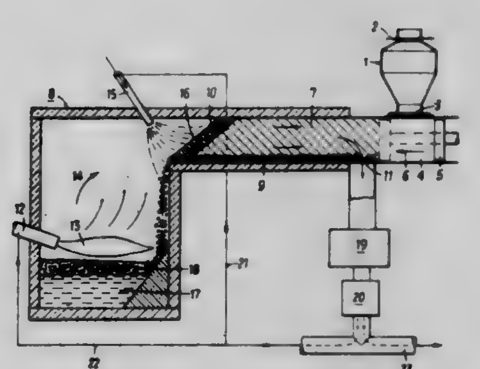
PCT No. PCT/AT80/00036, § 371 Date Aug. 12, 1981, § 102(e) Date Aug. 12, 1981, PCT Pub. No. WO81/01715, PCT Pub. Date Jun. 25, 1981

PCT Filed Dec. 17, 1980, Ser. No. 293,209

Claims priority, application Austria, Dec. 18, 1979, 7981/79

Int. Cl.³ C21C *7/00*

U.S. Cl. 75—38 **9 Claims**



1. A process for continuously reducing and melting solid materials containing metal oxides comprising: continuously supplying a charge of the material to a melting receptacle; heating the supplied charge to a temperature above its melting temperature in the melting receptacle by means of a burner which effects combustion within the receptacle of a fuel which upon combustion produces effluent gas containing essentially carbon dioxide and water vapor at a temperature sufficiently high that the effluent gas can react with carbon; supplying carbon in particulate form to the hot effluent gas thereby forming carbon monoxide and hydrogen by reaction of the carbon with the carbon dioxide and with the water vapor; passing the product gas resulting from the reaction at a temperature exceeding 800° C. in countercurrent flow with the charge of material being supplied to the melting receptacle in a manner to heat the charge of material and to cool the product gas to a temperature exceeding 100° C.

4,380,470

DUCTILE TRANSPLUTONIUM METAL ALLOYS

William V. Conner, Boulder, Colo., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Oct. 9, 1981, Ser. No. 310,248

Int. Cl.^{3} C22C *28/00, 43/00*

U.S. Cl. 75—122.7 **14 Claims**

1. An alloy consisting essentially of 1 to 99 wt. % of Ce and 99 to 1 wt. % of Am, Cm, Bk or Cf.

4,380,471

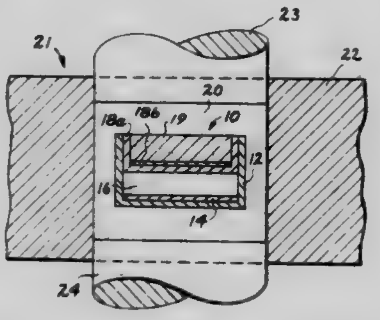
POLYCRYSTALLINE DIAMOND AND CEMENTED CARBIDE SUBSTRATE AND SYNTHESIZING PROCESS THEREFOR

Minyoung Lee, Schenectady; Lawrence E. Szala, Scotia, and Roy E. Tuft, Guilderland Center, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jan. 5, 1981, Ser. No. 222,812

Int. Cl.^{3} B22F *3/14, 7/00;* **C04B** *31/16*

U.S. Cl. 419—11 **11 Claims**



1. A process for simultaneously cementing diamond particles together and affixing the cemented diamond particles to a substrate comprising the steps of:
(a) disposing within a refractory metal container a mass of silicon atom-containing metal, a quantity of diamond powder, a cemented carbide body and a layer made of a barrier material selected from the group consisting of tantalum, vanadium, molybdenum, zirconium, tungsten and alloys thereof, said layer of barrier material being disposed between said cemented carbide and at least a portion of said quantity of diamond powder and said quantity of diamond powder being disposed between said silicon atom-containing metal and said cemented carbide body to form an assembly, and
(b) simultaneously applying heat and pressure to said assembly to melt said silicon atom-containing metal and cause said molten metal to infiltrate the diamond powder adjacent thereto and make contact with said layer of barrier material.

4,380,472

METHOD FOR PRODUCING PRESSURE PLATES USED IN HYDRAULIC PUMPS

Minoru Kawabata; Susumu Honaga, both of Aichi, and Kenji Takahashi, Kariya, all of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya, Japan

Filed Nov. 6, 1980, Ser. No. 204,719

Claims priority, application Japan, Nov. 13, 1979, 54/147352

Int. Cl.^{3} B22F *7/00*

U.S. Cl. 419—9 **5 Claims**

1. A method for producing a pressure plate used in a hydraulic pump by fluid-tightly connecting first and second plate sections together, utilizing a ring member having a hole formed therein wherein said first plate section has at least one bore formed therein and said second plate section has at least one port formed therein, which comprises:
pressing metal powders so as to form said first and second plate sections and said ring member into predetermined configurations;
setting said first and second plate sections in place and inserting said ring member in said at least one bore formed in said first plate section so as to provide a fluid port in cooperation with said at least one port formed in said second plate section;
placing brazing metal along an upper side diameter of said at least one bore; and
heating said first and second plate sections and said ring member so as to be fluid-tightly connected together by said brazing metal and simultaneously sintering the same.

4,380,473

APPARATUS FOR THE CONTINUOUS EXTRUSION OF ELECTRICALLY CONDUCTIVE GRANULATED MATERIALS, PREFERABLY POWDER METALLURGY MATERIALS

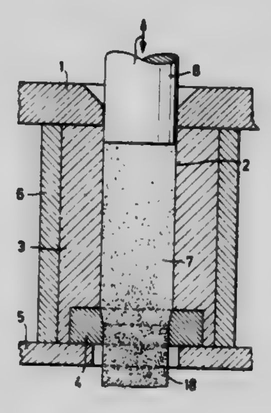
Klaus Lichtinghagen, Kirchhain, Fed. Rep. of Germany, assignor to Glacier GmbH-DEVA Werke, Stadtallendorf, Fed. Rep. of Germany

Filed Jan. 24, 1980, Ser. No. 115,082

Claims priority, application Fed. Rep. of Germany, Jan. 30, 1979, 2903510

Int. Cl.^{3} B22F *3/00*

U.S. Cl. 419—41 **11 Claims**



1. A process for the continuous extrusion of electrically conductive granulated material, preferably powder metallurgy material, into a strand utilizing a die having a die passage duct, a nozzle, and a punch, which comprises:
introducing said material into said die;
compressing said material with a plurality of compression strokes of said punch in said die passage duct against a frictional resistance which is built up by successive strokes of said punch to form a precompressed section of said strand;
introducing an additional quantity of said material into said die between each of said plurality of compression strokes;
advancing said material by the pressure of said plurality of compression strokes in said duct;
extruding said material through said nozzle;
sintering said material by means of a current directed through the longitudinal direction of said strand to heat all said material situated in said die passage duct between said punch and said nozzle; and
applying a voltage from 2 to 5 volts exclusively to said material with said nozzle and said punch so as to produce said current directed through said strand situated in said die passage duct.

4,380,474

POLYISOCYANATE REACTION PRODUCTS

Gheorghe Cioca, Coatesville, Pa., and Paul A. Fertell, Wilmington, N.J., assignors to Seton Company, Newark, N.J.

Continuation-in-part of Ser. No. 211,636, Dec. 1, 1980, abandoned. This application Nov. 3, 1981, Ser. No. 317,171

Int. Cl.^{3} C08L *89/06*

U.S. Cl. 106—155 **11 Claims**

1. An article of manufacture comprising: a homogeneous admixture of chrome shavings and a polyisocyanate binder formed into a sheet.

4,380,475

PROCESS FOR PREPARING AQUEOUS DISPERSION OF ROSIN-BASE MATERIALS

Kimio Kawatani, Suita; Shigenori Tsujimoto, Hashimoto, and Ryoji Kaji, Kawachinagano, all of Japan, assignors to Arakawa Kagaku Kogyo Kabushiki Kaisha, Japan

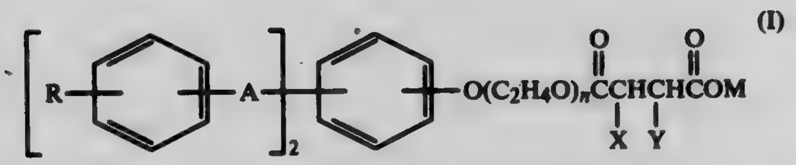
Filed Jul. 29, 1981, Ser. No. 288,156

Claims priority, application Japan, Aug. 6, 1980, 55-108625

Int. Cl.³ C08L *93/04*

U.S. Cl. 106—238 **5 Claims**

1. A process for preparing an aqueous dispersion of a rosin-base material by mixing together a melt of the rosin-base material, a dispersant and water to obtain a dispersion comprising a continuous phase of the rosin-base material and a dispersed phase of the water, and adding water to the dispersion to invert the dispersion to the contemplated aqueous dispersion comprising a dispersed phase of the rosin-base material and a continuous phase of the water, the process being characterized in that the dispersant is at least one of compounds represented by the formula



(I)

wherein R is hydrogen atom or lower alkyl group, A is straight-chain or branched-chain alkylene group having 2 or 3 carbon atoms, n is an integer of 4 to 25, one of X and Y is $—SO_3M$ and the other thereof is hydrogen atom, and M is a monovalent cation, and is present in an amount of about 0.5 to about 10% by weight of the rosin-base material.

4,380,476

PROCESS FOR THE PREPARATION OF 4,1',6'-TRICHLORO-4,1',6'-TRIDEOXYGALACTOSUCROSE (TGS)

Khizar S. Mufti, Reading, and Riaz A. Khan, Sonning, both of England, assignors to Talres Development (N.A.) N.V., Netherlands Antilles

Filed Jun. 19, 1981, Ser. No. 275,593

Claims priority, application United Kingdom, Jul. 8, 1980, 8022320

Int. Cl.³ C07H *5/02, 1/06*

U.S. Cl. 127—46.3 **14 Claims**

1. A process for the preparation of 4,1',6'-trichloro-4,1',6'-trideoxygalactosucrose (TGS) comprising the steps of:

(a) reacting sucrose with an acylating reagent under conditions to provide a mixture of acylated sucrose derivatives containing a major proportion of 6-monoacylated material;

(b) reacting the monoacylated sucrose derivative with a chlorinating reagent capable of chlorinating at positions 1',4 and 6' of a sucrose 6-acylate; and

(c) deacylating and separating the 4,1',6'-trichloro-4,1',6'-trideoxygalactosucrose material formed.

4,380,477

CLEANING PIPES USING MIXTURES OF LIQUID AND ABRASIVE PARTICLES

David H. Saunders, Cranfield, England, assignor to National Research Development Corporation, London, England

Filed Nov. 6, 1980, Ser. No. 204,720

Claims priority, application United Kingdom, Nov. 9, 1979, 7938982

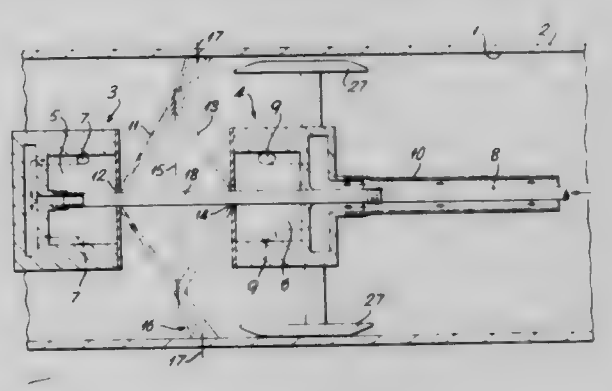
Int. Cl.³ B08B *9/02*

U.S. Cl. 134—7 **13 Claims**

10. A method of cleaning pipes comprising:

using a first vortex-generating nozzle to produce a high-pressure first jet of liquid in substantially conical sheet form, the axis of said cone being substantially coincident with that of said pipe;

said nozzle comprising a chamber formed about a first axis and including tangential inlet means for directing high-pressure liquid into tangential contact with an interior surface of said chamber, said surface being of a configuration to cause said liquid to swirl within said chamber, and an axially-facing outlet nozzle through which said liquid is discharged from said chamber as a first jet of liquid in sheet form and in the form of a hollow cone;



generating a second jet containing abrasive particles, said second jet being of generated form coaxial with said first jet;

causing said first and second jets to intersect to form a resultant jet, containing both liquid and abrasive particles and of substantially conical form, also coaxial with said pipe;

causing said resultant jet both to strike the inner wall of said pipe around its entire periphery and to move axially within said pipe, whereby to clean said inner wall of said pipe.

4,380,478

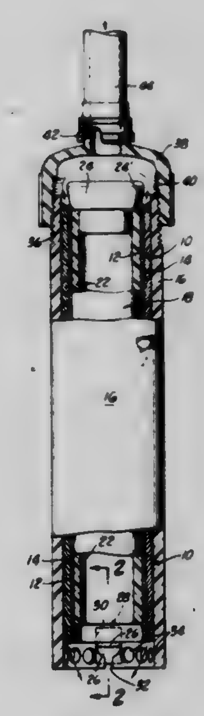
APPARATUS AND METHOD FOR CLEANING PAINT ROLLER COVERS

James J. Cooney, 763 Sapphire St., San Diego, Calif. 92109

Filed Oct. 5, 1981, Ser. No. 308,369

Int. Cl.³ B08B *3/04*

U.S. Cl. 134—38 **20 Claims**



15. The method of cleaning a cylindrical paint roller cover of the type having a surrounding outer annular layer of absorbent material and an axial tubular passage, which comprises the steps of:

longitudinally confining the roller cover between outer and

inner walls of an annular open ended longitudinally extending passage formed in a piston-like member;
substantially filling a cylindrical container member having an open end with a cleaning liquid;
inserting an end of the piston-like member into sealing piston-cylinder relation with the open end of the container; and
thereafter manually axially moving one of said piston-like member and said container relative to the other in a direction to force cleaning liquid in the container through the annular layer of the cover.

4,380,479

FOILS OF BRITTLE ALLOYS

Brian C. Coad, San Francisco, Calif., assignor to GTE Products Corporation, Stamford, Conn.

Filed Dec. 21, 1981, Ser. No. 332,430

Int. Cl.³ B22F *7/04*

U.S. Cl. 148—11.5 P **5 Claims**

1. A process for making a nickel-base brazing foil containing nickel and other elements in a predetermined metallurgical content said process comprising
(a) forming a relatively uniform powder blend containing nickel and said other elements,
(b) depositing said blend relatively uniformly on a nickel strip, and
(c) passing said blend and said strip through the rolls of a rolling mill to achieve at least about 3% elongation of the nickel strip to form a foil of said predetermined metallurgical context.

4,380,480

METHOD OF MAKING ONE-PIECE TUBULAR AXLE BLANKS AND THE PRODUCED AXLE BLANKS

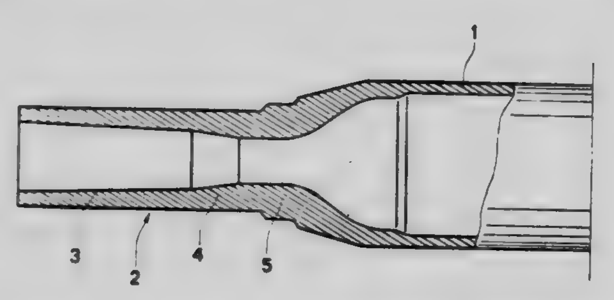
Jean-Jacques Delfino, Montmorency, and Maurice Prevot, Avesnes S/Elpe, both of France, assignors to Vallourec, Paris, France

Filed Dec. 21, 1981, Ser. No. 332,375

Claims priority, application France, Jan. 20, 1981, 81 00976

Int. Cl.³ C21D *9/08*

U.S. Cl. 148—12.4 **12 Claims**



1. Method of making one-piece tubular wheel axle blanks composed of a center portion having journals at both ends, wherein a preheated steel tube is subjected to quenching particularly in water over its whole length followed by tempering, the tube ends being then swaged while the transition area between the center portion and the journal is, moreover, thickened by upsetting, whereupon both ends of the axle blank are locally heat treated by annealing.

4,380,481

METHOD FOR FABRICATING SEMICONDUCTOR DEVICES

Masafumi Shimbo, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Japan

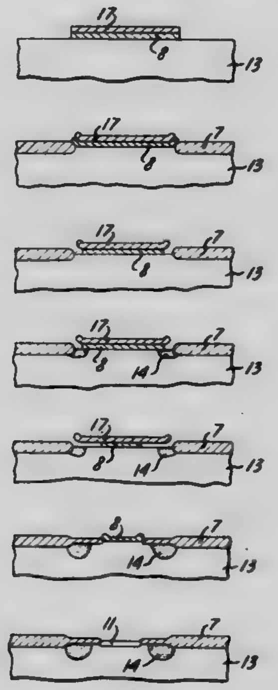
Filed Mar. 17, 1981, Ser. No. 244,793

Claims priority, application Japan, Mar. 27, 1980, 55/39463

Int. Cl.³ H01L *21/273*

U.S. Cl. 148—187 **7 Claims**

1. A method for fabricating a semiconductor device, comprising the steps of:
forming a multi-insulation layer composed of at least two kinds of materials including an anti-oxidation substance and an oxide on a semiconductor surface region of low impurity density in the form of an island;
forming a first selective oxidation film on the surface of said low impurity density region by using at least one layer of said multi-insulation layer as a mask;
defining a first window with a width determined by at least one side face of said multi-layer which has been subjected to side etching and an end portion of said first selective oxidation film and forming a first region of high impurity density in said semiconductor surface along the periphery



of said island-like multi-insulation layer by selectively diffusing an impurity;
forming the anti-oxidation insulation layer of said multi-insulation layer so as to reduce the size thereof after an insulation layer which is not a most upper layer and which is at least one layer of said multi-insulation layer is subjected to a second side etching and carrying out selective oxidation; and
forming a second region of high impurity density in the inside of said first region after removing said multi-insulation layer and defining a window.

4,380,482

STABILIZATION OF WATER-BEARING EXPLOSIVES HAVING A THICKENED CONTINUOUS AQUEOUS PHASE

Lionel S. Sandell, Hagerstown, Md., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 16, 1981, Ser. No. 225,725

Int. Cl.³ C06B *45/02*

U.S. Cl. 149—21 **26 Claims**

1. A method of stabilizing the thickened or gelled structure of a water-bearing explosive comprising oxidizer, fuel, and sensitizer components in a thickened or gelled continuous aqueous phase, said method comprising incorporating in the explosive a thermally stabilizing amount of iodide ion, iodate ion, or a combination of iodide and iodate ions.

4,380,483

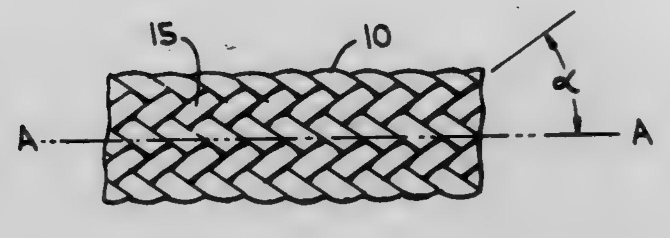
PROCESS FOR FORMING IMPROVED CARBON FIBER REINFORCED COMPOSITE COIL SPRING

Howard S. Kliger, Edison, N.J., assignor to Celanese Corporation, New York, N.Y.

Division of Ser. No. 3,671, Jan. 15, 1979, Pat. No. 4,260,143. This application Sep. 24, 1980, Ser. No. 190,339

Int. Cl.³ B65H *81/00;* F16F *1/04*

U.S. Cl. 156—169 **12 Claims**



1. A method for forming a carbon fiber reinforced composite coil spring comprising:

(a) impregnating a carbon fiber braid wherein said carbon fibers are oriented at an angle in the range of approximately plus or minus 30° to plus or minus 60° to the braid axis and wherein there is incorporated into said braid a quantity of longitudinal reinforcing fibers which are oriented longitudinally to the braid axis so as to minimize change in said angle of said carbon fibers within said braid when placed under tension with a quantity of non-solidified resin to serve as a substantially continuous matrix material;

(b) winding said impregnated braid in multiple layers while under longitudinal tension within a groove which extends helically along the surface of a cylindrical mandrel to provide the coil configuration of said carbon fiber reinforced composite coil spring;

(c) solidifying the resinuous matrix material of the composite spring while maintaining said longitudinal tension; and

(d) removing said solid spring from said mandrel.

4,380,484

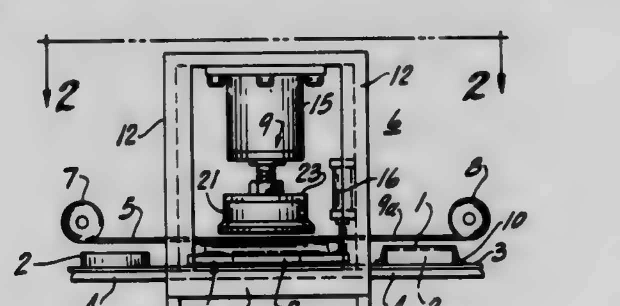
INDUCTIVELY HEATED TOOLING AND METHOD FOR WORKING PLASTIC MEMBERS

Clyde P. Repik, and Alfred F. Leatherman, both of Columbus, Ohio, assignors to William C. Heller, Jr., Milwaukee, Wis.

Filed Feb. 20, 1981, Ser. No. 234,517

Int. Cl.³ B32B *31/18*

U.S. Cl. 156—251 **30 Claims**



1. An inductively heated apparatus for working plastic material, comprising

a tool unit having a tool element formed of a material responsive to a selected energy field to generate heat in the tool element,

a heat source coupling unit mounted adjacent the tool element and generating said energy field coupled to said tool element to create heat within the tool element and thereby raise the temperature of said tool element to the fusion temperature of the plastic, and

a cooling means thermally coupled to said tool element to establish selective forced cooling of the tool element.

4,380,485

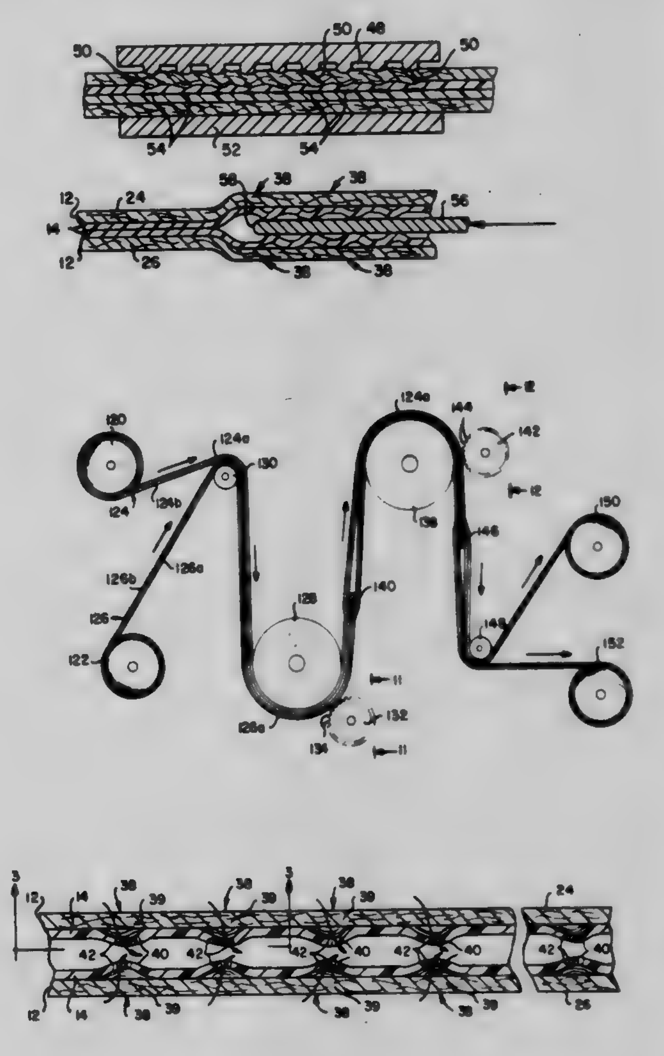
METHOD OF MAKING BREATHABLE RECEPTACLES

Samuel J. Schuster, 617 Vallombrosa, Pasadena, Calif. 91107

Continuation-in-part of Ser. No. 55,160, Jul. 6, 1979, abandoned, which is a division of Ser. No. 955,221, Oct. 27, 1978, abandoned. This application Oct. 14, 1980, Ser. No. 196,824

Int. Cl.³ B32B *31/00, 3/00;* B26F *15/28*

U.S. Cl. 156—254 **6 Claims**



1. A method of making a breathable receptacle for storing an article in sterile condition, the receptacle being constructed of a laminate comprising a layer of paper or the like impermeable to microorganisms but highly permeable to sterilizing vapor and a layer of thermpolastic, polymeric material, the strength of a heat seal bond between layers of the polymeric material being initially greater than the delamination resistance of the laminate, the method including the steps of:

superimposing first and second sheets of said laminate with the polymeric layers in confronting relation;

heat sealing the polymeric layers of said sheets together at a plurality of small areas;

separating the sheets thereby rupturing the polymeric layer of at least one of the sheets at the positions of the small areas; and

joining the sheets together to define the receptacle.

4,380,486

MACHINE INSTALLATION FOR THE PRODUCTION OF THICK-WALLED INSULATING PIPES OF FOAM SYNTHETIC RESIN SHEETS

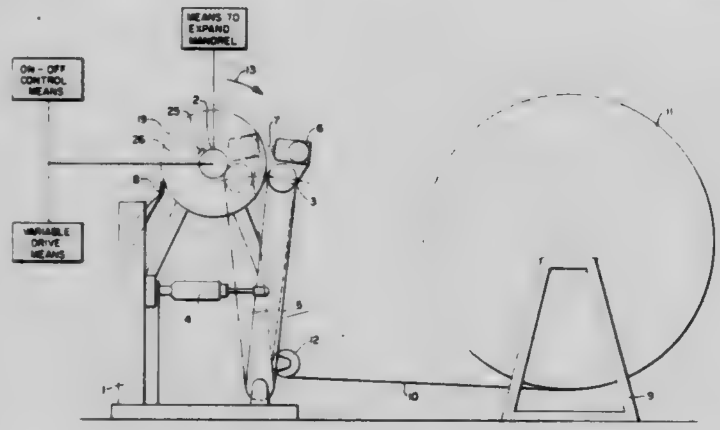
Johann Fortsch, Goldbach; Cosmas Lorry, Niederkassel, and Gustav Schweiger, Kleinostheim, all of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed Jan. 29, 1981, Ser. No. 229,756

Claims priority, application Fed. Rep. of Germany, Feb. 1, 1980, 8002596[U]

Int. Cl.^{3} B32B ***31/22***

U.S. Cl. 156—359 **8 Claims**



1. A machine installation for the manufacture of a thick-walled insulating pipe of elastic, laminatable foamed synthetic resin sheet material, which comprises an apparatus for the lamination of the foamed synthetic resin sheet material during winding of the sheet material on a mandrel to form a multilayer insulating pipe having a length corresponding to the sheet width of the sheet of foam material, said apparatus comprising an expandable and rotatable mandrel equipped with a pneumatic tensioning means and an infinitely variable drive mechanism for rotating the mandrel to wrap the sheet material thereon, and a pressure roller which can be urged against the mandrel, this roller being movable pneumatically by means of a telescopic holder, the mandrel being associated with a pivotably mounted burner means for flame laminating the wraps of the sheet of foam material together to form a laminated sheet pipe product and a cutter for separating the pipe product from the non-laminated sheet material, and a means for finishing the initially formed pipe product comprising a shaft rotatable in timed segments with clamping jaws being capable of receiving an unfinished insulating pipe product and being opened and closed pneumatically, wherein one holding arm is associated with a band cutter for trimming the end faces of the insulating pipe product, and a further holding arm is associated with a blade for slitting the insulating pipe along its length.

4,380,487

METHOD AND APPARATUS FOR CHANGING THE LABEL MAGAZINE BOXES OF LABELING MACHINES

Rudolf Zodrow, Dusseldorf, Fed. Rep. of Germany, assignor to Jagenberg Werke, Dusseldorf, Fed. Rep. of Germany

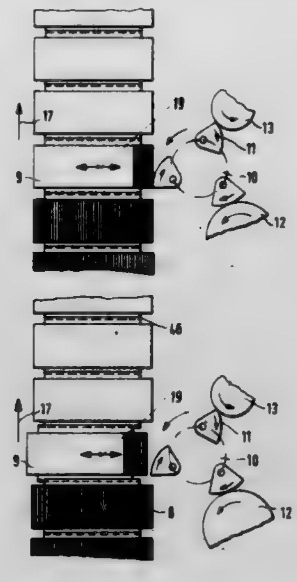
Filed Jan. 22, 1981, Ser. No. 227,551

Claims priority, application Fed. Rep. of Germany, Jan. 23, 1980, 3002250

Int. Cl.^{3} B65C ***9/10, 9/16***

U.S. Cl. 156—568 **9 Claims**

1. In a labelling machine having means for feeding articles to be labelled, a label supply, label pick up means for picking up a label from the supply, means for applying the the machine, and means for replacing the label supply when exhausted, the improvement wherein said label supply comprises at least three label boxes disposed alongside one another at the pickup point so as to be successively displaceable in one direction, the label boxes being releasably joined to one another by a dovetailed joint formed along their side walls, and the means for replacing the label supply when exhausted comprises guide means for the boxes so as to permit them to move together transversely to the direction in which labels are stacked in the boxes, and means



permitting retracting and advancing in label stacking direction of that label box which is in active position.

4,380,488

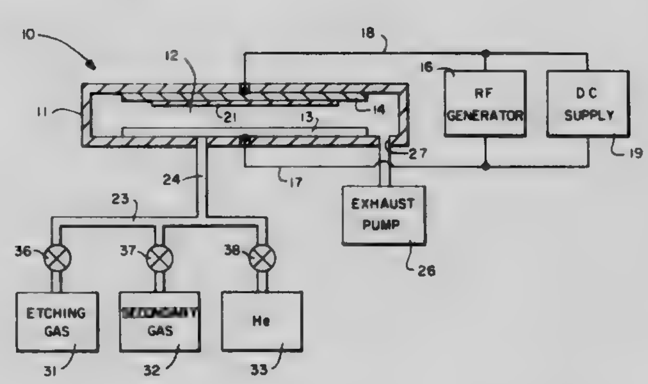
PROCESS AND GAS MIXTURE FOR ETCHING ALUMINUM

Richard F. Reichelderfer, Castro Valley; Diane C. Vogel, Union City, and Marian C. Tang, Hercules, all of Calif., assignors to Branson International Plasma Corporation, Hayward, Calif.

Continuation-in-part of Ser. No. 196,616, Oct. 14, 1980, abandoned. This application Nov. 2, 1981, Ser. No. 317,582

Int. Cl.^{3} C23F ***1/02***

U.S. Cl. 156—643 **11 Claims**



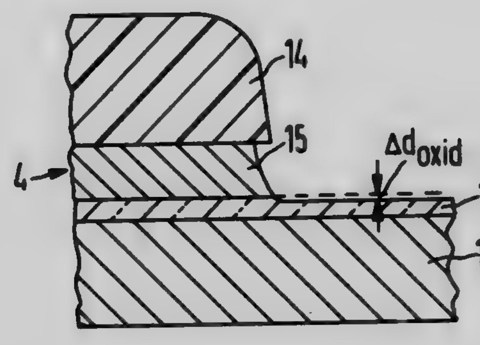
1. In a process for etching aluminum in a reactor having a chamber and a pair of spaced apart generally planar electrodes, the steps of: positioning the aluminium between the electrodes in the reactor chamber, admitting a primary etching gas mixture selected from the group consisting of BCl_3 and chlorine, CCl_4 and chlorine, and combinations thereof to the chamber at a pressure on the order of 140–450 microns, admitting a secondary gas selected from the group consisting of $SiCl_4$, $CHCl_3$, CCl_4 and combinations thereof to the chamber at a pressure on the order of 190–300 microns to control the anisotropic character of the etch, said primary gas mixture and the secondary gas being present in the chamber at the same time, and energizing the electrodes to ionize the gas and form active species between the electrodes.

4,380,489

METHOD OF PRODUCING POLYSILICON STRUCTURE IN THE 1 μM RANGE ON SUBSTRATES CONTAINING INTEGRATED SEMICONDUCTOR CIRCUITS BY PLASMA ETCHING

Willy Beinvogl, Munich, and Barbara Hasler, Stockdorf, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jan. 21, 1982, Ser. No. 341,485
Claims priority, application Fed. Rep. of Germany, Jan. 30, 1981, 3103177
Int. Cl.[3] H01L *21/306*
U.S. Cl. 156—643 6 Claims



1. In a method of producing polysilicon structures down to a 1 μm range on substrates containing integrated semiconductor circuits by plasma etching in a plate reactor with a reactive gas mixture composed of SF_6 and an inert gas wherein a substrate to be etched is provided with a 3-layered structure defined by a layer of silicon dioxide positioned directly on said substrate, a layer of polysilicon positioned on said silicon dioxide layer and a resist mask positioned on said polysilicon layer, and said substrate is positioned on a grounded electrode, the improvement comprising:

adjusting the high frequency power for the plate reactor to values smaller than 0.1 watts/cm^2;
adjusting the gas pressure of the reactive gas mixture in the reactor to values in the range from 60 through 120 Pa;
adjusting the temperature of the electrode in the plate reactor to values in the range from 20° through 60° C.; and
etching said substrate while maintaining the above conditions for a period of time sufficient to attain desired polysilicon structures.

4,380,490

METHOD OF PREPARING SEMICONDUCTOR SURFACES

David E. Aspnes, Watchung, and Ambrose A. Studna, Raritan, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 27, 1981, Ser. No. 248,549
Int. Cl.[3] C03C *15/00;* H01L *21/306;* C03C *25/06*
U.S. Cl. 156—662 9 Claims

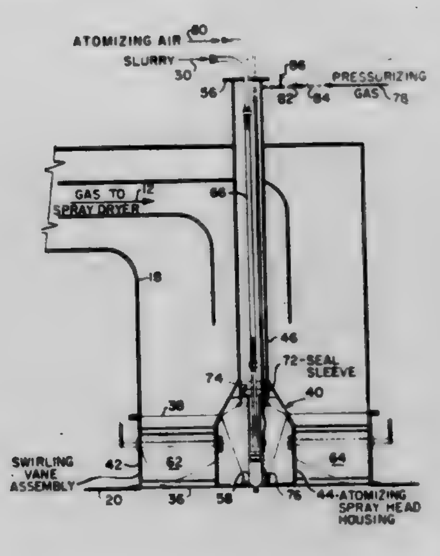
1. A method of treating a semiconductor surface comprising the steps pretreating said surface, said semiconductor being selected from the group consisting of Si, Ge, Ga-Group V compounds, and In-Group V compounds, chemomechanically polishing said surface with a mixture of a halogen and an organic solvent, said mixture consists essentially of bromine and methanol, said polishing step comprises diluting said bromine-methanol mixture from 0.05 volume percent bromine to pure methanol, and stripping residual layers.

4,380,491

SPRAY NOZZLE ASSEMBLY FOR SPRAY DRYER

Ira L. Joy, Alabaster, and Neal B. Humphreys, Odenville, both of Ala., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Aug. 26, 1981, Ser. No. 296,384
Int. Cl.[3] B01D *1/16*
U.S. Cl. 159—4 B 5 Claims



1. In a spray dryer apparatus having a housing defining a spray drying chamber wherein a slurry is dried by contact with a hot drying gas, a drying gas supply duct having an outlet in flow communication with said drying chamber through a gas inlet opening in the roof of said housing, and a spray head assembly of the type having an annular swirler vane assembly disposed about the gas inlet in the roof of said spray dryer housing intermediate the outlet of the drying gas supply duct and the top of said spray dryer housing thereby defining an annular flow passageway through which the drying gas passes from the outlet of the drying gas supply duct into the spray drying chamber, an atomizing spray head housing disposed coaxially within the center of said annular swirler vane assembly, said atomizing spray head housing having a floor with a central opening therein and a flange at its upper end, and an atomizing spray head disposed at the central opening in the floor of said atomizing spray head housing and having tip means extending through the central opening for introducing the slurry to be dried into said drying chamber; an improved means for releasably supporting the spray head within said housing in sealed relationship therewith comprising:

a. an elongated guide tube having a conical outwardly-flared flange at its lower end adapted to mate with the flange of said atomizing spray head housing and extending upwardly through the drying gas supply duct to terminate in a capped upper end disposed externally of the drying gas supply duct;
b. an elongated seal sleeve mounted to and extending downward from said guide tube at the point near where the lower end of said guide tube flares outwardly, said seal sleeve forming an extension of the tubular portion of said guide tube into the interior space of the outwardly-flared flange thereof;
c. a support tube extending upwardly from said atomizing spray head into said seal sleeve, said support tube being slidably translatable within said seal sleeve and said guide tube so as to permit said support tube and the atomizing spray head attached thereto to be withdrawn upwardly through the guide tube to a location exterior of the drying gas supply duct;
d. means passing through said guide tube for supplying slurry to said spray head;
e. first seal means disposed between said support tube and said seal sleeve for providing a gas tight seal between the interior of said guide tube and the interior of said atomizing spray head housing; and
f. second seal means disposed at the lower end of said spray

head for providing a gas tight seal between the interior of said atomizing spray head housing and said spray drying chamber.

4,380,492
METHOD OF USING A CHISEL FOR A CRUST BREAKING FACILITY

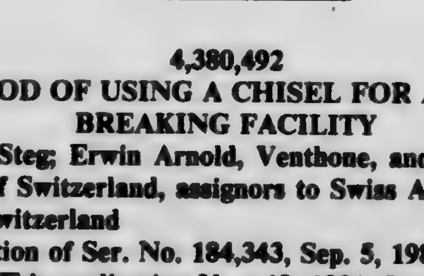
Edwin Gut, Steg; Erwin Arnold, Venthone, and Hans Friedli, Steg, all of Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Continuation of Ser. No. 184,343, Sep. 5, 1980, Pat. No. 4,317,595. This application Nov. 19, 1981, Ser. No. 323,021

Claims priority, application Switzerland, Sep. 10, 1979, 8151/79

Int. Cl.³ C25C *3/06, 3/14, 15/08*

U.S. Cl. 204—67 11 Claims



1. Process for breaking the solidified crust on an electrolytic cell by operating a crust breaker fitted with a chisel which comprises providing a chisel having a cross-sectional dimension and having a vertical sidewall with at least one small, substantially horizontally extending projection in the lower region of the vertical sidewall, wherein all surfaces of said projections extend outwardly substantially less than said cross-sectional dimension, penetrating the crust with said chisel, lowering said chisel further at least until the lowest projection or projections reaches the lower half of the crust to enable continuous operation without jamming, without projection deformation and with reduced force.

4,380,493
ANODE

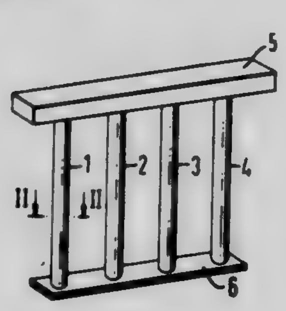
John P. A. Wortley, Brookwell, and John Woolner, Sutton Coldfield, both of England, assignors to IMI Kynoch Limited, Birmingham, England

Filed Nov. 10, 1981, Ser. No. 320,121

Claims priority, application United Kingdom, Nov. 21, 1980, 8037450

Int. Cl.³ C25C *1/10;* C25B *11/04, 11/10*

U.S. Cl. 204—105 M 11 Claims



1. An anode for an electrowinning cell comprising a plurality of lead or lead alloy rods, characterised in that the rods are reinforced with a core of titanium or of a plastics material inert to the conditions surrounding, in use, the anode, and having a greater tensile strength than the lead or lead alloy of the rods.

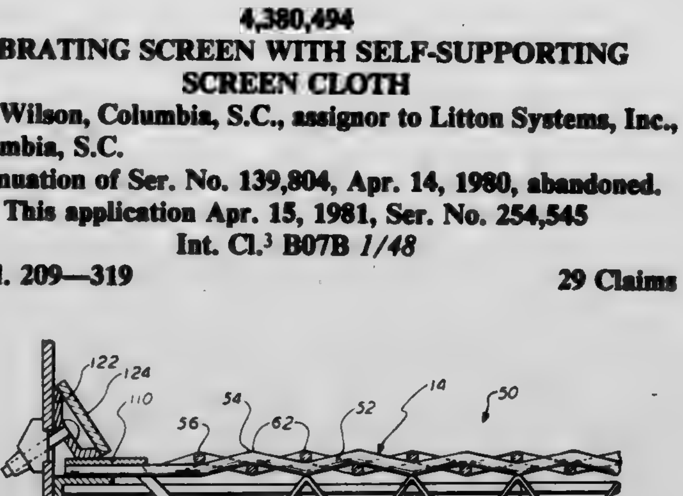
4,380,494
VIBRATING SCREEN WITH SELF-SUPPORTING SCREEN CLOTH

Albert Wilson, Columbia, S.C., assignor to Litton Systems, Inc., Columbia, S.C.

Continuation of Ser. No. 139,804, Apr. 14, 1980, abandoned. This application Apr. 15, 1981, Ser. No. 254,545

Int. Cl.³ B07B *1/48*

U.S. Cl. 209—319 29 Claims



1. A screen panel for use in a vibrating screen; comprising:

(a) screen cloth means formed from a plurality of rod-like members woven together to form a screen with openings of predetermined size and configuration; and

(b) truss-like support means arranged beneath and secured to the underside of said screen cloth means;

(c) said truss-like support means including at least one truss-like support assembly disposed beneath and secured to said under surface of said screen cloth means; said truss-like support assembly; comprising:

(i) a support rod having a major portion thereof spaced from said under surface of said screen cloth means, and further having ends directed towards said screen cloth means, so that extremities of said ends lie in a common plane with and proximate to ends of said rod-like members forming said screen cloth means;

(ii) means securing said extremities of said ends of said support rod to said ends of said rod-like members;

(iii) support wire means formed into a substantially sinusoidal configuration with tips thereof spaced to fill the space between said under surface of said screen cloth means and a predetermined surface of said support rod; and

(iv) means securing said support wire means in said space between said screen cloth means and said support rod.

4,380,495
METHOD OF TREATING SPRAY PAINT COLLECTION WATER IN PAINT SPRAY BOOTHS AND COMPOSITION THEREFOR

Donald R. Maher, 130 Northdale Dr., Toledo, Ohio 43612

Filed Dec. 16, 1981, Ser. No. 331,185

Int. Cl.³ C08L *5/00;* C02F *1/56*

U.S. Cl. 210—728 10 Claims

9. The method of removing paint overspray particles from a circulating water system employed in paint spray booths, that method comprising the addition to the water system of an aqueous concentrate of Kaolin clay, liquid gum Karaya and water; said clay and water being in the form of a slurry concentrate added to the water system; said concentrate converting paint particles to a spongy filterable mass.

4,380,496

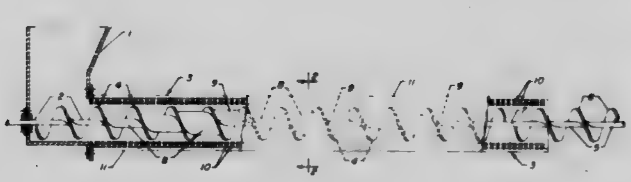
MECHANICAL DEWATERING PROCESS UTILIZING A NONUNIFORM SCREW CONVEYOR

Vere Maffet, West Chester, Pa., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 22,910, Mar. 22, 1979, Pat. No. 4,237,618, Ser. No. 22,914, Mar. 22, 1979, Pat. No. 4,214,377, Ser. No. 75,575, Sep. 14, 1979, abandoned, and Ser. No. 92,381, Nov. 8, 1979, abandoned, said Ser. No. 22,910, and Ser. No. 22,914, each is a continuation-in-part of Ser. No. 891,437, Mar. 29, 1978, Pat. No. 4,160,732, and Ser. No. 909,587, May 25, 1978, Pat. No. 4,193,206, which is a continuation-in-part of Ser. No. 777,673, Mar. 8, 1977, Pat. No. 4,128,946, Ser. No. 813,577, Jul. 7, 1977, Pat. No. 4,098,006, Ser. No. 813,578, Jul. 7, 1977, Pat. No. 4,099,336, Ser. No. 844,097, Oct. 20, 1977, Pat. No. 4,121,349, Ser. No. 858,879, Dec. 8, 1977, Pat. No. 4,161,825, and Ser. No. 891,437, , which is a continuation-in-part of Ser. No. 813,577, , said Ser. No. 858,879, is a continuation-in-part of Ser. No. 813,577, , and Ser. No. 813,578, , said Ser. No. 844,097, is a continuation-in-part of Ser. No. 813,578, , said Ser. No. 813,577, and Ser. No. 813,578, each is a continuation-in-part of Ser. No. 777,673,. This application May 23, 1980, Ser. No. 152,944

Int. Cl.[3] C02F *11/12*

U.S. Cl. 210—780 6 Claims



1. A mechanical dewatering process which comprises the steps of:

(a) passing a feed stream which comprises sewage sludge or peat and which comprises 50 wt.% water into a first end of a mechanical dewatering zone which comprises a first screw conveyor which is at least partially contained within a cylindrical porous wall concentric with the first screw conveyor, with the cylindrical porous wall having an inner surface and uniformly distributed openings having a minimum cross-sectional distance between about 0.00125 cm. and about 0.025 cm., and with the first screw conveyor comprising a helical blade mounted on a central shaft, the helical blade having an outer edge which is separated from the inner surface of the cylindrical porous wall by a distance of from about 0.08 cm. to about 5.0 cm., and with the central shaft having at least two built-up sections within the cylindrical porous wall along which the flight depth of the first screw conveyor gradually decreases due to an increase in the diameter of the central shaft to provide a compression ratio above 2.5:1.0 along each built-up section, with the flight depth of the first screw conveyor increasing by at least a factor of 2.0 at the termination of the built-up section of the central shaft, which termination is closer to a second end of the mechanical dewatering zone than to the first end of the mechanical dewatering zone;

(b) pressurizing the feed stream within the cylindrical porous wall to a superatmospheric pressure by rotating the first screw conveyor;

(c) withdrawing water radially outward through the cylindrical porous wall;

(d) transporting solids derived from the feed stream which are located in the grooves of the helical blade of the first screw conveyor to a second end of the first screw conveyor; and,

(e) withdrawing a dewatering zone solids stream which comprises at least 35 wt.% solids from the second end of the mechanical dewatering zone.

4,380,497

AMINES OF ALKOXYDIPHENYL ESTHERS AS ANTIOXIDANTS AND LUBRICATING OILS AND GREASES CONTAINING SAME

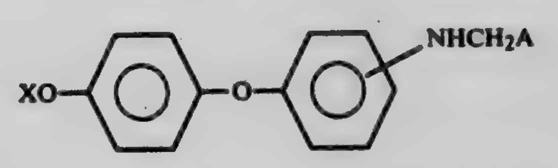
John T. Roberts, Arlington Heights, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed May 12, 1981, Ser. No. 263,376

Int. Cl.[3] C10M *1/38*

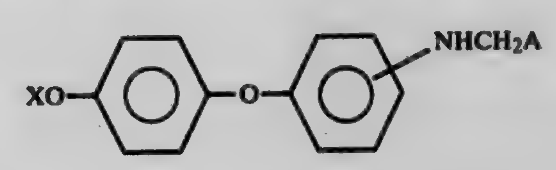
U.S. Cl. 252—47.5 20 Claims

1. A method of inhibiting oxidation in lubricating oils and greases comprising adding thereto an oxidation inhibiting amount of a material with the structure



where —$NHCH_2A$ is at the 2'- or 4'-position, A is a monovalent radical whose parent is selected from the group consisting of unsubstituted and ring-substituted aromatic and heteroaromatic rings, and X is an alkyl group containing up to about 18 carbon atoms.

12. A composition comprising a major amount of a lubricating oil or grease and a minor amount from about 0.05% to about 5% by weight of a material with the structure,



where —$NHCH_2A$ is at the 2'- or 4'-position, A is a monovalent radical whose parent is selected from the group consisting of unsubstituted and ring-substituted aromatic and heteroaromatic rings, and X is an alkyl group containing up to about 18 carbon atoms.

4,380,498

SULFURIZED, TRANSESTERIFIED OIL ADDITIVES AND THEIR USE IN A LUBRICATING OIL AND A FUEL

Karl P. Kammann, Jr., Crown Point, Ind.; Marvin J. Des Herder, Olympia Fields, and Terrence L. Wagner, Crete Township, Will County, both of Ill., assignors to Ferro Corporation, Cleveland, Ohio

Filed Aug. 10, 1981, Ser. No. 291,544

Int. Cl.[3] C10M *1/20, 1/38;* C10L *1/18, 1/24*

U.S. Cl. 252—48.6 41 Claims

1. A sulfurized, triglyceride additive composition comprising a sulfurized, transesterified triglyceride wherein the total acid component of the triglyceride includes from about 5 to about 50 mole % polybasic carboxylic acids.

4,380,499

SULFURIZED FATTY OIL ADDITIVES AND THEIR USE IN A LUBRICATING OIL AND A FUEL

Karl P. Kammann, Jr., Crown Point, Ind., and Marvin J. Des Herder, Olympia Fields, Ill., assignors to Ferro Corporation, Cleveland, Ohio

Filed Aug. 10, 1981, Ser. No. 291,545

Int. Cl.[3] C10M *1/20, 1/38;* C10L *1/18, 1/24*

U.S. Cl. 252—48.6 35 Claims

1. A sulfurized, triglyceride additive composition, comprising a sulfurized, transesterified triglyceride wherein the total acid component of the triglyceride comprises no less than about 35 mole % saturated aliphatic acids and no more than about 65 mole % unsaturated fatty acids, said total acid component being further characterized as comprising:

(a) more than about 20 mole % of mono-unsaturated acids;

(b) less than about 15 mole % of poly-unsaturated fatty acids;
(c) more than about 20 mole % saturated aliphatic acids having 6 to 16 carbon atoms, including more than about 10 mole % saturated aliphatic acids having 6 to 14 carbon atoms; and
(d) less than about 15 mole % saturated aliphatic acids having 18 or more carbon atoms.

4,380,500

BRANCHED CHAIN OLEFINIC ALCOHOLS, THIOLS, ESTERS AND ETHERS, ORGANOLEPTIC USES THEREOF, PROCESSES FOR PREPARING SAME AND INTERMEDIATES THEREOF

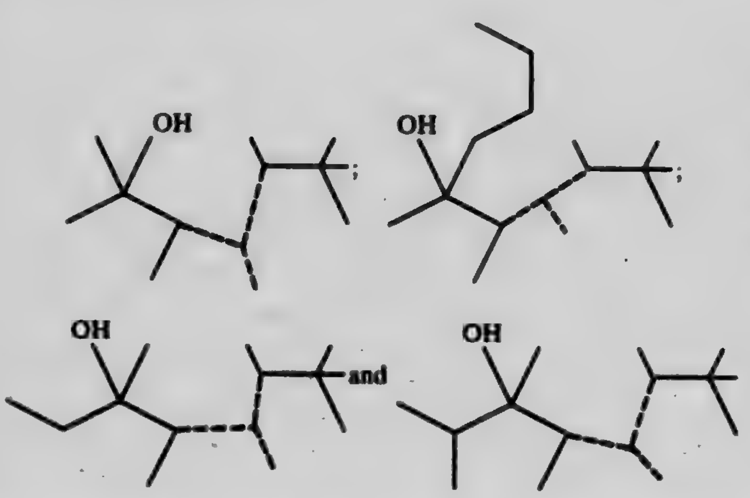
Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

Continuation-in-part of Ser. No. 212,887, Dec. 4, 1980, Pat. No. 4,318,934. This application Nov. 19, 1981, Ser. No. 322,731

Int. Cl.^{3} C11D *3/50, 9/44*

U.S. Cl. 252—174.11 **6 Claims**

1. A process for augmenting or enhancing the aroma of a solid or liquid anionic, cationic, nonionic or zwitterionic detergent comprising the step of adding to a solid or liquid anionic, cationic, nonionic or zwitterionic detergent base an aroma augmenting or enhancing quantity of at least one branched chain olefinic chalcogen derivative having a structure selected from the group consisting of:



wherein one of dashed lines represents a carbon-carbon double bond and each of the other of the dashed lines represent carbon-carbon single bonds.

4,380,501

GAS SCAVENGER AGENTS FOR CONTAINERS OF SOLID CHLOROISOCYANURATES

John A. Wojtowicz, Cheshire, and Andree M. B. Gergo, East Haven, both of Conn., assignors to Olin Corporation, New Haven, Conn.

Filed May 11, 1981, Ser. No. 262,574

Int. Cl.^{3} C11D *3/48, 3/24, 3/395*

U.S. Cl. 252—186.24 **14 Claims**

1. In a container of a solid chloroisocyanurate composition, the improvement which comprises enclosing therein a gas scavenging agent consisting essentially of a mixture of an alkaline earth metal sulfate, an alkali metal bicarbonate, and carbon.

4,380,502

PROCESS FOR THE PRODUCTION OF POLYETHER POLYOLS

Hanns P. Müller, Odenthal, Fed. Rep. of Germany; Claus-Dieter Sommerfeld, Pittsburgh, Pa., and Gernot Becker, Dormagen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Bayerwerk, Fed. Rep. of Germany

Filed Mar. 2, 1981, Ser. No. 239,247

Claims priority, application Fed. Rep. of Germany, Mar. 28, 1980, 3012001

Int. Cl.^{3} C07H *3/04;* **C09K** *3/00*

U.S. Cl. 252—182 **6 Claims**

1. A process for the production of polyether polyols having an average hydroxyl functionality of at least 3 and a hydroxyl number of from 28 to 1000 by alkoxylating a mixture comprising:
(a) from 20 to 80% by weight of sucrose (based on the sum of (a) and (b)), and
(b) from 80 to 20% by weight of formitol having an average hydroxyl functionality of at least 3 (based on the sum of (a) and (b)).

4,380,503

PROCESS FOR PREPARING OIL-IN-WATER EMULSION

Götz Koerner, Essen; Gerd Sänger, Heiligenhaus-Isenbügel; Hans-Ferdi Fink, and Friedhelm Grassmann, both of Essen, all of Fed. Rep. of Germany, assignors to Th. Goldschmidt AG, Fed. Rep. of Germany

Filed Jun. 3, 1981, Ser. No. 269,844

Claims priority, application Fed. Rep. of Germany, Jul. 1, 1980, 3024870

Int. Cl.^{3} B01J *13/00*

U.S. Cl. 252—314 **3 Claims**

1. A process for the preparation of fine-particulate, stable emulsions of the oil-in-water type, which comprises
(a) distributing the quantity of emulsifier required to achieve a stable emulsion in about 0.5 to 3 times the amount of water by weight, based upon the emulsifier weight,
(b) introducing the oleic phase to be emulsified into the foregoing dispersion and homogenizing it under the effect of high shear stresses until a uniform gel is formed,
(c) forcing the gel so obtained through a slotted disk, provided with a plurality of holes less than 10 mm in diameter, into the remaining amount of water, and stirring the emulsion so obtained while avoiding high shear stresses until the gel particles are completely dissolved.

4,380,504

ψ-EMULSANS

David L. Gutnick, Ramat Aviv; Eugene Rosenberg, Raanana; Igal Belsky, Ramat Aviv, and Zosim Zinaida, Kefar Sava, all of Israel, assignors to Petroleum Fermentations N.V., Netherlands Antilles

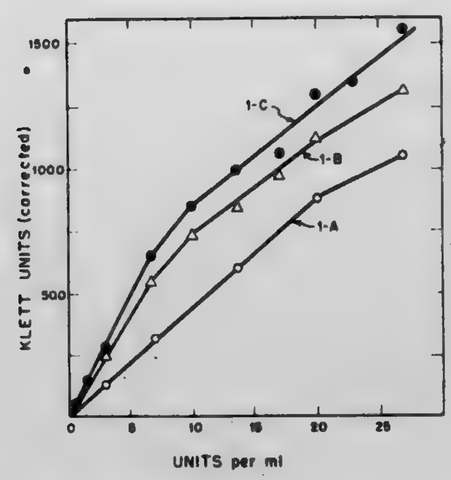
Division of Ser. No. 12,971, Feb. 22, 1979, abandoned. This application May 14, 1980, Ser. No. 146,053

Int. Cl.^{3} B01F *17/30, 17/34, 17/52*

U.S. Cl. 252—356 **3 Claims**

1. The O-deacylated extracellular protein-associated microbial polysaccharides (herein collectively called "ψ-emulsans") obtained from the emulsans produced by Acinetobacter Sp. ATCC 31012 and its mutants, the protein-free components of such ψ-emulsans being completely N-acylated heteropolysac-

charides made up of major amounts of D-galactosamine and an aminouronic acid and containing from 0 to 1 percent by weight



of fatty acid esters in which, when present, the fatty acids contain from about 10 to about 18 carbon atoms.

4,380,505

APPARATUS FOR PRODUCING AEROSOL PRODUCT

Augustinus J. M. Wittenhorst, Westerburg, Fed. Rep. of Germany, assignor to von Treu AG, Zug, Switzerland

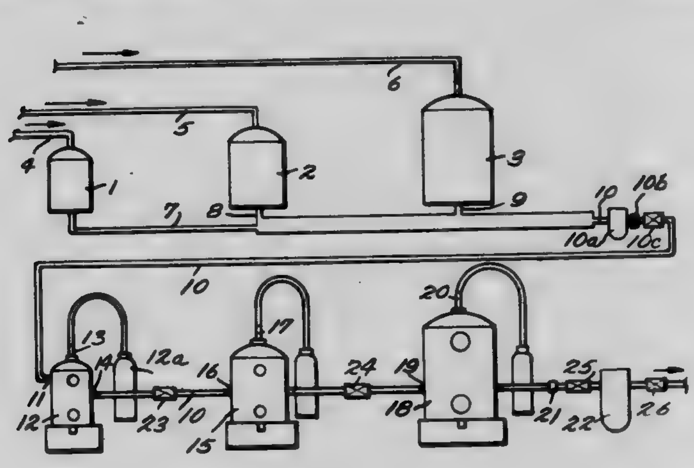
PCT No. PCT/DE79/00136, § 371 Date Jul. 11, 1980, § 102(e) Date Jul. 10, 1980, PCT Pub. No. WO80/00973, PCT Pub. Date May 15, 1980

PCT Filed Nov. 10, 1979, Ser. No. 202,448

Claims priority, application Fed. Rep. of Germany, Nov. 11, 1978, 2849074

Int. Cl.[3] **B01F** *5/00;* **B01J** *13/00*

U.S. Cl. 252—359 R **3 Claims**



1. Apparatus suitable for the production of an aerosol product consisting of active substance, propellant and solvent wherein the propellant consists exclusively of a noble gas which is helium, neon, argon, krypton or mixtures thereof by a process comprising bringing together the active substance and the solvent under pressure, charging overhead to a pressure vessel and seeping therein, while at the same time introducing into the pressure vessel a compressed noble gas and adding the noble gas by doses to the active substance-solvent mixture and subsequently collecting the newly developed mixture and feeding it to a bottling plant, said apparatus comprising a mixing vessel (1, 2) for the storage of active substance, a mixing vessel (3) for the storage of solvent, whereby the mixing vessels (1, 2; 3) have feed lines (4, 5; 6) separated from one another and are provided with discharge lines (7, 8; 9) which converge to a common conveying line (10), furthermore characterized by a pressure tank (12) with an inlet connection (11) overhead, which is connected to the common conveying line (10), an additional inlet connection (13) overhead, to which a compression tank (12*a*) for noble gas has been connected as well as a discharge connection (14) which is disposed at a distance from the bottom of the pressure vessel (12).

4,380,506

PROCESS FOR PRODUCING PRESERVATIVES

Yukichi Kimura, Narashino, and Takeshi Kanamori, Chiba, both of Japan, assignors to Lion Corporation, Tokyo, Japan

Filed Mar. 25, 1981, Ser. No. 247,249

Claims priority, application Japan, Apr. 8, 1980, 55-45824

Int. Cl.[3] **C09K** *15/34*

U.S. Cl. 252—398 **8 Claims**

1. A process for producing a preservative, comprising the steps of:

preparing a starting material selected from the group consisting of herb family spices, residues obtained after the recovery of essential oils from herb family spices, oleoresins extracted from herb family spices with a polar solvent, and oleoresins extracted from herb family spices with a non-polar solvent and associated residues, said herb family spices being selected from the group consisting of sage, rosemary, majooram, thyme, oregano and basil;

subjecting the starting material to extraction with a solvent mixture of a polar solvent compatible with water and a non-polar solvent selected from the group consisting of n-hexane, petroleum ether, ligroin, cyclohexane, carbon tetrachloride, chloroform, dichloromethane, 1,2-dichloroethane, toluene, benzene and mixtures thereof, the ratio by volume of the polar solvent to the non-polar solvent ranging from 2:98 to 50:50;

adding an adsorbent to said extractive in an amount of 1-20% by weight based upon the weight of the starting material;

adding water to the extractive after said adsorbent is separated;

allowing the polar solvent to migrate into the water;

separating the mixture into a water/polar solvent phase and a non-polar solvent phase having a highly oil-soluble active fraction dissolved and a substantially oil-insoluble active fraction precipitated; and

recovering the non-polar solvent phase as a preservative.

4,380,507

CATALYSTS FOR POLYMERIZING ETHYLENE

Luciano Noristi, and Giovanni Baruzzi, both of Ferrara, Italy, assignors to Montedison S.p.A., Milan, Italy

Continuation of Ser. No. 802,367, Jun. 2, 1977, abandoned. This application Nov. 24, 1981, Ser. No. 324,419

Claims priority, application Italy, Jun. 3, 1976, 23903 A/76

Int. Cl.[3] **C08F** *4/02, 10/02*

U.S. Cl. 252—429 B **4 Claims**

1. The process for preparing components of catalysts for polymerizing ethylene or mixtures thereof with minor amounts of alpha-olefins of formula $CH_2{=}CHR$, in which R is an alkyl radical containing from 1 to 6 carbon atoms, said components comprising the product obtained by reacting a solid halogenated Ti compound selected from the group consisting of $TiCl_3$ and Ti halogen-alcoholates with a Grignard compound having the formula RMgX, in which R is an alkyl, cycloalkyl or aryl radical containing from 2 to 16 carbon atoms, and X is Cl or Br, in an aliphatic hydrocarbon, at a temperature between 35° and 40° C. and a Grignard compound/titanium compound molar ratio equal to at least 7, isolating the solid reaction product, and reacting it with a halogenating agent at a temperature between 0° and 150° C. and a halogenating agent/Grignard compound molar ratio higher than 0.5, said halogenating agent being selected from the group consisting of $TiCl_4$, $SiCl_4$ and PCl_3.

4,380,508

ULTRA HIGH EFFICIENCY CATALYST FOR POLYMERIZING OLEFINS

Randall S. Shipley, Alvin, and Donald F. Birkelbach, Angleton, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Oct. 22, 1981, Ser. No. 313,903

Int. Cl.³ C08F *4/64*

U.S. Cl. 252—431 C **17 Claims**

1. A reaction product or complex formed from an admixture of

(a) a reaction product or complex formed from a mixture of
  (i) at least one transition metal compound represented by the empirical formulae $Tm(OR)_yX_{x-y}$, $TmOX_{x-2}$ or $Tm(OR)_{x-2}O$ wherein Tm is a transition metal selected from groups IVB, VB or VIB; each R is independently a hydrocarbyl group having from 1 to about 20 carbon atoms; each X is independently a halogen; x has a value equal to the valence of Tm and y has a value from 1 to the valence of Tm; and
  (ii) at least one non-metallic oxygen-containing compound selected from the group consisting of molecular oxygen, air, alcohols, ketones, aldehydes, carboxylic acids, esters of carboxylic acids, peroxides, water and mixtures thereof; and wherein said mixture of (i) and (ii) is subjected to a temperature of from about −50° C. to about 110° C. for a time sufficient to effect a color change; and
(b) a reducing alkylating agent represented by the empirical formula $M'R_{a-b}X_b$ wherein M' is a metal selected from the group consisting of Al, Li, Mg or B; X is a halogen, preferably chlorine or bromine; each R is independently an alkyl group having from 1 to about 20 carbon atoms; a has a value equal to the valence of the metal M' and b has a value of from zero up to the valence of the metal M' minus 1; and wherein components (a) and (b) are mixed in proportions such that the atomic ratio of M':Tm is from about 0.1:1 to about 5:1 and the atomic ratio of O:Tm is from about 0.1:1 to about 4:1.

4,380,509

METHOD FOR PRODUCING A CATALYST FOR THE HYDRATION OF OLEFINS

August Sommer; Wilhelm Heitmann, both of Herne, and Rainer Brücker, Castrop-Rauxel, all of Fed. Rep. of Germany, assignors to Chemische Werke Huls AG, Marl, Fed. Rep. of Germany

Filed Mar. 23, 1981, Ser. No. 246,257

Claims priority, application Fed. Rep. of Germany, Mar. 26, 1980, 3011610

Int. Cl.³ B01J *37/02, 21/12*

U.S. Cl. 252—453 **14 Claims**

1. A method for producing a carrier for a catalyst comprising the steps of:

mixing a first solution containing a soluble salt of aluminum and a second solution containing a soluble salt of silicic acid in a ratio that gives a precipitate comprising aluminum silicate having a weight ratio of Al_2O_3:SiO_2 of 1:5 to 1:7;

forming said precipitate into a carrier body;

consolidating said carrier body by heating; and

treating said carrier body with an acid, wherein the Al_2O_3 content of said carrier body is reduced to 1-5% by weight.

2. The method of claim 1, wherein 5-15% of at least one oxide of the Group VI metals is added to said precipitate prior to forming said carrier body.

13. The method of claim 1, wherein said acid is hydrochloric acid.

14. The method of claim 1, wherein said soluble salt of aluminum is aluminum sulfate and said soluble salt of silicic acid is sodium silicate.

4,380,510

METHOD OF MAKING LAYERED CATALYSTS

Michael J. D'Aniello, Jr., Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 4, 1981, Ser. No. 318,132

Int. Cl.³ B01J *21/04, 23/38*

U.S. Cl. 252—466 PT **4 Claims**

1. A method of selectively placing noble metal catalyst material on a thin layer of a porous, high surface area alumina or base metal-containing alumina carrier particle where the layer may either be at the apparent outer surface of the particle or, if desired, submerged below the outer surface, comprising
  saturating the pores of said particle with liquid C_1 to C_3 dialkyl ketone,
  if necessary, blocking absorbent pore surface sites in said particle outwardly of the desired position of said layer by applying thereto an acid blocking agent,
  contacting said particle with a solution of a noble metal catalyst material in a substantially water-free C_1 to C_3 dialkyl ketone whereby the catalyst material is strongly absorbed on said particle on a layer beginning with the outermost unblocked sites and extending inwardly into said particle a depth determined by the amount of noble metal material in said solution, and
  calcining said particle to remove said blocking agent, if present, and to fix said noble metal catalyst.

4,380,511

PURIFICATION OF BOVINE THROMBIN

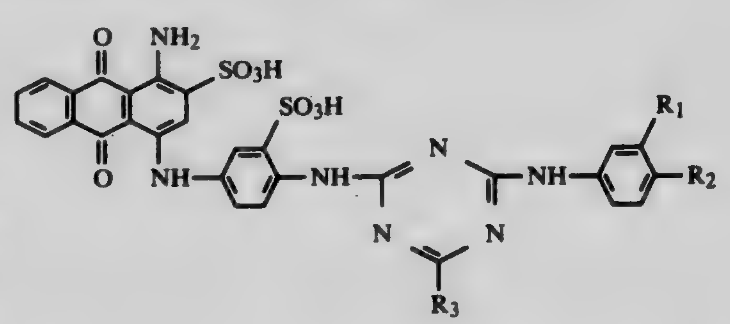
Frank J. Mannuzza, Peotone, and Joseph G. Montalto, Bradley, both of Ill., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Aug. 12, 1981, Ser. No. 292,236

Int. Cl.³ C07G *7/00*

U.S. Cl. 260—112 B **6 Claims**

1. A method for removing pyrogenic material from pyrogen-containing bovine thrombin which comprises the steps of forming a complex of a dye having the structure:



where R_1 and R_2 are hydrogen or SO_3H, and R_3 is Cl or O; and a dextran which has been cross-linked with epichlorohydrin to produce a three-dimensional network of polysaccharides, equilibrating the complex with a low ionic strength salt solution, contacting said complex with said pyrogen-containing bovine thrombin, washing said thrombin with a low ionic strength salt solution to remove said pyrogens, and recovering pyrogen-free bovine thrombin.

4,380,512

2β-CHLOROMETHYL-2α-METHYLPENAM-3α-CARBOXYLIC ACID SULFONE AND SALTS AND ESTERS THEREOF

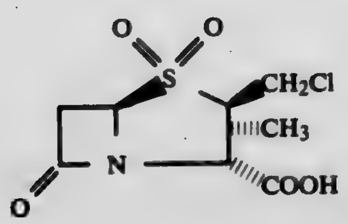
William J. Gottstein, Fayetteville, N.Y., assignor to Bristol-Myers Company, New York, N.Y.

Continuation-in-part of Ser. No. 214,831, Dec. 11, 1980, abandoned, which is a continuation-in-part of Ser. No. 113,894, Jan. 21, 1980, abandoned. This application Jun. 8, 1981, Ser. No. 271,744

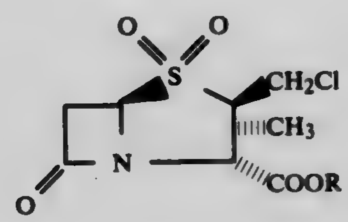
Int. Cl.³ C07D *499/00;* **A61K** *31/425*

U.S. Cl. 260—245.2 R **17 Claims**

1. The acid having the formula



or a pharmaceutically acceptable salt of said acid or an ester of said acid having the formula



wherein R is phenacyl, acetoxymethyl, pivaloyloxymethyl, α-acetoxyethyl, α-acetoxybenzyl, α-pivaloyloxyethyl, 3-phthalidyl, 5-indanyl, methoxymethyl, benzoyloxymethyl, α-ethylbutyryloxymethyl, propionyloxymethyl, valeryloxymethyl, isobutyryloxymethyl, 6-[(R)-2-amino-2-phenylacetamido]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carbonyloxymethyl or 6-[(R)-2-amino-2-p-hydroxyphenylacetamido]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carbonyloxymethyl.

4,380,513

INERT ROSIN ESTERS AND PROCESS FOR PREPARING THE SAME

Erwin R. Ruckel, Wilton, and Martin Epstein, Norwalk, both of Conn., assignors to Arizona Chemical Company, Fairlawn, N.J.

Filed Nov. 30, 1981, Ser. No. 325,700
Int. Cl.³ C09F *7/00, 1/00*
U.S. Cl. 260—104 **10 Claims**

1. A modified rosin ester of a primary polyhydric alcohol, said ester having 50 to 95 percent of the hydroxyl groups of the polyhydric alcohol esterified with rosin and the remaining hydroxyl groups esterified with lower aliphatic monocarboxylic acid or acid chloride or acid anhydride and no more than negligible residual hydroxyl content.

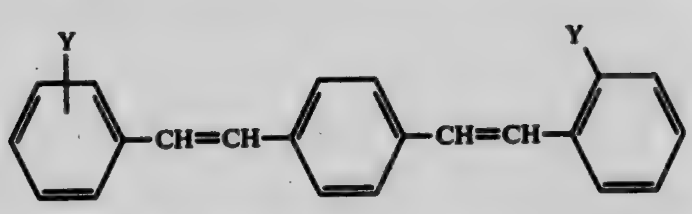
4,380,514

PREPARATION OF OPTICAL BRIGHTENERS

Guenther Seybold, Ludwigshafen, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

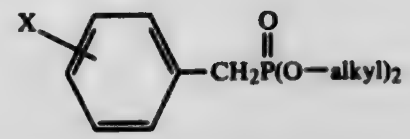
Filed Dec. 8, 1980, Ser. No. 214,227
Int. Cl.³ C07C *121/64, 64/767;* **D06L** *3/12;* **C11D** *3/42*
U.S. Cl. 260—465 H **7 Claims**

1. A process for the preparation of an unsymetrically substituted optical brightener compound of the general formula



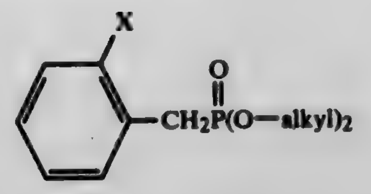
I

where X and Y independently of one another are hydrogen, fluorine, chlorine, cyano, C_1–C_{10}-alkoxycarbonyl, unsubstituted or substituted carbamyl or sulfamyl, a sulfonic acid aryl ester group, C_1–C_{10}-alkylsulfonyl or phenyl-sulfonyl, and at least one of X and Y is not hydrogen, and of mixtures of such optical brighteners free of p,p'-substituted compounds, which comprises reacting in a first step terephthaladehyde with a phosphonate compound of the general formula IIa



IIa

or of the general formula IIb



IIb

where X and Y have the above meanings in the presence of an alkali, in a solvent from which the monocondensation product of terephthaldehyde and the phosphonate compound precipitates to form a first reaction product containing the monocondensation product and thereafter completing the reaction to prepare a compound or a mixture of compounds of formula (I) by reacting the first reaction product in the presence of alkali and said solvent with a different phosphonate compound of formula IIa or IIb, with the proviso that at least one compound of formula IIa and a compound of formula IIb are reacted successively in the process.

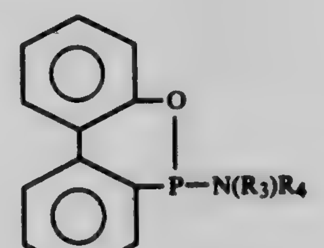
4,380,515

N-SUBSTITUTED 6-AMINO-DIBENZ[C,E][1,2]OXAPHOSPHORINES

Michael Rasberger, and Samuel Evans, both of Riehen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

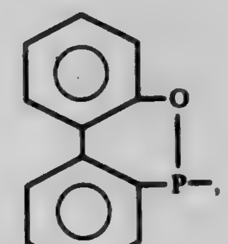
Continuation of Ser. No. 104,335, Dec. 17, 1979, abandoned, which is a continuation of Ser. No. 27,336, Apr. 5, 1979, abandoned. This application Mar. 9, 1981, Ser. No. 241,807
Claims priority, application Switzerland, Apr. 14, 1978, 4026/78
Int. Cl.³ C07F *9/46, 9/65*
U.S. Cl. 260—936 **2 Claims**

1. A compound of the formula

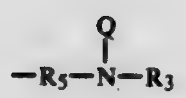


wherein

R_3 is hydrogen, C_1–C_{12} alkyl, cyclohexyl or the group Q, where Q is



R_4 is C_1–C_{12} alkyl, cyclohexyl or a group of the formula



where

R_3 and Q have the meanings given above,

R_5 is C_2-C_6 alkylene,

R_3 and R_4 together with the N atom to which they are attached form a piperidine or morpholine ring, or

R_3 and R_4 together are the radical —CH_2CH_2—N(-Q)—CH_2CH_2— wherein Q has the meaning given above.

2. 6-(N,N-Di-isopropyl-amino)-dibenz[c,e][1,2]oxaphosphorine, according to claim 1.

4,380,516

CARBURETOR

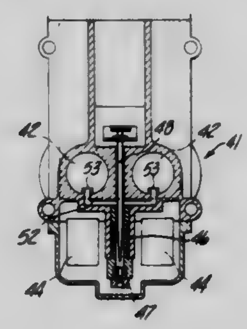
Hiroshi Matsuzaka, Hamamatsu, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Sep. 24, 1981, Ser. No. 305,270

Claims priority, application Japan, Sep. 30, 1980, 55-136521

Int. Cl.³ F02M *9/06*

U.S. Cl. 261—23 A **3 Claims**



1. In an induction system for an internal combustion engine having two intake passages serving the same chamber and a two-barrel carburetor having each of its barrels disposed generally horizontally and communicating with and serving a respective one of said intake passages, each of said carburetor barrels having a respective fuel discharge circuit, the improvement comprising said carburetor having a single fuel bowl positioned adjacent and extending beneath both of said barrels, a fuel well depending centrally into said fuel bowl and having a main jet positioned at its lower end, said fuel well serving both of said carburetor barrel fuel discharge circuits.

4,380,517

ICE PREVENTING APPARATUS AND METHOD FOR GAS AND LIQUID CONTACT MEANS OF AN ATMOSPHERIC COOLING TOWER

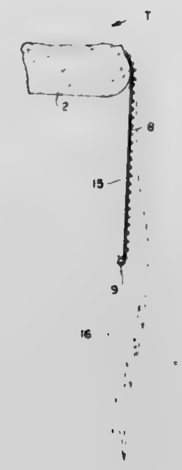
Jacques G. P. E. Bosne, Viroflay, France, assignor to Hamon-Sobelco, S.A., Brussels, Belgium

Filed Feb. 16, 1982, Ser. No. 348,752

Int. Cl.³ B01F *3/04*

U.S. Cl. 261—142 **9 Claims**

1. A process for avoiding, in a cold period, the formation of ice inside a cooler having lower air inlet apertures and which employs atmospheric air and a freezable liquid stream, characterized in that said process comprises providing said air inlet apertures with vertical trellises which extend in a part of said apertures from the top of said apertures downwardly, causing, in a cold period, cold water to stream along said trellises so as to form under controlled conditions along said trellises curtains of ice which partly close said apertures and, when the temperature of the air, and consequently the temperature of the water cooled inside the cooler, resumes a sufficiently high



temperature to avoid formation of ice inside the cooler, melting the said curtains of ice.

4,380,518

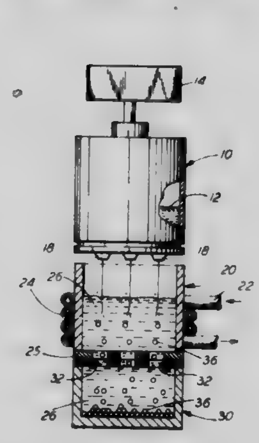
METHOD OF PRODUCING SOLDER SPHERES

Richard A. Wydro, Sr., Hamilton Township, Mercer County, N.J., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Jan. 4, 1982, Ser. No. 337,049

Int. Cl.³ B01J *2/06*

U.S. Cl. 264—13 **14 Claims**



1. A method of making metal spheres having non-oxidized surfaces, comprising:

introducing a metal having a low melting temperature into a liquid flux comprising an activator and antioxidant, the flux being maintained at a temperature so as to cause metal spheres to form, the state of the metal and the respective temperature of the metal and flux being such that spheres of the metal are formed when the metal is introduced into the flux.

4,380,519

PROCESS FOR EMBOSSING POLYMERIC SUBSTRATES BY USING A COMPOSITE STRUCTURE OF AN AROMATIC POLYAMIDE FABRIC COATED WITH A FLUOROSILICONE RUBBER

Richard H. Carlson, Clinton, Conn., and Gerald L. Gatcomb, Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

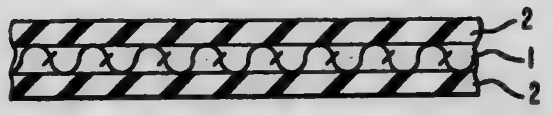
Division of Ser. No. 249,225, Mar. 30, 1981, Pat. No. 4,346,140. This application Apr. 23, 1982, Ser. No. 371,472

Int. Cl.³ B29C *17/00*

U.S. Cl. 264—26 **7 Claims**

1. A process for embossing flexible polymeric substrates in a dielectric heating press having a platen and a design fixture by placing a composite sheet structure between the substrate being embossed and the platen of the press and embossing the

substrate wherein the composite sheet structure comprises a layer about 2-30 mils thick of a fluorosilicone rubber firmly adhered to both side of an aromatic polyamide fabric and

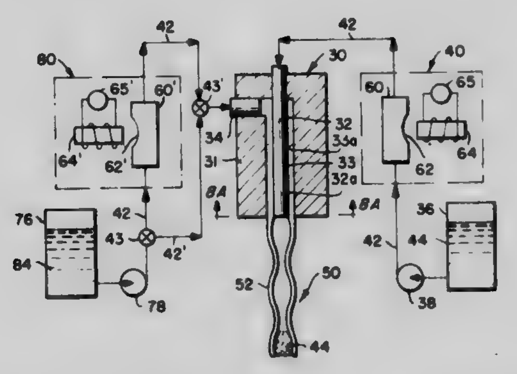


having a dielectric constant of about 4-8 and a dissipation factor of about 0.015-003 where the dielectric constant and dissipation factor are determined at one megahertz frequency according to ASTMD-1531.

4,380,520
PROCESS FOR PRODUCING HOLLOW FIBRES HAVING A UNIFORM WALL THICKNESS AND A NON-UNIFORM CROSS-SECTIONAL AREA

John A. Taylor, Furlong, Pa., assignor to Extracorporeal Medical Specialties, Inc., King of Prussia, Pa.

Division of Ser. No. 19,972, Mar. 12, 1979, Pat. No. 4,291,096. This application Jul. 14, 1980, Ser. No. 167,900
Int. Cl.^{3} **D01D** *5/20*
U.S. Cl. 264—40.3 **14 Claims**



1. A method for producing a hollow fiber having a hollow core extending continuously throughout the length thereof, said fiber having a uniform wall thickness and a non-uniform cross-sectional area, said method comprising
   - (a) providing a tube-in-orifice spinneret comprising a housing having a chamber communicating with an outer surface thereof and a hollow tube having a continuous lumen extending the length thereof secured within said chamber, the walls of said chamber and the outer surface of said tube defining an annular space through which a fiber forming material may be extruded;
   - (b) supplying a fiber forming material to said chamber at a constant mean flow rate while simultaneously varying the pressure on said supplied fiber forming material;
   - (c) extruding said fiber forming material through said annular space to form a hollow core extrudate;
   - (d) supplying a fluid at a constant mean flow rate to the lumen of said hollow tube while simultaneously varying the pressure on said supplied fluid, the pressure variations on said supplied fluid being synchronized with the pressure variations on said supplied fiber forming material;
   - (e) removing from the exit of said spinneret said extrudate with said fluid contained in the hollow core thereof;
   - (f) converting said fiber forming material to fiber form.

4,380,521
METHOD TO PRODUCE A POLYTETRA-FLUOROETHYLENE DIAPHRAGM

Carlos M. Moreno; Robert D. Bridges, and Andre J. Uzee, all of Baton Rouge, La., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 877,060, Feb. 13, 1978, Pat. No. 4,224,130, which is a continuation of Ser. No. 777,868, Mar. 15, 1977, abandoned. This application Sep. 22, 1980, Ser. No. 189,977
Int. Cl.^{3} **B29D** *27/00*
U.S. Cl. 264—49 **15 Claims**

1. A method to form an electrolyte permeable diaphragm for an electrolytic cell for producing chlorine and an alkali metal hydroxide comprising:
   - (a) combining about 1 to about 50 parts by weight polytetrafluoroethylene powder having an average particle size of about 100 to about 1,000 microns diameter with about 50 to about 98 parts by weight of a solid pore-forming powder having an average particle size of about 0.1 to about 100 microns diameter, and about 10 to about 1,000 parts by weight of a nonaqueous liquid capable of wetting the polytetrafluoroethylene and incapable of dissolving substantial amounts of the pore-forming powder;
   - (b) mixing the combination with a shearing means sufficiently to reduce the average particle sizes of the polytetrafluoroethylene to less than about 50 microns diameter;
   - (c) removing a portion of the liquid from the mixture of step (b) until the mixture has a liquid to solid weight ratio of about 0.05 to about 1;
   - (d) rolling the compressed mixture a plurality of times to form a sheet;
   - (e) heating the sheet sufficiently to sinter the sheet material; and
   - (f) removing at least a portion of the solid pore-forming powder from the sintered sheet by contacting the sheet with a liquid medium to produce a porous polytetrafluoroethylene sheet with a thickness of from about 5 to about 100 mils, an average pore size of from about 0.1 to about 100 microns, a gas permeability of from about 1 to about 100 seconds, a liquid permeability factor of from about 1 to about 60, and a tensile strength of from about 100 to about 1000 pounds per square inch.

4,380,522
PROCESS FOR THE MANUFACTURE OF ARTICLES FROM COMPOSITION COMPRISING MODIFIED POLYOLEFINES AND CELLULOSIC FIBRES

Pierre Georlette, Hamme-Mille, and Rene Bouteille, Braine-l'Alleud, both of Belgium, assignors to Solvay & Cie., Brussels, Belgium

Continuation of Ser. No. 65,881, Aug. 13, 1979, abandoned. This application Apr. 13, 1981, Ser. No. 253,556
Claims priority, application France, Aug. 11, 1978, 78 23947
Int. Cl.^{3} **B29D** *7/14*
U.S. Cl. 264—175 **7 Claims**

1. Process for manufacture of a shaped article from a polyolefine composition comprising between 30 and 70% by weight of a polyolefine which is a high density polyethylene modified by means of a polar monomer and between 30 and 70% by weight of cellulosic fibres, comprising: subjecting the polyolefine composition to a malaxating operation carried out at a temperature which is at least 40° C. above the melting point of the polyolefine, before the composition is moulded.

4,380,523

METHOD OF MANUFACTURING A COMPOSITE MATERIAL

David J. Lind, Breadsall, and Joyce Richards, Ambergate, both of England, assignors to Rolls-Royce Limited, London, England

Filed Jul. 16, 1981, Ser. No. 283,976

Claims priority, application United Kingdom, Sep. 10, 1980, 8029268

Int. Cl.³ B29D *3/02;* **B29F** *5/00*

U.S. Cl. 264—257 **6 Claims**

1. A method of manufacturing a substantially completely void free composite material comprising the steps of

(a) applying a first high temperature resistant thermoplastic polymer to at least one layer of reinforcing filaments in an amount sufficient to increase the weight of said filaments by up to about 5% and to lightly bind said carbon filaments together and to retain the configuration of said filaments,

(b) forming a structure of said at least one layer of the thus bound filaments and sheets of a second high temperature resistant polymer so that one layer of said bound filaments is interposed between sheets of said second thermoplastic polymer and to retain the configuration of said filaments, wherein the first thermoplastic polymer is a polycarbonate, a polysulphone, a polyethersulphone or a polyimide and the second thermoplastic polymer is an aromatic polyetherether ketone,

(c) compressing said structure at a temperature at which said first thermoplastic polymer does not thermally decompose and at which said second thermoplastic polymer is sufficiently mobile to impregnate said layer of reinforcing filaments, said temperature being insufficient to soften said filaments,

(d) maintaining said compression at said temperature for at least one hour to cause said second thermoplastic polymer to impregnate said at least one layer of bound filaments and for at least a major portion of said first thermoplastic polymer to diffuse into said second thermoplastic polymer,

(e) cooling the thus formed composite under compression in order to avoid any distortion thereof, and subsequently

(f) discontinuing said compression thereby producing a composite material that is substantially completely void free.

4,380,524

CEMENT APPLYING MACHINE AND METHOD

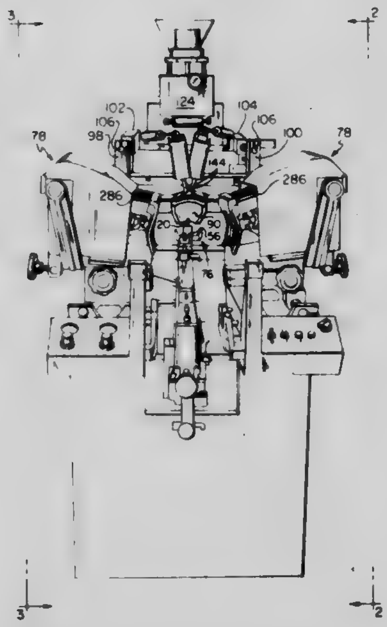
Sinville Runions, Booneville, Miss., assignor to International Shoe Machine Corporation, Nashua, N.H.

Filed Apr. 6, 1979, Ser. No. 27,561

Int. Cl.³ B05C *3/02*

U.S. Cl. 264—263 **3 Claims**

1. A machine, operable on a shoe assembly formed of a last having an insole located on its bottom and an upper having a margin mounted thereon with a portion of the upper margin being wiped against and secured to the insole and with an unwiped portion of the upper margin having a boundary with said wiped margin portion, extending rearwardly of said wiped margin portion, projecting away from the insole periphery so as to form a corner between said unwiped margin portion and the corresponding portion of the insole periphery and with a segment of the upper margin at said boundary overhanging the insole, for applying cement in said corner comprising: a shoe assembly support for supporting the shoe assembly bottom-up with said wiped margin portion being forward of said unwiped margin portion; a heightwise extending nozzle, located above the shoe assembly, having a laterally projecting tip through which cement may be extruded; nozzle mounting means mounting the nozzle for swinging movement about its heightwise extending axis; forward-rearward moving means for effecting forward-rearward movements of the nozzle between a rearward nozzle position that is rearward of said boundary and a forward nozzle position that is located at said boundary; heightwise moving means for effecting heightwise movements of the nozzle between an upper nozzle position wherein the nozzle is spaced above the bottom of the shoe assembly and a lower nozzle position wherein the nozzle is in engagement with the bottom of the shoe assembly; means for initially causing the forward-rearward moving means and the heightwise moving means to locate the nozzle in said rearward and lower nozzle positions; means for thereafter causing the forward-rearward moving means to move the nozzle to the forward nozzle position in a cement applying stroke; means for so constraining the nozzle during the cement applying stroke that



the nozzle tip is in said corner with the nozzle tip projecting outwardly of the nozzle and being beneath said margin segment at the end of the cement applying stroke; means effective during the cement applying stroke to extrude cement through the nozzle tip into said corner; means, effective subsequent to the completion of the cement applying stroke, to so swing the nozzle about said axis as to move the nozzle tip rearwardly and inwardly and thus move the nozzle tip out from under said margin segment; and means for thereafter causing the heightwise moving means to raise the nozzle to the upper nozzle position.

4,380,525

PROCESS FOR THE PRODUCTION OF A BLANK FOR SUBSEQUENT SHAPING BY BLOW-MOLDING

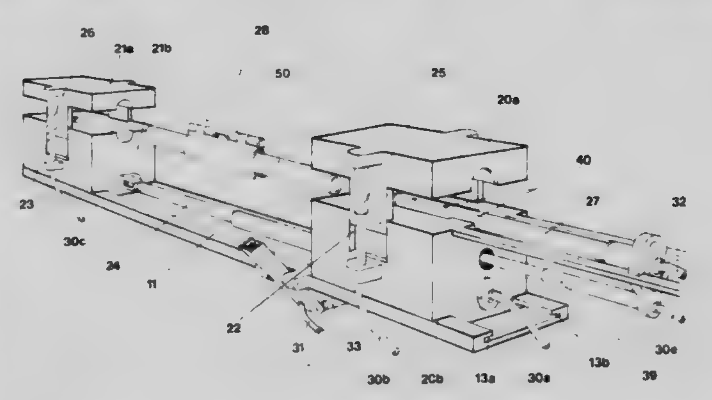
Kjell M. Jakobsen, Hökvägen, and Claes T. Nilsson, Pramvägen, both of Sweden, assignors to PLM Aktiebolag, Malmo, Sweden

Filed May 30, 1980, Ser. No. 154,888

Claims priority, application Sweden, Jun. 11, 1979, 7905043

Int. Cl.³ B29C *17/07*

U.S. Cl. 264—521 **10 Claims**



1. A process for the manufacture of a tubular pre-moulding from a thermoplastic material comprising the steps of axially stretching a tube of the thermoplastic material to a substantially reduced material thickness in at least a central zone of a

tube while substantially maintaining the diameter of the tube in the axially stretched section in said central zone, the reduction being by a factor sufficient to cause yielding and orienting of the material substantially in the axial direction of the future pre-moulding, the axial stretching of the tube being effected at a temperature not greater than the glass transition temperature of the thermoplastic material, heating the material in one of the oriented zones to a temperature above the glass transition temperature and expanding said material in the radial direction of the tube until it makes contact with mould walls to form a mouth part with adjacent neck sections of the pre-moulding, cooling the material to a temperature below the glass transition temperature, heating the material in at least one end of the tube to a temperature above the glass transition temperature, and reshaping said end to form the closure of the pre-moulding.

4,380,526

FORMING NON-CYLINDRICAL ARTICLES FROM PREFORMS OF POLYALKYLENE TEREPHTHALATE

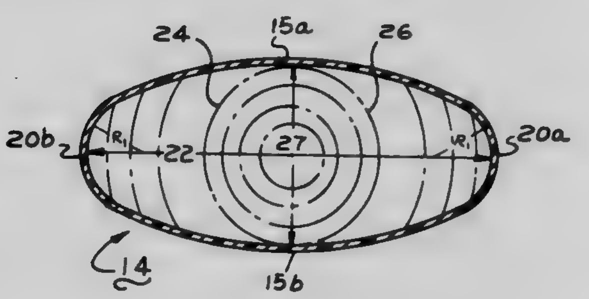
Purushottam D. Agrawal, South Windsor, Conn., assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 971,398, Dec. 20, 1978, Pat. No. 4,254,079. This application Feb. 2, 1981, Ser. No. 230,474

The portion of the term of this patent subsequent to Mar. 3, 1998, has been disclaimed.

Int. Cl.[3] B29C *17/07*

U.S. Cl. 264—537 **9 Claims**



1. In the method of forming a molecularly oriented hollow article having a non-round cross section of substantially oval or substantially triangular or like cross section from a preform of thermoplastic material, which includes distending the preform in a mold while at molecular orientation temperature,

the improvements wherein the thermoplastic material is moldable polyalkylene terephthalate having an inherent viscosity of at least about 0.55, said preform region forming said cross section is not treated before said distending for the purpose of establishing a circumferential temperature difference therein, and the distending comprises, in combination, the steps of:

expanding first portions of said region against mold wall portions at the end of a minor axis of a cavity conforming to said non-round cross section to form relatively thick sections thereat while expanding other portions a greater extent than said first portions toward wall portions at the end of a major axis of said cavity thereby establishing a strain hardened pattern in the material wherein such expanded other portions are strain hardened greater than said thick sections; and

drawing material out of said thick sections as such expanded other portions of greater strain hardened level continue to expand toward the mold wall portions at the end of the major axis;

limiting the corner definition ratio to between about 3 to about 9 and the circular deviation ratio to no greater than about 2.4 at the cross section during said distending;

and controlling said distending according to the relations:

-continued

$$\%\ \text{average axial stretch}\ (A) = \frac{[\text{article length minus preform length}]\ \text{times } 100}{\text{preform length minus preform neck finish length}}$$

$$\%\ \text{maximum radial stretch}\ (B) = \frac{[\text{maximum planar distance to mold from preform axis times two}]\ \text{minus}\ [\text{preform outside diameter}]\ \text{times } 100}{\text{preform outside diameter}}$$

wherein:

A is between about 15 to about 100; and

B is no greater than about 334;

thereby forming said article having reduced wall thickness variability at the non-round cross section in comparison with an article having the same cross section formed of thermoplastic material which does not strain harden during distension.

4,380,527

STANDARD FISSION PRODUCT EMISSION DEVICE FOR DETECTING FAILED FUEL ELEMENTS IN A NUCLEAR REACTOR

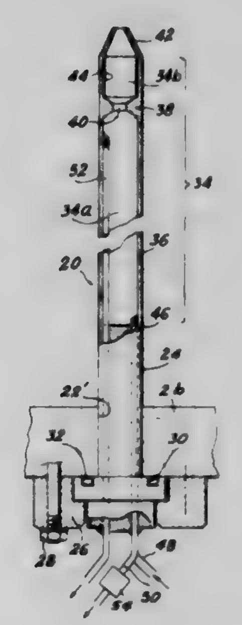
Jean Graftieaux, Chatenay Malabry, and Rene Donguy, Verrieres le Buisson, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Aug. 15, 1980, Ser. No. 178,291

Claims priority, application France, Aug. 28, 1979, 79 21543

Int. Cl.[3] G21C *17/00*

U.S. Cl. 376—245 **3 Claims**



1. In a standard fission product emission device, for detecting failed fuel elements in a nuclear reactor of the type cooled by pressurised water, said reactor comprising a pressure-resistant vessel and a core constituted by fuel element assemblies,

a hollow rod is provided, adapted to be inserted into said vessel and defining a chamber divided into a first chamber and a second chamber located at the end of the rod by a constriction creating a first drop in pressure, said second chamber comprising on its wall a deposit or a metal plate of radioactive material and communicating with the vessel of the reactor, when said device is in position, by a nozzle creating a second drop in pressure greater than the one created by said constriction, first tube disposed in said rod and opening out at the end of the first chamber remote from the second chamber, said first tube being adapted to be connected to a source of pressurised water at a pressure greater than that of the cooling water of said reactor, and a second tube also opening out at the end of the first chamber remote from the second chamber and adapted to collect the fission products emitted by said deposit when no pressure is applied at the inlet of said tube.

4,380,528
SILVER-BASED ALLOY

Jury F. Shevakin, Telegrafny pereulok, 11/16, kv. 53; Efim S. Shpichinetsky, ulitsa Donskaya, 6, kv. 93; Valentina P. Fedorenko, Teply Stan, 7 mikroraion, 108, kv. 107; Boris N. Efremov, ulitsa Veernaya, 26, korpus 1, kv. 17; Maria N. Klevchenkova, ulitsa F. Poletaeva, 8, korpus 4, kv. 59; Ivan A. Andrjuschenko, Molodezhnaya ulitsa, 4, kv. 321; Iosif A. Krasnoselsky, ulitsa Profsojuznaya, 102/47, kv. 6; Evgeny F. Anikeev, ulitsa Butlerova, 14, korpus 1, kv. 29; Evgeny A. Ivanov, Universitetsky prospekt, 4, kv. 228; Anatoly P. Khomyachkov, ulitsa Miklukho-Maklaya, 45, kv. 59, all of Moscow; Naum A. Shvarts, prospekt K. Marxa, 80, kv. 38; Ljudmila V. Kozhevnikova, prospekt Metallistov, 84, kv. 51, both of Leningrad; Roza M. Romanova, Profsojuznaya ulitsa, 79, korpus 2, kv. 10, and Alexandr D. Zhivotchenko, ulitsa Zoi Kosmodemyanskoi, 34"A", kv. 39, both of Moscow, all of U.S.S.R.

Filed May 6, 1981, Ser. No. 260,861
Int. Cl.³ C22C *5/06*
U.S. Cl. 420—505 **1 Claim**

1. A silver-based alloy incorporating palladium, magnesium and aluminium in the following proportions of the components, percent by weight:

palladium	5 to 30
magnesium	0.1 to 0.5
aluminium	0.01 to 0.5
silver	the balance.

4,380,529
HYDROPROCESSING REACTOR WITH EXTENDED OPERATING LIFE

Ramesh Gupta, Chatham Township, Morris County, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 212,755, Dec. 4, 1980, Pat. No. 4,330,505. This application May 8, 1981, Ser. No. 261,985
The portion of the term of this patent subsequent to May 18, 1999, has been disclaimed.
Int. Cl.³ C10G *23/02*
U.S. Cl. 422—220 **8 Claims**

1. A vessel, such as a reactor or absorption tower including means to introduce both liquid and gas into said vessel and means to remove both liquid and gas from said vessel;

a flow distributor tray disposed adjacent the liquid and gas introduction means;

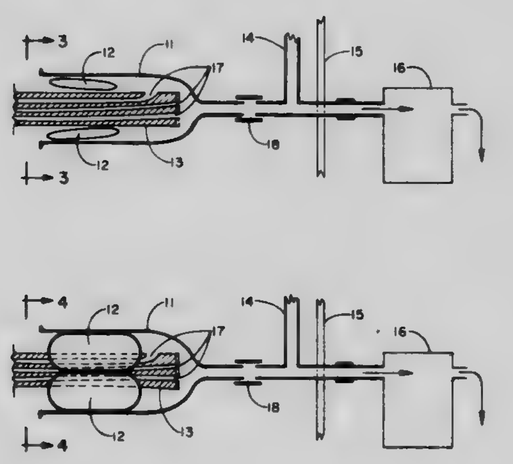
at least one main bed of solids disposed in said vessel; and

an auxiliary bed disposed above said main bed below said flow distributor tray having at least one gas bypass means for passing gas therethrough when said auxiliary bed becomes fouled, said gas bypass means comprising a hollow unobstructed open tube extending through said auxiliary bed and flow distributor tray to terminate at its uppermost end above the normal liquid level on said flow distributor tray, said unobstructed open tube having a gas flow resistance sufficient to act as a substantial gas seal against the passage of gas through said bypass means when said auxiliary bed is not fouled and to provide a low pressure drop bypass for said gas flowing to said main bed when said auxiliary bed becomes fouled, and at least one liquid bypass means for passing liquid through said auxiliary bed when said bed becomes fouled, said liquid bypass means comprising a hollow unobstructed open tube extending through said auxiliary bed and attached at its upper end to said flow distributor tray in fluid communication with liquid on said distributor tray, said liquid bypass means open tube having a liquid flow resistance sufficient to act as a substantial liquid seal against the passage of liquid through said liquid bypass means when said auxiliary bed is not fouled and to provide a low pressure drop bypass for said liquid flowing to said main bed when said auxiliary bed becomes fouled.

4,380,530
STERILIZER WITH INFLATABLE ARTICLE HOLDER

Saul Kaye, Evanston, Ill., assignor to Ben Venue Laboratories, Inc., Bedford, Ohio

Filed Feb. 13, 1981, Ser. No. 213,036
Int. Cl.³ A61L *2/20*
U.S. Cl. 422—300 **7 Claims**



1. A device for holding medical instruments during sterilization comprising in combination a gas-tight sterilizing apparatus and an inflatable holder, said holder comprising sealed inflatable means maintained in a rigid holder within said sterilizing apparatus, said inflatable means being in a relaxed, non-rigid state at ambient pressure within said sterilizing apparatus thereby permitting the surfaces of said instruments to be contacted by a sterilizing medium and in an inflated state, for securely holding said instruments, under conditions of reduced pressure within said sterilizing apparatus.

4,380,531
PROCESS FOR PREPARING PHOSPHORUS ACID FROM INDUSTRIAL WASTE MATERIALS

Joseph S. Wisnouskas, Grand Island, N.Y., and Roland Ho, Wayne, Pa., assignors to Occidental Chemical Corporation, Niagara Falls, N.Y.

Filed Oct. 21, 1981, Ser. No. 313,416
Int. Cl.³ C01B *25/16*
U.S. Cl. 423—316 **21 Claims**

1. A process which is capable of producing highly purified phosphorus acid from a slurry of calcium phosphite-containing industrial waste material, said process comprising:

(a) reacting said slurry with at least one salt or hydroxide of

sodium or potassium to form a purified solution comprising a phosphite of sodium or potassium and a calcium precipitate,

(b) separating said precipitate from the purified phosphite solution, and

(c) passing the purified phosphite solution from step (b) through a cationic ion exchange resin to produce a solution of highly purified phosphorus acid.

4,380,532

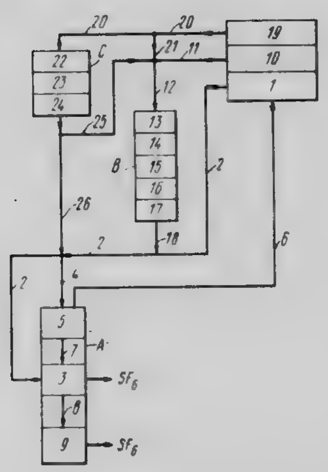
PROCESS FOR FINE PURIFICATION OF SULPHUR HEXAFLUORIDE FROM IMPURITIES

Igor M. Mazurin, Zeleny prospekt, 2/19, korpus 2, kv. 1; Mikhail L. Netupsky, ploschad Pobedy, 2, korpus 1, kv. 70; Alexandr V. Shevtsov, ulitsa Marshala Novikova, 16, kv. 37; Viktor T. Gladky, Chertanovskaya ulitsa, 51, korpus 2, kv. 123, all of Moscow; Nikolai A. Dmitriev, ulitsa Jubileinaya, 7, kv. 25, Zheleznodorozhny, Moskovskaya oblast; Andrei G. Lyapin, ulitsa Golubinskaya, 25, korpus 2, kv. 24, Moscow; Alexandr V. Polyakov, ulitsa Ussuriiskaya, 14, korpus 1, kv. 21, Moscow; Mikhail A. Myshev, ulitsa Deguninskaya, 13, korpus 1, kv. 149, Moscow, and Vladimir V. Panov, Sredne-Kupavninsky proezd, 26, kv. 143, Moscow, all of U.S.S.R.

Filed Jul. 1, 1981, Ser. No. 279,484

Int. Cl.³ C01B ***17/45***

U.S. Cl. 423—469 **6 Claims**



1. A process for a fine purification of sulphur hexafluoride from impurities comprising purification of sulphur hexafluoride by crystallization at a speed of displacement of the interphase boundary of from 1 to 50 mm/hr.

5. A process according to claim 1, wherein for the purification of sulphur hexafluoride containing, as impurities, lower sulphur fluorides and HF, the gas is preliminary purified by sorption on KOH, a portion of impurities is subjected to a catalytical decomposition at a temperature of from 548° to 598° K., a repeated sorption on KOH, sorption on Al_2O_3 and drying on zeolites of NaX type.

4,380,533

PROCESS FOR THE PRODUCTION OF DIBASIC MAGNESIUM HYPOCHLORITE

John A. Wojtowicz, Cheshire, Conn., assignor to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 129,812, Mar. 12, 1980, abandoned, and a continuation-in-part of Ser. No. 968,605, Dec. 11, 1978, abandoned. This application Jul. 8, 1981, Ser. No. 281,534

The portion of the term of this patent subsequent to Jan. 31, 1995, has been disclaimed.

Int. Cl.³ C01B ***11/06***

U.S. Cl. 423—473 **16 Claims**

1. A process for the production of dibasic magnesium hypochlorite which comprises reacting a magnesium salt, an aqueous slurry of a crystalline hypochlorite salt selected from the group consisting of alkali metal hypochlorites and calcium hypochlorite, and a chloride ion source to form a reaction mixture, said slurry having a solids content of from about 10 to about 90 percent by weight of said hypochlorite salt, evolving chlorine gas from said reaction mixture, the molar ratio of magnesium ion to the hypochlorite ion being from about 0.4:1 to about 2.0:1.0 and recovering said dibasic magnesium hypochlorite therefrom.

4,380,534

SOLID DRUG PREPARATIONS

Muneo Fukui, Urawa; Yutaka Konno, Omiya; Yukio Kubota, Tokyo; Masayoshi Aruga, Ageo, and Hiroitsu Kawata, Kawagoe, all of Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Apr. 1, 1981, Ser. No. 249,886

Claims priority, application Japan, Apr. 7, 1980, 55-46002

Int. Cl.³ A61K ***9/42***

U.S. Cl. 424—38 **14 Claims**

1. In a solid pharmaceutical composition containing less than 5 mg/dosage unit of a powdered microdose drug subject to changes in crystal form stability selected from the group consisting of gidoxin, digitoxin, β-methyl-digoxin, formoterol fumarate, procathelol, dexamethasone, β-methasone, nitroglycerin, reserpine, folic acid, cobamide, ethynylestradiol, hexoprenaline, polythiazide, diethylstilbestrol, cortisone, ergotamine, and ergometrine, the improvement comprising said powdered microdose drug being coated with a hydrophobic wax by the method comprising uniformly dispersing a powder of a microdose drug directly in molten wax and forming a powder or granule of the dispersion, or dispersing a powder of a microdose drug in a hydrophobic wax dissolved in a solvent, removing the solvent and forming a powder or granule of the residue, whereby said powdered microdose drug is stabilized against changes in crystallinity and against losses due to electrostatic charge or stickiness.

4,380,535

ENKEPHALIN DEGRADING ENZYME INHIBITORS

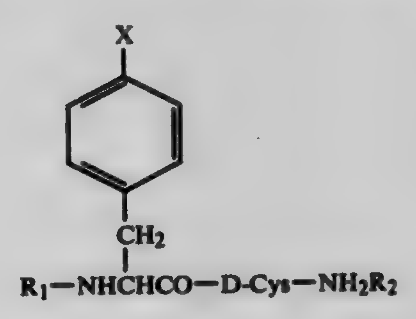
Dimitrios Sarantakis, West Chester, and William Dvonch, Radnor, both of Pa., assignors to American Home Products Corporation, New York, N.Y.

Filed Sep. 23, 1981, Ser. No. 304,731

Int. Cl.³ A61K ***37/00;*** **C07C** ***103/52***

U.S. Cl. 424—177 **2 Claims**

1. A method for inhibiting brain enzyme degradation of enkephalins which comprises administering to a mammal an amount sufficient to inhibit the brain enzyme degradation of said enkephalins of a compound of the formula:



wherein R_1 is hydrogen or lower alkyl; X is hydrogen, hydroxy, halo, nitro, amino or lower alkoxy; R_2 is hydrogen or

$$\text{Gly—}\underset{\displaystyle R_3}{\underset{|}{\text{N}}}\text{Phe—}R_4\text{—NH}_2,$$

wherein R_3 is lower alkyl and R_4 is L- or D-Thz or Pro and the pharmaceutically acceptable salts thereof.

4,380,536

PHARMACEUTICAL COMPOSITION CONTAINING PARA-AMINO-BENZOIC ACID-N-D-MANNOSIDE AS AN ACTIVE INGREDIENT

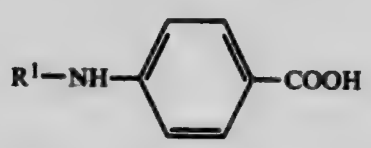
Chikao Yoshikumi, Kunitachi; Yoshio Ohmura, Funabashi; Fumio Hirose, Tokyo; Masanori Ikuzawa, Tachikawa; Kenichi Matsunaga, Tokyo; Takayoshi Fujii, Tokyo; Minoru Ohhara, Tokyo, and Takao Ando, Tokyo, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 81,190, Oct. 2, 1979, Pat. No. 4,322,409, which is a continuation-in-part of Ser. No. 24,095, Mar. 26, 1979, abandoned. This application Aug. 5, 1980, Ser. No. 175,827

Int. Cl.[3] A61K *31/70*

U.S. Cl. 424—180 **3 Claims**

1. A pharmaceutical composition in dosage unit form, which comprises a dosage amount effective for the treatment of hypertension of a compound represented by the formula:



(I)

wherein R^1 denotes the residual group formed by removing from mannose the OH at the 1-position thereof, or a pharmaceutically acceptable salt thereof, and a carrier or diluent therefor.

4,380,537

STABILIZED INSECTICIDE FORMULATIONS

Roger F. Monroe, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 935,421, Aug. 21, 1978, abandoned, which is a continuation-in-part of Ser. No. 853,779, Nov. 21, 1977, abandoned. This application Oct. 24, 1978, Ser. No. 954,258

Int. Cl.[3] A01N *57/00, 57/26*

U.S. Cl. 424—200 **10 Claims**

1. In a solid stabilized insecticidal composition mixture which comprises from about 2 to about 40 percent by weight of an organophosphorous insecticide, a solid granular clay carrier therefor, which carrier causes deterioration of said organophosphorous insecticide mixed therewith, and a stabilizing amount of a stabilizer for said mixture, the improvement in said composition which comprises using as the stabilizer, from about 0.5 to about 10% by weight of the ultimate composition of a lactone selected from the group consisting of butyrolactone, δ-valerolactone, γ-valerolactone, γ-octanoiclactone, ε-caprolactone and 2-acetyl-γ-butyrolactone.

4,380,538

COMBATING ARTHROPODS WITH O-ALKYL-O-(2-CYCLOPROPYL-6-SUBSTITUTED-METHYL-PYRIMIDIN-4-YL)-(THIONO)(THIOL) PHOSPHORIC (PHOSPHONIC) ACID ESTERS AND ESTER-AMIDES

Fritz Maurer; Rolf Schröder, both of Wuppertal; Ingeborg Hammann, Cologne, and Wilhelm Stendel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

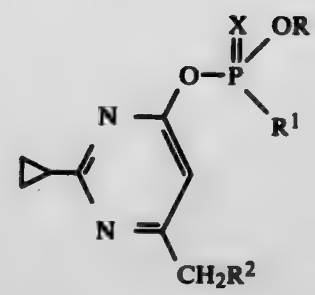
Filed Jan. 15, 1979, Ser. No. 48,857

Claims priority, application Fed. Rep. of Germany, Jul. 13, 1978, 2830766

Int. Cl.[3] A01N *57/16, 57/24, 57/32;* **C07F** *9/65*

U.S. Cl. 424—200 **9 Claims**

1. An O-alkyl-O-(2-cyclopropyl-6-substituted-methyl-pyrimidin-4-yl)-(thiono) (thiol)-phosphoric (phosphonic) acid ester or ester-amide of the formula



in which

R is alkyl with 1 to 5 carbon atoms,

R^1 is alkyl, alkoxy, alkylthio or alkylamino each with 1 to 5 carbon atoms, or phenyl,

R^2 is alkoxy or alkylthio with 1 to 5 carbon atoms, and

X is oxygen or sulphur.

4,380,539

NEMATOCIDAL COMPOSITION CONTAINING O,O-DIETHYL O-(5-PHENYLISOXAZOL-3-YL)PHOSPHOROTHIOATE AND AN ETHANIMIDOTHIOATE

Max J. Fielding, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 11, 1981, Ser. No. 242,583

Int. Cl.[3] A01N *43/80;* **C07D** *261/12*

U.S. Cl. 424—200 **4 Claims**

1. A method of protecting plants from parasitic nematodes comprising applying to the locus of nematode infestation a plant protective amount of a mixture consisting essentially of:

A. O,O-diethyl O-(5-phenylisoxazol-3-yl)-phosphorothioate, and

B. at least one of:

(1) methyl N-[[(methylamino)carbonyl]oxy]ethanimidothioate, and

(2) methyl 2-(dimethylamino)-N-[[(methylamino)carbonyl]oxy]-2-oxoethanimidothioate;

the weight ratio of A to B being in the range of about 1:10 to about 10:1.

4,380,540

TABLETS

Robert H. Poyser, Old Harlow, and David H. Turner, London, both of England, assignors to Beecham Group Limited, England

Division of Ser. No. 94,503, Nov. 15, 1979, Pat. No. 4,325,971. This application Jan. 18, 1982, Ser. No. 340,041

Claims priority, application United Kingdom, Nov. 14, 1978, 44842/78

Int. Cl.[3] A61K *31/615, 31/625*

U.S. Cl. 424—233 **4 Claims**

1. An analgesic tablet, which comprises an effective amount of acetylsalicyclic acid in combination with metoclopramide or an acid addition salt thereof, the weight ratio of acetylsalicyclic acid to metoclopramide or acid addition salt thereof being from 80:1 to 120:1, respectively.

4,380,541

CEPHALOSPORIN DERIVATIVES

Michihiko Ochiai, Suita, and Akira Morimoto, Ikeda, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

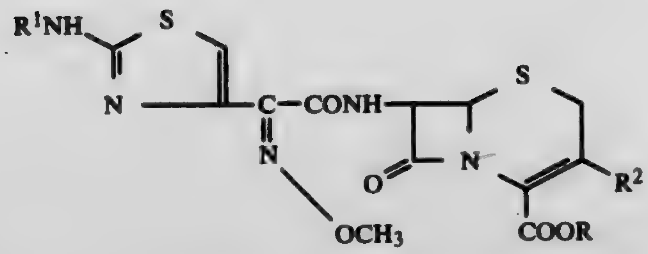
Filed Feb. 14, 1978, Ser. No. 877,760

Claims priority, application Japan, Feb. 18, 1977, 52-17501

Int. Cl.[3] C07D *501/20;* **A61K** *31/545*

U.S. Cl. 424—246 **10 Claims**

1. A compound of the formula:



wherein R^1 is hydrogen; R^2 is chloro, methoxy or methylthio and R is hydrogen or pivaloyloxymethyl and pharmacologically and pharmaceutically acceptable salts thereof.

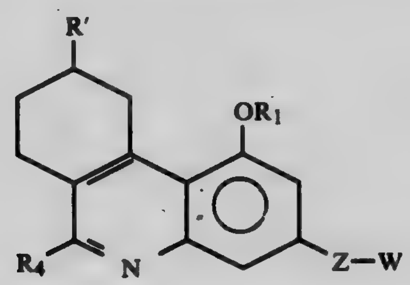
4,380,542

9-HYDROXYOCTAHYDROBENZO[c]QUINOLINES AND THEIR PHARMACEUTICAL COMPOSITIONS AND METHOD OF USE

Michael R. Johnson, Gales Ferry, Conn., assignor to Pfizer, New York, N.Y.

Division of Ser. No. 193,822, Oct. 3, 1980, Pat. No. 4,340,737, which is a division of Ser. No. 42,773, May 29, 1979, Pat. No. 4,260,764, which is a continuation-in-part of Ser. No. 777,928, Mar. 15, 1977, abandoned, which is a continuation-in-part of Ser. No. 753,619, Dec. 22, 1976, abandoned, which is a continuation-in-part of Ser. No. 687,332, May 17, 1976, abandoned. This application Dec. 9, 1981, Ser. No. 328,846
Int. Cl.³ C07D *221/12;* A61K *31/47*
U.S. Cl. 424—248.55 8 Claims

1. A compound having the formula:



wherein R′ is selected from the group consisting of hydroxy; alkanoyloxy having from one to five carbon atoms; hydroxymethyl; oxo, methylene and alkylenedioxy having from two to four carbon atoms;

R_1 is selected from the group consisting of hydrogen, benzyl, benzoyl, alkanoyl having from one to five carbon atoms and —CO—$(CH_2)_p$—NR_2R_3 wherein p is 0 or an integer from 1 to 4; each of R_2 and R_3 when taken individually is selected from the group consisting of hydrogen and alkyl having from one to four carbon atoms; R_2 and R_3 when taken together with the nitrogen to which they are attached form a 5- or 6-membered heterocyclic ring selected from the group consisting of piperidino, pyrrolo, pyrrolidino, morpholino and N-alkylpiperazino having from one to four carbon atoms in the alkyl group;

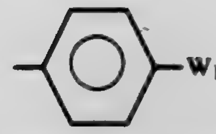
R_4 is selected from the group consisting of hydrogen, alkyl having from 1 to 6 carbon atoms and —$(CH_2)_z$—C_6H_5 wherein z is an integer from 1 to 4;

Z is selected from the group consisting of

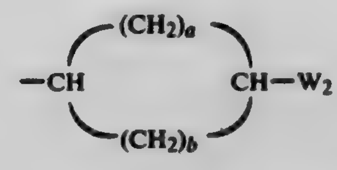
(a) alkylene having from one to nine carbon atoms;

(b) - $(alk_1)_m$-X-$(alk_2)_n$—wherein each of (alk_1) and (alk_2) is alkylene having from one to nine carbon atoms, with the proviso that the summation of carbon atoms in (alk_1) plus (alk_2) is not greater than nine; each of m and n is 0 or 1; X is selected from the group consisting of O, S, SO and SO_2; and

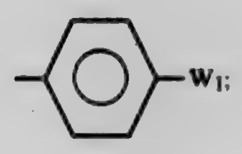
W is selected from the group consisting of hydrogen, methyl, pyridyl, piperidyl,



wherein W_1 is selected from the group consisting of hydrogen, fluoro and chloro; and

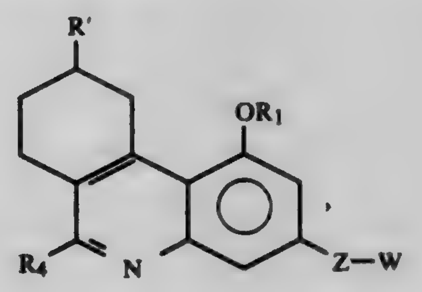


wherein W_2 is selected from the group consisting of hydrogen and



a is an integer from 1 to 5 b is 0 or an integer from 1 to 5; with the proviso that the sum of a and b is not greater than 5.

7. A process for producing analgesia in a mammal which comprises administering to the mammal an analgesic producing quantity of a compound selected from the group consisting of those having the formula



and the pharmaceutically acceptable acid addition salts thereof,

wherein

R_1 is selected from the group consisting of hydrogen, benzoyl, alkanoyl having from one to five carbon atoms and —CO—$(Ch_2)_p$—NR_2R_3 wherein p is 0 or an integer from 1 to 4; each of R_2 and R_3 when taken individually is selected from the group consisting of hydrogen and alkyl having from one to four carbon atoms; R_2 and R_3 when taken together with the nitrogen to which they are attached form a 5- or 6-membered heterocyclic ring selected from the group consisting of piperidino, pyrrolo, pyrrolidino, morpholino and N-alkylpiperazino having from one to four carbon atoms in the alkyl group;

R_4 is selected from the group consisting of hydrogen, alkyl having from 1 to 6 carbon atoms and —$(CH_2)_z$—C_6H_5 wherein z is an integer from 1 to 4;

R_5 is selected from the group consisting of hydrogen, methyl and ethyl;

R_6 is selected from the group consisting of hydrogen, —$(CH_2)_y$—carbalkoxy having from one to four carbon atoms in the alkoxy group and wherein y is 0 or an integer from 1 to 4, carbobenzyloxy, formyl, alkanoyl having from two to five carbon atoms, alkyl having from one to six carbon atoms and —$(CH_2)_x$—C_6H_5 wherein x is an integer from 1 to 4; and $CO(CH_2)_{x-1}$—C_6H_5;

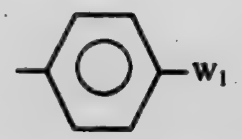
Z is selected from the group consisting of

(a) alkylene having from one to nine carbon atoms;

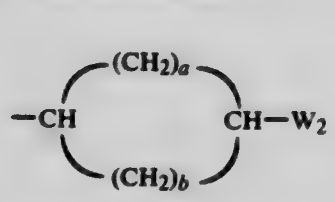
(b) —$(alk_1)_m$—X—$(alk_2)_n$—wherein each of (alk_1) and (alk_2) is alkylene having from one to nine carbon atoms, with the

proviso that the summation of carbon atoms in (alk_1) plus (alk_2) is not greater than nine; each of m and n is 0 or 1; X is selected from the group consisting of O, S, SO and SO_2; and

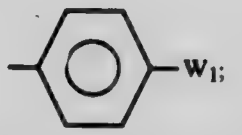
W is selected from the group consisting of hydrogen, methyl, pyridyl, piperidyl,



wherein W_1 is selected from the group consisting of hydrogen, fluoro and chloro; and



wherein W_2 is selected from the group consisting of hydrogen and



a is an integer from 1 to 5 and b is 0 or an integer from 1 to 5; with the proviso that the sum of a and b is not greater than 5; and

R' is selected from the group consisting of hydroxy, alkanoyloxy having 1 to 5 carbon atoms, hydroxymethyl, oxo, alkylene dioxy having from 2 to 4 carbon atoms and methylene.

4,380,543

ANTIMICROBIAL 8-CYANO-6,7-DIHYDRO-5-METHYL-1-OXO-1H,5H-BENZO[ij]QUINOLIZINE-2-CARBOXYLIC ACIDS

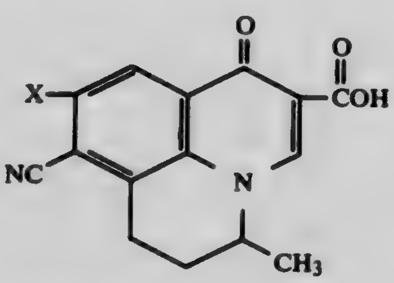
Richard M. Stern, Cottage Grove, Minn., assignor to Riker Laboratories, Inc., St. Paul, Minn.

Filed Nov. 6, 1981, Ser. No. 318,928

Int. Cl.³ A61K *31/47*; C07D *455/04*

U.S. Cl. 424—258 **5 Claims**

1. A compound of the formula:



wherein X is hydrogen or fluorine, or a pharmaceutically acceptable carboxylate salt thereof, an alkyl or alkylaminoalkyl ester thereof where the alkyl group contains 1 to 4 carbon atoms, an alkylaminoalkyl ester salt thereof where the alkyl group contains 1 to 4 carbon atoms, an acyl chloride thereof, or an amide thereof having the formula $—NR_1R_2$ where R_1 and R_2 are independently hydrogen or an alkyl group containing 1 to 4 carbon atoms.

5. A composition for inhibiting the growth of microorganisms comprising an effective amount of the compound according to claim 1 formulated in a pharmaceutically-acceptable vehicle.

4,380,544

1,3-DIOXOLANE COMPOUNDS AND THEIR USE AS FUNGICIDES

Franz Dorn, Dielsdorf, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

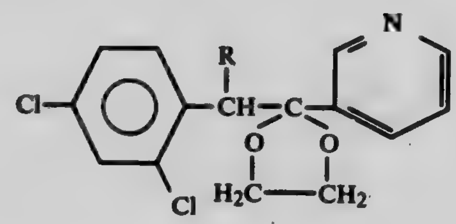
Filed Mar. 25, 1982, Ser. No. 361,682

Claims priority, application Switzerland, Mar. 30, 1981, 2142/81; Feb. 11, 1982, 855/82

Int. Cl.³ A01N *43/40*; C07D *405/06*

U.S. Cl. 424—263 **9 Claims**

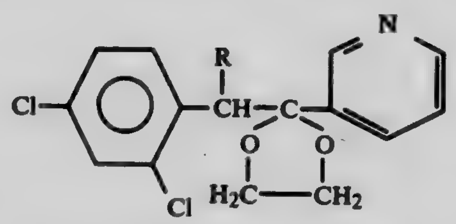
1. A compound of the formula



I

wherein R is hydrogen or C_{1-4}-alkyl, or an acid addition salt thereof.

4. A fungicidal composition comprising a compatible carrier material and, as the active ingredient, an amount which is effective as a fungicide of a compound of the formula



I

wherein R is hydrogen or C_{1-4}-alkyl, or an acid addition salt thereof.

4,380,545

COMBATING FUNGI WITH TRIAZOLYL-BENZYLOXY-KETONES AND-CARBINOLS

Udo Kraatz; Gerhard Jäger, both of Leverkusen; Karl H. Büchel, Burscheid, and Paul-Ernst Frohberger, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

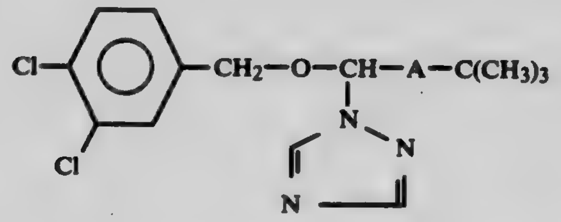
Filed Mar. 19, 1981, Ser. No. 245,288

Claims priority, application Fed. Rep. of Germany, Apr. 2, 1980, 3012824

Int. Cl.³ A01N *43/64, 55/00*; C07D *249/08*

U.S. Cl. 424—269 **6 Claims**

1. A triazolyl-benzyloxy-ketone or carbinol of the formula



in which A is a keto group or a CH(OH) group, or an addition product thereof with a physiologically acceptable acid or metal salt.

5. A method of fungi comprising applying to the fungi or to a habitat thereof a fungicidally effective amount of a compound according to claim 1.

4,380,546

AZOLE COMPOUNDS, THEIR PREPARATION, THEIR USE FOR CROP TREATMENT, AND AGENTS FOR THIS PURPOSE

Hubert Sauter, Mannheim; Eberhard Ammermann, Ludwigshafen; Costin Rentzea, Heidelberg; Bernd Zeeh, Ludwigshafen; Johann Jung, and Ernst-Heinrich Pommer, both of Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

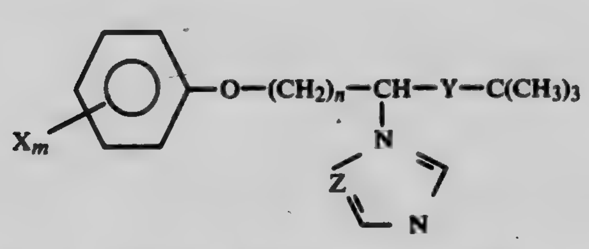
Filed Apr. 29, 1981, Ser. No. 258,789

Claims priority, application Fed. Rep. of Germany, May 19, 1980, 3019049

Int. Cl.^{3} **A01N** *43/50, 43/64;* **C07D** *233/60, 249/08*

U.S. Cl. 424—269 **9 Claims**

1. An azole compound of the formula



(I)

where X is hydrogen, halogen, C_1-C_4-alkyl, C_1-C_4-alkoxy, trifluoromethyl or phenyl and m is an integer from 1 to 5, and, if m is greater than 1, the X's can be identical or different, n is an integer from 2 to 5, Z is N or CH and Y is CO or CR^1OR^2, where R^1 is hydrogen or C_1-C_4-alkyl and R^2 is hydrogen, C_1-C_4-alkyl, C_2-C_4-alkenyl, C_2-C_4-alkynyl, as well as its addition salts with acids.

2. A plant treatment agent having fungicidal and growth regulating properties comprising a solid or liquid carrier and an effective amount of a compound of the formula I as described in claim 1.

4. A process for treating fungus diseases in plants which comprises: applying to the plants a fungicidally effective amount of a compound of the formula I as described in claim 1.

4,380,547

DIHYDROPYRIDINE COMPOUNDS WHICH ARE SUBSTITUTED IN THE 4-POSITION BY IMIDAZOLYL OR THIAZOLYL AND THEIR MEDICINAL USE

Carsten Materne, Bonn, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

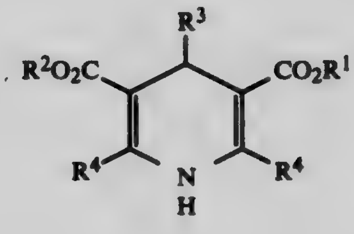
Filed May 29, 1981, Ser. No. 268,416

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1980, 3022030

Int. Cl.^{3} **A61K** *31/425;* **C07D** *417/00*

U.S. Cl. 424—270 **11 Claims**

1. A compound which is a 1,4-dihydropyridine of the formula



(I)

in which

R^3 represents imidazolyl or thiazolyl which is optionally substituted by alkyl with 1 to 4 carbon atoms or phenyl

R^4 represents in both instances methyl, ethyl, phenyl or benzyl,

R^1 and R^2 are identical or different and represent a straight-chain or branched saturated hydrocarbon radical which has up to 6 carbon atoms and is optionally interrupted in their chain by an oxygen atom and/or is optionally substituted by fluorine or chlorine.

9. A method of combating circulatory illnesses in warm-blooded animals which comprises administering to the animals an amount effective for vasodilating, of a compound according to claim 1 either alone or in admixture with an inert pharmaceutical carrier or in the form of a medicament.

4,380,548

N-(2,6-DIMETHYLPHENYL)-4,5-DIHYDRO-4,4-DIALKYL-2-METHYLTHIO-1H-IMIDAZOLE-1-CARBOXAMIDES, ANTICONVULSIVE COMPOSITION AND METHOD

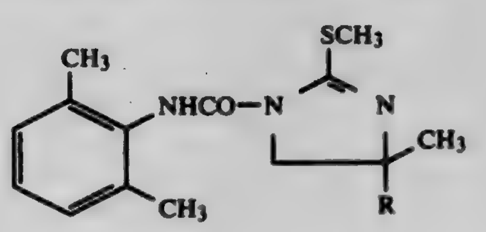
Robert W. Fleming, Ann Arbor, Mich., assignor to Warner-Lambert Company, Morris Plains, N.J.

Filed Aug. 27, 1981, Ser. No. 296,764

Int. Cl.^{3} **A61K** *31/415;* **C07D** *233/42*

U.S. Cl. 424—273 R **5 Claims**

1. A compound having the structural formula



wherein R is hydrogen or methyl, and the pharmaceutically acceptable acid addition salts thereof.

4,380,549

TOPICAL TREATMENT OF DRY SKIN

Eugene J. Van Scott, 1138 Sewell La., Rydal, Pa. 19046, and Ruey J. Yu, 4 Lindenwold Ave., Ambler, Pa. 19002

Continuation of Ser. No. 60,460, Jul. 25, 1979, abandoned, which is a continuation-in-part of Ser. No. 870,114, Jan. 17, 1978, Pat. No. 4,197,316, which is a division of Ser. No. 720,835, Sep. 7, 1976, Pat. No. 4,105,783, which is a continuation-in-part of Ser. No. 598,224, Jul. 23, 1975, Pat. No. 4,021,572. This application Mar. 23, 1981, Ser. No. 246,364

The portion of the term of this patent subsequent to Apr. 22, 1992, has been disclaimed.

Int. Cl.^{3} **A61K** *31/19*

U.S. Cl. 424—317 **12 Claims**

1. A method for alleviating the symptoms of dry skin in humans comprising topically applying to involved areas of the human body an effective amount of at least one member selected from the group consisting of:

Glycolic Acid	Malic Acid
Glucuronic Acid	Mucic Acid
Galacturonic Acid	Citric Acid
Gluconic Acid	Saccharic Acid
Glucoheptonic Acid	Tartaric Acid
α-Hydroxybutyric Acid	Tartronic Acid
α-Hydroxyisobutyric Acid	Isocitric Acid
α-Hydroxyisocaproic Acid	Dihydroxymaleic Acid
α-Hydroxyisovaleric Acid	Dihydroxytartaric Acid
β-Hydroxybutyric Acid	Dihydroxyfumaric Acid
[Lactic Acid]	
β-Phenllactic Acid	
Atrolactic Acid	
Mandelic Acid	
Galactonic Acid	
Pantoic Acid	
Glyceric Acid	

or a salt thereof with an organic or inorganic alkali, in a pharmaceutically acceptable vehicle.

4,380,550

GUANFACINE IN TREATING OPIATE ADDICTION

Horst Kleinlogel, Hinterkappelen, and Carl Theohar, Basel, both of Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

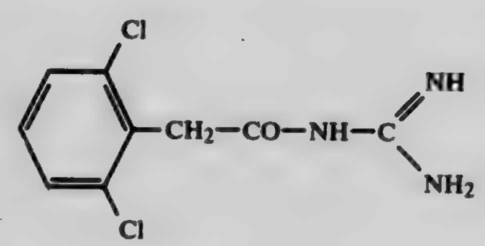
Filed May 28, 1982, Ser. No. 383,080

Claims priority, application United Kingdom, Jun. 1, 1981, 8116751

Int. Cl.³ A61K *31/165*

U.S. Cl. 424—324 **5 Claims**

1. A method of treating symptoms arising on withdrawal of opiate administration from an opiate addict which method comprises administering to said subject an effective amount of Guanfacine of the formula I:



I

in free base form or in pharmaceutically acceptable acid addition salt form.

4,380,551

METHODS OF PRODUCING FOODSTUFF BY MALTING SEEDS

Stanislaw Frontczak, Lodz, Poland, assignor to Jacek Dlugolecki, Poland, a part interest

Filed Aug. 27, 1980, Ser. No. 181,816

Claims priority, application United Kingdom, Jul. 31, 1980, 8025083

The portion of the term of this patent subsequent to Mar. 30, 1999, has been disclaimed.

Int. Cl.³ A23K *1/00, 1/14*

U.S. Cl. 426—28 **18 Claims**

1. A method of producing a foodstuff for human or animal consumption, comprising the steps of:

forming a layer of peat having a thickness in the range of about 40 to about 200 millimeters on a surface substantially impermeable to plant roots;

sowing into the peat layer seeds of at least one quick germinating plant of a type such as to produce strong root systems at a rate of at least about 900 kilograms of seeds per hectare; and

vegetating the seeds for a period in the range of from 10 to 21 days;

whereby the layer of peat with germinated seeds in usable as a foostuff.

4,380,552

METHOD OF DEACIDIFYING WINE AND COMPOSITION THEREFOR

Stina M. Gestrelius, Lund, Sweden, and Jörgen H. Kjaer, Copenhagen, Denmark, assignors to Novo Industri A/S, Bagsvaerd, Denmark

Filed Oct. 27, 1980, Ser. No. 201,227

Int. Cl.³ C12P *7/56;* **C12N** *11/10, 1/36;* **C12G** *1/00*

U.S. Cl. 426—52 **6 Claims**

1. A process for deacidifying wine with alginate gel particles containing living cells of *Leuconostoc oenos* immobilized herein, and said alginate gel particles being immersed in an aqueous sterile resting medium for maintaining viability of the microorganism which process comprises:

i. preparing a bed of said alginate gel particles, then

ii. displacing gradually said resting medium in the alginate gel particles with wine thereby conditioning the living cells to wine and thereafter

iii. passing wine through said bed to deacidify the wine by the malolactic activity of the microorganism cells.

4,380,553

METHOD OF IMPARTING A REDDISH COLOR TO SEASONING SALTS

Thomas R. Schmidt, Niles, Mich., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Sep. 3, 1981, Ser. No. 299,192

Int. Cl.³ A23L *1/237*

U.S. Cl. 426—250 **6 Claims**

1. A method of treating granulated seasoning salt to impart a reddish hue thereto which method involves the steps of:

(a) providing a basic, aqueous solution of annatto;

(b) adding a food grade acid to the basic solution to lower the pH thereof to a point sufficient to precipitate the annatto and form an aqueous slurry thereof;

(c) combining the annatto slurry with the granulated seasoning salt and blending the resultant combination to thereby plate the salt with the precipitated annatto; and

(d) allowing the plated salt to dry.

4,380,554

POLYMERIC MONOHYDROXYBENZENOID HYDROQUINOID ANTIOXIDANTS

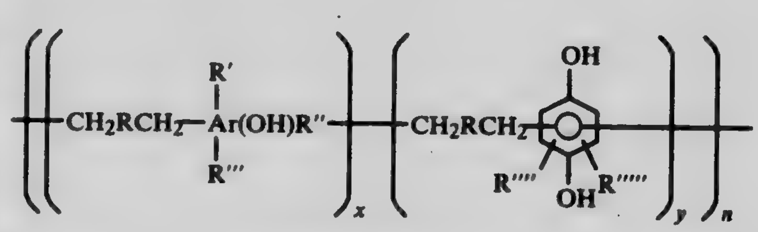
Carl Serres, Jr., Naperville, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Division of Ser. No. 51,450, Jun. 25, 1979, Pat. No. 4,310,657. This application Jul. 21, 1981, Ser. No. 285,602

Int. Cl.³ C11B *5/00*

U.S. Cl. 426—545 **13 Claims**

1. A composition comprising a monohydroxybenzenoid hydroquinoid polymer and an oxidizable organic material normally subject to adverse effects by oxygen selected from the group consisting of edible lipids including animal and vegetable fats and oils, wherein the said oxidizable organic material is stabilized against oxidative degradation by a stabilizing amount of said monohydroxybenzenoid hydroquinoid polymer which is of the formula



wherein R is a benzenoid ring group selected from the group consisting of benzene, naphthalene, biphenyl, diphenylmethane, thiophene, benzothiophene and dibenzothiophene moieties, wherein Ar is a benzenoid ring group selected from the group consisting of phenyl, naphthyl, anthranyl and phenanthranyl groups, and wherein R′ is an alkyl group of 9 to 18 carbon atoms, and R″, R‴, R″″ and R‴″ are independently selected from a group consisting of hydrogen, alkyls of one to 26 carbon atoms and aralkyls of from 7 to 26 carbon atoms, x and y are of the ratio of from 1:1 to 1:3 and n is an integer of from one to 20.

4,380,555

SUCROGLYCERIDE ON A SUPPORT

Jean-Claude Campagne; Jean Chollet, and Pierre Redien, all of Melle, France, assignors to Rhone Poulenc Industries, Paris, France

Filed Mar. 19, 1981, Ser. No. 245,443

Claims priority, application France, Mar. 24, 1980, 80 06463

Int. Cl.³ A21D *2/00;* **A23D** *5/00*

U.S. Cl. 426—549 **22 Claims**

1. A powder preparation, comprising 20 to 40% of a sucroglyceride on a support, said support comprising 10 to 50% of an edible salt of casein, and 20 to 60% of a maltodextrin.

4,380,556

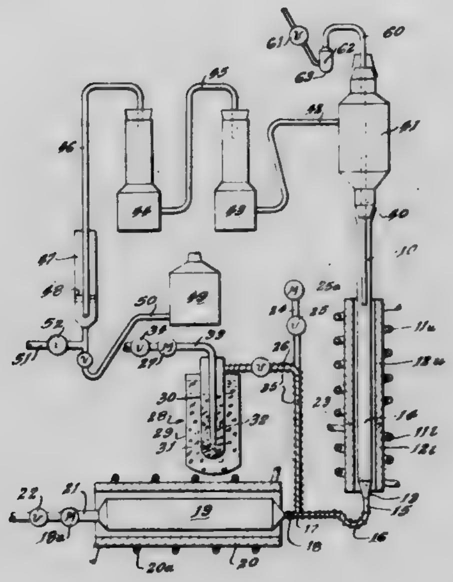
VAPOR DEPOSITION OF HARDENED NIOBIUM

John M. Blocher, Jr.; Neil D. Veigel, and Richard B. Landrigan, all of Columbus, Ohio, assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jan. 3, 1964, Ser. No. 335,696

Int. Cl.^{3} G21C *3/06;* **B05D** *7/00;* **B05C** *19/02*

U.S. Cl. 427—6 **10 Claims**



1. A method of coating particles of ZrO_2-UO_2 mixtures with hardened niobium, comprising placing the particles in a fluidized bed, maintaining the temperatures of the bed at from about 800° C. to about 900° C., leading niobium pentachloride vapor and carbon tetrachloride vapor into the bed, whereby niobium metal is deposited as a coating on the particles and carbon is deposited interstitially within the niobium.

4,380,557

METHOD OF PRODUCTION OF IMAGE PICKUP DEVICE

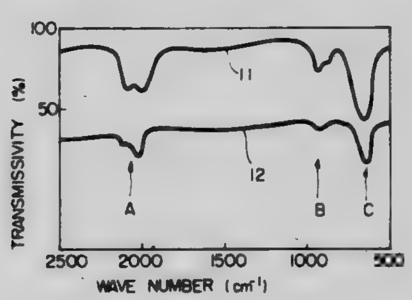
Sachio Ishioka, Tokyo; Yasuharu Shimomoto, Hinodemachi; Yoshinori Imamura, Hachioji; Saburo Ataka, Hinodemachi; Yasuo Tanaka, Kokubunji; Hirokazu Matsubara, Hamuramachi; Yukio Takasaki, Hachioji, and Eiichi Maruyama, Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 28, 1981, Ser. No. 287,554

Claims priority, application Japan, Jul. 28, 1980, 55-102529

Int. Cl.^{3} B05D *3/02, 3/04*

U.S. Cl. 427—38 **6 Claims**



1. A method of producing an image pickup device, which comprises the steps of forming a hydrogen-containing amorphous silicon layer on a predetermined substrate and heating the amorphous silicon layer at a temperature of from 100° to 300° C., said hydrogen-containing amorphous silicon containing hydrogen in an amount of 5 to 30 atomic % and having an optical forbidden band gap of from 1.30 eV to 1.95 eV, and in the infrared absorption spectrum of the hydrogen-containing amorphous silicon, the component of a wave number of about 2000 cm^{-1} being larger than the component of a wave number of about 2100 cm^{-1}.

4,380,558

PROCESS FOR MANUFACTURING A PROTECTIVE POLYSILICATE LAYER OF A RECORD MEMBER BY A LASER BEAM AND A MAGNETIC RECORD MEMBER SUITABLY MANUFACTURED THEREBY

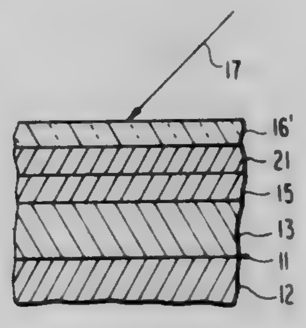
Masahiro Yanagisawa, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Sep. 30, 1980, Ser. No. 192,566

Claims priority, application Japan, Oct. 2, 1979, 54-127626; Dec. 20, 1979, 54-165933; Dec. 20, 1979, 54-165934; Dec. 24, 1979, 54-167848

Int. Cl.^{3} B05D *3/06*

U.S. Cl. 427—53.1 **13 Claims**



1. In a process for manufacturing a magnetic record member comprising the steps of preparing a substrate of at least one non-magnetic metal material, forming a film of a magnetic material on said substrate in direct contact therewith, forming a layer of a solution of tetrahydroxysilane on said film, and treating said layer of solution into a layer of polysilicate, said magnetic material being capable of retaining magnetization as records of electrical signals in said film for reproduction of said electrical signals, the improvement wherein said treating step comprises the steps of:

pre-baking said layer of solution at a temperature in the range of 100 to 300 degrees centigrade to provide a pre-baked layer in a manner such that the magnetic properties of said substrate and said film are not varied to adversely affect the recording and the reproducing characteristics of said film; and

irradiating said pre-baked layer with a carbon dioxide laser beam to provide said polysilicate layer, said laser beam having a wavelength between 4 microns and 50 microns.

4,380,559

METHOD FOR PRODUCING BOUNDARY LAYER SEMICONDUCTOR CERAMIC CAPACITORS

Haruhumi Mandai, Nagaokakyo; Kunitaro Nishimura, Youkaichi; Yoshiaki Kohno, Uji, and Masami Yamaguchi, Nagaokakyo, all of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Sep. 25, 1980, Ser. No. 190,711

Int. Cl.^{3} H01G *4/10, 4/12*

U.S. Cl. 427—80 **10 Claims**

1. A method for producing boundary layer semiconductor ceramic capacitors, comprising the steps of:

firing shaped bodies of a semiconductor ceramic material in a neutral or reducing atmosphere;

heat-treating the resultant semiconductor ceramic bodies to insulatorize crystal grain boundaries of the semiconductor ceramics; and

providing opposite electrodes on surfaces of the heat-treated semiconductor ceramic bodies;

characterized in that said heat-treating is carried out by heating the semiconductor ceramic bodies together with powder of the insulatorizing agent with stirring in a neutral or oxidizing atmosphere.

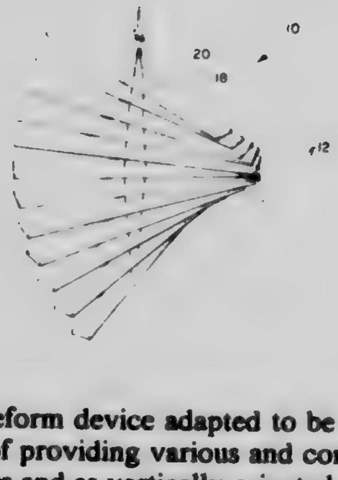
4,380,560
PROCESS FOR TREATMENT OF BLACK PLATE CONTAINERS
Peter F. King, Farmington Hills, Mich., assignor to Occidental Chemical Corporation, Warren, Mich.
Filed Dec. 17, 1981, Ser. No. 331,487
Int. Cl.³ B05D *1/18, 1/38, 7/22, 7/26*
U.S. Cl. 427—239 **20 Claims**

1. A process for treating black plate containers to improve corrosion resistance and lacquer adherence which comprises the steps of providing a formed black plate container body, cleaning the surfaces of the body to remove contaminants therefrom, contacting the clean body surfaces with an aqueous acidic solution containing stannous ions in an amount of about 0.01% up to saturation at a temperature of about room temperature to about 200° F. for a period of time to deposit tin on the body surfaces in an amount up to about 5 mg/ft^2 without visually changing the shiny grey surface appearance thereof, water rinsing and drying the treated body, and thereafter applying an organic lacquer coating to the dry, treated body surfaces.

4,380,561
TREATMENT OF WOOD USING BRANCHED-CHAIN ALIPHATIC CARBOXYLIC ACIDS
Carl-Erik Sundman, Nacka, and Bengt G. Hägglund, Södertälje, both of Sweden, assignors to KenoGard A.B., Stockholm, Sweden
Filed Mar. 31, 1981, Ser. No. 249,658
Claims priority, application Sweden, Apr. 28, 1980, 8003219
Int. Cl.³ C09D *5/14*
U.S. Cl. 427—421 **3 Claims**

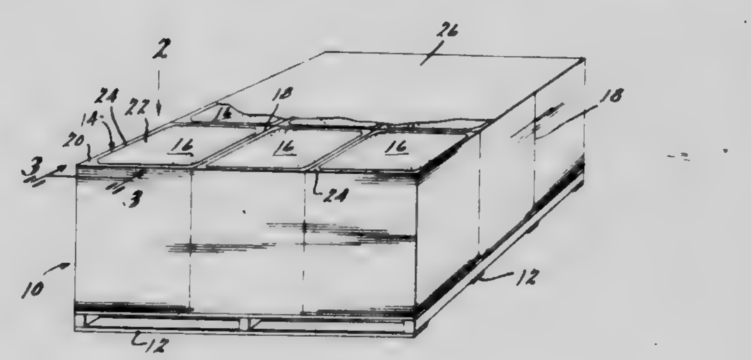
1. A method for treating wood and woodbased materials such as particle board and board, for protection against attack of sapstain and mould fungi by means of dipping, spraying or brushing wherein said materials are treated with a composition which consists of water and, as its active ingredient, a branched-chain aliphatic carboxylic acid, or its alkali- or ammonium salt, which acid contains totally 6 to 20 carbon atoms, wherein the acid is an isoacid or a 2- position mono-branched acid.

4,380,562
KINETIC WAVEFORM DEVICE
William A. Bream, 600 W. Aycock St., Raleigh, N.C. 27608
Filed Feb. 18, 1981, Ser. No. 235,681
Int. Cl.³ A47G *33/04*
U.S. Cl. 428—8 **9 Claims**



1. A kinetic waveform device adapted to be vertically oriented and capable of providing various and continually varying waveform shapes and as vertically oriented, comprising: a plurality of vertically spaced and generally elongated slats extending through a substantial vertical distance with said slats being generally uniformly vertically shaped; at least two transversely spaced, vertical openings formed through each slat intermediately between opposite ends and wherein said vertical openings are equidistance from the midpoint of each slat; a pair of axis threads extending vertically through said transversely spaced vertical openings within said slats forming said waveform device; attaching means for securing said slats to said axis threads such that said slats are suspended along said axis threads in generally uniform vertically spaced apart relationship and are free to twist about said axis threads such that the shape of said waveform device can vary throughout its vertical distance and continue to vary throughout its vertical distance in order that the kinetic waveform device may continuously produce different waveform shapes; anchoring means secured to at least one end of said axis threads for vertically anchoring said waveform device; and wherein said openings in said respective slats are formed such that at least one opening lies on each side of the midpoint of each slat and wherein said openings are spaced relatively close together relative to the length of the respective slats such that the slats may tend to generally revolve about an axis that would extend between said pair of threads.

4,380,563
ADHESIVE DEVICE OF FELT SUBSTRATE, RELEASE SHEET AND ADHESIVE AND METHOD
Gordon R. Ayotte, Marshall, Mich., assignor to Trim Parts Inc., Marshall, Mich.
Filed Mar. 1, 1982, Ser. No. 353,430
Int. Cl.³ B32B *7/14;* D04H *1/08*
U.S. Cl. 428—40 **20 Claims**

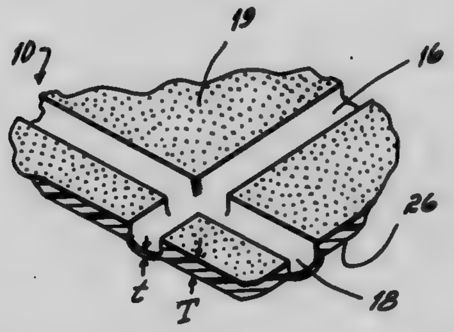


7. An adhesive device for use in providing sound deadening, insulation, or the like comprising a plurality of laminates, each of which comprises:
(a) a felt substrate,
(b) release paper attached to one side of said felt substrate to form a sheet having a felt side exposed and a release side of said release paper exposed, said sheet being divided into sections by a cut extending through all but at least one connecting tab between adjacent sections on said sheet, and
(c) adhesive applied to all but a peripheral edge portion of the other side of said felt substrate on each of said sections, wherein said laminates are stacked so that the adhesive on one laminate is adjacent the exposed release side of said release paper on another laminate.

4,380,564
CROSS-TEARABLE DECORATIVE SHEET MATERIAL
Leopoldo V. Cancio, and Pai-Chuan Wu, both of Cincinnati, Ohio, assignors to Clopay Corporation, Cincinnati, Ohio
Continuation-in-part of Ser. No. 57,792, Jul. 16, 1979, Pat. No. 4,298,647. This application Aug. 5, 1981, Ser. No. 290,354
The portion of the term of this patent subsequent to Nov. 3, 1998, has been disclaimed.
Int. Cl.³ B32B *3/30, 27/20*
U.S. Cl. 428—167 **20 Claims**

1. A method of producing a plastic film which may be torn by hand along one or more hand-tear lines without the use of cutting tools comprising the steps of:
providing a polymeric material,
introducing into said polymeric material a material forming

a dispersed second phase in a matrix of said polymeric material,
forming said polymeric material containing said dispersed second phase into a film, and
embossing said film to form one or more substantially continuous, imperforate hand-tear lines of reduced film thickness therein,
said material forming said dispersed second phase being present in said film in an amount effective to initiate and propagate tear along said hand-tear lines by hand-tearing without the use of cutting tools.



14. A hand-tearable plastic film which may be torn by hand along one or more hand-tear lines without the use of cutting tools comprising an embossed polymeric film having one or more substantially continuous imperforate hand-tear lines of reduced film thickness, said film being formed of a polymeric matrix containing a dispersed second phase in an amount effective to initiate and propagate tear along said hand-tear lines such that said film may be torn by hand without the use of cutting tools.

4,380,565
COLOR PRESERVATION OF WAX-COATED PAPERBOARD
Paul L. Krankkala, Woodbury, Minn., assignor to Champion International Corporation, Stamford, Conn.
Filed Jan. 8, 1982, Ser. No. 338,020
Int. Cl.[3] B32B *3/28, 29/00*
U.S. Cl. 428—182 **12 Claims**

1. An improved wax-coated cellulosic product which comprises a paper or paperboard substrate bearing in order: (1) an intermediate layer consisting essentially of a mixture of (A) a fluorinated organic phosphate compound of the formula

$$(R_fL)_{3-y}Z$$

wherein
R_f is $R_2(CF_2)_a$ where R_2 is F or H and a is an integer from 1 to 20, $(CF_3)_2CR_3(CF_2)_b$ where R_3 is F or H when b is O and R_3 is F when b is an integer from 1 to 18, or R_4(c-C_6F_{10}) where R_4 is F or C_nF_{2n+1} in which n is an integer from 1 to 4 and c-designates an alicyclic structure,
L is

$$-SO_2\overset{\overset{\displaystyle R_5}{|}}{N}-(CH_2)_2O-$$

where R_5 is an alkyl group having from 1 to 10 carbon atoms, or the group

$$-(CH_2)_nO-$$

where n is a integer 1 or 2,
y is an integer 1 or 2, and Z is $P(O)(OM)_x$ where x is the integer 1 or 2, and M is a water-solubilizing cation selected from the group consisting of alkali metal, ammonium and substituted ammonium when x is 1, and each M is independently selected from the group consisting of hydrogen, alkali metal, ammonium and substituted ammonium when x is 2, in an amount of between about 0.01 to about 0.12 pounds per thousand square feet of said intermediate layer and (B) a nonionic surfactant of the poly(oxypropylene)-poly(oxyethylene) block copolymer type in an amount of between about 0.015 and about 0.18 pounds per thousand square feet of said intermediate layer; and (2) an outer layer of wax.

7. A process for preparing an improved wax-coated cellulosic product which comprises the steps of: (1) providing a paper or paperboard substrate: (2) coating the substrate with a mixture consisting essentially of (A) a fluorinated organic phosphate having the formula

$$(R_fL)_{3-y}Z$$

wherein
R_f is $R_2(CF_2)_a$ where R_2 is F or H and a is an integer from 1 to 20, $(CF_3)_2CR_3(CF_2)_b$ where R_3 is F or H when b is O and R_3 is F when b is an integer from 1 to 18, or R_4(c-C_6F_{10}) where R_4 is F or C_nF_{2n+1} in which n is an integer from 1 to 4 and c-designates an alicyclic structure,
L is

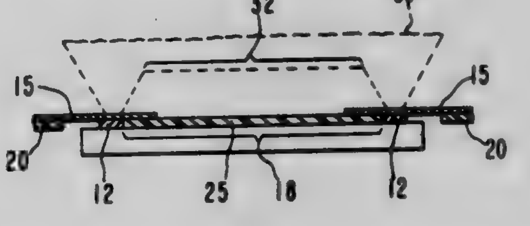
$$-SO_2\overset{\overset{\displaystyle R_5}{|}}{N}-(CH_2)_2O-$$

where R_5 is an alkyl group having from 1 to 10 carbon atoms, or the group

$$-(CH_2)_nO-$$

where n is an integer 1 or 2, y is an integer 1 or 1, and
Z is $P(O)(OM)_x$ where x is the integer 1 or 2, and M is a water-solubilizing cation selected from the group consisting of alkali metal, ammonium and substituted ammonium when x is 1, and each M is independently selected from the group consisting of hydrogen, alkali metal, ammonium and substituted ammonium when x is 2, in an amount of between about 0.01 and about 0.2 pounds, per thousand square feet, and (B) a poly(oxypropylene)poly(oxethylene)block copolymer surfactant in an amount of between about 0.015 and about 0.18 pounds per thousand square feet of said intermediate layer and drying the resulting coated substrate; and (3) coating said coated substrate with molten wax.

4,380,566
RADIATION PROTECTION FOR INTEGRATED CIRCUITS UTILIZING TAPE AUTOMATED BONDING
William S. Phy, Los Altos Hills, Calif., assignor to Fairchild Camera & Instrument Corp., Mountain View, Calif.
Filed Jul. 13, 1981, Ser. No. 282,569
Int. Cl.[3] B32B *23/02, 15/08*
U.S. Cl. 428—192 **8 Claims**



1. A composite structure for use in fabricating electrical connections to an integrated circuit comprising:
an insulating substrate having a central portion adapted to be disposed in proximity to the surface of the integrated circuit and having a peripheral portion disposed about at least part of the central portion, the peripheral portion being separated from the central portion at selected locations; and

a pattern of electrically conductive material disposed on at least the peripheral portion of the insulating substrate whereby the pattern of electrically conductive material is adapted to be connected to the integrated circuit where the peripheral portion is separated from the central portion, and the central portion of the insulating substrate is disposed in proximity to the integrated circuit.

4,380,567

ETHYLENIC COMPOSITE FILM STRUCTURE

Hiromi Shigemoto, Iwakuni, Japan, assignor to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Sep. 30, 1981, Ser. No. 307,206

Claims priority, application Japan, Oct. 9, 1980, 55/140488

Int. Cl.³ B32B *27/00*

U.S. Cl. 428—213 **7 Claims**

1. A composite film structure composed of a layer (A) of high density polyethylene having an intrinsic viscosity [η] as measured in decalin at 135° C. of 1.3–2.9 dl/g, a melt index (MI_A) of 0.3–7.0 g/10 min. and a density of 0.950–0.970 g/cm^3, in which up to 2 mole % of an alpha-olefin may be contained; and layers (B) of an ethylene/C_5–C_{10} alpha-olefin random copolymer having an intrinsic viscosity [η] as measured in decalin at 135° C. of 1.0–2.4 dl/g, a melt index (MI_B) of 0.5–20 g/10 min., a density of 0.910–0.940 g/cm^3, and a melting point of 115°–130° C., with the proviso that the MI_A/MI_B ratio is 0.15–4.0, said layers (B) being in direct contact with the two sides of said layer (A) and laminated thereto.

4,380,568

FLAME RETARDANT HEAT INSULATING COMPOSITION AND METHOD FOR PREPARING THE SAME

Shuji Masuda, Tokushima, and Keisuke Ueno, Kawasaki, both of Japan, assignors to Chugai Boyeki Co., Ltd., Tokyo, Japan

Filed Mar. 23, 1981, Ser. No. 246,411

Int. Cl.³ B32B *7/00*

U.S. Cl. 428—276 **6 Claims**

1. A flame-retardant heat insulating composition essentially consisting of fibrous cellulose particles, wherein the ratio of cellulose fibers to cellulose particles is in the range of 90:10 to 30:70 by weight in the absolute dry state, bonded only with 5 to 20 wt. percent of condensed phosphate as binder into fiberfil form.

4,380,569

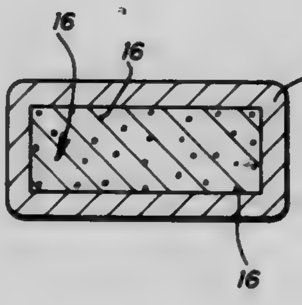
LIGHTWEIGHT PREFORMED STABLE GEL STRUCTURES AND METHOD OF FORMING

Robert E. Shaw, Waco, Tex., assignor to Spenco Medical Corporation, Waco, Tex.

Filed Aug. 3, 1981, Ser. No. 289,223

Int. Cl.³ B32B *5/16*

U.S. Cl. 428—283 **35 Claims**



1. The method of forming a lightweight stable gel comprising the steps of:

(a) preparing at low temperature a gel mixture by admixing;

(i) methyl polysiloxane containing silicon-bonded vinyl groups, with

(ii) methyl polysiloxane containing SiH groups, and

(iii) a platinum catalyst;

(b) mixing glass microspheres into said gel mixture;

(c) pouring the resulting mixture into a mold of desired shape; and

(d) allowing the resulting mixture to react until a stable silicon gel structure is formed.

4,380,570

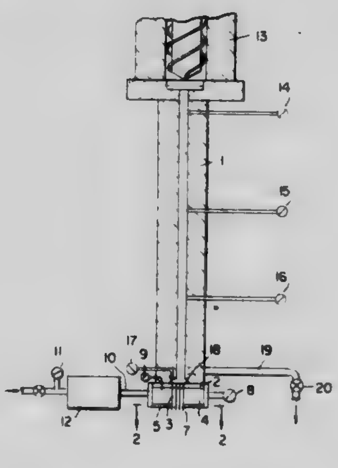
APPARATUS AND PROCESS FOR MELT-BLOWING A FIBERFORMING THERMOPLASTIC POLYMER AND PRODUCT PRODUCED THEREBY

Eckhard C. A. Schwarz, 115 N. Park Ave., Neenah, Wis. 54956

Filed Apr. 8, 1980, Ser. No. 138,860

Int. Cl.³ D04H *1/04*

U.S. Cl. 428—296 **15 Claims**



1. In a process for producing melt blown fibers from a molten fiberforming thermoplastic polymer and wherein said molten fiberforming thermoplastic polymer is further heated and extruded through orifices of heated nozzles into a stream of hot gas to attenuate said molten polymer into fibers forming a fiber stream and wherein said fiber stream is collected on a receiver surface in the path of said fiber stream to form a non-woven mat, the improvement, which comprises:

(a) passing said molten polymer through an elongated channel and thence through a plurality of sub-channels to a molten polymer feed chamber, said molten polymer having a resident time through said channels of less than 30 seconds;

(b) heating said molten polymer during step (a) to a temperature whereby

$a\Sigma l/Q$ is smaller than 0.1,

wherein;

a is the thermal diffusivity of said molten polymer,

l is the length of each polymer channel, and

Q is the polymer flow rate in each polymer channel;

(c) passing said thus heated molten polymer from said feed chamber through a plurality of heated nozzles to form said melt blown fibers, said molten polymer having a residence time in said heated nozzles of less than 2 seconds; and

(d) further heating said thus heated molten polymer, during step (c) to a temperature whereby

$a\Sigma l/Q$ is greater than 0.07,

wherein;

a is the thermal diffusivity of said molten polymer,

l is the length of each polymer channel, and

Q is the polymer flow rate in each polymer channel;

said molten polymer forming said melt blown fibers exhibiting an apparent melt viscosity of less than 45 poise, said molten polymer introduced into said elongated chamber being at a temperature of at least 40° F. lower than the temperature of said melt blown fibers.

4,380,571

FIRE RETARDANT EPOXY RESINS CONTAINING 3-HYDROXYALKYLPHOSPHINE OXIDES

Edward R. Fretz, Jr., East Windsor, and Joseph Green, East Brunswick, both of N.J., assignors to FMC Corporation, Philadelphia, Pa.

Division of Ser. No. 264,256, May 18, 1981, Pat. No. 4,345,059. This application Apr. 19, 1982, Ser. No. 369,786

Int. Cl.³ B32B *17/10*

U.S. Cl. 428—415 **2 Claims**

1. A fire retardant laminate comprising adjacent layers of a substrate coated on both sides with a mixture of epoxy resin and a 3-hydroxypropylphosphine oxide having the formula:

$$(\mathrm{HO}\overset{R_3}{\underset{|}{\mathrm{C}}}\mathrm{H}\overset{R_2}{\underset{|}{\mathrm{C}}}\mathrm{H}\overset{R_1}{\underset{|}{\mathrm{C}}}\mathrm{H})_{3-n}\overset{\mathrm{O}}{\overset{\|}{\mathrm{P}}}(R_4)_n$$

wherein R_1 may be the same or a different radical selected from the group consisting of hydrogen, phenyl, hydroxymethyl and alkyl radicals of 1–4 carbon atoms, R_2 may be the same or a different radical selected from the group consisting of hydrogen, hydroxymethyl, and alkyl radicals of 1–4 carbon atoms, R_3 may be the same or a different radical selected from the group consisting of hydrogen and methyl radicals, R_4 is an alkyl radical of 2–8 carbon atoms and n is either 1 or 2; and a hardener, said adjacent layers being bound together into each other by said epoxy resin mixture to form a unitary structure.

4,380,572

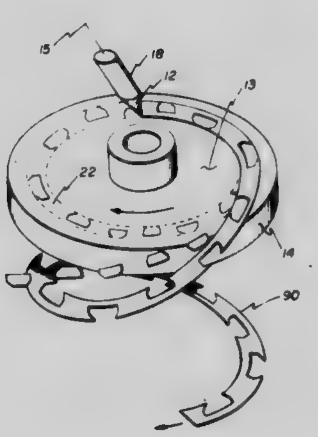
PATTERNED HELICAL METALLIC RIBBON FOR CONTINUOUS EDGE WINDING APPLICATIONS

Howard H. Liebermann, Schenectady; Peter G. Frischmann, Scotia, both of N.Y., and George M. Rosenberry, Jr., Hendersonville, Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Division of Ser. No. 972,239, Dec. 22, 1978, Pat. No. 4,341,845. This application May 21, 1981, Ser. No. 265,939

Int. Cl.³ B22D *11/00*

U.S. Cl. 428—592 **8 Claims**



1. A continuous length of cast edge-wound patterned metallic ribbon having a permanent cast-in helical shape with a substantially glassy microstructure, a pair of substantially parallel opposed major surfaces, an inner peripheral edge, an outer peripheral edge, and a predetermined pattern of cut-outs.

4,380,573

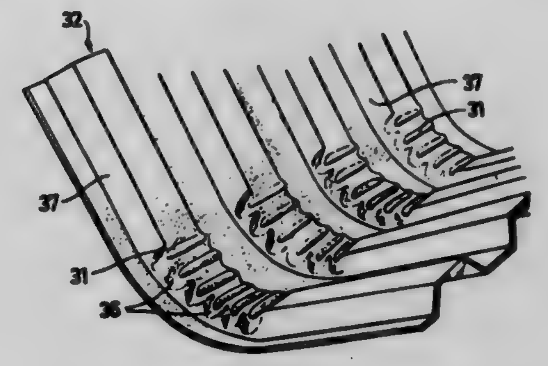
METHOD AND DEVICE FOR BENDING SECTION-SHEET, PLATE, STRIP AND LIKE MATERIAL

Gustav Näslund, Älvsbyn, Sweden, assignor to Korsträsk Mekaniska, G. Näslund, Älvsbyn, Sweden

Division of Ser. No. 807,651, Jun. 17, 1977, Pat. No. 4,220,031. This application Jan. 30, 1980, Ser. No. 116,748

Int. Cl.³ B21D *13/00, 13/10*

U.S. Cl. 428—595 **7 Claims**



1. A method of bending a section-sheet comprising alternating longitudinal ridges and valleys, the side portions of which valleys also constitute side portions of the ridges, perpendicularly to the longitudinal directions of the ridges and valleys, characterized in that the lower surface of the valley bottoms is impressed from below on its entire width along a straight line in parallel with the valley bottoms, which line extends perpendicularly relative to said longitudinal direction, that the impression is made in radial direction relative to a shaft in parallel with and located on the same side of the sheet as said line between holding-up members positioned in relatively small spaced relationship, which members prior to the beginning of the impressing operation are tightened only to the upper surface of the valley bottoms to permit the sides of the lateral portions of the valleys forming a part of the lower surface of the sheet to bulge outward when the impression is being made, and after such an impression the relative position between the holding-up members and the sheet is changed for carrying out a second impression in parallel with the first one, whereafter this operation is repeated until the desired bending angle has been obtained.

4. A sheet having a transverse contour comprising corrugations forming a series of mutually parallel ridges and valleys with common side walls, said sheet having a bend formed by at least one straight line of impressions extending transversely across said valleys upwardly into the valleys and adjacent portions of said side walls and at the ends of said impressions said side walls having indents extending outwardly away from the impressions.

4,380,574

HIGH-DAMPING COMPOSITE MATERIAL

Gernot Gessinger, Birmenstorf, and Olivier Mercier, Ennetbaden, both of Switzerland, assignors to BBC Brown, Boveri & Company, Ltd., Baden, Switzerland

Division of Ser. No. 882,227, Feb. 28, 1978, abandoned. This application May 21, 1979, Ser. No. 40,532

Claims priority, application Switzerland, May 9, 1977, 5756/77

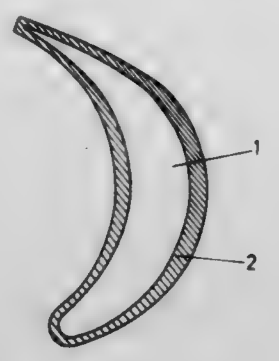
Int. Cl.³ B32B *15/01;* **C25D** *5/26*

U.S. Cl. 428—686 **8 Claims**

1. A procedure for manufacture of machine components which are highly stressed mechanically and thermally, comprising:

forming said machine components from a metal or metal alloy base material having poor damping properties which determines the strength and shape of said component; and

subsequently coating all the surfaces of the resulting component with a metal or metal alloy having high damping



characteristics sufficient to improve the lifetime of said machine component.

4,380,575

METHOD FOR CONVERSION OF CHEMICAL ENERGY TO ELECTRIC ENERGY

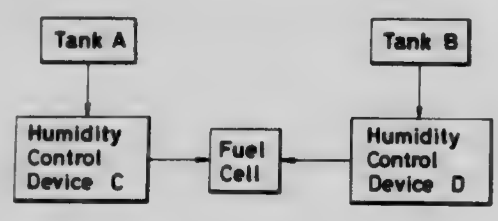
Osamu Nakamura, Ikeda; Isao Ogino, Minoo, and Teruo Kodama, Ikeda, all of Japan, assignors to Agency of Industrial Science and Technology and Ministry of International Trade and Industry, both of Tokyo, Japan

Filed Nov. 12, 1981, Ser. No. 320,429

Claims priority, application Japan, Nov. 14, 1980, 55/161149

Int. Cl.[3] H01M *8/00*

U.S. Cl. 429—13 **1 Claim**



1. A method for the conversion of chemical energy into electric energy by the continuous electrochemical reaction of an anodic reactant held in contact with an anode and remaining in a gaseous state at room temperature with a cathodic reactant held in contact with a cathode and remaining in a gaseous state at room temperature through the medium of a heteropoly acid solid electrolyte, which method is characterized by incorporating a step of passing said anodic reactant and cathodic reactant through pools of a saturated aqueous solution of a selected salt each bordering on a closed empty space and retained within a fixed temperature range and releasing said anodic reactant and cathodic reactant into successive closed empty spaces thereby enabling said reactants to acquire fixed relative humidities prior to the contact thereof with the anode and cathode.

4,380,576

AIR CELL

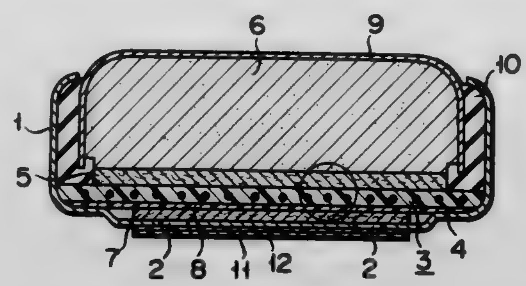
Kazumasa Yoshida, and Michio Watabe, both of Yokohama, Japan, assignors to Toshiba Battery Co., Ltd., Tokyo, Japan

Filed Dec. 31, 1981, Ser. No. 336,459

Int. Cl.[3] H01M *4/00*

U.S. Cl. 429—27 **5 Claims**

1. An air cell comprising an air cathode, one surface of which is in contact with an electrolyte and the other surface of which is in contact with air; said air cathode having a current collecting grid, a carbon powder, a binder and a metal chelate, said current collecting grid being located at a center of said air cathode, and a concentration of the binder in an area of said air cathode which is in contact with the electrolyte beyond said current collecting grid being lower than a concentration of the



binder in an area of said air cathode which is in contact with the air.

4,380,577

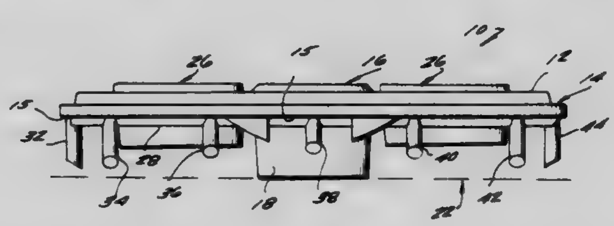
STAGGERED TEETH COVER

James S. Hardigg, Conway, Mass., assignor to Hardigg Industries, Inc., South Deerfield, Mass.

Continuation of Ser. No. 135,117, Mar. 28, 1980, abandoned. This application Sep. 28, 1981, Ser. No. 306,538

Int. Cl.[3] H01M *2/08*

U.S. Cl. 429—175 **23 Claims**



1. A cover for a thermoplastic battery jar having relatively thin side walls which have a tendency to bow inwardly, said cover being comprised of a thermoplastic plate member having a predetermined thickness, top and bottom surfaces and four edges, a plurality of means defining openings extending through said plate member, and guide means, positioned at predetermined locations solely around the periphery of said plate member and extending downwardly away from said bottom surface, for interacting with the interior of said thin side walls of said battery jar and for aligning the cover therewith, said guide means being spaced inwardly a predetermined distance from said edges, said guide means having a length that varies from a first predetermined length at the corners of said cover to a second shorter predetermined length adjacent the central portion of each edge.

4,380,578

ELECTROCHEMICAL CELL WITH GELLED ANODE

William S. Bahary, Pearl River, N.Y., assignor to Duracell Inc., Tarrytown, N.Y.

Filed Aug. 31, 1981, Ser. No. 297,664

Int. Cl.[3] H01M *4/02, 6/04*

U.S. Cl. 429—206 **13 Claims**

1. A gelled anode for an electrochemical cell comprising a powdered anode active metal, an aqueous alkaline electrolyte and a gelling agent characterized in that said gelling agent is comprised of an anionic rigid ordered polysaccharide.

4,380,579

ELECTROSTATIC COPYING PROCESS AND APPARATUS

Shoji Matsumoto, 3-7, Koya-cho, Neyagawa-shi, Osaka-fu; Toshikazu Matsui, 1-23, 3-chome, Kamori-cho, Kishiwada-shi, Osaka-fu; Toshimitsu Ikeda, 6-5, 7-chome, Yoshida, Higashiosaka-shi, Osaka-fu; Nobuhiko Kozuka, 26-21, Showa-cho, Suita-shi, Osaka-fu; Hitoshi Nishihama, 58-2, Minamihoriike, Ogura-cho, Uji-shi, Kyoto-fu, and Tatsuo Aizawa, 6-34, Kuwazu-cho, Higashisumiyoshi-ku, Osaka, all of Japan

Division of Ser. No. 895,465, Apr. 11, 1978, Pat. No. 4,254,202. This application Oct. 26, 1979, Ser. No. 88,655

Claims priority, application Japan, Apr. 19, 1977, 52-44162

Int. Cl.³ G03G *13/00, 21/00*

U.S. Cl. 430—126 **1 Claim**

1. An electrostatic copying process which comprises

(1) the step of forming an electrostatic latent image on the surface of a photosensitive member having a photoconductive layer by (a) applying an electrostatic charge to the surface of the photosensitive member by energizing a corona discharge device disposed along the path of the photosensitive member and (b) projecting the image of an original onto the charged surface of the photosensitive member by an optical system including an exposure lamp for illuminating the original in an original image exposing area located along the moving path of the surface of the photosensitive member downstream of the corona discharge device, thereby to form an electrostatic latent image on the surface of the photosensitive member, and at the completion of the image forming step, deenergizing the corona discharge device,

(2) the step of developing the electrostatic latent image by applying a fine powdery developer to the electrostatic latent image formed on the surface of the photosensitive member by a developing device provided along the moving path of the surface of the photosensitive member and downstream of the image exposing area, thereby to form a toner image on the surface of the photosensitive member,

(3) the step of transferring the toner image formed on the surface of the photosensitive member to a receptor sheet in a transfer station provided downstream of the developing device along the moving path of the surface of the photosensitive member; and

beginning irradiation of the surface of the photosensitive member with light from a lamp taken from the group consisting of a separate lamp and said exposure lamp in an area downstream of the corona discharge device for charging and upstream of the developing device along the moving path of the surface of the photosensitive member only in response to the deenergizing of the corona discharge device for charging at the completion of the electrostatic latent image-forming step (1) and continuing the irradiation for a specified period of time at least substantially equal to the time required for that part of the photosensitive member which is situated in the charging zone to pass the original-image projecting zone during the moving of the photosensitive member.

4,380,580

HETEROGENOUS CHEMILUMINESCENT SPECIFIC BINDING ASSAY

Robert C. Boguslaski, Elkhart; Robert J. Carrico, Bremen, both of Ind., and James E. Christner, Ann Arbor, Mich., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Division of Ser. No. 894,838, Apr. 10, 1978, which is a continuation of Ser. No. 667,982, Mar. 18, 1976, abandoned, which is a continuation-in-part of Ser. No. 572,008, Apr. 28, 1975, abandoned. This application Jun. 21, 1979, Ser. No. 50,681

Int. Cl.³ G01N *33/54, 33/58, 21/76*

U.S. Cl. 435—7 **56 Claims**

1. In a heterogeneous specific binding assay method for determining a ligand in a liquid medium, which method comprises the steps of:

(a) contacting said liquid medium with reagent means including a labeled conjugate comprising a specific binding substance coupled to a labeling substance, said reagent means and the ligand forming a binding reaction system producing a bound-phase and a free-phase of the labeled conjugate;

(b) separating said bound-phase and said free-phase; and

(c) determining said labeling substance in said bound-phase or said free-phase as a function of said ligand in said liquid medium,

the improvement wherein said labeling substance is a chemiluminescent reactant and wherein said chemiluminescent label is determined in said bound-phase or said free-phase by forming the chemiluminescent reaction therein and measuring the light produced.

4,380,581

ISTAMYCINS AND STREPTOMYCES CULTURE FOR THE PRODUCTION THEREOF

Hamao Umezawa; Yoshiro Okami, both of Tokyo, and Shinichi Kondo, Yokohama, all of Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kenky Kai, Tokyo, Japan

Division of Ser. No. 141,492, Apr. 18, 1980, Pat. No. 4,296,106. This application Feb. 5, 1981, Ser. No. 231,640

Int. Cl.³ C12P *19/48;* **C12N** *1/20;* **C12R** *1/465*

U.S. Cl. 435—80 **10 Claims**

1. The process for the production of the antibiotic, istamycin complex, which comprises cultivating a microorganism having the identifying characteristics of *Streptomyces tenjimariensis* SS-939, identified as FERM-P 4932 or ATCC 31603, under aerobic conditions in a culture medium containing assimilable sources of carbon and nitrogen until a substantial amount of istamycin is produced and accumulated in the culture medium.

4,380,582

PREPARATION OF DRY VARIOLA VIRUS

Michael D. Orlando, and Jean M. Riley, both of Frederick, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jul. 9, 1965, Ser. No. 471,791

Int. Cl.³ C12N *5/00*

U.S. Cl. 435—239 **1 Claim**

1. In a process for the preparation of a variola virus which comprises the steps of: chorioallantoic inoculation of the embryos of fertile chicken eggs, incubating the eggs for a period of time sufficient to cultivate the virus, separating the embryos from the rest of the eggs, stabilizing the embryos, homogenizing, differential centrifuging the resultant slurry, freezing the slurry into pellets and drying the pellets under a vacuum; the improvement wherein the stabilizing comprises the addition of: 2.5% lactose, 2.5% raffinose, 1.5% lysine, 1.5% sodium glutamate, 1.5% dextrin, 0.5% isoniazid, and 0.5% thiourea, per volume of embryos.

4,380,583

METHOD OF PREPARING SEEDING MATERIAL FOR PRODUCTION OF CITRIC ACID

Roman Y. Karklin, ulitsa Veidenbauma, 45, kv. 13; Alma A. Rumba, ulitsa Putsea, 12, kv. 3, and Via K. Azanda, ulitsa Lenina, 237, kv. 1, all of Riga, U.S.S.R.

Filed Apr. 8, 1981, Ser. No. 252,040

Claims priority, application U.S.S.R., Apr. 19, 1980, 2932440

Int. Cl.³ C12N *3/00*

U.S. Cl. 435—242 **3 Claims**

1. A method of preparing a seeding material for the production of citric acid comprising cultivating the fungus *Aspergillus niger* R-3 strain TsMPMF 132 on a nutrient medium containing a carbon source selected from the group consisting of malt extract and beer must, a nitrogen source, and at least one mineral salt to form spores and separating said spores in an amount in excess of 1.3 g/dm from the nutrient medium.

4,380,584

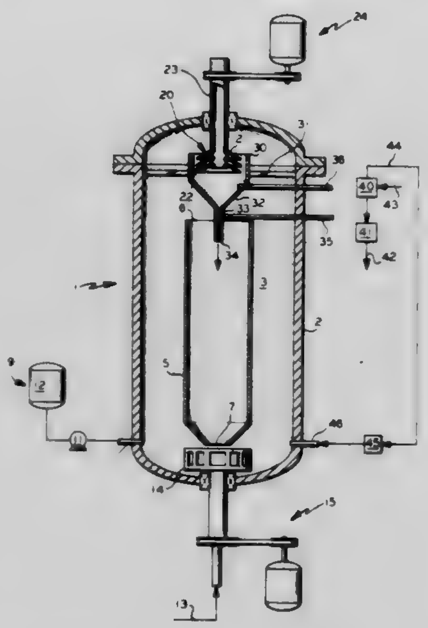
FERMENTATION APPARATUS

Donald O. Hitzman, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 139,371, Apr. 11, 1980, Pat. No. 4,340,677. This application Apr. 30, 1982, Ser. No. 373,774

Int. Cl.³ C12M *1/08, 1/06, 1/04, 1/02*

U.S. Cl. 435—313 11 Claims



1. In a fermentation apparatus comprising
(a) a housing
(b) at least one feed conduit for the introduction of materials into said housing,
(c) at least one product conduit for the removal of product from said housing,
(d) a foam breaker in the upper portion of said housing
(e) a gas outlet operatively connected to said foam breaker for allowing the removal of gas from said fermenter,
the improvement comprising
(f) a fluid collector operatively associated with respect to said foam breaker and at a small distance from said foam breaker, allowing the collection of at least a portion of the fluid leaving said foam breaker and
(g) conduit means operatively associated with said collecting unit allowing the withdrawal of at least a portion of the fluid so collected from said housing.

4,380,585

STABILIZATION OF BENZIDINE-TYPE INDICATORS WITH VARIOUS ENHANCERS

Thomas A. Magers, South Bend, and David L. Tabb, Elkhart, both of Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Division of Ser. No. 93,431, Nov. 13, 1979, Pat. No. 4,290,773. This application Jul. 23, 1981, Ser. No. 285,930

Int. Cl.³ G01N *33/52*

U.S. Cl. 436—66 2 Claims

1. In a composition for detecting the presence of a constituent in a test sample, the composition comprising a benzidine-type indicator, the improvement wherein said composition additionally comprises, as an enhancer compound, a normal, branched or cyclic hexanol.

4,380,586

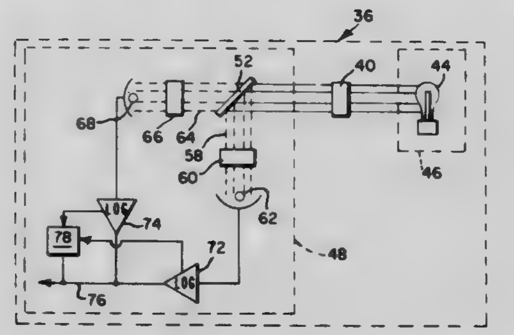
METHOD AND APPARATUS FOR PHOTOMETRICALLY MONITORING LOW LEVEL CONCENTRATION OF HYDROGEN SULFIDE IN ALKANOL AMINE

Robert S. Saltzman, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 211,582, Dec. 1, 1980, abandoned. This application Oct. 13, 1981, Ser. No. 310,451

Int. Cl.³ G01N *21/75*

U.S. Cl. 436—121 26 Claims



1. A method for photometrically analyzing the hydrogen sulfide concentration in a stream containing at least a first predetermined concentration of bonded hydrogen sulfide-amines and ultraviolet radiation-absorbing impurities comprising the sequential steps of:
(a) removing the hydrogen sulfide from a first, reference, sample of the stream until a second predetermined concentration remains therein;
(b) photometrically analyzing the first, reference, sample to generate a reference signal representative of the ultraviolet radiation-absorbing characteristics of the remaining hydrogen sulfide and of the impurities in the first, reference, sample; and
(c) photometrically analyzing a second sample of the stream in a manner which takes into account the reference signal to generate a signal representative of the concentration of hydrogen sulfide therein.

4,380,587

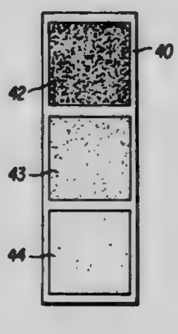
FILM BADGE FOR DETERMINING CARBONYL COMPOUNDS

Martin Koocher, Lexington, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass.

Filed Aug. 20, 1981, Ser. No. 294,584

Int. Cl.³ G01N *21/75, 31/00*

U.S. Cl. 436—128 10 Claims



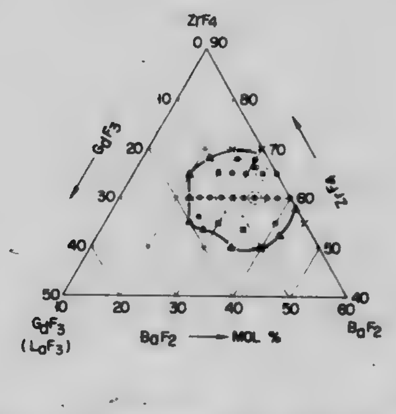
7. A method for determining a fluidic-contained carbonyl compound comprising
a. contacting a chemically inert substrate having adhered to the surface thereof a substantially monodisperse system of particles of a derivatizing agent for the carbonyl compound with the fluidic-contained carbonyl compound to form nucleating sites;
b. treating said nucleating sites with a metastable supersaturated solution in which said nucleating sites can grow;
c. growing said nucleating sites to form an optically measurable film of crystals; and

d. optically measuring said film of crystals to determine the concentration of fluidic contained carbonyl compound.

4,380,588
GLASS FOR INFRARED RAY-TRANSMITTING OPTICAL FIBERS AND OPTICAL FIBERS FORMED FROM SAID GLASS

Seiko Mitachi; Shuichi Shibata; Terutoshi Kanamori; Toyotaka Manabe, all of Mito, and Mitsuho Yasu, Katsuta, all of Japan, assignors to Nippon Telegraph & Telephone Public Corporation, Tokyo, Japan

Division of Ser. No. 226,716, Jan. 21, 1981, Pat. No. 4,343,638. This application Jan. 18, 1982, Ser. No. 340,057
Claims priority, application Japan, Feb. 4, 1980, 55-11531
Int. Cl.³ C03C *3/18, 3/30*
U.S. Cl. 501—37 **8 Claims**



1. An infrared ray-transmitting glass composition for optical fibers consisting essentially of 28 mol% to 38 mol% of BaF_2, 2 mol% to 7 mol% of GdF_3 and 58 mol% to 69 mol% of ZrF_4.

4,380,589
NOVEL FISCHER-TROPSCH CATALYSTS

Craig B. Murchison, Midland, Mich., and Dewey A. Murdick, Tulsa, Okla., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 24, 1981, Ser. No. 334,117
Int. Cl.³ C07C *1/04*
U.S. Cl. 518—714 **13 Claims**

1. A Fischer-Tropsch process for producing hydrocarbons with improved selectivity to C_2–C_4 olefins comprising contacting hydrogen and carbon monoxide in the presence of a catalyst comprising:

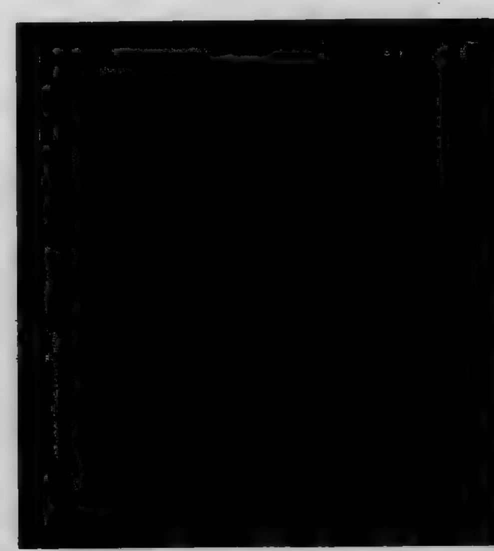
(1) molybdenum in free or combined form;
(2) a promoter comprising an alkali or alkaline earth metal in a free or combined form; and
(3) a binder comprising an iron-containing calcium aluminate cement.

4,380,590
EMULSION COPOLYMER CATION EXCHANGE RESINS

Berni P. Chong, North Wales, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Sep. 19, 1978, Ser. No. 943,889
Int. Cl.³ C08F *39/20, 6/22, 8/36*
U.S. Cl. 521—33 **16 Claims**

1. A liquid cation exchange material comprising an emulsion of submicroscopic, approximately spherical beads of previously isolated, crosslinked emulsion copolymer having diameters within the range from about 0.01 to about 1.5 micrometers, and bearing from about 0.7 to about 1.5 cation exchange functional groups per monomer unit, the cation exchange functional groups being selected from the group consisting of



strongly acidic functional groups and the free acid form of weakly acidic functional groups.

4,380,591
NOVEL AMINO CATALYST MIXTURE FOR STABILIZATION OF POLYURETHANE FOAM

Feyyaz O. Baskent, Mahopac, and Michael R. Sandner, Chappaqua, both of N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Feb. 3, 1982, Ser. No. 345,393
Int. Cl.³ C08G *18/14, 18/42, 18/18, 18/20*
U.S. Cl. 521—115 **13 Claims**

1. A method for producing a cellular urethane polymer which comprises reacting (a) an organic polyisocyanate and (b) a polyester polyol containing at least two active hydrogen atoms, in the presence of a blowing agent and an amino catalyst mixture and foaming the product, wherein the amino catalyst mixture comprises from about 10 to 95 percent by weight of 2-diisopropylamino ethanol and from 5 to 90 weight percent of an amine or a mixture of amines selected from the group consisting of 2-(2-dimethylaminoethoxy) ethanol; bis-(2-dimethylamino) ethyl ether; and 1,4-diazo-bicyclo[2.2.2]octane.

4,380,592
PROCESS FOR THE PRODUCTION OF POLYHYDROXY LIGNIN-CELLULOSE SILICATE POLYMER

David H. Blount, 5450 Lea St., San Diego, Calif. 92105

Division of Ser. No. 372,298, Apr. 27, 1982, which is a continuation-in-part of Ser. No. 306,184, Sep. 28, 1981, Pat. No. 4,367,326, which is a continuation-in-part of Ser. No. 257,126, Apr. 24, 1981, Pat. No. 4,313,857, which is a continuation-in-part of Ser. No. 203,730, Nov. 3, 1980, Pat. No. 4,281,110, which is a continuation-in-part of Ser. No. 112,290, Jan. 15, 1980, Pat. No. 4,243,757, which is a continuation-in-part of Ser. No. 29,282, Apr. 12, 1979, Pat. No. 4,220,757. This application Sep. 1, 1982, Ser. No. 413,975
Int. Cl.³ C08H *5/00*
U.S. Cl. 521—151 **24 Claims**

1. The process for the production of foamed polyurethane silicate products by the following steps:

(a) mixing and reacting the following components, thereby producing a polyhydroxy lignin-cellulose polymer;

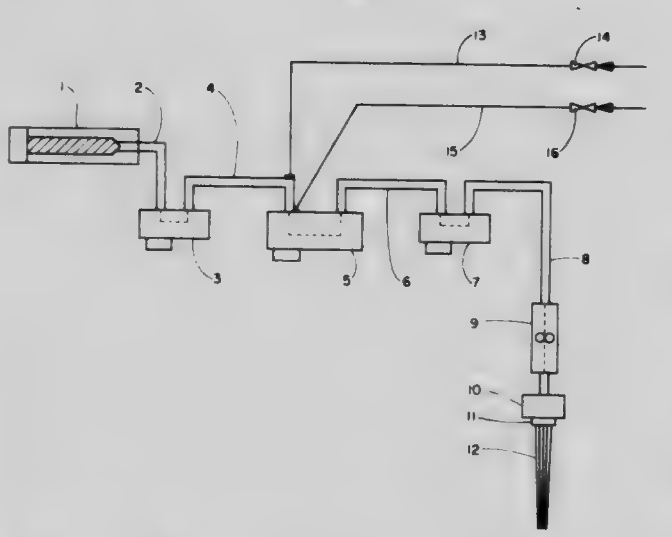
(i) a broken-down alkali metal plant silicate polymer produced by heating a mixture of 3 parts by weight of a cellulose-containing plant and 1 to 2 parts by weight of an oxidated silicon compound with 3 to 5 parts by weight of a melted alkali metal hydroxide to between 150° C. and 220° C. while agitating for 5 to 60 minutes; in an amount of 100 parts by weight;

(ii) an epoxide compound, in an amount of 1 to 3 parts by weight;
(iii) a Lewis acid, in an amount wherein the pH of the mixture of components (i), (ii) and (iii) is 5 to 6:
(b) mixing and reacting 100 parts by weight of the polyhydroxy lignin-cellulose silicate polymer as produced in step (a), 1 to 600 parts by weight of a compound containing at least two isocyanate groups up to 50% by weight of an inert blowing agent, percentage based on the weight of the reaction mixture.

4,380,593
INTUMESCENT COMPOSITIONS
Wulf von Bonin, Leverkusen, and Gottfried Zaby, Dormagen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Feb. 24, 1982, Ser. No. 351,687
Claims priority, application Fed. Rep. of Germany, Mar. 12, 1981, 3109352
Int. Cl.³ C08G *18/14*
U.S. Cl. 521—163 **9 Claims**

1. Intumescent compositions obtained by reacting
(a) polyisocyanates,
(b) phosphorous-containing condensation products having at least two hydroxyl groups, which are obtained by condensing primary or secondary, aliphatic, cycloaliphatic, aromatic, araliphatic or heterocyclic monoamines and/or polyamines optionally containing OH-groups, carbonyl compounds and dialkyl phosphites,
(c) polyethers of average functionality greater than two and having average OH-numbers of from 150 to 500 which have been obtained by the addition of alkylene oxides, of which from 50 to 100% by weight consist of ethylene oxide, with low molecular weight starters,
(d) cyanuric acid and/or cyanuric acid derivatives, and
(e) optionally, water and/or other organic compounds containing isocyanate-reactive hydrogen atoms.

4,380,594
FILAMENTS AND FIBERS HAVING DISCONTINUOUS CAVITIES
Erhard Siggel, Lutzelbach; Gerhard Wick, Obernburg; Heinz Linhart, Erlenbach, and Erich Kessler, Hochst, all of Fed. Rep. of Germany, assignors to Akzona Incorporated, Asheville, N.C.
Continuation of Ser. No. 952,190, Oct. 16, 1978, abandoned, which is a division of Ser. No. 738,985, Nov. 4, 1976, Pat. No. 4,164,603. This application Oct. 14, 1980, Ser. No. 196,336
Claims priority, application Fed. Rep. of Germany, Nov. 7, 1975, 2550080
Int. Cl.³ C08G *63/00*
U.S. Cl. 521—182 **5 Claims**



1. A filament or fiber of thermoplastic, synthetic fiber-forming polymer having a plurality of adjacent, separate, discontinuous cavities of substantially uniform size and containing from 0.1% to 1% by weight of a disubstituted polysiloxane finely distributed in the polymer, and a cavity content of 5 to 50 vol. %, based on the total volume of the filament.

4,380,595
ENCAPSULATING SEALANT COMPOSITIONS FOR FRIABLE INSULATION MATERIALS
John Arpin, Ocean, N.J., assignor to Arpin Products, Inc., South Belmar, N.J.
Filed Oct. 14, 1980, Ser. No. 196,571
The portion of the term of this patent subsequent to Aug. 31, 1999, has been disclaimed.
Int. Cl.³ C08K *3/34*
U.S. Cl. 524—5 **3 Claims**

1. A penetrating sealant composition useful for encapsulating a friable material comprising a blend of:
Part I an aqueous silicate solution component comprising:
(a) 20 to 40 weight percent of an aqueous alkali metal silicate selected from potassium silicate or a mixture of potassium silicate and sodium silicate;
(b) 0.01 to 10 weight percent of a cationic or nonionic surfactant;
(c) 60 to 80 weight percent water; and
Part II an acrylic polymer dispersion component comprising:
(a) 45 to 65 weight percent of an acrylic polymer latex having a solids content of 40 to 65 weight percent, said acrylic polymer selected from the group consisting of homopolymers and copolymers of lower alkyl esters of acrylic acid or lower alkyl esters of an alpha-lower alkyl acid or mixtures thereof;
(b) 0.01 to 10 weight percent of a reagent that reacts with said alkali silicate; said reagent being selected from the group consisting of the borate, halide, nitrate and phosphate salts of aluminum, antimony, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, lead, magnesium, mercury, silver and zinc, and
(c) 35 to 55 weight percent water, wherein the ratio of Part I to Part II provides a blended composition having a solids content between 20 and 65 weight percent.

4,380,596
PRIMER OR SOLVENT RESISTANT PROTECTIVE COATING
George R. Watchko, Reading, Mass., assignor to General Electric Company, Schenectady, N.Y.
Filed Dec. 4, 1981, Ser. No. 327,441
Int. Cl.³ C08L *75/04*
U.S. Cl. 524—86 **8 Claims**

1. An aqueous composition which comprises:
(a) an aqueous colloidal dispersion of an aliphatic urethane derived from the reaction of a diisocyanate of the formula OCN—R'NCO and water, wherein R is a divalent organic radical;
(b) an anionic surfactant; and
(c) a carbon containing pigment.

4,380,597
THERMOPLASTIC COMPOSITIONS BASED ON VINYL CHLORIDE POLYMERS STABILIZED WITH POLYHYDROXYL COMPOUNDS
Werner Erwied, Langenfeld, and Bernd Wegemund, Haan, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Dusseldorf-Holthausen, Fed. Rep. of Germany
Filed Oct. 21, 1981, Ser. No. 313,281
Claims priority, application Fed. Rep. of Germany, Nov. 6, 1980, 3041887
Int. Cl.³ C08K *5/05, 5/09, 5/13;* **C08L** *27/06*
U.S. Cl. 524—109 **26 Claims**

1. A stabilized thermoplastic composition comprised of

polyvinyl chloride or mixed polymers containing mainly vinyl chloride units and a stabilizer additive composition of:

(1) heat stabilizers selected from the group consisting of metallic soaps, metallic phenolates and naphthenates and organotin compounds, and

(2) other conventional additives employed in thermoplastic compositions,

wherein said heat stabilizers include from 0.02 to 5 parts by weight, per 100 parts by weight of polymer, of at least one aliphatic compound selected from the group consisting of gluconic acid, glucuronic acid, ketogluconic acid, ascorbic acid, alkali metal salts of said acids, alkaline earth metal salts of said acids, and mixtures thereof.

4,380,598

FLAME RETARDANT POLYARYLATE COMPOSITIONS

Lloyd M. Robeson, Whitehouse Station, and Markus Matzner, Edison, both of N.J., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Feb. 12, 1981, Ser. No. 233,693

Int. Cl.[3] C08K *5/42*

U.S. Cl. 524—163 **55 Claims**

1. A flame retardant molding composition comprising a blend of:

(a) a polyarylate derived from a dihydric phenol and an aromatic dicarboxylic acid, and

(b) a flame retarding amount of an alkali or alkaline earth metal salt of an aromatic sulfonic acid.

4,380,599

ORGANOTIN POLYMERS METHOD OF MAKING THEM AND PAINTS CONTAINING THEM

David H. Tooke-Kirby, Hornchurch; Richard E. Perry, Billericay, and Kenneth H. Arbuckle, Chigwell, all of England, assignors to Berger, Jenson and Nicholson Ltd., London, England

Filed Sep. 22, 1981, Ser. No. 304,811

Claims priority, application United Kingdom, Feb. 6, 1981, 8103674

Int. Cl.[3] C08C *19/00*

U.S. Cl. 525—370 **10 Claims**

1. An organotin polymer suitable for use in marine anti-fouling paints, derived from a hydroxyl-containing polymer having a hydroxyl value of from 50 to 400, containing pendent groups having the following general formula:

$$—O.CO.R^1CO.OSnR_3$$

where R is C_1 to C_{10} alkyl, aryl, aralkyl or alkaryl and R^1 is a saturated or unsaturated aliphatic or aromatic C_2 to C_{10} group.

4,380,600

AQUEOUS DISPERSION OF WATER-SOLUBLE POLYMER COMPOSITION

Yoshikazu Hosoda; Shigenobu Ishihara, and Shoichi Kobayashi, all of Yokohama, Japan, assignors to Showa Denko K.K., Tokyo, Japan

Continuation of Ser. No. 49,054, Jun. 15, 1979, abandoned. This application May 15, 1981, Ser. No. 263,921

Claims priority, application Japan, Jun. 19, 1978, 53-73232

Int. Cl.[3] C08F *261/04*

U.S. Cl. 524—458 **17 Claims**

1. A process for producing an aqueous dispersion, having good stability and fluidity, of water-soluble polymers, which comprises polymerizing or copolymerizing (a) the monomer components of a composition containing at least one water-soluble ethylenically unsaturated monomer, all of said monomer components in said composition being capable of being polymerized or copolymerized with each other to form only a water-soluble polymer or copolymer, said polymerization being carried out in an aqueous solution of (b) at least one water-soluble polymer which is different from the polymer derived from said monomer components (a), said aqueous solution containing 3 to 150 parts by weight of said water-soluble polymer (b) per 100 parts by weight of water, the amount of said monomer components (a) being 10 to 150 parts by weight per 100 parts by weight of said water, the weight ratio of (a):(b) being within the range of from 1:5 to 5:1, said aqueous dispersion of water-soluble polymers being (i) a dispersion in water of a loose water-containing complex composed of said polymer or copolymer derived from said monomer components (a) and said water-soluble polymer (b), or (ii) a dispersion of said polymer or copolymer derived from said monomer components (a) in said aqueous solution of said water-soluble polymer (b).

4,380,601

THERMOSETTING CATONIC ACRYLIC LATICES AND THEIR USE IN COATING COMPOSITIONS

David A. Welsh, Monroeville; Rostyslaw Dowbenko, Gibsonia; Suryya K. Das, Pittsburgh; Charles M. Kania, Tarentum, and Roger M. Christenson, Gibsonia, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sep. 25, 1981, Ser. No. 305,585

Int. Cl.[3] C08L *75/12, 33/12*

U.S. Cl. 524—555 **5 Claims**

1. A stable thermosetting cationic acrylic latex composition, comprising a blocked isocyanate curing agent and a cationic acrylic latex; the cationic acrylic latex being prepared by a process which comprises copolymerizing ethylenically unsaturated monomers, at least one of which contains an active hydrogen group, in an acidic medium in the presence of water, a polymerization initiator and a cationic surfactant which has a gegen-ion derived from an acid selected from the group consisting of phosphoric acid, phosphorous acid, hypophosphorous and alkyl or aryl hydrogen phosphate.

4,380,602

WATER-SOLUBLE THERMOSETTABLE RESINOUS COMPOSITIONS CONTAINING DICYANDIAMIDE-FORMALDEHYDE CONDENSATES MODIFIED WITH EPIHALOHYDRIN AND PROCESS FOR PREPARING THE SAME

David H. Dumas, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Dec. 8, 1981, Ser. No. 328,751

Int. Cl.[3] C08L *61/22*

U.S. Cl. 524—598 **8 Claims**

1. A process for preparing improved water-soluble thermosettable resinous compositions containing dicyandiamideformaldehyde condensates which process comprises (1) forming a precondensate solution by refluxing for about 1 to about 4 hours an aqueous mixture of (a) a base reaction product of 1 mole of dicyandiamide, 0.75 mole to 1.5 moles of formaldehyde and an acid salt of a water-soluble polyaminopolyamide in an amount sufficient to provide from about 0.125 to about 0.5 equivalent of basic nitrogen and (b) an ammonium salt in an amount such that there will be from 0.7 equivalent to about 1.2 equivalents of basic nitrogen derived from the salt of the polyaminopolyamide and the ammonium salt in the aqueous medium, (2) adding to the precondensate solution from 0.30 to 0.45 mole of epihalohydrin per equivalent of basic nitrogen derived from the salt of the polyaminopolyamide and the ammonium salt, and heating the aqueous mixture at about 50° to about 80° C. for about 15 to about 45 minutes until a solution of modified precondensate is formed, (3) adding from about 1.25 to about 3.75 moles of formaldehyde to the aqueous solution of modified precondensate and (4) heating the resulting mixture at about 60° to about 100° C. until the viscosity of an aqueous solution of the resulting reaction product at a solids content of 50% is from about U to Z on the Gardner-Holdt scale.

4,380,603
EPIHALOHYDRIN MODIFIED DICYANDIAMIDE-FORMALDEHYDE CONDENSATES AND PROCESS FOR PREPARING THE SAME
Ralph A. Bankert, New Castle, Del., assignor to Hercules Incorporated, Wilmington, Del.
Filed Dec. 8, 1981, Ser. No. 328,754
Int. Cl.³ C08L *61/22*
U.S. Cl. 524—598 **13 Claims**

1. A process for preparing improved water-soluble thermosettable resinous compositions containing dicyandiamide-formaldehyde condensates which process comprises (1) forming a precondensate solution by refluxing for about 1 to about 4 hours an aqueous mixture of (a) a base reaction product of 1 mole of dicyandiamide, 0.75 mole to 1.5 moles of formaldehyde and an acid salt of a water-soluble polyaminopolyamide in an ammount sufficient to provide from about 0.125 to about 0.5 equivalent of basic nitrogen and (b) an ammonium salt in an amount such that there will be from 0.7 equivalent to about 1.2 equivalents of basic nitrogen derived from the salt of the polyaminopolyamide and the ammonium salt in the aqueous medium, (2) adding to the precondensate solution from 0.30 to 0.45 mole of epihalohydrin per equivalent of basic nitrogen derived from the salt of the polyaminopolyamide and the ammonium salt, and heating the aqueous mixture at about 50° to about 80° C. for about 15 to about 45 minutes until a solution of modified precondensate is formed, (3) adding from about 1.25 to about 3.75 moles of formaldehyde to the aqueous solution of modified precondensate and heating the resulting mixture at about 60° to about 100° C. until the viscosity of an aqueous solution of the resulting reaction product at a solids content of 50% is from about U to Z on the Gardner-Holdt scale, (4) diluting the solution of step (3), if necessary, to a solids content less than 35% and (5) adding to the solution of step (4) from 0.03 to 0.75 mole, per mole of formaldehyde added in step (3), of epihalohydrin or a nitrogen-containing compound of the formula NHRR′ where R and R′ are independently hydrogen, alkyl or hydroxyalkyl and, where R is hydrogen, R′ also is aminoalkyl or an amido group, and heating the resulting mixture at about 45° to about 70° C. for about 0.5 hour to about 2 hours.

4,380,604
RADIATION-HARDENABLE ACRYLIC ACID ESTERS CONTAINING URETHANE GROUPS AND THEIR USE
Karl-Friedrich Neuhaus; Hermann Perrey; Karl Fuhr; Hans-Joachim Freier, and Otto Bendszus, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Nov. 30, 1981, Ser. No. 325,813
Claims priority, application Fed. Rep. of Germany, Dec. 4, 1980, 3045788
Int. Cl.³ C08G *18/00, 18/32, 18/62*
U.S. Cl. 524—873 **10 Claims**

1. A radiation-hardenable binder comprising a reaction product ester containing hydroxyl groups and hydroxyalkyl acrylates, which comprises:

(A) 1 NCO gram equivalent of a polyisocyanate containing from 2 to 3 isocyanate groups per molecule;

(B) from 0.4 to 1.2 OH gram equivalents of an ethylenically-unsaturated partial ester having an OH number of from 80 to 150 of an alkoxylated trimethylol propane having a degree of alkoxylation of 3 to 4.5 and acrylic acid or methacrylic acid or a mixture thereof; and

(C) from 0 to 0.6 OH gram equivalents of a hydroxy alkyl acrylate or hydroxy alkyl methacrylate or a mixture thereof containing from 2 to 6 carbon atoms in the alkyl group,

wherein the sum total of the OH-gram equivalents of B and C is between 1 and 1.2.

4,380,605
ROOM TEMPERATURE CROSSLINKING UNSATURATED POLYESTER RESINS
Ronald B. Gallagher, Lancaster, and Michael F. Novits, Buffalo, both of N.Y., assignors to Pennwalt Corporation, Philadelphia, Pa.
Filed Sep. 21, 1981, Ser. No. 304,136
Int. Cl.³ C08G *63/76*
U.S. Cl. 525—14 **10 Claims**

1. A process of crosslinking an unsaturated polyester resin comprising admixing to said unsaturated resin

(a) an initiating amount of at least one peroxyester,

(b) mercaptobenzothiazole, and

(c) an inorganic metal salt wherein the metal is selected from the group consisting of iron, copper and a mixture of the metal salt, and crosslinking the admixture at room temperature.

4,380,606
ACRYLIC COPOLYMER RUBBER/POLYVINYLCHLORIDE
Aubert Y. Coran, and Raman Patel, both of Akron, Ohio, assignors to Monsanto Company, St. Louis, Mo.
Filed Apr. 29, 1982, Ser. No. 373,316
Int. Cl.³ C08L *33/02, 23/08, 27/06*
U.S. Cl. 525—196 **13 Claims**

1. A thermoplastic composition comprising a blend of about 20 to 98 parts by weight of at least 10% partially neutralized acid containing acrylic-olefin copolymer rubber, and about 80 to 2 parts by weight of polyvinylchloride (PVC) per 100 parts by weight of said rubber and PVC combined.

4,380,607
RUBBER COMPOSITION HAVING HIGH MODULUS OF ELASTICITY AND PROCESS FOR PREPARING SAME
Hiroharu Ikeda, Machida; Kohei Goto, Fukuoka, and Yasuyuki Shimozato, Yokohama, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan
Filed Apr. 23, 1981, Ser. No. 256,921
Claims priority, application Japan, Apr. 28, 1980, 55/55450; May 27, 1980, 55/69570
Int. Cl.³ C08L *9/00*
U.S. Cl. 525—232 **10 Claims**

1. A rubber composition having a high modulus of elasticity consisting essentially of a dispersion in which fine particles of a high-melting isotactic poly-α-olefin having a melting point of at least 150° C. are uniformly dispersed in a rubber matrix, said fine particles having an average particle size of not more than 200μ.

4,380,608
PROCESS FOR PRODUCING PROPYLENE-ETHYLENE BLOCK COPOLYMER
Masayoshi Hasuo, Yokohama; Yoshinori Suga, Machida; Hisashi Kitada, Yokohama; Yasuo Maruyama, Yokohama, and Junichi Gotoh, Yokohama, all of Japan, assignors to Mitsubishi Chemical Industries, Ltd., Tokyo, Japan
Filed Feb. 10, 1982, Ser. No. 347,425
Claims priority, application Japan, Mar. 6, 1981, 56-32216; Apr. 21, 1981, 56-60226
Int. Cl.³ C08F *297/08*
U.S. Cl. 525—247 **7 Claims**

1. In a continuous process for producing a propylene-ethylene block copolymer in the presence of a catalyst comprising as main components, a solid titanium-containing catalyst component and an organoaluminum compound having the formula

$$AlR_m^1Cl_{3-m}$$

(R^1 represents a C_{1-20} hydrocarbon moiety; and m is $3 \geqq m > 1.5$) by producing a homopolymer of propylene or a propylene-ethylene copolymer by polymerizing propylene or

both propylene and ethylene at a vapor phase propylene concentration of 90 mol % or higher based on the sum of propylene and ethylene in a first step and producing a propylene-ethylene block copolymer by copolymerizing propylene and ethylene at a vapor phase propylene concentration of less than 90 mol % based on the sum of propylene and ethylene in the presence of the polymer resulting from the first step and the catalyst in a second step, an improvement characterized by newly adding an aluminum compound having the formula

$AlR_n^2X_{3-n}$

(R^2 represents a $C_{1\text{-}20}$ hydrocarbon moiety; X represents a halogen atom and n is $1.5 \geqq n \geqq 0$) to the components for the copolymerization in the second step.

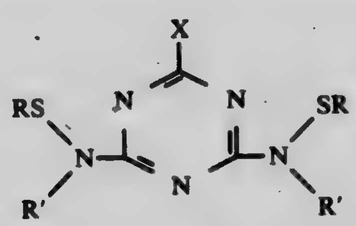
4,380,609

PREVULCANIZATION INHIBITORS OF THIO-TRIAZINE-AMINES FOR RUBBER

Eiichi Morita, Copley, Ohio, assignor to Monsanto Company, St. Louis, Mo.

Filed Oct. 19, 1981, Ser. No. 312,572
Int. Cl.³ C08C *19/22, 19/20*
U.S. Cl. 525—348 **10 Claims**

1. A vulcanizable rubber composition comprising sulfur-vulcanizable diene rubber, sulfur-vulcanizing agent, organic vulcanization accelerating agent and, in an amount effective to inhibit premature vulcanization, a compound of the formula



in which R′ is hydrogen or —SR, X is hydrogen, chloro, alkoxy of 1-5 carbon atoms, alkylthio of 1-5 carbon atoms, NHR″, $N(R'')_2$ where R″ is R or allyl, NHSR, $N(SR)_2$ or R, and R is alkyl of 1-12 carbon atoms or alkyl substituted by cyano, acetoxy, or alkoxycarbonyl of 2-5 carbon atoms, aralkyl of 7-10 carbon atoms, cycloalkyl of 5-8 carbon atoms, phenyl, or phenyl substituted by chloro, alkyl of 1-5 carbon atoms, of alkoxy of 1-5 carbon atoms.

4,380,610

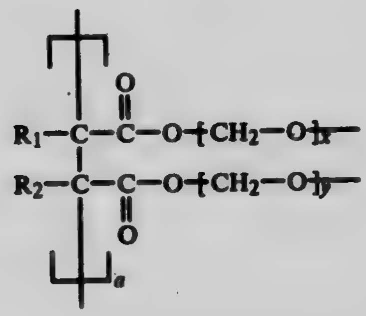
POLYACETAL COMB POLYMERS

Jeff T. Fenton, and Mark P. Mack, both of Ponca City, Okla., assignors to Conoco Inc., Ponca City, Okla.

Filed Dec. 21, 1981, Ser. No. 332,416
Int. Cl.³ C08G *6/00;* **C08L** *61/02*
U.S. Cl. 525—400 **14 Claims**

1. Comb polymers having a carbon-to-carbon backbone linkage and pendant polymer chains wherein the polymer contains at least one structure selected from the group consisting of

(a)



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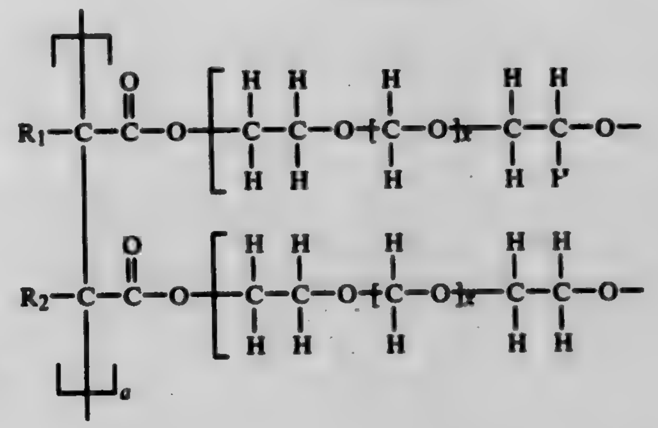
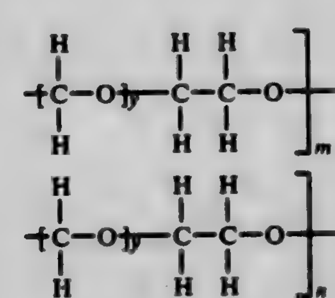
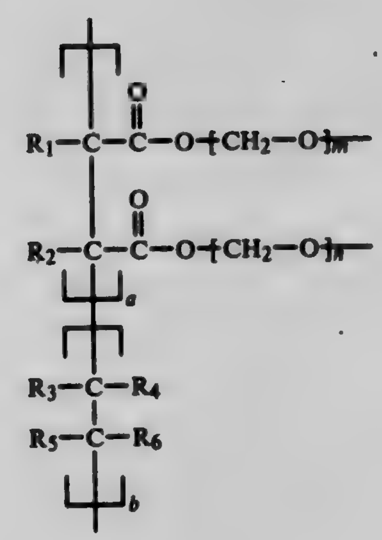
(b)

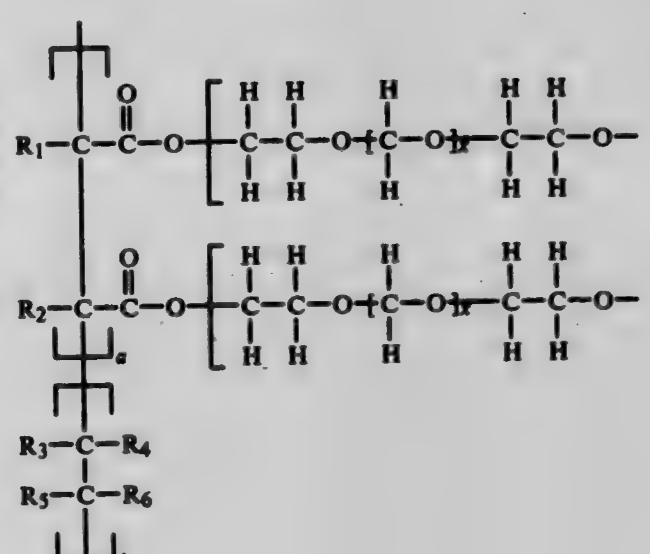




(c)



(d)



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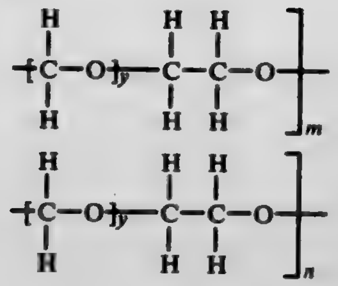


wherein R_1, R_2, R_3, R_4, R_5 and R_6 are, independently, hydrogen, cycloalkyl groups containing from 6 to 24 carbon atoms, alkyl groups containing from 1 to 20 carbon atoms, substituted alkyl groups containing from 1 to 30 carbon atoms, aryl groups containing from 6 to 20 carbon atoms or halogen, and wherein $x+7>100$, a and b are >25, $m>1$ and $n>1$.

3. A method for preparing polymers having a carbon-to-carbon backbone and having polymeric pendant chains attached thereto, comprising copolymerizing trioxane and at least one material selected from the group consisting of polymeric acid anhydrides, copolymers of olefins and anhydrides, or mixtures of these, wherein the copolymerization is carried out in the presence of an inorganic fluoride catalyst at temperatures of from about 0° C. to about 200° C.

4,380,611

ETHERIFIED METHYLOL POLYAMIDE CROSSLINKING AGENT, PROCESS FOR PRODUCING THE SAME AND RESINS CROSSLINKED THEREWITH

Howard J. Wright, Kansas City, Mo., and Joseph H. Scherrer, Shawnee Mission, Kans., assignors to Cook Paint and Varnish Company, Kansas City, Mo.

Filed Oct. 27, 1981, Ser. No. 315,439

Int. Cl.³ C08F *8/00;* **C08G** *8/32, 12/40*

U.S. Cl. 525—418 **10 Claims**

1. A cross-linking agent comprising a reaction product produced by (1) reacting a diester of a di- or poly-carboxylic acid with a molar excess of ammonium hydroxide to form a di- or polyamide, (2) methylolating said di- or polyamide and (3) etherifying the resulting methylolated di- or polyamide with an alkanol.

4,380,612

HIGH HEAT DISTORTION RESISTANT SEGMENT ESTER POLYCARBONATES

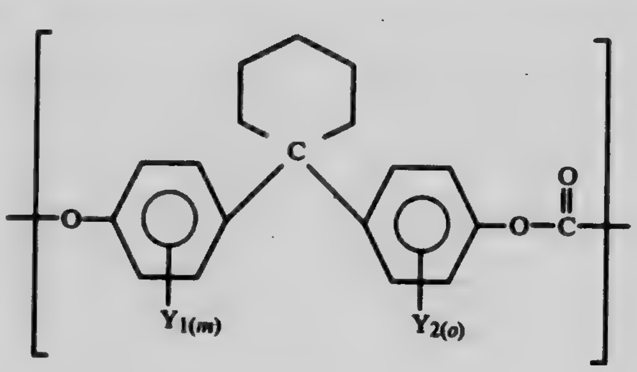
Victor Mark, Evansville, Ind.; Frederick F. Holub, Schenectady, N.Y., and Charles V. Hedges, Mt. Vernon, Ind., assignors to General Electric, Mt. Vernon, Ind.

Filed Dec. 21, 1981, Ser. No. 332,863

Int. Cl.³ C08G *63/64*

U.S. Cl. 525—439 **16 Claims**

1. A high molecular weight segment-ester polycarbonate composition comprising aromatic carbonate units and aromatic diester units, said units derived from cyclic bisphenols and said units having the general formulae I and II respectively, the molar ratio of said aromatic carbonate units to aromatic diester units being from about 1:9 to about 9:1, and mixtures thereof:



I

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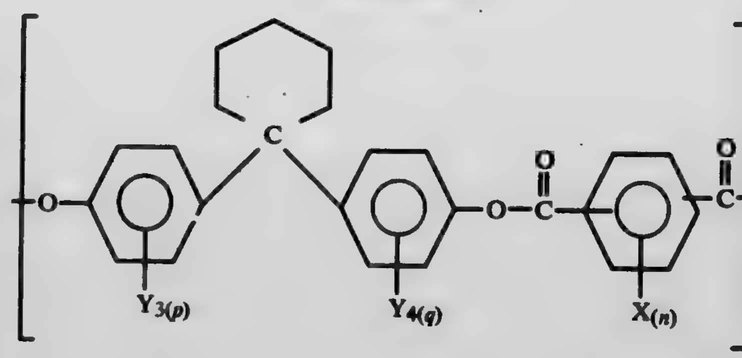


II

wherein X is independently selected from the group consisting of hydrogen, halogen and alkyl radical; Y, Y_2, Y_3 and Y_4 are the same or different and is an alkyl radical; m, o, p and q are the same or different and is 0, 1 or 2; n is an integer from 1 to 4; r is an integer from 2 to about 20.

4,380,613

GASKETING AND SEALING COMPOSITION

Larry A. Nativi, Rocky Hill, Conn., assignor to Loctite Corporation, Newington, Conn.

Filed Jul. 2, 1981, Ser. No. 279,905

Int. Cl.³ C08L *75/06*

U.S. Cl. 525—440 **9 Claims**

1. An adhesive composition, especially useful for gasketing, comprising

(i) at least one polyester-urethane-methacrylate compound comprising the reaction product of

(a) toluene diisocyanate; and

(b) the reaction product of a diol adipate having 3 to 6 carbons, with neopentyl glycol, said reactants (a) and (b) to be reacted in the molor ratio of about 1.7 to 1.9 of (a) to about 1.0 of (b), and

(ii) a free-radical catalyst system.

4,380,614

SUSPENSION POLYMERIZATION OF HALOETHYLENE COMPOUND

Kunizoh Kidoh, and Hideki Wakamori, both of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 6, 1981, Ser. No. 222,924

Claims priority, application Japan, Mar. 10, 1980, 55/29950

Int. Cl.³ C08F *2/20, 114/06*

U.S. Cl. 526—62 **4 Claims**

1. In a suspension polymerization of a haloethylene compound or a mixture of a haloethylene compound and a comonomer thereof in a aqueous medium containing a suspending agent and an oil soluble catalyst in a reactor, an improvement characterized by coating a water soluble or organic solvent soluble lignin derivative on an inner surface of said reactor or a surface of equipment contained within said reactor or by incorporating said lignin derivative in said aqueous medium at a concentration of 1 to 100 ppm based on said haloethylene compound.

4,380,615

DIAMINE RECOVERY PROCESS

Robert D. Sauerbrunn, Seaford, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 5, 1981, Ser. No. 240,914

Int. Cl.³ C08G *69/26*

U.S. Cl. 526—65 **8 Claims**

1. An improved process for recovering unreacted diamine vapor in the form of a diamine dicarboxylic acid salt from water vapor continuously being separated from a reaction zone in which an aqueous solution of a polyamide-forming salt prepared from at least one diamine and at least one dicarboxylic acid is being heated and partially reacted to form water

vapor containing a vapor of said diamine and a polyamide prepolymer, said process consisting essentially of one in which a portion of the water vapor is continuously separated from the reaction zone through a rectifying zone having an upper portion and a lower portion and in which rectifying zone the water vapor is partially condensed as reflux water containing unreacted diamine which diamine is recovered by returning the reflux water from said lower portion to the reaction zone, wherein the improvement comprises continuously adding a pre-determined amount of said dicarboxylic acid or acids to the reflux water in an upper portion of said rectifying zone to form a water-soluble polyamide-forming salt with unreacted diamine contained therein.

4,380,616

POLYMERIZATION OF OLEFINS IN THE PRESENCE OF CHROMIUM-CONTAINING CATALYSTS

Fred L. Vance, Jr.; Rafael E. Guerra, and Christopher P. Christenson, all of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 14, 1981, Ser. No. 263,647
Int. Cl.³ C08F *4/02, 4/62*
U.S. Cl. 526—101 **18 Claims**

1. In a process for polymerizing one or more a-olefins in the presence of an inorganic oxide supported chromium-containing catalyst wherein said catalyst has been prepared by contacting said inorganic oxide support with a chromium-containing compound followed by activation of an oxidizing atmosphere at an elevated temperature for a time sufficient to activate the catalyst; the improvement which comprises employing as catalyst one prepared by contacting said inorganic oxide support with a metallic composition containing zero valent chromium in the vapor state instead of compounds of such metals and wherein the polymerization is also conducted in the presence of a metal alkyl compound.

4,380,617

PREPARATION OF POLYMERS FROM CYCLOOLEFINS

Robert J. Minchak, Parma Heights; Timothy J. Kettering, Cleveland, and William J. Kroenke, Brecksville, all of Ohio, assignors to The B. F. Goodrich Company, Akron, Ohio

Filed Jan. 20, 1982, Ser. No. 340,921
Int. Cl.³ C08F *4/78*
U.S. Cl. 526—161 **10 Claims**

1. Process for preparing a polymer by ring opening polymerization comprising polymerizing a norbornene-type monomer, or a mixture thereof, in presence of an effective amount of at least one organoammonium catalyst and at least one alkylaluminum halide cocatalyst, said norbornene-type monomer is characterized by the presence of the norbornene group defined as follows:

and said organoammonium catalyst is selected from organoammonium molybdates and organoammonium tungstates that are soluble in said monomer or said monomer mixture.

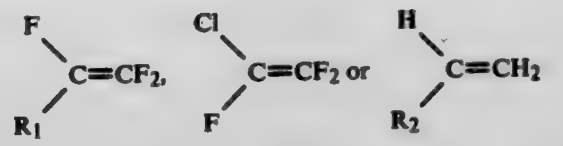
4,380,618

BATCH POLYMERIZATION PROCESS

Aussat A. Khan, Newark, Del., and Richard A. Morgan, Vienna, W. Va., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 21, 1981, Ser. No. 295,019
Int. Cl.³ C08F *2/00, 14/18*
U.S. Cl. 526—206 **11 Claims**

1. In the batch process for preparing tetrafluoroethylene homopolymer or copolymers of tetrafluoroethylene and at least one copolymerizable fluorinated ethylenically unsaturated comonomer of the formula



wherein R_1 is $—R_f$, $—R_fX$, $—O—R_f$, or $—O—R_fX$ in which R_f is a perfluoroalkyl radical of 1-5 carbon atoms, $—R_f$ is a linear perfluoroalkylenediradical of 1-5 carbon atoms in which the attaching valences are at each end of the linear chain, and X is H or Cl; and R_2 is $—R_f$ or R_fX, by polymerizing tetrafluoroethylene alone or with at least one said comonomer present in an amount sufficient to produce a comonomer unit content in the copolymer of between 0.005 mole percent and 20 mole percent, in an aqueous polymerization medium containing a free-radical initiator and 0.01-0.5 percent dispersing agent, based on weight of aqueous medium, the improvement which comprises employing as the dispersing agent 1) a mixture of compounds of the formula

$$F\text{—}(CF_2\text{—}CF_2)_n CH_2\text{—}CH_2\text{—}SO_3M$$

wherein n is a cardinal number of between 2-8 and the average value of n is between 3-6, or 2) a compound of said formula wherein n is a cardinal number selected from 2-6, and M is a cation having a valence of 1.

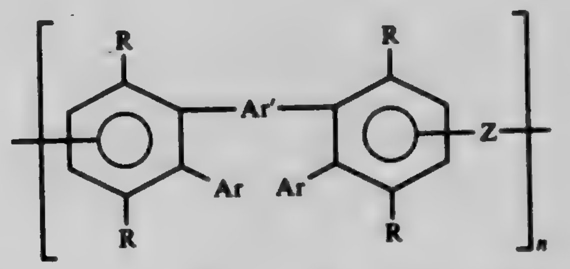
4,380,619

OXY- AND THIOARYL-PHENYLATED AROMATIC HETEROCYCLIC POLYMERS

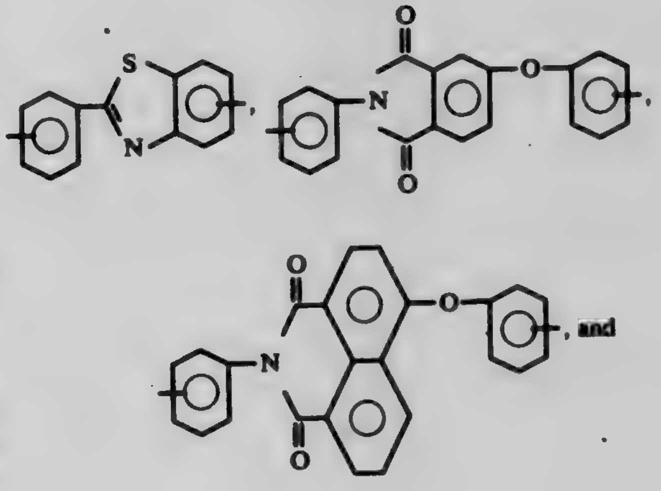
Bruce A. Reinhardt, New Carlisle, and Fred E. Arnold, Centerville, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Apr. 8, 1982, Ser. No. 366,744
Int. Cl.³ C08G *2/26, 12/00*
U.S. Cl. 526—259 **13 Claims**

1. A polymer consisting essentially of recurring units having the following formula:



wherein Ar is a monovalent aromatic group containing an oxy or thio linkage, Ar′ is a divalent aromatic group, R is a monovalent aromatic group, and Z is a divalent heterocyclic radical selected from the group consisting of



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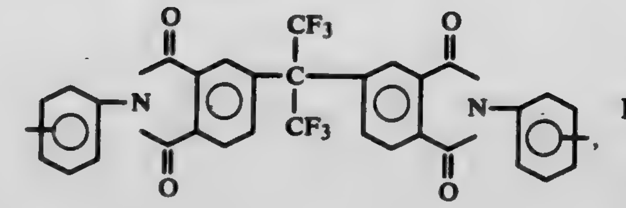


and wherein n is an integer having a value such that the polymer has an intrinsic viscosity in the approximate range of 0.25 to 0.75 as measured in N,N-dimethylacetamide at 30° C.

4,380,620

PROCESS FOR PREPARING POLYOXYMETHYLENES

Kazuhiko Matsuzaki; Minoru Hamada, and Hisaya Sakurai, all of Kurashiki, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

PCT No. PCT/JP80/00307, § 371 Date Aug. 12, 1981, § 102(e) Date Aug. 12, 1981, PCT Pub. No. WO81/01712, PCT Pub. Date Jun. 25, 1981
PCT Filed Dec. 16, 1980, Ser. No. 293,213
Int. Cl.³ C08G *2/08*
U.S. Cl. 528—232 **20 Claims**

1. A process for preparing polyoxymethylene having a desired molecular weight and improved melt fluidity and processability, which comprises: polymerizing formaldehyde in the presence of an anionic polymerization catalyst and in the presence of a polyhydric alcohol having at least three alcoholic hydroxyl groups in the molecule.

4,380,621

FAST CRYSTALLIZING POLYESTER COMPOSITIONS

Eric Nield, Watton-at-Stone; David E. Higgins, Wheathampstead, and Mark W. Young, Barbican, all of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Nov. 28, 1980, Ser. No. 210,754
Claims priority, application United Kingdom, Dec. 12, 1979, 7942872; Mar. 12, 1980, 8008298
Int. Cl.³ C08G *63/16, 63/20*
U.S. Cl. 528—287 **9 Claims**

1. A fast crystallizing polyester wherein the polyester has an intrinsic viscosity of greater than 0.3 as measured on a 1% solution of the polyester in o-chlorophenol at 25° C. and at least 90 mole % of the repeating units of the polyester are selected from ethylene terephthalate or tetramethylene terephthalate units in which at least some of the acid end groups of the polyester have the formula $-Y^-M^+$ where M is an alkaline metal ion and Y is a carboxylate anion, which ionised end groups have been produced during polymerization of the polyester by

reaction of an alkaline metal salt or corresponding base with acid end groups of the polyester produced during the polymerization,

the concentration of groups of formula Y^-M^+ in the polyester being sufficient to reduce the crystallization peak temperature on heating (Tn) by at least 5° C. in comparison with the same polyester in the absence of the ionic groups.

4,380,622

PROCESS FOR PRODUCING ALIPHATIC COPOLYESTERAMIDE, AN ALIPHATIC COPOLYESTERAMIDE AND TUBING MOLDED THEREFROM

Kazumasa Chiba; Kazuhiko Kobayashi, and Toshio Muraki, all of Nagoya, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Jun. 11, 1982, Ser. No. 387,334
Claims priority, application Japan, Jun. 15, 1981, 56-90855; Jan. 22, 1982, 57-7497
Int. Cl.³ C08G *63/44, 69/00, 69/44*
U.S. Cl. 528—288 **38 Claims**

1. A process for producing an aliphatic copolyesteramide which comprises heating a mixture comprising substantially

(A) from about 5 to 80 parts by weight of ester-forming components comprising
 (α) aliphatic diols having 2 to 6 carbon atoms and
 (β) aliphatic dicarboxylic acids having 9 to 12 carbon atoms and

(B) from about 95 to 20 parts by weight of amide-forming components comprising at least one component selected from the group consisting of
 (a) aliphatic ω-aminocarboxylic acids having 11 to 12 carbon atoms and
 (b) equimolar salt of
  (α) aliphatic diamines having 6 to 12 carbon atoms and
  (β) aliphatic dicarboxylic acids having 9 to 12 carbon atoms,

at temperatures of about 150° to 260° C., substantially under an atmospheric pressure, in the presence of catalysts and in the substantially absence of water, whereby catalytic esterification is carried out and subsequently heating the resulting esterified product at temperatures of about 200° to 300° C. under a reduced pressure, whereby polycondensation is carried out.

22. An aliphatic copolyesteramide comprising substantially (A) from about 5 to 50 percent by weight of ester unit represented by the following general formula (I)

$$-\!\!\!\!+O(CH_2)_k-O-\underset{\underset{O}{\|}}{C}-(CH_2)_l-\underset{\underset{O}{\|}}{C}+\!\!\!\!- \qquad (I)$$

wherein k denotes an integer of 2 to 6 and l denotes an integer of 7 to 10, and

(B) from about 95 to 50 percent by weight of at least one amide unit selected from the group consisting of (a) the unit represented by the following general formula (II),

$$-\!\!\!\!+HN-(CH_2)_m-\underset{\underset{O}{\|}}{C}+\!\!\!\!- \qquad (II)$$

wherein m denotes an integer of 10 to 11, and (b) the unit represented by the following general formula (III)

$$-\!\!\!\!+HN-(CH_2)_n-NH-\underset{\underset{O}{\|}}{C}-(CH_2)_p-\underset{\underset{O}{\|}}{C}+\!\!\!\!- \qquad (III)$$

wherein n denotes an integer of 6 to 12 and p denotes an integer of 7 to 10, said aliphatic copolyesteramide having a relative viscosity of from about 1.4 to 4.0 and a glass transition temperature below about room temperature.

4,380,623

PREPARATION OF POLYAMIDE FROM DINITRILE, DIAMINE, WATER, AND CO_2 CATALYST

Janice L. Greene, Chagrin Falls, and Roman Loza, Solon, both of Ohio, assignors to Standard Oil Company, Cleveland, Ohio

Filed Apr. 3, 1981, Ser. No. 250,797

Int. Cl.³ C08G *69/00*

U.S. Cl. 528—335 **6 Claims**

1. A process for preparing a solid polyamide comprising contacting a diamine with water, a dinitrile and a catalytic amount of carbon dioxide.

4,380,624

NOVEL ISOMERS OF BUFALIN AND RESIBUFOGENIN AND THEIR PREPARATION

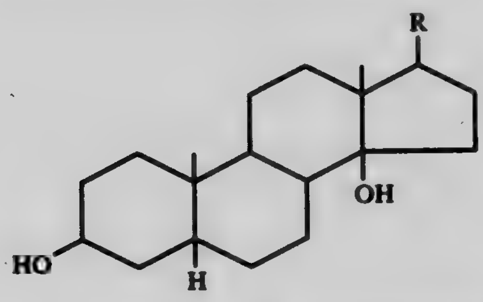
Karel Wiesner, and Thomas Y. R. Tsai, both of Fredericton, Canada, assignors to Advance Biofactures Corp., Lynbrook, N.Y.

Filed Jul. 31, 1981, Ser. No. 288,763

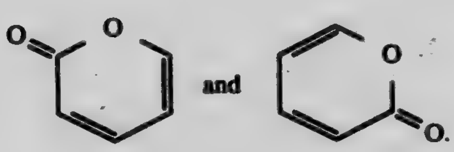
Int. Cl.³ A61K *31/705, 31/58*

U.S. Cl. 536—5 **14 Claims**

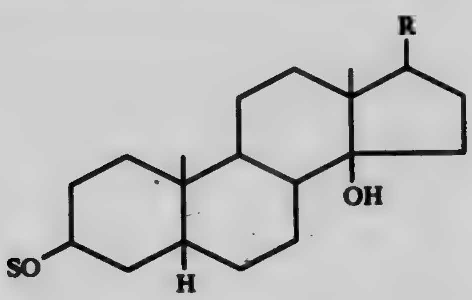
1. A compound having the general formula



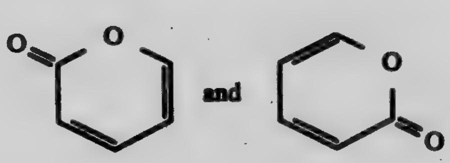
wherein R is selected from the group consisting of



2. A compound having the general formula



wherein R is selected from the group consisting of



and wherein S is selected from the group consisting of sugars.

4,380,625

PROCESS FOR THE PREPARATION OF PURIFIED AMINOGLYCOSIDE ANTIBIOTICS

Peter Stadler, Haan; Wolfgang Koebernick, Wuppertal; Samir Samaan, Wuppertal, and Wolfgang Gau, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Dec. 29, 1980, Ser. No. 220,640

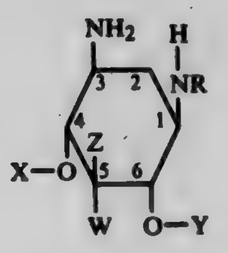
Claims priority, application Fed. Rep. of Germany, Jan. 11, 1980, 3000841

Int. Cl.³ C07H *15/22*

U.S. Cl. 536—13.9 **16 Claims**

1. A process for the preparation of a pure aminoglycoside antibiotic, which comprises acylating or arylsulphenylating

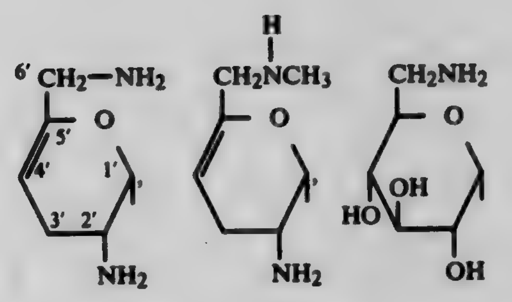
(a) a pre-purified compound of the formula

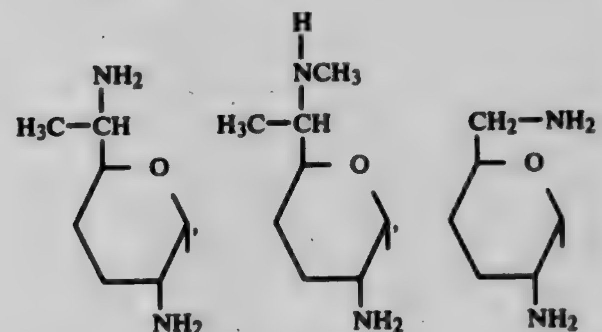


(I)

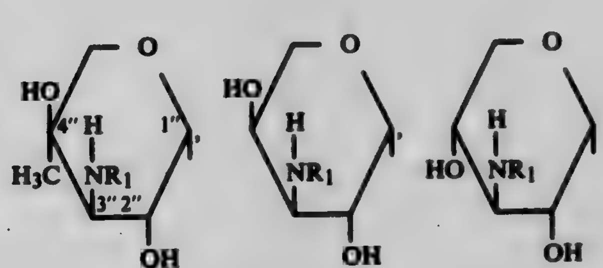
wherein

X denotes a radical of the formulae





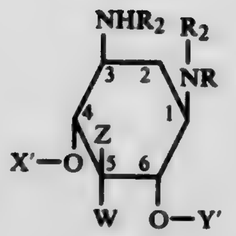
Y denotes a radical of the formulae



R denotes a hydrogen atom or an ethyl group,

R_1 denotes a C_1 to C_6 alkyl group, and one of the radicals Z or W denotes hydrogen and the other radical Z or W denotes hydrogen or hydroxyl,

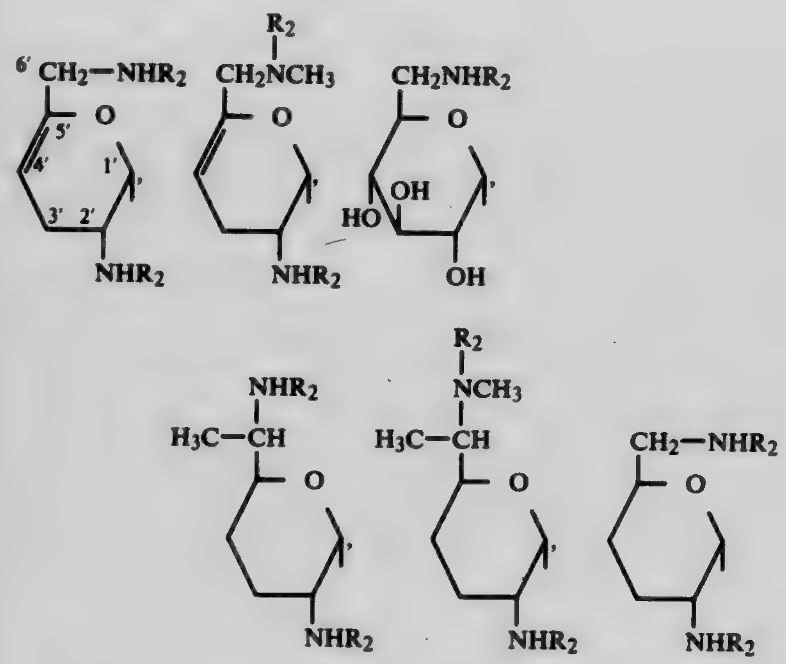
to give a compound of the formula



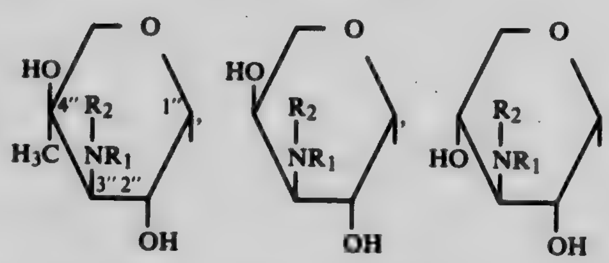
(II)

wherein

X′ represents a radical of the formulae



Y′ represents a radical of the formulae



the radicals R_2 are identical or different and represent a hydrogen atom or an acyl or arylsulphenyl protective group, with the proviso that at most two of the radicals R_2 represent hydrogen atoms, and

R, R_1, Z and W have the abovementioned meaning,

(b) subjecting the compound of the formula (II) from step (a) to liquid/liquid extraction in a two-phase aqueous/organic solvent system and isolating said compound of the Formula (II) from the extracts, and

(c) then splitting off the protective group(s).

4,380,626

HORMONAL PLANT GROWTH REGULATOR

Jozsef Szejtli; Zsuzsanna Budai; Magda Tetenyi nee Erdosi, and Gabriella Pap nee Imrenyi, all of Budapest, Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara R.T., Budapest, Hungary

Filed Dec. 19, 1980, Ser. No. 218,206

Claims priority, application Hungary, Dec. 28, 1979, CI 2000

Int. Cl.[3] C08B *37/16*

U.S. Cl. 536—103 **10 Claims**

1. An inclusion complex of 2-chloroethylphosphonic acid formed with α-, β- and/or γ-cyclodextrin.

4,380,627

CATIONIC COMPOUNDS

Willy Stingelin, Reinach, and Peter Loew, Münchenstein, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

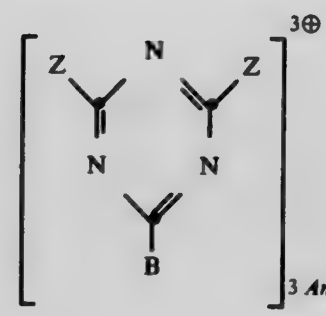
Filed Apr. 6, 1981, Ser. No. 251,421

Claims priority, application Switzerland, Apr. 10, 1980, 2757/80

Int. Cl.[3] C07D *251/70, 417/12, 417/04, 401/14*

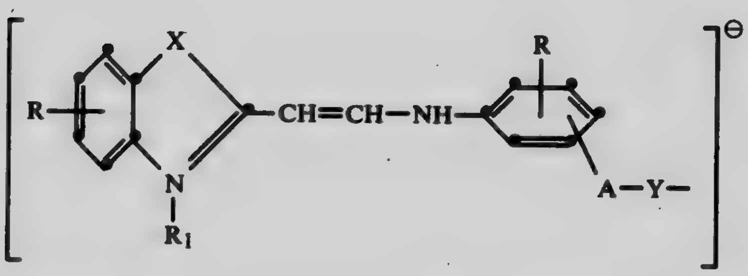
U.S. Cl. 542—423 **14 Claims**

1. A cationic compound of the formula

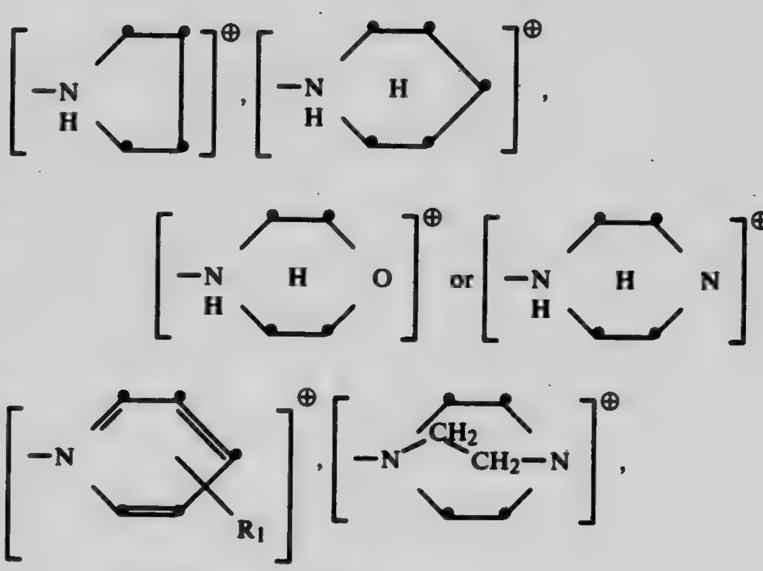


wherein

Z groups independently of one another are each a radical of the formula

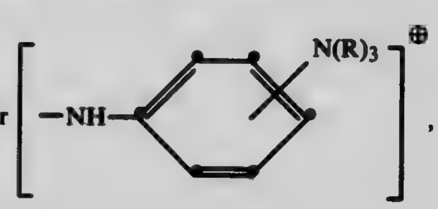


B is identical to Z or is a cationic radical different from Z selected from the group of



$[-NH(CH_2)_p-N(R_1)_3]^{\oplus}$, $[-NH(CH_2)_p-NH(R_1)_2]^{\oplus}$,

$[-N(R_1)_3]^{\oplus}$ or



wherein the radicals R and R_1 are as defined below and p is 2 or 3;

R groups independently of one another are each (1) hydrogen, (2) unsubstituted or substituted C_1–C_4-alkyl wherein the substituent is C_1–C_4-alkoxy, CN, halogen, phenyl, $CONH_2$, $CONHC_1$–C_4-alkyl or $CON(C_1$–C_4-alkyl$)_2$, (3)

unsubstituted or substituted C_1–C_4-alkoxy wherein the substituent is phenyl, (4) NO_2, (5) unsubstituted or substituted benzoylamino or acetylamino wherein the substituent is halogen, NH_2, NHC_1–C_4-alkyl or $N(C_1$–C_4-alkyl$)_2$, (6) halogen or (7) CN;

R_1 groups independently of one another are each (1) unsubstituted or substituted C_1–C_4-alkyl wherein the substituent is C_1–C_4-alkoxy, CN, halogen, phenyl, C_1–C_4-alkyl substituted phenyl, halophenyl or $CONH_2$ or (2) C_3–C_4-alkenyl;

X is a sulfur atom or the group

wherein R_1 is as defined above or in which both R_1 radicals can be linked with each other to form a carbocyclic 5- or 6-membered ring;

A is the direct bond, —NH-alkylene (C_1–C_4), —O-alkylene (C_1–C_4), alkylene (C_1–C_4), phenylene, —O-phenylene or —NH-phenylene;

Y is —NH—, —NR_1—, —O— or —S—; and

An is an anion.

4,380,628

PROCESS FOR THE PREPARATION OF AZOLYL-VINYL KETONES

Hans-Ludwig Elbe, Wuppertal, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

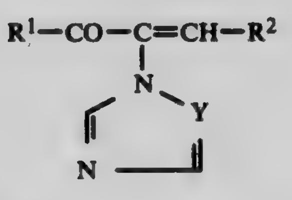
Filed Dec. 22, 1980, Ser. No. 219,154

Claims priority, application Fed. Rep. of Germany, Jan. 10, 1980, 3000643

Int. Cl.^{3} **C07D** *233/61, 249/08*

U.S. Cl. 542—429 **15 Claims**

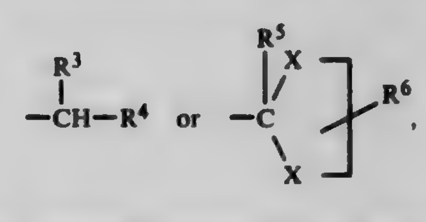
1. A process for the preparation of an azolyl-vinyl ketone of the formula



in which

R^1 represents straight-chain or branched alkyl with 1 to 6 carbon atoms, straight-chain or branched halogenoalkyl with 1 to 4 carbon atoms and 1 to 5 identical or different halogen atoms, or aryl which has 6 to 10 carbon atoms and optionally carries one or more substituents selected independently from halogen, straight-chain or branched alkyl with 1 to 4 carbon atoms, alkoxy and alkylthio with in either case 1 to 2 carbon atoms, halogenoalkyl with up to 2 carbon atoms and up to 5 identical or different halogen atoms, cyano, nitro, optionally halogen-substituted phenyl and optionally halogen-substituted phenoxy,

R^2 represents straight-chain or branched alkyl with 1 to 12 carbon atoms; straight-chain or branched halogenoalkyl with 1 to 4 carbon atoms and 1 to 5 identical or different halogen atoms; aryl which has 6 to 10 carbon atoms and optionally carries one or more substituents selected independently from halogen, straight-chain or branched alkyl with 1 to 4 carbon atoms, halogenoalkyl with up to 2 carbons atoms and up to 5 identical or different halogen atoms, cyano, nitro, optionally halogen-substituted phenyl and optionally halogen-substituted phenoxy; cycloalkyl with 3 to 7 carbon atoms or cycloalkenyl with 5 to 7 carbon atoms, in either case optionally substituted by alkyl with 1 to 4 carbon atoms; cycloalkylalkyl which has 3 to 7 carbon atoms in the cycloalkyl part and 1 to 4 carbon atoms in the straight-chain or branched alkyl part and is optionally substituted by alkyl with 1 to 4 carbon atoms; cycloalkenylalkyl which has 5 to 7 carbon atoms in the cycloalkenyl part and 1 to 4 carbon atoms in the straight-chain or branched alkyl part and is optionally substituted by alkyl with 1 to 4 carbon atoms; furyl or thiophenyl which in either case is optionally substituted by halogen or straight-chain or branched alkyl with 1 to 4 carbon atoms; alkoxyalkyl or alkylmercaptoalkyl with in either case 1 to 4 carbon atoms in each alkyl part; optionally substituted straight-chain or branched alkenyl, alkynyl or alkenynyl with in each case up to 6 carbon atoms, the substituents being selected from hydroxyl, alkoxy with 1 to 4 carbon atoms and phenyl which is optionally substituted by halogen; indenyl or fluorenyl which in either case is optionally substituted by halogen, alkyl with 1 to 4 carbon atoms or alkoxy with 1 to 4 carbon atoms; diphenyl- or triphenylmethyl, wherein each phenyl optionally carries one or more substitutents selected independently from halogen, straight-chain or branched alkyl with 1 to 4 carbon atoms, alkoxy and alkylthio with in either case 1 to 2 carbon atoms, halogenoalkyl with up to 2 carbon atoms and up to 5 identical or different halogen atoms, cyano, nitro, optionally halogen-substituted phenyl and optionally halogen-substituted phenoxy; or the grouping



R^3 represents hydrogen, cyano, straight-chain or branched alkyl with 1 to 4 carbon atoms, akenyl or alkynyl with in either case 2 to 4 carbon atoms, or the grouping —CO_2R^6, —$CONR^7R^8$, —$SO_2NR^7R^8$ or —SO_3H,

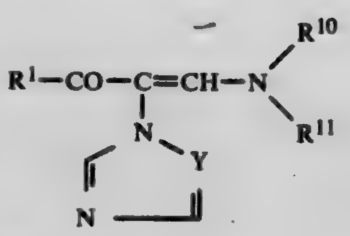
R^4 represents aryl which has 6 to 10 carbon atoms and optionally carries one or more substituents selected independently from halogen, straight-chain or branched alkyl with 1 to 4 carbon atoms, alkoxy and alkylthio with in either case 1 to 2 carbon atoms, halogenoalkyl with up to 2 carbon atoms and up to 5 identical or different halogen atoms, cyano, nitro, optionally halogen-substituted phenyl and optionally halogen-substituted phenoxy; furyl or thiophenyl which in either case is optionally substituted by halogen or alkyl with 1 to 4 carbon atoms; dioxolanyl or dithiolanyl which in either case is optionally substituted by alkyl with 1 to 4 carbon atoms, alkoxyalkyl with 1 to 4 carbon atoms in each alkyl part or benzyl; cyano, or the grouping —CO_2R^6 or —SO_2R^9,

R^5 represents hydrogen; straight-chain or branched alkyl with 1 to 4 carbon atoms; cycloalkyl which has 5 to 7 carbon atoms and is optionally substituted by alkyl with 1 to 2 carbon atoms; aryl which has 6 to 10 carbon atoms and optionally carries one or more substitutents selected independently from halogen, straight-chain or branched alkyl with 1 to 4 carbon atoms, alkoxy and alkylthio with in either case 1 to 2 carbon atoms, halogenoalkyl with up to 2 carbon atoms and up to 5 identical or different halogen atoms, cyano, nitro, optionally halogen-substituted phenyl and optionally halogen-substituted phenoxy;

R^6 represents hydrogen; straight-chain or branched alkyl with 1 to 4 carbon atoms; alkoxyalkyl with 1 to 4 carbon atoms in each alkyl part; or benzyl which optionally carries on the phenyl part one or more substitutents selected independently from halogen, straight-chain or branched alkyl with 1 to 4 carbon atoms, alkoxy and alkylthio with in either case 1 to 2 carbon atoms, halogenoalkyl with up to 2 carbon atoms and up to 5 identical or different halogen atoms, cyano, nitro, optionally halogen-substituted phenyl and optionally halogen-substituted phenoxy,

R^7 and R^8 are identical or different and each represent straight-chain or branched alkyl with 1 to 4 carbon atoms,

R^9 represents straight-chain or branched alkyl with 1 to 4 carbon atoms; or phenyl which optionally carries one or more substitutents selected independently from halogen, straight chain or branched alkyl with 1 to 4 carbon atoms, alkoxy and alkylthio with in either case 1 to 2 carbon atoms, halogenoalkyl with up to 2 carbon atoms and up to 4 identical or different halogen atoms, cyano, nitro, optionally halogen-substituted phenyl and optionally halogen-substituted phenoxy, comprising reacting a keto-enamine of the formula



in which

R^{10} and R^{11} are identical or different and each represent alkyl with 1 to 4 carbon atoms, with an organometallic compound of the formula

$Z-R^2$

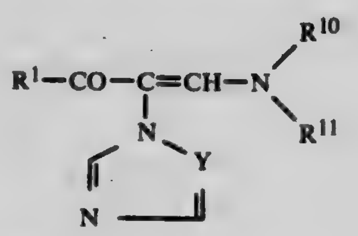
in which

Z represents the group Hal-Mg or an alkali metal or the grouping $LiCuR^2$, and

Hal represents halogen,

in the presence of a solvent.

14. A keto-enamine of the formula



in which

R^1 represents, straight-chain or branched alkyl with 1 to 6 carbon atoms, straight-chain or branched halogenoalkyl with 1 to 4 carbon atoms and 1 to 5 identical or different halogen atoms or aryl which has 6 to 10 carbon atoms and optionally carries one or more substituents selected independently from halogen, straight-chain or branched alkyl with 1 to 4 carbon atoms, alkoxy and alkylthio with in either case 1 to 2 carbon atoms, halogenoalkyl with up to 2 carbon atoms and up to 5 identical or different halogen atoms, cyano, nitro, optionally halogen-substituted phenyl and optionally halogen-substituted phenoxy,

Y is nitrogen or the CH group, and

R^{10} and R^{11} each independently is alkyl with 1 to 4 carbon atoms.

4,380,629

STYRYL-LIKE COMPOUNDS SHOWING A COLOR-DEVELOPING AND BLEACHING BEHAVIOR WITH IMPROVED STABILITY AND PROLONGED LIFETIME

Akio Yamashita, Machida, and Masaaki Hayami, Okayama, both of Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan

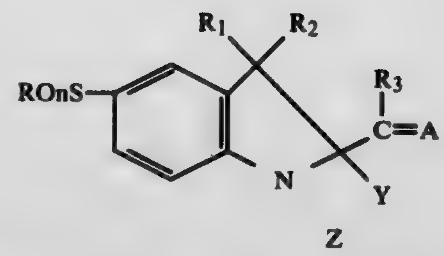
Filed Apr. 20, 1981, Ser. No. 255,374

Claims priority, application Japan, Apr. 21, 1980, 55-53268

Int. Cl.³ C07D *498/04*

U.S. Cl. 542—455 9 Claims

1. A styryl-like compound showing a color-developing and bleaching behavior with improved stability and prolonged lifetime and represented by the general formula



in which R represents an alkyl or phenyl group, R_1 and R_2 independently represent a lower alkyl group, a hydroxyalkyl group, or an alkoxyalkyl group, R_3 represents hydrogen, an alkyl group, a halogen, a nitrile group, an aromatic group or a phenoxy group, Y represents O or S, Z represents an alkylene radical or 2 to 4 carbon atoms, with or without alkyl substituent(s), necessary for forming a ring structure together with

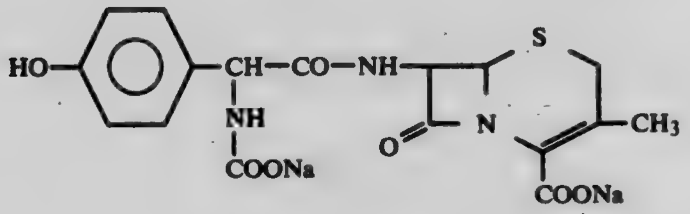
$$-N-\overset{\|}{C}-Y-,$$

A represents a residue of an aromatic aldehyde, selected from the group consisting of benzaldehyde, p-acetaminobenzaldehyde, p-bromobenzaldehyde, m-bromobenzaldehyde, o-bromobenzaldehyde, p-dimethylaminobenzaldehyde, p-diethylaminobenzaldehyde, p-dibutylaminobenzaldehyde, o-chlorobenzaldehyde, p-chlorobenzaldehyde, p-anisaldehyde, o-anisaldehyde, p-tolualdehyde, m-tolualdehyde, o-tolualdehyde, o-ethoxybenzaldehyde, p-ethoxybenzaldehyde, p-fluorobenzaldehyde, o-fluorobenzaldehyde, p-nitrobenzaldehyde, m-nitrobenzaldehyde, o-nitrobenzaldehyde, p-cyanobenzaldehyde, o-cyanobenzaldehyde, 2,4-dichlorobenzaldehyde, 2,6-dichlorobenzaldehyde, 3,4-dichlorobenzaldehyde, 3,5-dichlorobenzaldehyde, 2,4-dimethoxybenzaldehyde, 2,5-dimethoxybenzaldehyde, 3,4-dimethoxybenzaldehyde, 3,5-dimethoxybenzaldehyde, 2,4-dimethylbenzaldehyde, 2,5-dimethylbenzaldehyde, 3,4-dimethylbenzaldehyde, 3,5-dimethylbenzaldehyde, veratraldehyde(3,4-dimethoxybenzaldehyde), 4-isopropylbenzaldehyde, o-(2-chloroethyl)benzaldehyde, 2,4,6-trimethylbenzaldehyde(mesitylaldehyde), 2,4,6-triethoxybenzaldehyde, 3,4-dimethyl-p-anisaldehyde, 2,5-dimethyl-p-anisaldehyde, 2-chloro-5-nitrobenzaldehyde, 2-chloro-6-nitrobenzaldehyde, 2-chloro-3-nitrobenzaldehyde, 5-chloro-2-nitrobenzaldehyde, vanilin, o-vanilin, iso-vanilin, 5-bromo-vanilin, 2-chloro-4-dimethylaminobenzaldehyde, 2-chloro-6-fluorobenzaldehyde, 5-bromo-veratraldehyde, 6-bromo-veratraldehyde, 5-bromo-2-methoxybenzaldehyde, 1-naphthaladhyde, 2-naphthaladehyde, p-dimethylaminocinnamaldehyde, p-diethylcinnamaldehyde, p-nitrocinnamaldehyde, o-nitrocinnamaldehyde, 2-chlorocinnamaldehyde, 9-anthraldehyde, 10-chloro-9-anthraldehyde, 9-phenanthrenecarboxaldehyde and fluorencarboxaldehyde; a heterocyclic aldehyde, selected from the group consisting of furfural, 5-methylfurfural, 5-bromofurfural, 4-isopropylfurfural, 2-thiophenecarboxaldehyde, 5-methylthiophenecarboxaldehyde, 9-methoxythiophene-2-carboxaldehyde, 2-pyridinecarboxaldehyde, 3-pyridinecarboxaldehyde, 4-pyridinecarboxaldehyde, 1-ethylindole-3-carboxaldehyde, 1-methylindole-3-carboxaldehyde, 1-methyl-2-phenylindole-3-carboxaldehyde, N-methylcarbazole-2-carboxaldehyde, N-ethyl-7-bromocarbazole-2-carboxaldehyde, N-(n-octyl)-7-nitrocarbazole-2-carboxaldehyde, benzofuran-2-carboxaldehyde, dibenzofuran-2-carboxaldehyde, pyrrole-2-aldehyde, N-methylpyrrole-2-aldehyde, N-phenylpyrrole-2-aldehyde, 3-methylpyrrole-2-aldehyde, 2-ethylpyrrole-5-aldehyde, benzothiazole-2-aldehyde, 6-methylbenzothiazole-2-aldehyde, 6-chlorobenzothiazole-2-aldehyde, 5-chlorobenzothiazole-2-aldehyde, 6-methoxybenzothiazole-2-aldehyde, 5,6-dichlorobenzothiazole-2-aldehyde, benzoselenazole-2-aldehyde, 6-methoxybenzoselenazole-2-aldehyde, 2,4-dimethylpyrrole-2-aldehyde, 4,6-dichloropyrimidine-5-carboxaldehyde, 2-formyl-4,6-dimethylpyrimidine, quinoline-2-aldehyde, acridine-10-aldehyde, 2,4-diphenyl-

5,6,7-hexahydrobenzopyran-8-carboxaldehyde, and 2,4-diphenyl-6-methyl-5,6,7-pentahydrobenzopyran-8-carboxaldehyde; an aromatic nitroso compound selected from the group consisting of p-dimethylaminonitrosobenzene, p-diethylaminonitrosobenzene, p-methylnitroxobenzene (p-nitrosotoluene), p-nitronitrosobenzene, o-nitronitrosobenzene, and 3-nitroso-2-nitrotoluene; or a heterocyclic nitroso compound selected from the group consisting of 3-nitrosoindole, 2-methyl-3-nitrosoindole (3-nitrosomethyl-ketol), 3-nitroso-2-phenylindole and the like, and n is an integer of 2 or 3.

4,380,630
N-CARBOXY CEFADROXIL SODIUM SALT
Marco Falciani, and Renato Broggi, both of Milan, Italy, assignors to Dobfar S.p.A., Milan, Italy
Filed Mar. 4, 1981, Ser. No. 240,311
Claims priority, application Italy, Apr. 1, 1980, 21096 A/80
Int. Cl.[3] C07D *501/22*
U.S. Cl. 544—30 **1 Claim**

1. The N-carboxy cefadroxil disodium salt having formula

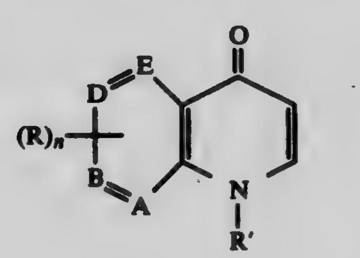


4,380,631
PREPARATION OF CAFFEINE
Kaspar Bott, Wachenheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed Mar. 19, 1982, Ser. No. 359,839
Claims priority, application Fed. Rep. of Germany, Apr. 7, 1981, 3113880
Int. Cl.[3] C07D *473/12*
U.S. Cl. 544—275 **2 Claims**

1. A process for the preparation of caffeine which comprises reacting methanol and carbon monoxide with an alkali metal salt of theophylline at a temperature of from 120° to 170° C. and under a carbon monoxide pressure of from 25 to 100 bar.

4,380,632
METHOD OF PREPARING QUINOLINES, NAPHTHYRIDINES AND OTHER NITROGEN BI-HETEROCYCLIC COMPOUNDS
Klaus-Dieter Steffen, Hennef, Fed. Rep. of Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany
Filed Jul. 24, 1981, Ser. No. 286,432
Claims priority, application Fed. Rep. of Germany, Jul. 28, 1980, 3028520
Int. Cl.[3] C07D *471/00, 487/00, 215/16, 215/20*
U.S. Cl. 544—279 **21 Claims**

1. A method for preparing a nitrogen heterocyclic of the formula



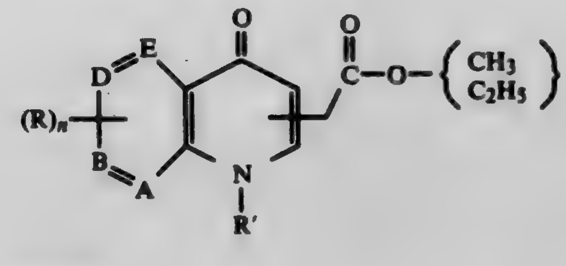
(I)

wherein

R = hydrogen, halogen, nitro, amino, keto, alkyl, alkenyl, substituted aryl, unsubstituted aryl, haloalkyl or aryl or alkyl substituents having a nitrogen, oxygen sulfur or SO_2 moiety in the chain or in a cyclic arrangement;

R′ = hydrogen, aryl, alkyl, alkenyl or haloalkyl; A, B, D, E, represent nitrogen or carbon atoms with up to 3 of said A, B, and D, representing nitrogen and the balance representing carbon atoms;

n is an integer from 0 to 4 which comprises saponifying a compound of the formula



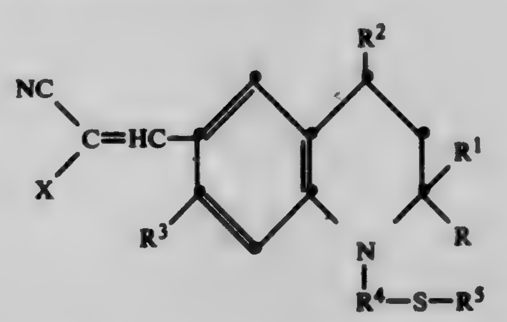
(II)

wherein

R, E, D, B, A, and R′ have the previously assigned significance by contacting the same with at least a stoichiometric amount of water in the presence of an acid catalyst in an amount of 0.05 to 3 weight percent under a pressure of 4 to 8 bars distilling out the alkanol, neutralizing the acid, and thereafter decarboxylating the so-saponified compound without isolating the product of saponification.

4,380,633
METHINE DYES FROM TETRAHYDROQUINOLINE COMPOUNDS CONTAINING N-THIOETHER SUBSTITUENTS
Clarence A. Coates, Jr., and Max A. Weaver, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.
Division of Ser. No. 26,846, Apr. 4, 1979, Pat. No. 4,260,742, which is a division of Ser. No. 802,090, May 31, 1977, Pat. No. 4,161,601. This application Dec. 1, 1980, Ser. No. 212,049
Int. Cl.[3] C07D *401/12, 413/12, 417/12*
U.S. Cl. 544—316 **9 Claims**

1. A compound of the formula



wherein X is selected from cyano, carbamoyl, lower alkylcarbamoyl, lower alkoxycarbonyl, lower alkylsulfonyl, and phenylsulfonyl; R, R^1, and R^2 are independently selected from hydrogen and lower alkyl; R^3 is selected from hydrogen, lower alkyl, lower alkoxy, fluorine, chlorine, and bromine; R^4 is lower alkylene; and R^5 is selected from hydroxyethyl, acetoxyethyl, cyclohexyl, methylcyclohexyl, p-chlorophenylethyl, pyridyl, quinolyl, pyrimidinyl, thiadiazolyl, pyrazyl, and oxdiazolyl radicals.

4,380,634

METHOD OF PREPARING 2-KETO-4,6,8,8-TETRAMETHYL-8,9-DIHYDRO-2H-PYRANO-(3,2-G) QUINOLINE, A BLUE-GREEN LASER DYE

Ronald L. Atkins, Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Continuation-in-part of Ser. No. 951,907, Oct. 16, 1978, abandoned. This application Oct. 5, 1981, Ser. No. 308,014
Int. Cl.^{3} C07D *471/04*
U.S. Cl. 546—89 **2 Claims**

1. A method for preparing 2-keto-4,6,8,8-tetramethyl-8,9-dihydro-2H-pyrano(3,2-g) quinoline consisting of:

mixing m-aminophenol and ethyl acetoacetate in the molar ratio of approximately 1:2 to form a mixture in the absence of a catalyst, or solvent;

heating said mixture at 150° C.; and

filtering 2-keto-4,6,8,8-tetramethyl-8,9-dihydro-2H-pyrano(3,2-g) quinoline.

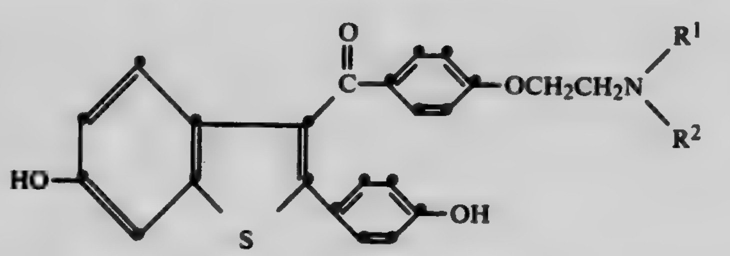
4,380,635

SYNTHESIS OF ACYLATED BENZOTHIOPHENES

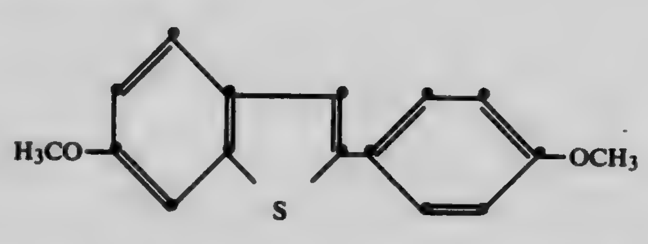
Mary K. Peters, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 246,333, Apr. 3, 1981, abandoned. This application Dec. 16, 1981, Ser. No. 331,046
Int. Cl.^{3} C07D *333/64*
U.S. Cl. 546—202 **13 Claims**

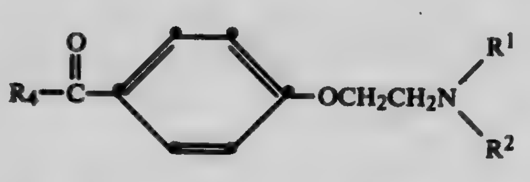
1. A process for preparing a compound of the formula



wherein R^1 and R^2 are independently C_1–C_4 alkyl, or combine to form C_4–C_6 polymethylene, —$CH_2CH(CH_3)CH_2CH_2$— or —$(CH_2)_2O(CH_2)_2$—; which process comprises acylating a compound of the formula



in the presence of aluminum chloride or aluminum bromide with an acylating agent of the formula



wherein R^4 is chloro or bromo; and adding to the reaction mixture a sulfur compound chosen from the group consisting of methionine and compounds of the formula

X—S—Y

wherein X is hydrogen or unbranched C_1–C_4 alkyl, and Y is C_1–C_4 alkyl or phenyl.

4,380,636

PROCESS FOR FORMING ESTERS (II)

James M. Renga, and Pen-Chung Wang, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 295,429, Aug. 24, 1981, abandoned. This application Jun. 11, 1982, Ser. No. 387,587
Int. Cl.^{3} C07D *211/78, 333/24;* **C07C** *79/46, 69/76*
U.S. Cl. 546—326 **14 Claims**

1. A process for preparing an ester or polyester corresponding to the formula:

$$R\left(\overset{O}{\overset{\|}{C}}OR_1'\right)_n,\ R_1'\left(\overset{O}{\overset{\|}{C}}R\right)_m \text{ or } \left(R_1'O\overset{O}{\overset{\|}{C}}\right)\left(R\overset{O}{\overset{\|}{C}}O\right)$$

wherein

m and n are one or two;

R is an aromatic or aliphatic moiety of up to 20 carbons having valence n selected from the group consisting of carbocyclic or nitrogen-, sulfur- or oxygen-containing heterocyclic aromatic groups, alkyl, cycloalkyl, alkylene or cycloalkylene groups and derivatives thereof containing noninterfering substituents;

R_1' is R_1 or a group of up to about 20 carbons having valence m selected from the group consisting of primary alkyl, substituted primary alkyl, primary alkylene, substituted primary alkylene and substituted aryl wherein the ring substituent or substituents are electron-withdrawing groups located in the ortho- or para-position; and

R_1 is a moiety of up to about 6 carbons having valence m selected from the group consisting of primary alkyl, primary alkylene, cycloalkyl, and primary alkenyl,

provided that in at least one occurrence R_1' is not R_1,

comprising contacting a carboxylic acid of the formula R—(-COOH)$_n$ wherein R and n are as previously defined with an organic ester of trichloroacetic acid corresponding to the formula

$$R_1\!-\!\left(O\overset{O}{\overset{\|}{C}}CCl_3\right)_m$$

wherein R_1 and m are as previously defined in the presence of a catalytic amount of an initiator at a temperature from about 100° C. to about 180° C. in the presence of an electrophilic halide esterifying agent of up to about 20 carbons selected from the group consisting of primary alkyl halides, substituted primary alkyl halides, primary alkylene dihalides, substituted primary alkylene dihalides and ring-substituted aromatic halides wherein the ring substituent or substituents are strongly electron-withdrawing groups located in the ortho- or para-position and subsequently recovering the ester or polyester formed.

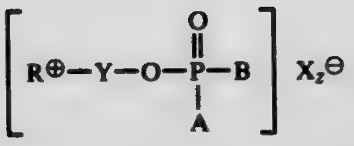
4,380,637

IMIDAZOLINE PHOSPHOBETAINES

Martin K. O. Lindemann, Bridgewater; Raymond L. Mayhew, Summit; Anthony J. O'Lenick, Jr., Fairlawn, and Robert J. Verdicchio, Succasunna, all of N.J., assignors to Johnson & Johnson/Mona Industries, Inc., New Brunswick, N.J.

Continuation of Ser. No. 95,182, Nov. 16, 1979, abandoned, which is a division of Ser. No. 965,461, Nov. 30, 1978, Pat. No. 4,215,064. This application Jan. 11, 1982, Ser. No. 338,728
Int. Cl.^{3} C07F *9/65*
U.S. Cl. 548—112 **6 Claims**

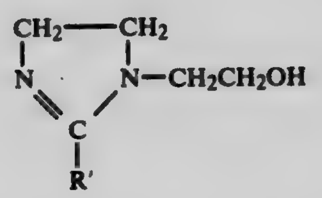
1. Phosphobetaine compound of the formula



wherein
A is selected from $O^{\ominus}$, OM and —O—Y—$R^{\oplus}$;
B is selected from $O^{\ominus}$ and OM';
$X^{\ominus}$ is an anion;
z is an integer from 0 to 2; with the proviso that only one of A and B can be $O^{\ominus}$ and z is of a value necessary for charge balance;

Y is $-CH_2-\underset{\large OH}{\underset{|}{C}H}-CH_2-$;

M is selected from hydrogen and a salt radical selected from alkali metals alkaline earth metals and mono, di- or triethanolamine;
M' is an organic radical selected from alkyl, hydroxyalkyl or polyhydroxyalkyl of up to 6 carbon atoms; and
R is a 2-alkyl-1-hydroxyethyl imidazoline of the formula



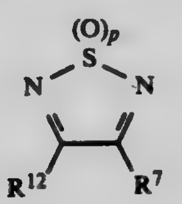
wherein
R' is alkyl of from 5 to 21 carbon atoms.

4,380,638
CHEMICAL COMPOUNDS

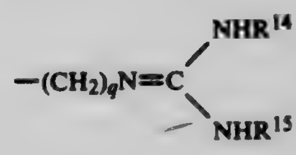
Ronnie R. Crenshaw, Dewitt, and Aldo A. Algieri, Fayetteville, both of N.Y., assignors to Bristol-Myers Company, New York, N.Y.

Division of Ser. No. 240,034, Mar. 3, 1981, which is a continuation-in-part of Ser. No. 163,831, Jul. 7, 1980, abandoned, which is a continuation-in-part of Ser. No. 117,182, Jan. 31, 1980, abandoned, which is a continuation-in-part of Ser. No. 72,517, Sep. 4, 1979, abandoned. This application Jun. 23, 1981, Ser. No. 276,602
Int. Cl.[3] **C07D** *285/10*
U.S. Cl. 548—135 **23 Claims**

1. A compound of the formula



wherein p is 1 or 2;
R^7 is a leaving group selected from halogen, (lower)alkoxy, (lower)alkylthio, phenoxy, phenylthio, substituted phenoxy and substituted phenylthio wherein the phenyl ring may contain 1 or 2 substituents selected from halogen, (lower)alkyl, (lower)alkoxy and nitro; and
R^{12} is $A(CH_2)_mZ(CH_2)_nNH—$, $R^2R^3N—$ or $HS(CH_2)_nNH—$; in which R^2 and R^3 each are independently hydrogen, (lower)alkyl, (lower)alkenyl, (lower)alkynyl, cyclo(lower)alkyl(lower)alkyl, hydroxy(lower)alkyl, (lower)alkoxy(lower)alkyl, (lower)alkylthio(lower)alkyl, 2-fluoroethyl, 2,2,2-trifluoroethyl or cyano(lower)alkyl, or, when R^2 is hydrogen, R^3 may also be cyclo(lower)alkyl, amino(lower)alkyl, (lower)alkylamino(lower)alkyl, di(lower)alkylamino(lower)alkyl, pyrrolidino(lower)alkyl, piperidino(lower)alkyl, piperazino(lower)alkyl, substituted pyridyl(lower)alkyl wherein the pyridyl ring may contain one substituent selected from (lower)alkyl, (lower)alkoxy, hydroxy, amino and halogen, amino, (lower)alkylamino, di(lower)alkylamino, hydroxy, (lower)alkoxy, 2,3-dihydroxypropyl, cyano, amidino, (lower)alkylamidino, phenyl, phenyl(lower)alkyl, substituted phenyl or substituted phenyl(lower)alkyl, wherein the phenyl ring may contain one or two substituents independently selected from (lower)alkyl, hydroxy, (lower)alkoxy and halogen or one substituent selected from methylenedioxy, trifluoromethyl and di(lower)alkylamino; or R^2 and R^3, taken together, may be $—CH_2CH_2X(CH_2)_r—$;
r is an integer of from 1 to 3, inclusive;
X is methylene, sulfur, oxygen or N—R^4, provided that, when p is 2 and R^7 is methoxy, R^2 and R^3 taken together with the nitrogen to which they are attached, may not be morpholino, and that, when r is 1, X is methylene;
R^4 is hydrogen, (lower)alkyl, (lower)alkenyl, (lower)alkynyl, (lower)alkanoyl or benzoyl;
m is an integer of from zero to 2, inclusive;
n is an integer of from 2 to 4, inclusive;
Z is sulfur, oxygen or methylene;
A is phenyl, imidazolyl, thiazolyl, isothiazolyl, oxazolyl, isoxazolyl, triazolyl, thiadiazolyl, oxadiazolyl, furyl, thienyl or pyridyl; provided that A may contain one or two substituents, the first substituent being selected from (lower)alkyl, hydroxy, trifluoromethyl, halogen, amino, hydroxymethyl, (lower)alkoxy,



and $—(CH_2)_qNR^5R^6$

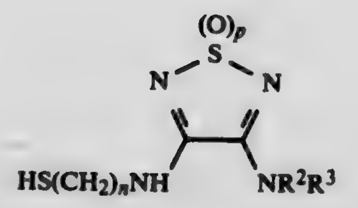
and the second substituent being selected from (lower)alkyl, hydroxy, trifluoromethyl, halogen, amino, hydroxymethyl and (lower)alkoxy;
q is an integer of from 0 to 6, inclusive;
R^{14} and R^{15} independently are hydrogen or (lower)alkyl, or if R^{14} is hydrogen, R^{15} also may be (lower)alkanoyl or benzoyl, or R^{14} and R^{15}, taken together, may be ethylene; and
R^5 and R^6 each are independently hydrogen, (lower)alkyl, (lower)alkenyl, (lower)alkynyl, (lower)alkoxy(lower)alkyl, cyclo(lower)alkyl or phenyl, provided that R^5 and R^6 may not both be cyclo(lower)alkyl or phenyl; or R^5 and R^6, taken together with the nitrogen atom to which they are attached, may be pyrrolidino, methylpyrrolidino, dimethylpyrrolidino, piperidino, methylpiperidino, dimethylpiperidino, hydroxypiperidino, homopiperidino, heptamethyleneimino or octamethyleneimino;
or a salt, hydrate, solvate or N-oxide thereof.

4,380,639
SUBSTITUTED 1,2,5-THIADIAZOLE DERIVATIVES

Ronnie R. Crenshaw, Dewitt, and Aldo A. Algieri, Fayetteville, both of N.Y., assignors to Bristol-Myers Company, New York, N.Y.

Division of Ser. No. 240,034, Mar. 3, 1981, which is a continuation-in-part of Ser. No. 163,831, Jul. 7, 1980, abandoned, which is a continuation-in-part of Ser. No. 117,182, Jan. 31, 1980, abandoned, which is a continuation-in-part of Ser. No. 72,517, Sep. 4, 1979, abandoned. This application Jun. 23, 1981, Ser. No. 276,606
Int. Cl.[3] **C07D** *285/10*
U.S. Cl. 548—135 **5 Claims**

1. A compound of the formula



wherein

p is 1 or 2;

n is an integer of from 2 to 4, inclusive;

R^2 and R^3 each are independently hydrogen, (lower)alkyl, (lower)alkenyl, (lower)alkynyl, cyclo(lower)alkyl(lower)alkyl, hydroxy(lower)alkyl, (lower)alkoxy(lower)alkyl, (lower)alkylthio(lower)alkyl, 2-fluoroethyl, 2,2,2-trifluoroethyl or cyano(lower)alkyl, or, when R^2 is hydrogen, R^3 may also be cyclo(lower)alkyl, amino(lower)alkyl, (lower)alkylamino(lower)alkyl, di(lower)alkylamino(lower)alkyl, pyrrolidino(lower)alkyl, piperidino(lower)alkyl, morpholino(lower)alkyl, piperazino(lower)alkyl, pyridyl(lower)alkyl, substituted pyridyl(lower)alkyl wherein the pyridyl ring may contain one substituent selected from (lower)alkyl, (lower)alkoxy, hydroxy, amino and halogen, amino, (lower)alkylamino, di(lower)alkylamino, hydroxy, (lower)alkoxy, 2,3-dihydroxypropyl, cyano, amidino, (lower)alkylamidino, $A'-(CH_2)_{m'}Z'(CH_2)_{n'}-$, phenyl, phenyl(lower)alkyl, substituted phenyl or substituted phenyl(lower)alkyl, wherein the phenyl ring may contain one or two substituents independently selected from (lower)alkyl, hydroxy, (lower)alkoxy and halogen or one substituent selected from methylenedioxy, trifluoromethyl and di(lower)alkylamino; or R^2 and R^3, taken together, may be $-CH_2CH_2X(CH_2)_r-$;

r is an integer of from 1 to 3, inclusive;

X is methylene, sulfur, oxygen or N-R^4, provided that, when r is 1, X is methylene;

R^4 is hydrogen, (lower)alkyl, (lower)alkenyl, (lower)alkynyl, (lower)alkanoyl or benzoyl;

m' is an integer of from zero to 2, inclusive;

n' is an integer of from 2 to 4, inclusive;

Z' is sulfur, oxygen or methylene;

A' is phenyl, imidazolyl, thiazolyl, isothiazolyl, oxazolyl, isoxazolyl, triazolyl, thiadiazolyl, oxadiazolyl, furyl, thienyl or pyridyl; provided that A' may contain one or two substituents, the first substituent being selected from (lower)alkyl, hydroxy, trifluoromethyl, halogen, amino, hydroxymethyl, (lower)alkoxy,

$$-(CH_2)_qN{=}C\begin{matrix}\diagup NHR^{14}\\ \diagdown NHR^{15}\end{matrix} \quad \text{and} \quad -(CH_2)_qNR^5R^6,$$

and the second substituent being selected from (lower)alkyl, hydroxy, trifluoromethyl, halogen, amino, hydroxymethyl and (lower)alkoxy;

q is an integer of from 0 to 6, inclusive;

R^{14} and R^{15} independently are hydrogen or (lower)alkyl, or, if R^{14} is hydrogen, R^{15} also may be (lower)alkanoyl or benzoyl, or R^{14} and R^{15}, taken together, may be ethylene; and

R^5 and R^6 each are independently hydrogen, (lower)alkyl, (lower)alkenyl, (lower)alkynyl, (lower)alkoxy(lower)alkyl, cyclo(lower)alkyl, phenyl or phenyl(lower)alkyl, provided that R^5 and R^6 may not both be cyclo(lower)alkyl or phenyl; or R^5 and R^6, taken together with the nitrogen atom to which they are attached, may be pyrrolidino, methylpyrrolidino, dimethylpyrrolidino, morpholino, thiomorpholino, piperidino, methylpiperidino, dimethylpiperidino, hydroxypiperidino, N-methylpiperazino, homopiperidino, heptamethyleneimino or octamethyleneimino; or a salt, hydrate, solvate or N-oxide thereof.

4,380,640

NOVEL BENZTHIAZOLYLUREA DERIVATIVES, COMPOSITIONS CONTAINING THEM AND THEIR USE AS HERBICIDES

Hans-Georg Brunner, Lausen, and Werner Föry, Basel, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

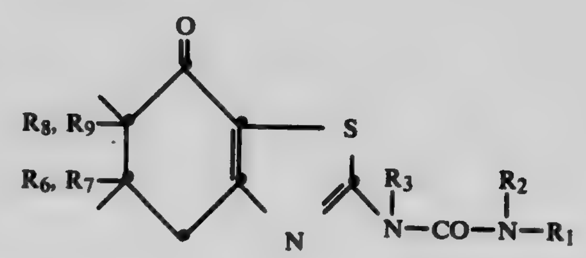
Filed Jan. 12, 1981, Ser. No. 224,583

Claims priority, application Switzerland, Jan. 21, 1980, 464/80

Int. Cl.[3] C07D *277/82, 417/12*

U.S. Cl. 548—163 **10 Claims**

1. A benzthiazolylurea of the formula



wherein

R_1 is hydrogen or C_1–C_4 alkyl,

R_2 is C_1–C_6 alkyl or methoxy,

or

R_1 and R_2 together with the nitrogen atom to which they are attached form a piperidino or pyrrolidino group which can be substituted by C_1–C_3 alkyl, and

each of R_6, R_7, R_8 and R_9 is hydrogen or non-sterically hindering C_1–C_4 alkyl.

4,380,641

INSECTICIDAL OXAZOLYL UREAS

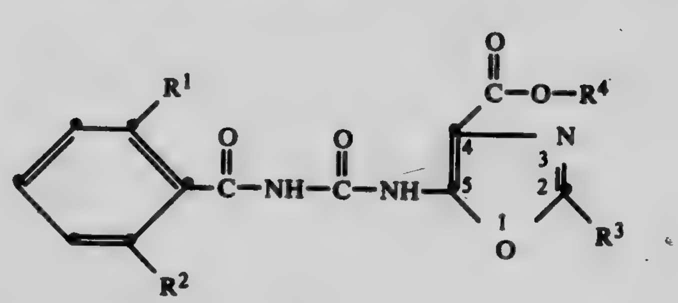
Emily J. Canada, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Oct. 26, 1981, Ser. No. 315,130

Int. Cl.[3] C07D *263/34;* **A01N** *43/28*

U.S. Cl. 548—233 **10 Claims**

1. A compound of the formula:



wherein:

R^1 is halogen or methoxy;

R^2 is hydrogen or halogen;

R^3 is hydrogen, methyl or ethyl;

R^4 is C_1–C_4 alkyl;

with the provisos that when R^4 is ethyl and one of R^1 and R^2 is chlorine, the other of R^1 and R^2 must be other than chlorine; and when R^2 is hydrogen and R^4 is ethyl, R^1 is other than chlorine.

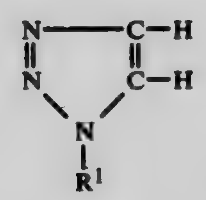
4,380,642

SIMULTANEOUS PREPARATION OF PYRAZOLE AND TRIAZOLES

Norbert Rieber; Rolf Platz, both of Mannheim, and Werner Fuchs, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

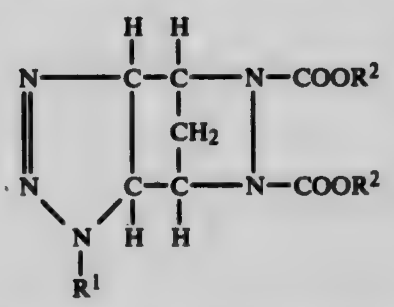
Filed Jul. 17, 1981, Ser. No. 284,398
Claims priority, application Fed. Rep. of Germany, Aug. 20, 1980, 3031347
Int. Cl.[3] **C07D** *249/04, 249/06, 231/12*
U.S. Cl. 548—255 **8 Claims**

1. A process for the simultaneous preparation of pyrazole and triazoles of the formula



I

where
R^1 is:
hydrogen; or
alkyl of 1 to 18 carbon atoms, cycloalkyl of 5 to 8 carbon atoms, aralkyl or alkylaryl of 7 to 12 carbon atoms; or
phenyl or naphthyl which are unsubstituted or substituted by from 1 to 5 bromine atoms, fluorine atoms, chlorine atoms, iodine atoms, nitro groups, dialkylamino groups of 1 to 4 carbon atoms per alkyl group and/or alkoxy groups of 1 to 4 carbon atoms, and where R^1 may be additionally substituted by halogen, nitro or alkyl or alkoxy each of 1 to 4 carbon atoms, which process comprises a first step of reacting a triazoline compound of the formula



II

where R^1 has the above meaning and R^2 is hydrogen, alkyl of 1 to 18 carbon atoms or said alkyl additionally substituted by halogen, nitro or alkyl or alkoxy each of 1 to 4 carbon atoms, with a basic compound and, thereafter, a second step of oxidizing the product of said first step with hydrogen peroxide.

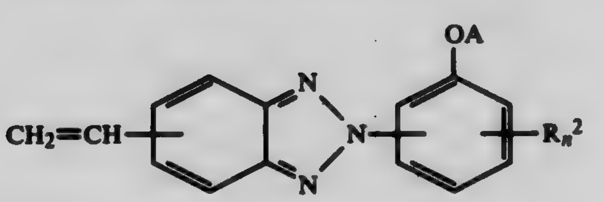
4,380,643

BENZOTRIAZOLE COMPOUND AND HOMOPOLYMER OR COPOLYMERS THEREOF

Shohei Yoshida, Kanagawa, Japan, and Otto Vogl, Amherst, Mass., assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Filed Aug. 24, 1981, Ser. No. 295,545
Int. Cl.[3] **C07D** *249/20*
U.S. Cl. 548—260 **3 Claims**

1. A benzotriazole compound of the formula:



wherein A is hydrogen or acetyl; R^2 is a C_1–C_4 alkyl group and n is 1 or 2.

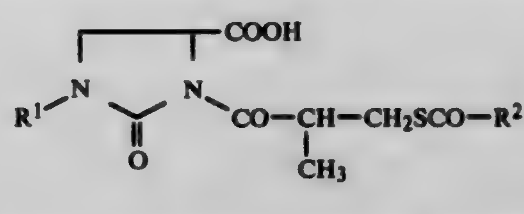
4,380,644

2-OXOIMIDAZOLIDINE DERIVATIVES

Naoto Yoneda, Suita; Jyoji Kato, Yawata, and Keizo Kinashi, Yao, all of Japan, assignors to Tanabe Siyaku Co., Ltd., Japan

Filed Aug. 7, 1981, Ser. No. 291,105
Claims priority, application Japan, Nov. 21, 1980, 55-164829
Int. Cl.[3] **C07D** *233/26*
U.S. Cl. 548—321 **2 Claims**

1. A 2-oxoimidazolidine derivative of the formula:



wherein R^1 is methyl, ethyl or benzyl and R^2 is phenyl, or a pharmaceutically acceptable salt thereof.

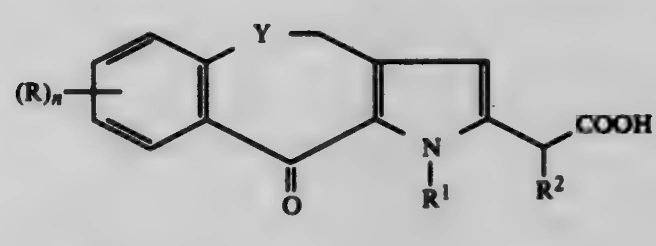
4,380,645

PROCESS FOR PREPARING BENZOXEPINO- OR BENZTHIAPINO[4,3-B]PYRROLE-2-ACETIC ACIDS

Bruce E. Witzel, Rahway; Paul E. Finke, Metuchen, and Debra L. Allison, Scotch Plains, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Dec. 11, 1981, Ser. No. 329,842
Int. Cl.[3] **C07D** *491/044, 495/04*
U.S. Cl. 548—430 **10 Claims**

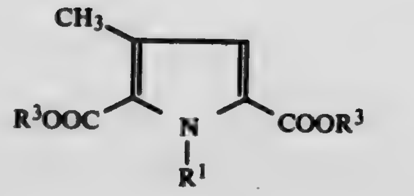
1. A process for preparing a compound of formula (II)



(II)

wherein:
Y is O or S;
n is an integer from 1 to 4;
R is
(a) hydrogen;
(b) lower alkyl;
(c) halo-loweralkyl;
(d) hydroxy or loweralkoxy;
(e) —OCH_2O— when n is 2 and the two Rs join together to form the methylenedioxy group;
(f) halo;
(g) lower alkylthio;
(h) lower alkylsulfinyl;
(i) lower alkylsulfonyl; or
(j) lower alkenyl;
R^1 is
(a) hydrogen;
(b) lower alkyl;
(c) lower alkenyl;
(d) aralkyl; and
R^2 is
(a) hydrogen;
(b) lower alkyl;
(c) halo; or
(d) loweralkoxy;
comprising:
(1) Halogenating a compound of formula (III)

(III)

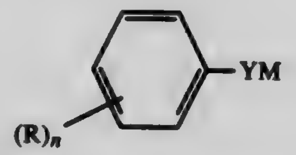


wherein:

R^1 is as previously defined; and

R^3 is lower alkyl;

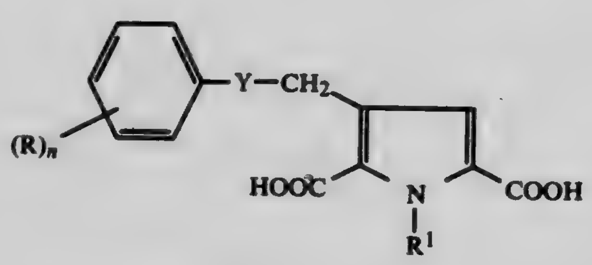
(2) Treating the resultant 4-halomethyl derivative from Step (1) with a compound of formula



wherein R, n, and Y are as previously defined; and M is an alkali metal cation;

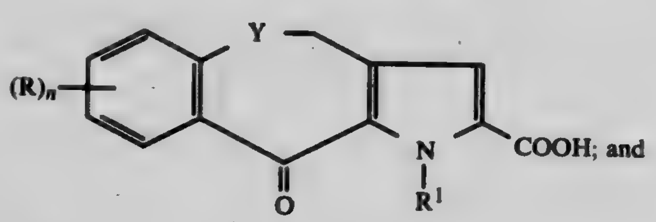
(3) Hydrolyzing the resultant 4—$(R)_nC_6H_{5-n}$—Y-CH_2-derivative from Step (2) to a diacid of formula (V)

(V)



(4) Inducing intramolecular ring closure of the diacid (V) by treatment with a condensing agent to form a tricyclic carboxylic acid of formula (VI)

(VI)



(5) Extending the carboxylic acid side chain of the tricyclic compound (VI) by the Arndt Eistert procedure which further comprises:

(a) converting the tricyclic carboxylic acid (VI) to its corresponding acid chloride;

(b) treating the acid chloride with a diazoalkane to form the corresponding diazoketone of compound (VI);

(c) causing the diazoketone to rearrange to a homologous acid of formula (II) in the presence of a metal salt and a solvent.

4,380,646

METHOD FOR THE N-ACYLATION OF AMINOCARBOXYLIC ACIDS

Giselher Franzmann, Witten, Fed. Rep. of Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

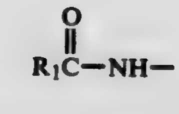
Filed Jan. 29, 1981, Ser. No. 229,433

Claims priority, application Fed. Rep. of Germany, Feb. 2, 1980, 3003898

Int. Cl.³ C07D *209/20;* **C07C** *103/34, 103/76*

U.S. Cl. 548—502 **18 Claims**

1. A process for the preparation of an



acylated 3,4-di-hydroxyphenyl alanine or a naturally occurring aminocarboxylic acid, which comprises the step of contacting its alkali metal or alkaline earth metal salt with a lower alkyl carboxylic acid ester of the formula

R_1-CO-O-R_2,

wherein R_1 represents hydrogen or a straight-chain or branched or cyclic hydrocarbon moiety of 1 to 30 carbon atoms, and wherein R_2 represents a straight-chain, branched or cyclic hydrocarbon moiety of 1 to 8 carbon atoms, in the presence of an alkali metal or alkaline earth metal alcoholate.

4,380,647

2-AMINOPYRROLIN 5-ONES AND AMINOCYCLOPROPYL ISOCYANATES THEREFROM

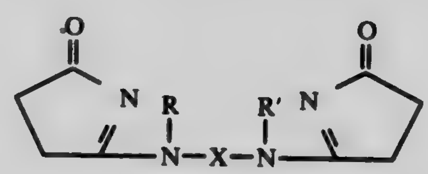
Tad H. Koch, and Barry J. Swanson, both of Boulder, Colo., assignors to University Patents, Inc., Norwalk, Conn.

Filed Mar. 3, 1981, Ser. No. 240,043

Int. Cl.³ C07D *207/26;* **C07C** *118/00, 119/045*

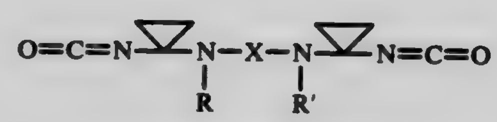
U.S. Cl. 548—519 **14 Claims**

1. Bis-(2-aminopyrrolin-5-ones) characterized by the structure



where R and R' are hydrocarbyl substituents containing from 1 to about 12 carbon atoms and are selected from the class consisting of alkyl, aryl, alkaryl, and aralkyl groups, and X is a substantially rigid bridging unit selected from the group consisting of 1,4-substituted butyne-2, 1,4-substituted trans-butene-2, bis-methyl substituted m-xylene, bis-methyl substituted p-xylene, and said hydrocarbyl substituted derivatives thereof.

7. Bis-(aminocyclopropyl isocyanates) characterized by the structure



where R and R' are hydrocarbyl substituents containing from 1 to about 12 carbon atoms and are selected from the class consisting of alkyl, aryl, alkaryl, and aralkyl groups, and X is a substantially rigid bridging unit selected from the group consisting of 1,4-substituted butyne-2, 1,4-substituted trans-butene-2, bis-methyl substituted m-xylene, bis-methyl substituted p-xylene, and said hydrocarbyl substituted derivatives thereof.

4,380,648

OXIDATION OF BUTANE TO MALEIC ANHYDRIDE

Carl A. Udovich, Joliet, and Bernard L. Meyers, Wheaton, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Division of Ser. No. 149,842, May 14, 1980, Pat. No. 4,283,288. This application Mar. 25, 1981, Ser. No. 247,361

Int. Cl.³ C07D *307/60*

U.S. Cl. 549—259 **3 Claims**

1. A process for the preparation of maleic anhydride which comprises contacting a feedstock consisting of n-butane and a gas containing molecular oxygen in the vapor phase in the presence of a phosphorus-vanadium mixed oxide catalyst the

atomic ratio of vanadium to phosphorus being in the range of 0.5:1 to 1.25:1 wherein the catalyst has a characteristic powder X-ray diffraction pattern using copper K alpha radiation as follows:

d angstrom	Line Position 2.0 degrees	Intensity
5.7	15.6	67
4.5	19.7	47
3.7	24.3	36
3.3	27.1	53
3.1	28.8	26
2.9	30.5	100
2.8	32.2	17
2.7	33.7	20

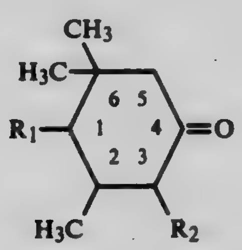
4,380,649
ISOPHORONE DERIVATIVES

Joseph E. Dunbar, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Nov. 23, 1981, Ser. No. 324,193
Int. Cl.³ C07D *309/38, 311/18*
U.S. Cl. 549—285 **7 Claims**

1. A compound of the formula

(I)

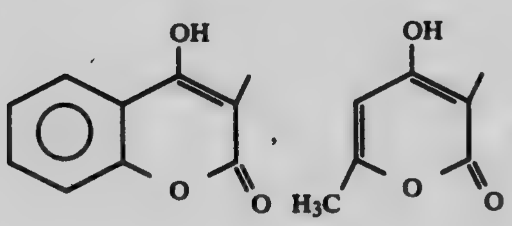


wherein

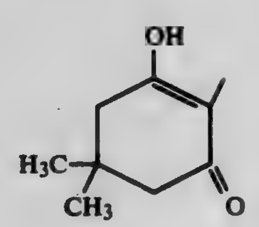
the dotted line represents a double bond in the 1-2 or the 2-3 ring position;

when R_1 represents

(II)

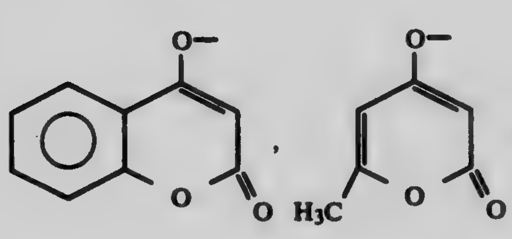


or



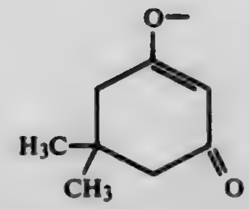
then R_2 is hydrogen and the double bond is in the 1-2 ring position; otherwise R_1 represents hydrogen, and R_2 represents

(III)



or

-continued



and the double bond is in the 2-3 ring position.

4,380,650
LACTONE PROCESS

James P. Coleman; Richard C. Hallcher, both of Maryland Heights, and Dudley E. McMackins, St. Charles, all of Mo., assignors to Monsanto Company, St.Louis, Mo.

Filed Jan. 2, 1981, Ser. No. 222,199
Int. Cl.³ C07D *307/32*
U.S. Cl. 549—326 **22 Claims**

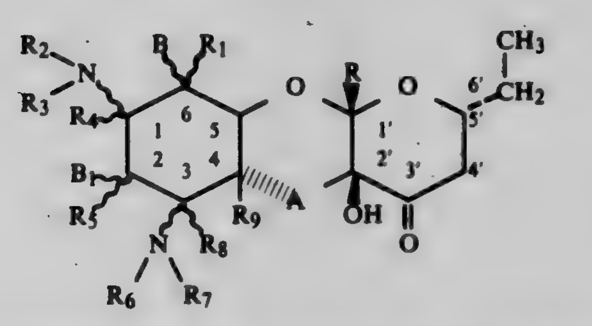
1. The process of converting acyloxyhexenoic acids selected from 6-acyloxy-4-hexenoic acid, 4-acyloxy-5-hexenoic acid and mixtures of same, to γ-vinyl-γ-butyrolactone which comprises reacting such acids under conditions suitable for elimination of the acyloxy moiety for a time sufficient to effect such conversion.

4,380,651
PROCESS FOR PREPARING 6′-METHYLSPECTINOMYCIN AND ANALOGS THEREOF

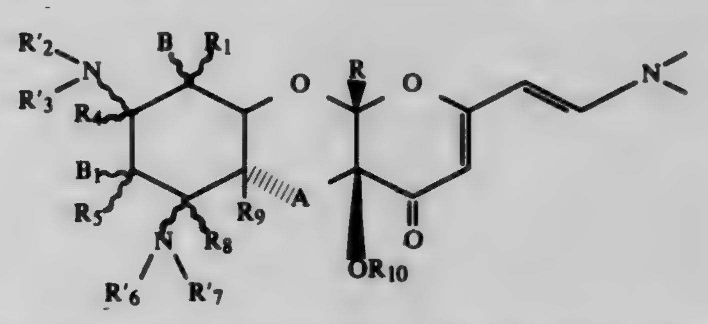
David R. White, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Jul. 20, 1981, Ser. No. 285,164
Int. Cl.³ C07D *319/20, 327/06*
U.S. Cl. 549—361 **4 Claims**

1. A process for preparing a compound having the formula



which comprises reducing a compound having the formula



with hydrogen in the presence of a catalyst selected from the group consisting of palladium, barium sulfate, palladium hydroxide, and palladium/barium sulfate; wherein R is hydrogen or alkyl and R_1 through R_9 are selected from the group consisting of hydrogen, lower alkyl, lower alkenyl and lower alkynyl with the proviso that one of R_2 and R_3 is always hydrogen and one of R_6 and R_7 is always hydrogen, and B and B_1 are the same or different and are selected from the group consisting of hydrogen, hydroxy, alkoxy, o-lower alkenyl, thio, thio-lower alkyl and thio-lower alkenyl; and A is selected from the group consisting of oxygen and sulfur; R'_2, R'_3, R'_6 and R'_7 are se-

lected from the group consisting of lower alkyl, lower alkenyl, lower alkynyl, and a blocking group selected from the group consisting of aralkoxycarbonyl, halogenated-alkoxycarbonyl, with the proviso that one of R'_2 and R'_3 is always a blocking group and one of R'_6 and R'_7 is always a blocking group; and R_{10} is acyl.

4,380,652

ENAMINES OF 6'-METHYLSPECTINOMYCIN AND PROCESS FOR PREPARING THE SAME

David R. White, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

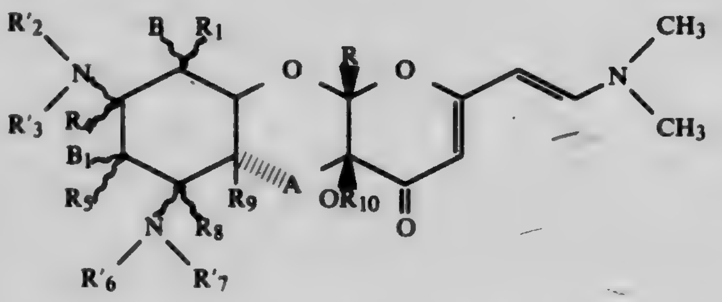
Filed Jul. 20, 1981, Ser. No. 285,165

Int. Cl.³ C07D *319/20, 327/06*

U.S. Cl. 549—361 **6 Claims**

1. A compound having the formula

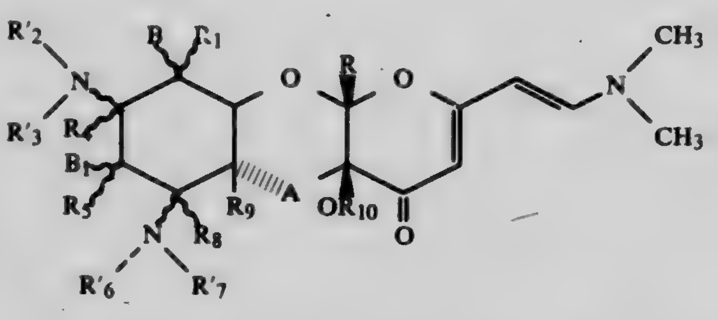
V



wherein R is hydrogen or alkyl and R_1, R_4, R_5, R_8, and R_9 are selected from the group consisting of hydrogen, lower alkyl, lower alkenyl, and lower alkylyl; B and B_1 are the same or different and are selected from the group consisting of hydrogen, hydroxy, alkoxy, o-lower alkenyl, thio, thio-lower alkyl and thio-lower alkenyl; A is selected from the group consisting of oxygen and sulfur; R'_2, R'_3, R'_6 and R'_7 are selected from the group consisting of lower alkyl, lower alkenyl, lower alkynyl, and a blocking group selected from the group consisting of aralkoxycarbonyl, halogenated-alkoxycarbonyl and alkoxycarbonyl; with the proviso that one of R'_2 and R'_3 is always a blocking group, and that one of R'_6 and R'_7 is always a blocking group; and R_{10} is acyl.

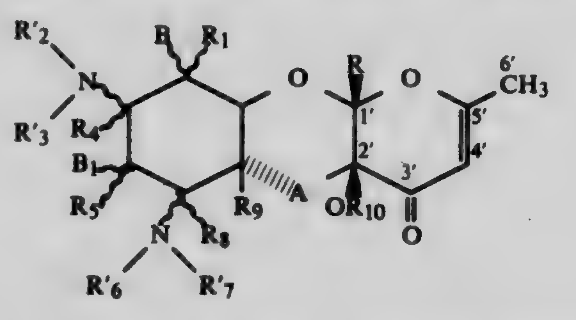
4. A process for preparing a compound having the formula

V



which comprises reacting a compound having the formula

VI



with, in an excess of an acetal of dimethylformamide wherein R is hydrogen or alkyl and R_1, R_4, R_5, R_8, and R_9 are selected from the group consisting of hydrogen, lower alkyl, lower alkenyl, and lower alkynyl; B and B_1 are the same or different and are selected from the group consisting of hydrogen, hydroxy, alkoxy, o-lower alkenyl, thio, thio lower alkyl and thio-lower alkenyl; A is selected from the group consisting of oxygen and sulfur; R'_2, R'_3, R'_6 and R'_7 are selected from the group consisting of lower alkyl, lower alkenyl, lower alkynyl, and a blocking group selected from the group consisting of aralkoxycarbonyl, halogenated-alkoxycarbonyl and alkoxycarbonyl; with the proviso that one of R'_2 and R'_3 is always a blocking group, and that one of R'_6 and R'_7 is always a blocking group; and R_{10} is acyl.

4,380,653

1,5-BIS-(1,4-BENZODIOXIN-2-YL)-3-AZAPENTANE-1,5-DIOLS

Charles F. Huebner, Chatham, and Heinz W. Gschwend, New Providence, both of N.J., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

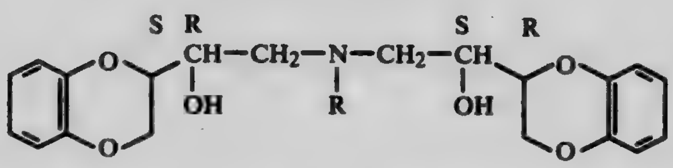
Continuation-in-part of Ser. No. 196,503, Oct. 14, 1980, Pat. No. 4,313,955. This application Sep. 8, 1981, Ser. No. 299,261

Int. Cl.³ A61K *31/335*

U.S. Cl. 549—366 **2 Claims**

1. A compound of the formula

(V)



wherein R is benzyl, an isomeric mixture of the erythro series containing said compound, or an acid addition salt thereof.

4,380,654

PROCESS FOR PREPARATION OF 2,3-DIHYDRO-2,2-DIMETHYL-7-HYDROXYBENZOFURAN

Borivoj R. Franko-Filipasic, Morrisville, Pa., and Philip B. Hobson, Trenton, N.J., assignors to FMC Corporation, Philadelphia, Pa.

Filed Feb. 18, 1982, Ser. No. 349,804

Int. Cl.³ C07P *307/86*

U.S. Cl. 549—462 **7 Claims**

1. A process for thermally rearranging and cyclizing 2-methallyloxyphenol in the presence of a solvent to form 2,3-dihydro-2,2-dimethyl-7-hydroxybenzofuran which comprises heating 2-methallyloxyphenol in a pressurizable reactor at a temperature in the range of 150° C.–250° C. in the presence of a catalytic amount of Lewis acid catalyst selected from the group consisting of aluminum chloride, zinc chloride, mercuric chloride, hydrogen chloride, ferrous chloride, rhodium chloride, stannic chloride, magnesium chloride and ferric chloride, under an autogenous pressure in the range of 20 to 60 psig.

4,380,655

NOVEL SULFUR-CONTAINING FLAVORING AGENTS

Steven van den Bosch, Woudenberg; Dirk K. Kettenes, Putten; Kris Bart de Roos, Hoevelaken; Gerben Sipma, Hoevelaken, and Jan Stoffelsma, Hoevelaken, all of Netherlands, assignors to P.F.W. Beheer B.V., Amersfoort, Netherlands

Division of Ser. No. 762,534, Jan. 26, 1977, Pat. No. 4,119,737, which is a continuation of Ser. No. 531,274, Dec. 10, 1974, abandoned. This application May 22, 1978, Ser. No. 908,492

Claims priority, application United Kingdom, Dec. 13, 1973, 57908/73

Int. Cl.³ C07D *307/38;* **A23L** *2/26*

U.S. Cl. 549—472 **1 Claim**

1. 2-Methyl-3-(2'-methyl-2'-tetrahydrofurythio)-tetrahydrofuran.

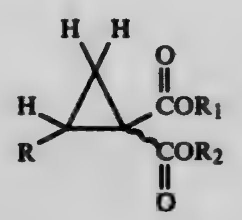
4,380,656

2-VINYL- AND 2-ETHYLCYCLOPROPANE CARBOXYLATES

Richard G. Fayter, Jr., Fairfield, Ohio, assignor to Emery Industries, Inc., Cincinnati, Ohio

Filed Jul. 27, 1981, Ser. No. 287,395
Int. Cl.[3] C07D *69/743, 69/747*
U.S. Cl. 549—473 **7 Claims**

1. A compound of the formula



wherein R is an ethyl or vinyl group, R_1 and R_2 are hydrocarbon radicals containing from 1 to 30 carbon atoms and selected from the group consisting of aliphatic, cycloaliphatic and aromatic radicals, with the proviso that R_1 and R_2 cannot both be aliphatic hydrocarbon radicals.

4,380,657

CONVERSION OF ALKANOLS TO ETHERS

Lynn H. Slaugh, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 219,279, Dec. 22, 1980, Pat. No. 4,335,022, which is a continuation-in-part of Ser. No. 61,205, Jul. 27, 1979, abandoned. This application Mar. 5, 1982, Ser. No. 355,011
Int. Cl.[3] C07D *307/08*
U.S. Cl. 549—509 **14 Claims**

1. A process for converting alkanols to ethers which comprises contacting the alcohols at about 150° C. to about 550° C. with a catalyst prepared by a process which comprises impregnating a substantially dehydrated amorphorous silica gel with aluminum hydride dissolved in an anhydrous, nonhydroxyl containing organic solvent, drying the impregnated silica to remove the solvent and subsequently heating the impregnated silica at a temperature of about 300° to about 900° C. in a non-oxidizing atmosphere.

4,380,658

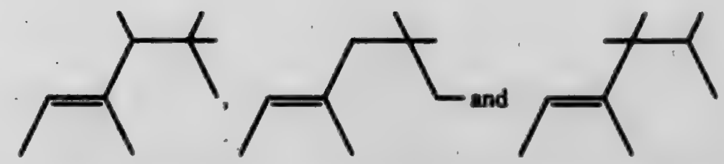
MIXTURE OF ALIPHATIC C_{10}-BRANCHED OLEFIN EPOXIDES AND USE THEREOF IN AUGMENTING OR ENHANCING THE AROMA OF PERFUMES AND/OR ARTICLES

Richard M. Boden, Monmouth Beach; Lambert Dekker, Wyckoff; Frederick L. Schmitt, Holmdel, all of N.J., and Augustinus G. Van Loveren, Rye, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

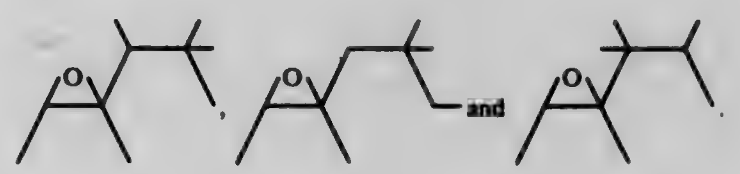
Division of Ser. No. 195,630, Oct. 9, 1980, Pat. No. 4,335,009, which is a continuation-in-part of Ser. No. 160,788, Jun. 19, 1980, Pat. No. 4,287,084. This application Feb. 18, 1982, Ser. No. 350,093
Int. Cl.[3] C07D *301/14, 303/04*
U.S. Cl. 549—525 **1 Claim**

1. A product produced according to the process comprising the steps of reacting isoamylene having the structure:

with a Lewis acid or a mineral acid to form a mixture of di-isoamylenes having the structures:



and then reacting the said mixture of di-isoamylenes with a peracid in order to form a mixture of epoxides having the structures:



4,380,659

OLEFIN OXIDATION WITH METHYL FORMATE SOLVENT

Paul W. Solomon, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 12, 1979, Ser. No. 3,064
Int. Cl.[3] C07D *301/06*
U.S. Cl. 549—532 **3 Claims**

1. A method for oxidizing an olefin containing from 3 up to about 18 carbon atoms per molecule which is represented by the formula

$$R_1-\overset{\overset{\displaystyle R_2}{|}}{C}=\overset{\overset{\displaystyle R_3}{|}}{C}-R_4$$

wherein each R_1, R_2, R_3, and R_4 is independently selected from a group consisting of hydrogen, alkyl, and cycloalkyl radicals and wherein there is at least one hydrogen attached to a carbon atom adjacent to the olefinic group said method comprising contacting said olefin with molecular oxygen in a liquid reaction medium consisting essentially of said olefin and methyl formate said methyl formate present in the reaction medium in a minimum amount of about 80 weight percent.

4,380,660

PRODUCING ALKOXYSILANES AND ALKOXY-OXIMINOSILANES

Chempolil T. Mathew, Randolph, and Harry E. Ulmer, Morristown, both of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

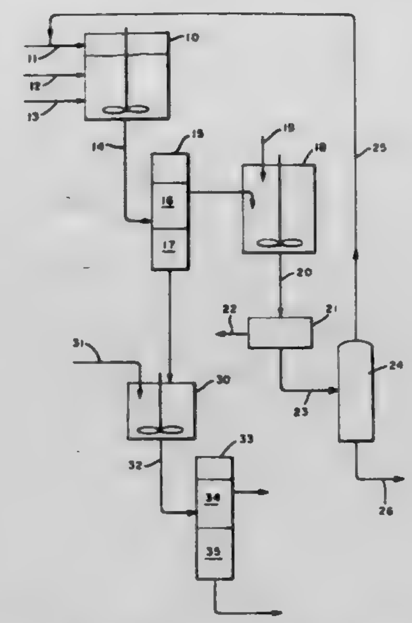
Filed Jul. 1, 1982, Ser. No. 394,353
Int. Cl.[3] C07F *7/10, 7/18*
U.S. Cl. 556—422 **20 Claims**

1. A method for the production of an alkoxysilane which comprises:

(a) reacting a silicon halide of the formula $R_{4-n}SiX_n$, wherein n is an integer between 1 and 4, inclusive, and R is alkyl of 1–6 carbons, alkenyl of 2–6 carbons, cycloalkyl of 4–8 carbons, aryl, alkyl-substituted aryl, aralkyl or halosubstituted forms of any of these with an alcohol of the formula R'OH, with R' being alkyl of 1–24 carbons or aralkyl, in the presence of an oxime compound of the formula R''R'''C═NOH, with R'' and R''' each being hydrogen or alkyl of 1–6 carbons or forming an unsubstituted, halosubstituted or alkylsubstituted cycloalkyl ring of 4–8 carbons, and X is Cl, Br or I;

the molar ratio of alcohol to silicon halide being at least n:1

and the molar ratio of oxime to silicon halide being at least n:1; and



(b) recovering the alkoxysilane of the formula $R_{4-n}Si(OR')_n$ as major product and the hydrohalide of said oxime as byproduct.

4,380,661

2-[4-(4-SUBSTITUTED PHENOXY)PHENOXY]PROPANOIC ACIDS AND ESTERS

Milos Suchy, Pfaffhausen, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

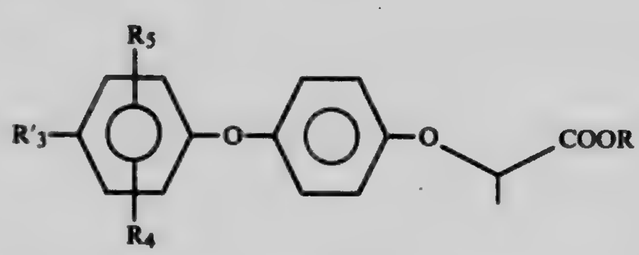
Continuation of Ser. No. 89,791, Oct. 31, 1979, abandoned, which is a division of Ser. No. 962,087, Nov. 20, 1978, Pat. No. 4,200,587. This application Feb. 23, 1981, Ser. No. 237,196

Claims priority, application Luxembourg, Nov. 28, 1977, 78591; Switzerland, Sep. 15, 1978, 9667/78

Int. Cl.³ C07C *69/712, 59/68*

U.S. Cl. 560—62 **5 Claims**

1. An optically active compound of the D-configuration having the formula



wherein R is hydrogen or alkyl of from 1 to 6 carbons, R'_3 is bromine or trifluoromethyl and R_4 and R_5 are hydrogen with the proviso that R is alkyl of from 1 to 6 carbons when R'_3 is trifluoromethyl.

4,380,662

PROCESS FOR THE PURIFICATION OF TEREPHTHALIC ACID

Jacques D. V. Hanotier, Lasne Chapelle St. Lambert, and Jacques F. Dauby, Groot-Bijgaarden, both of Belgium, assignors to Labofina, S.A., Brussels, Belgium

Filed Mar. 16, 1981, Ser. No. 243,703

Int. Cl.³ C07C *51/42*

U.S. Cl. 562—486 **11 Claims**

1. A process for the purification to fiber-grade quality of a crude terephthalic acid product contaminated with up to 10% by weight of partially oxidized impurities including p-toluic acid and an amount of 4-carboxybenzaldehyde which is higher than the amount permissible for fiber grade terephthalic acid, comprising the steps of:

(a) dissolving the crude product in water by heating up to a temperature at least about 5° C. higher than necessary for having the resulting solution saturated with terephthalic acid;

(b) cooling the resulting solution down to a temperature greater than 185° C. to precipitate purified crystals;

(c) recovering the purified crystals by solid-liquid separation at a temperature not lower than that used for the precipitation of the purified crystals; and

(d) washing the recovered crystals by contacting with water at a temperature which is at least as high as the temperature of the recovery step.

4,380,663

PROCESS FOR THE PREPARATION OF PRACTICALLY FORMIC ACID-FREE ACETIC ACID

Günter Roscher, Kelkheim; Helmut Schaum, Bad Soden am Taunus, and Heinz Schmitz, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 670,412, Mar. 25, 1976, abandoned. This application Oct. 20, 1977, Ser. No. 844,048

Claims priority, application Fed. Rep. of Germany, Mar. 27, 1975, 2513678; Dec. 18, 1975, 2557004

Int. Cl.³ C07C *51/235, 53/08*

U.S. Cl. 562—536 **7 Claims**

1. In a process for the preparation of acetic acid substantially free of formic acid by oxidation of acetaldehyde with oxygen in the liquid phase in the presence of a catalyst at a temperature of from 40° C. to 120° C., the improvement which comprises oxidizing liquid acetaldehyde in the presence of a catalytic mixture of cobalt, nickel, and manganese compounds, one of said compounds being present in an amount up to five times the sum of the amounts of the other compounds.

4,380,664

PROCESS FOR PRODUCING UNSATURATED ALDEHYDES, AND UNSATURATED FATTY ACIDS

Hiromichi Ishii; Hideo Matsuzawa; Masao Kobayashi, all of Ohtake, and Kantaro Yamada, Yokohama, all of Japan, assignors to Mitsubishi Rayon Company, Ltd., Tokyo, Japan

Division of Ser. No. 667,371, Mar. 16, 1976, Pat. No. 4,111,984, which is a continuation-in-part of Ser. No. 474,218, May 29, 1974, Pat. No. 3,972,920. This application Mar. 29, 1978, Ser. No. 891,222

Claims priority, application Japan, Jun. 11, 1973, 48-65563; Aug. 28, 1973, 48-96345; Dec. 18, 1973, 48-142118; Dec. 26, 1973, 49-144000

Int. Cl.³ C07C *45/35, 47/22, 51/25, 57/05*

U.S. Cl. 562—546 **9 Claims**

1. In a process for the gas phase catalytic oxidation of at least one olefinic hydrocarbon of 3 to 4 carbon atoms in the presence of molecular oxygen at 200° to 450° C. to produce mixtures of the corresponding aldehyde and acid, the improvement comprising: oxidizing said compound over a calcined catalyst consisting essentially of $Mo_aSb_bBi_cFe_dNi_eSn_fX_gY_hO_i$ wherein X is at least one alkali metal selected from the group consisting of potassium, rubidium and cesium; Y is at least one metal selected from the group consisting of cobalt, uranium, germanium, tungsten and titanium; a to h are atomic ratios wherein a=12, b=0.2 to 20, c=0.2 to 12, d=0.2 to 12, e=0.2 to 12, f=0 to 20, g=0.01 to 4 and h=0 to 6; and i is determined according to the oxidation states of the metal atoms in the catalyst.

4,380,665

METHYL ISOCYANATE EMISSION CONTROL

John W. Ager, Princeton, N.J., assignor to FMC Corporation, Philadelphia, Pa.

Filed Sep. 8, 1981, Ser. No. 299,892

Int. Cl.³ C07C *127/15*

U.S. Cl. 564—61 **2 Claims**

1. A process for removing methyl isocyanate from a gaseous

effluent stream comprising contacting the gaseous effluent stream with alumina for a period sufficient to hydrolyze the methyl isocyanate to 1,3-dimethylurea.

4,380,666

COLOR-FORMING SULFONAMIDODIPHENYLAMINE DYE PRECURSOR THAT PRODUCES PHENAZINE DYE

Rolf S. Gabrielsen, Webster; Patricia A. Graham, Williamson, and James E. Klijanowicz, Pittsford, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 6, 1981, Ser. No. 280,628
Int. Cl.^{3} C07C *143/75*
U.S. Cl. 564—82 **9 Claims**

1. A color-forming para-sulfonamidodiphenylamine dye precursor having one or two sulfonamido groups in positions ortho to the amine —NH— moiety separating the two phenyl rings of the para-sulfonamidodiphenylamine, the remaining two or three ortho positions of the sulfonamidodiphenylamine being unsubstituted, and wherein the parasulfonamidodiphenylamine, in oxidized form, intramolecularly reacts to produce a sulfonamido substituted phenazine dye.

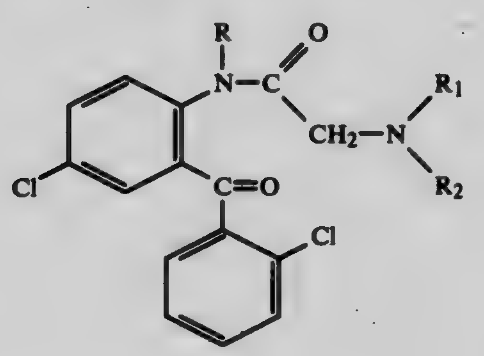
4,380,667

2'-(ORTHOCHLOROBENZOYL)-4'-CHLOROGLYCYLANILIDES, COMPOSITIONS THEREOF, AND USE AS MEDICAMENTS

Gilbert Mouzin; Henri Cousse, and Antoine Stenger, all of Castres, France, assignors to Pierre Fabre S.A., Paris, France

Filed Sep. 19, 1979, Ser. No. 76,841
Claims priority, application France, Sep. 25, 1978, 78 27401
Int. Cl.^{3} C07C *103/50*
U.S. Cl. 564—195 **3 Claims**

1. 2'-(ortho-chlorobenzoyl)-4'-chloroglycylanilides selected from compounds having the formula I:



(I)

in which:

R represents hydrogen or lower-alkyl;

R_1 and R_2 are lower-hydroxyalkyl,

and pharmaceutically acceptable inorganic or organic acid addition salts thereof.

4,380,668

DECAPRENYLAMINE DERIVATIVES

Yoshiyuki Tahara, Ohi; Hiroyasu Koyama, Ageo; Yasuhiro Komatsu, Niiza; Reiko Kubota, Tokyo, and Toshihiro Takahashi, Ohi, all of Japan, assignors to Nisshin Flour Milling Co., Ltd., Tokyo, Japan

Filed Nov. 19, 1980, Ser. No. 208,324
The portion of the term of this patent subsequent to Mar. 30, 1999, has been disclaimed.
Int. Cl.^{3} C07C *87/28;* **A61K** *31/13;* **C07D** *213/06;* **A61K** *31/44*
U.S. Cl. 564—391 **3 Claims**

1.

$$H\!\left(CH_2-\overset{\overset{\large CH_3}{|}}{C}=CH-CH_2\right)_{10}\!\overset{\overset{\large R_1}{|}}{N}\!\left(CH_2\right)_{n}\!R_2$$

wherein n represents an integer of 0–2, R_1 represents hydrogen atom, a lower alkyl group or decaprenyl group, and R_2 represents the phenyl group, and pharmaceutically acceptable acid addition salts thereof.

4,380,669

PROCESS FOR SYNTHESIZING ANILINE

Clarence D. Chang, Princeton, and William H. Lang, Pennington, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Apr. 8, 1981, Ser. No. 252,487
Int. Cl.^{3} C07C *85/06*
U.S. Cl. 564—402 **8 Claims**

1. A process for converting phenol or phenolic type compounds to aniline or substituted anilines comprising contacting said phenol or phenolic compound with ammonia or a suitable amine under conversion conditions in the presence of a crystalline alumino silicate zeolite having a constraint index within the approximate range of 1–12 and a silica to alumina ratio of at least 12.

4,380,670

PROCESS FOR PRODUCING 1,3,5-TRIAMINOBENZENE

Ryuzo Nishiyama, Takatsuki; Kanichi Fujikawa, Moriyama; Isao Yokomichi, Moriyama; Itaru Shigehara, Moriyama, and Mikio Miyaji, Shiga, all of Japan, assignors to Ishihara Sangyo Kaisha Ltd., Osaka, Japan

Filed Apr. 3, 1981, Ser. No. 250,552
Int. Cl.^{3} C07C *85/04*
U.S. Cl. 564—407 **7 Claims**

1. A process for producing an aminobenzene comprising reacting ammonia at substantially higher than atmospheric pressure with 3,5-diaminochlorobenzene to produce 1,3,5-triaminobenzene at a temperature of 150° to 250° C. at a molar ratio of ammonia to 3,5-diaminochlorobenzene of 2 to 10 in the presence of a copper compound catalyst selected from the group consisting of copper salt, copper oxide, and copper hydroxide.

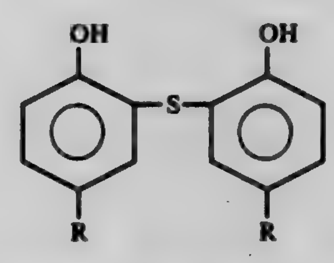
4,380,671

PROCESS FOR THE PREPARATION OF 2,2'-BIS(4-SUBSTITUTED PHENOL)SULFIDES

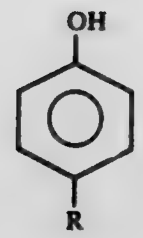
Akihiro Yamaguchi, Kamakura; Tadashi Kobayashi, Yokohama; Keizaburo Yamaguchi, Kawasaki, and Hisamichi Murakami, Yokohama, all of Japan, assignors to Mitsui Toatsu Chemicals, Incorporated, Japan

Continuation of Ser. No. 75,263, Sep. 13, 1979, abandoned. This application Jul. 30, 1981, Ser. No. 288,428
Claims priority, application Japan, Sep. 14, 1978, 53/112270; Aug. 2, 1979, 54/98054
Int. Cl.^{3} C07C *149/36*
U.S. Cl. 568—48 **14 Claims**

1. Process for the preparation of 2,2'-bis(4-substituted phenol)sulfides of purity of the order of 93.5–98.5% and of the general formula



where R is an alkyl radical having from 1 to 12 carbon atoms, a cycloalkyl radical having from 3 to 12 carbon atoms, or an aralkyl radical having from 7 to 11 carbon atoms, which comprises the step of reacting a 4-substituted phenol of the general formula



where R is the same as above, with sulfur dichloride in a molar ratio of 2 moles of phenol per 0.8–1.5 moles of sulfur dichloride in a hydrocarbon solvent or a halogenated hydrocarbon solvent at a temperature of from −10° to 40° C. and in the presence of a Lewis acid catalyst.

4,380,672

CONVERSION OF 2-PHENYL PROPANAL TO 2-INDANONE

Louis J. Velenyi, Lyndhurst, and Andrew S. Krupa, Twinsburg, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Continuation-in-part of Ser. No. 182,282, Aug. 28, 1980, Pat. No. 4,329,506. This application Feb. 2, 1982, Ser. No. 345,264

Int. Cl.³ C07C *45/67*

U.S. Cl. 568—310 **5 Claims**

1. A process of converting 2-phenyl propanal to 2-indanone, the process comprising contacting at conversion conditions 2-phenyl propanal with a catalyst of the formula

$$Mo_{12}Cu_{0.1\text{-}10}V_{0.1\text{-}5}W_{0.1\text{-}3}M_{0\text{-}3}O_x \qquad (I)$$

where

M is at least one of tin, lead, chromium, gold, silver, selenium, antimony, bismuth, phosphorus, arsenic, cerium, tellurium, thorium, uranium and a Group IA, IIA, IIB, IVB or VIII element, and

x is the number of oxygen atoms determined by the valence requirements of the other elements present.

4,380,673

CATALYST AND PROCESS FOR MANUFACTURING A KETONE BY DEHYDROGENATION OF A SECONDARY ALCOHOL

Jean-Paul Bournonville, Chatou; Roger Snappe, Sevres; Jean Miquel, Paris, and Germain Martino, Poissy, all of France, assignors to Institut Francais Du Petrole, Rueil-Malmaison, France

Filed Jun. 26, 1981, Ser. No. 277,581

Claims priority, application France, Jun. 26, 1980, 80 14290; Jan. 19, 1981, 81 01018

Int. Cl.³ C07C *45/00*

U.S. Cl. 568—361 **17 Claims**

1. In a process comprising contacting a secondary alcohol, in the liquid phase and in the presence of a solvent, with a dehydrogenation catalyst, and recovering the resultant ketone,

the improvement wherein said catalyst consists essentially of a Raney nickel catalyst and 0.1–10% by weight, expressed as elemental metal and with respect to the Raney nickel, of at least one additional metal, said additional metal being copper, silver, gold, tin, lead, zinc, cadmium, indium or germanium; wherein the reaction is effected at a temperature of about 170°–230° C.; and wherein said solvent is a $C_{12\text{-}20}$ paraffinic hydrocarbon or hydrocarbon cut having a content of aromatic hydrocarbons and aromatic hydrocarbon generators, expressed as benzene, lower than 1,000 ppm and a sulfur content lower than 500 ppm; whereby hydrogenolysis to produce degradation products is reduced and the selectivity of the dehydrogenation is increased.

4,380,674

BRANCHED KETONES, ORGANOLEPTIC USES THEREOF AND PROCESS FOR PREPARING SAME

Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

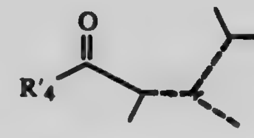
Continuation-in-part of Ser. No. 184,132, Sep. 4, 1980, Pat. No. 4,321,255. This application Nov. 5, 1981, Ser. No. 318,428

The portion of the term of this patent subsequent to Aug. 24, 1999, has been disclaimed.

Int. Cl.³ C07C *49/203*

U.S. Cl. 568—417 **13 Claims**

1. An unsaturated branched-chain ketone defined according to the structure:



wherein R_4' represents C_1–C_4 lower alkyl, and one of the dashed lines represents a carbon-carbon double bond and the other of the dashed lines represent carbon-carbon single bonds.

4,380,675

2,4-DIALKYL-2,6-HEPTADIENAL DERIVATIVES, A PROCESS FOR THEIR PREPARATION, AND FRAGRANT AND FLAVORING PRODUCTS MADE THEREWITH

Helmut Gebauer, Munich, and Walter Hafner, Furth, both of Fed. Rep. of Germany, assignors to Consortium fur Elektrochemische Industrie GmbH, Munich, Fed. Rep. of Germany

Filed Feb. 2, 1981, Ser. No. 230,778

Claims priority, application Fed. Rep. of Germany, Apr. 9, 1980, 3013672

Int. Cl.³ C07C *47/21*

U.S. Cl. 568—448 **3 Claims**

1. A compound selected from the group consisting 2,4-dimethyl-2,6-heptadienal; 2,4-diethyl-2,6-heptadienal; 2,4-di-n-propyl-2,6-heptadienal; 2,4-di-iso-propyl-2,6-heptadienal; 2,4-dimethyl-2,6-heptadienol; and 2,4-diethyl-heptanol.

4,380,676

PROCESS FOR THE PRODUCTION OF 2,2′-DIHYDROXY-BIPHENYLS

Michael Rasberger, Riehen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

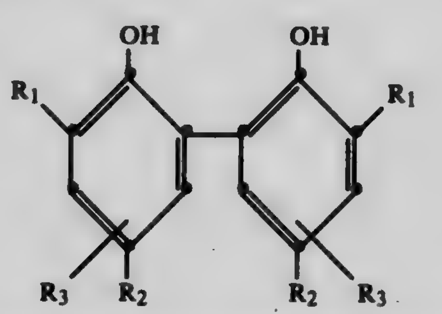
Filed Feb. 20, 1981, Ser. No. 236,467

Claims priority, application Switzerland, Feb. 29, 1980, 1625/80

Int. Cl.³ C07C *39/12, 39/15*

U.S. Cl. 568—730 **11 Claims**

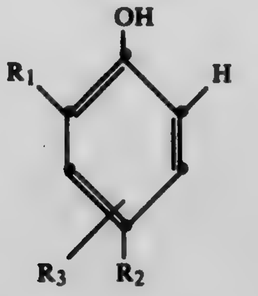
1. A process for the production of a 2,2′-dihydroxybiphenyl of the formula I



(I)

wherein each of R_1 and R_2 independently is hydrogen, C_1–C_{18}alkyl, C_2–C_6alkenyl, or C_5–C_7cycloalkyl, phenyl or C_7–C_9-phenylalkyl, each of which is unsubstituted or substituted by one to three C_1–C_4alkyl radicals, or R_1 and R_3 together are a butadi-1,3-enyl-1,4-ene radical which is bonded to the benzene ring in the 3,4 and 3′, 4′-positions, and R_2 is also a —$(CH_2)_n$$COOR_4$ group, wherein R_4 is C_1–C_{18}alkyl and n is 0, 1 or 2,

and R_3 is hydrogen or C_1–C_{18}alkyl, with the proviso that when R_1 is hydrogen, R_2 and R_3 are a 1,1,3,3-tetramethylpropylene radical which is bonded to the benzene ring in the 4,5- and 4',5'-positions, which process comprises oxidatively coupling, at elevated temperatures, a phenol of the formula II



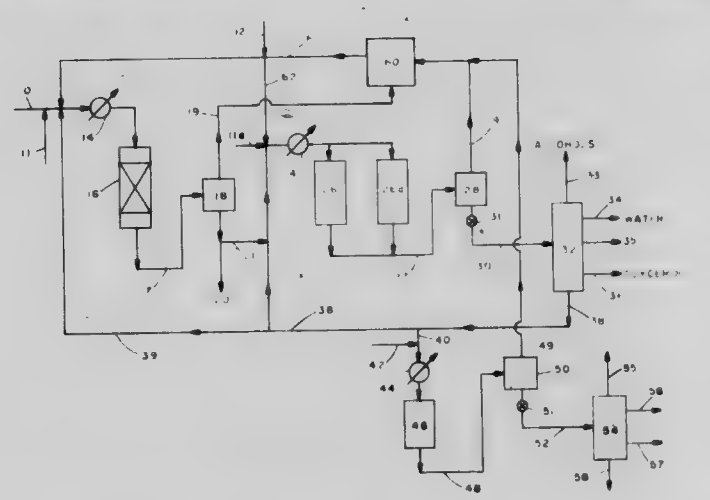
(II)

wherein R_1, R_2 and R_3 are as defined above, with hydrogen peroxide in the presence of a strong inorganic base.

4,380,677
PREPARATION OF 2,6-DI-TERT-BUTYL-4-ALKYLPHENOLS
Paul R. Kurek, Schaumburg, Ill., assignor to UOP Inc., Des Plaines, Ill.
Filed May 11, 1981, Ser. No. 262,366
Int. Cl.³ C07C *39/06, 37/11*
U.S. Cl. 568—788 **7 Claims**

1. A method of preparing a 2,6-di-tert-butyl-4-alkylphenol comprising reacting a 4-alkylphenol with from about 3 to about 10 molar proportions of 2-methylpropene at a temperature from about 50° to about 125° C. in the presence of a macroreticular cation exchange resin bearing sulfonic acid groups, said resin having an internal surface area from about 200 to about 600 m^2/g with an average pore diameter from about 30 to about 120 Angstroms, and recovering the 2,6-di-tert-butyl-4-alkylphenol produced thereby.

4,380,678
MULTI-STAGE ALDOSES TO POLYOLS PROCESS
Amalesh K. Sirkar, Lawrenceville, N.J., assignor to Hydrocarbon Research, Inc., Lawrenceville, N.J.
Filed Mar. 20, 1981, Ser. No. 226,998
Int. Cl.³ C07C *31/18, 31/20, 31/22, 31/26*
U.S. Cl. 568—863 **10 Claims**



1. A process for catalytic conversion of monosaccharides to produce polyols, comprising the steps of:

(a) providing a feedstream containing at least about 20 W % monosaccharide solution and having pH of 7 to 14;

(b) preheating the feed and hydrogen gas to at least about 100° C., and passing the heated feedstream mixture through a first stage fixed bed catalytic reaction zone containing a stabilized high activity nickel on silica-alumina support containing 50–60 W % porous nickel and having 0.060–0.250 inch diameter particle size and surface area of 140–180 M^2/gm;

(c) maintaining said first reaction zone at conditions of 130°–180° C. temperature, 500–2000 psig partial pressure of hydrogen, and 0.5–3.5 V.Hr/V space velocity, for achieving at least about 90 W % conversion of the feed to alditols;

(d) withdrawing product containing alditol solution and passing it with a promotor material and hydrogen gas to a second-stage fixed-bed reaction zone containing a particulate high activity stabilized metal catalyst which catalyst comprises 50–65 W % porous nickel on an inert support, has 4–12 mesh (0.187–0.66 inch) particle size (U.S. Sieve Series), and a catalyst age of 8–200 hours before regeneration to maintan its activity;

(e) maintaining said second reaction zone conditions within the range of 430°–490° F. temperature, 1200–2000 psig hydrogen partial pressure, and 1.5–3.0 liquid hourly space velocity (LHSV) for achieving at least about 30 W % conversion of the alditol to products;

(f) withdrawing from the second reaction zone a product stream in which the alditol is converted between about 30 to 80 W % to yield glycerol and glycol products, and passing the polyol-containing stream to a recovery step from which mainly glycerol product is withdrawn;

(g) recycling a heavy purge stream containing aldose and alditols diluted with alcohol and/or water to the first stage reaction zone for further conversion to alditols and glycerols, respectively.

4,380,679
HYDROGENATION OF SACCHARIDES
Blaise J. Arena, Des Plaines, Ill., assignor to UOP Inc., Des Plaines, Ill.
Filed Apr. 12, 1982, Ser. No. 367,494
Int. Cl.³ C07C *31/26*
U.S. Cl. 568—863 **13 Claims**

1. A process for the hydrogenation of a saccharide which comprises treating said saccharide with hydrogen at hydrogenation conditions in the presence of a catalyst comprising a metal of Group VIII of the Periodic Table composited on a support comprising a carbonaceous pyropolymer possessing recurring units containing at least carbon and hydrogen atoms, and recovering the resultant hydrogenated saccharide.

4,380,680
METHOD FOR HYDROGENATING AQUEOUS SOLUTIONS OF CARBOHYDRATES
Blaise J. Arena, Des Plaines, Ill., assignor to UOP Inc., Des Plaines, Ill.
Filed May 21, 1982, Ser. No. 380,809
Int. Cl.³ C07C *31/26, 31/24, 31/18*
U.S. Cl. 568—863 **11 Claims**

1. A method for the hydrogenation of a carbohydrate to its polyol(s) comprising contacting at hydrogenating conditions an aqueous solution of the carbohydrate with hydrogen and a catalyst consisting essentially of a zerovalent Group VIII metal selected from the group consisting of osmium, ruthenium, palladium and platinum dispersed on alpha-alumina, and recovering the formed polyol(s).

4,380,681

HYDROCARBONYLATION OF METHANOL TO ETHANOL IN THE PRESENCE OF ADDED COMPOUNDS

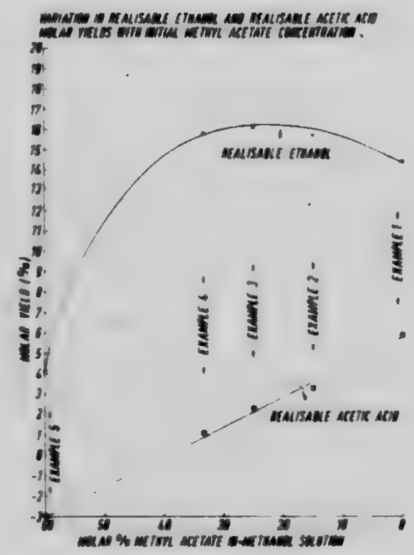
John L. Barclay, Tadworth, and Brian R. Gane, Weybridge, both of England, assignors to The British Petroleum Company Limited, London, England

Continuation of Ser. No. 52,006, Jun. 25, 1979, abandoned, which is a continuation of Ser. No. 908,060, May 22, 1978, abandoned. This application Nov. 26, 1980, Ser. No. 210,547

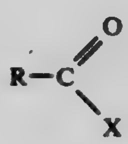
Claims priority, application United Kingdom, May 27, 1977, 22490/77

Int. Cl.[3] C07C *29/00*

U.S. Cl. 568—902 **23 Claims**



1. A process for the production of ethanol which process comprises contacting a mixture of methanol and synthesis gas at elevated temperature and pressure with a cobalt-containing catalyst in the presence of an additive which is deliberately added to the reaction system, said additive being selected from the group consisting of monocarboxylic acids and derivatives thereof having the formula



(I)

wherein the substituent R is selected from hydrocarbyl groups and oxygen-containing hydrocarbyl groups and the substituent X is selected from the groups —OR^1 and —O—CO—R^2 in which R^1 is selected from the group consisting of a hydrogen atom, a hydrocarbyl group and an oxygen-containing hydrocarbyl group and R^2 is selected from the group consisting of a hydrocarbyl group and an oxygen-containing hydrocarbyl group, said additive of formula I being added in an amount such that the molar ratio of additive to free methanol contacted with the catalyst is in the range of from 0.1:1 to 1.5:1, provided that when R and R^1 are both methyl then the molar ratio of additive to free methanol contacted with the catalyst is in the range of from about 0.1:1 to 0.7:1.

4,380,682

BALANCED CHLORINATION PROCESS

Frederick C. Leitert, North Madison, and Carl G. Vinson, Jr., Mentor, both of Ohio, assignors to Diamond Shamrock Corporation, Dallas, Tex.

Continuation of Ser. No. 782,974, Mar. 30, 1977, which is a continuation-in-part of Ser. No. 734,249, Oct. 20, 1976, Pat. No. 4,124,534. This application Feb. 22, 1982, Ser. No. 351,219

The portion of the term of this patent subsequent to Nov. 7, 1995, has been disclaimed.

Int. Cl.[3] C07C *17/152*

U.S. Cl. 570—219 **6 Claims**

1. A process of halogenating aliphatic hydrocarbons which comprises the steps of:

(a) non-selectively oxyhalogenating an aliphatic hydrocarbon to a partially halogenated intermediate product having an overall average empirical formula using as the halogen source a member from the group consisting of chlorine, hydrogen cloride, and mixtures of chlorine and hydrogen chloride, the atomic ratio of halogen to carbon in said empirical formula being greater than 1:1, said oxyhalogenation being carried out in a fluid bed reactor containing a catalyst consisting essentially of cupric chloride modified with a modifying metal chloride selected from the group consisting of potassium chloride, calcium chloride and barium chloride and impregnated onto an alumina support, said alumina support having an alumina content of from about 98% to about 99.5% by weight, a sodium oxide content of from about 0.5% to about 1%, a silica content less than 0.5%, an average particle size of from about 90 to about 120 microns, and an average surface area from about 2 to about 5 m^2/gm; the total loading of catalyst salts being in the range of from about 5% to about 8% by weight and the atomic ratio of the metal of said modifying metal chloride to copper being in the range of from about 0.5:1 to about 1.2:1 and the reaction conditions in said reactor including a temperature of from about 340° C. to about 450° C., a pressure of 0 to about 200 psi gauge, and a contact time of from about 1 to about 30 seconds;

(b) adjusting said reaction conditions to control the halogen to carbon ratio of said empirical formula of said intermediate product;

(c) further halogenating said intermediate product by reacting it with halogen gas in the absence of oxygen at 400° C. to 500° C., and in the presence of silica-alimina catalyst to form an end-product having an atomic ratio of carbon to hydrogen of at least 2:1; and

(d) adjusting the halogen to carbon ratio of said empirical formula of said intermediate product so as to control the quantity of hydrogen halide by-product formed in said further halogenation reaction.

4,380,683

HYDROALKYLATION OF BENZENE AND ANALOGS

Serge R. Dolhyj, Parma, and Louis J. Velenyi, Lyndhurst, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Continuation of Ser. No. 916,683, Jun. 19, 1978, abandoned, which is a continuation of Ser. No. 752,038, Dec. 20, 1976, abandoned. This application Dec. 22, 1981, Ser. No. 333,351

Int. Cl.[3] C07C *15/00*

U.S. Cl. 585—268 **14 Claims**

1. A process for the hydroalkylation of mononuclear aromatic hydrocarbons comprising contacting a mononuclear aromatic hydrocarbon and hydrogen with a catalyst comprising a rare earth-exchange Y-type zeolite support carrying a promoter comprising at least one of ruthenium, iridium, rhodium and palladium, said catalyst having been calcined in a molecular oxygen-containing atmosphere at a temperature of about 250° to 600° C. prior to use.

4,380,684

LINEAR ALPHA OLEFIN PRODUCTION USING A TANK GROWTH REACTOR

Allan E. Fowler; Gordon E. White, both of Lake Jackson, and Steve A. Sims, Angleton, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 269,119, Jun. 1, 1981, abandoned. This application Apr. 19, 1982, Ser. No. 369,458

Int. Cl.[3] **C07C** *2/88, 3/10*

U.S. Cl. 585—328 **14 Claims**

1. In a process for making C_4–C_{10} α-olefins wherein an α-olefin having 2–4 carbon atoms or mixtures thereof and low molecular weight trialkyl aluminum are reacted in a growth reaction zone under growth promoting conditions to provide higher molecular weight trialkyl aluminum and reacting an α-olefin having 2–4 carbon atoms or mixtures thereof with said higher trialkyl aluminum in a displacement reactor zone under displacement conditions to provide a mixture of C_4–C_{10} α-olefins, the improvement which comprises providing a growth reaction zone by reacting 2 to 6 moles of α-olefin per mole of trialkyl aluminum in a tank reaction zone and having a recirculation rate through an external heat transfer zone such that the reaction zone contents are completely recirculated in a period of time sufficient to remove the heat of said reaction zone so as to maintain a substantially constant temperature therein.

4,380,685

SHAPE SELECTIVE REACTIONS WITH ZEOLITE CATALYSTS MODIFIED WITH IRON AND/OR COBALT

Chin-Chiun Chu, North Brunswick, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

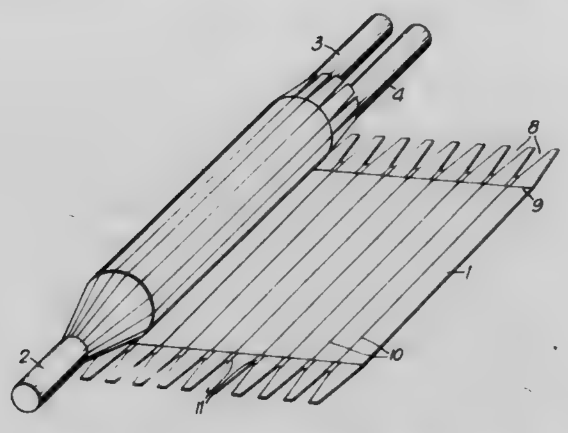
Continuation-in-part of Ser. No. 150,868, May 19, 1980, abandoned. This application Nov. 4, 1981, Ser. No. 318,238

Int. Cl.[3] **C07C** *2/68*

U.S. Cl. 585—466 **12 Claims**

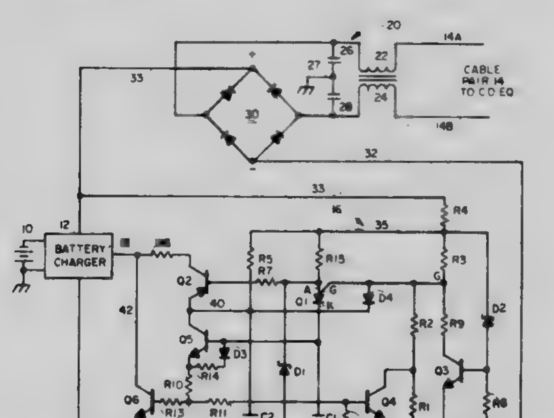
1. A process for para-selective alkylation, transalkylation or disproportionation of a substituted aromatic compound to form a dialkylbenzene compound mixture rich in the 1,4-dialkylbenzene isomer, said process comprising contacting said aromatic compound with a crystalline zeolite catalyst composition at a temperature of between about 250° C. and about 750° C. and a pressure within the approximate range of 10^5 N/m^2 to 10^7 N/m^2, said catalyst comprising a zeolite characterized by a silica to alumina mole ratio of at least 12 and a constraint index within the approximate range of 1 to 12, said catalyst having incorporated thereon at least about 0.25 percent by weight of a metal selected from iron, cobalt and combinations thereof, and at least about 0.25 weight percent of the element phosphorus, said metal and said phorphorus both being present in said catalyst in the form of their oxides.

4,380,686
CABLE SLEEVE LINER
Marc F. L. Moisson, Strombeek, Belgium, assignor to N.V. Raychem S.A., Kessel-lo, Belgium
Filed Nov. 16, 1979, Ser. No. 94,815
Claims priority, application United Kingdom, Sep. 11, 1979, 7931402
Int. Cl.[3] H01R *4/70;* **H02G** *15/18*
U.S. Cl. 174—84 R **9 Claims**



1. A cable splice case comprising a cable sleeve liner wrapped around a cable splice and a sleeve surrounding the wrapped liner, said cable sleeve liner comprising a laminate having at least one layer of a fibrous non-woven cellulosic sheet material between a metal layer which is substantially impermeable to moisture vapour, said metal layer having one of its major surfaces facing away from all fibrous sheet layers present in the liner, and a microperforated first layer of flexible polyester film material which is vapour-permeable to permit escape of gases or vapours generated within the laminate during recovery of the sleeve.

4,380,687
POWER SUPPLY CONTROL CIRCUIT FOR SUBSCRIBER CARRIER TELEPHONE SYSTEM
James A. Stewart, Redwood City, Calif., assignor to GTE Automatic Electric Laboratories, Inc., Northlake, Ill.
Filed Mar. 27, 1981, Ser. No. 248,129
Int. Cl.[3] H04M *19/06*
U.S. Cl. 179—2 BC **9 Claims**



1. Apparatus responsive to prescribed voltage conditions, such as a high voltage that is greater than a first threshold level and a low voltage that is less than a second threshold level, on the pair of wires of a cable pair for rendering a carrier subscriber local battery charging circuit inoperative for at least a prescribed time interval, operation of the charging circuit connecting it through the cable pair to a central office power source from which it draws current for charging the local battery, said apparatus comprising:

first and second lines adapted for electrical connection to one and other of the cable pair wires;

a storage capacitor having one and other terminals electrically connected to said first and second lines, respectively, said storage capacitor being charged with line current on the cable pair that is drawn from the central office power source;

a timing capacitor having a first terminal electrically connected to said first line and having an other terminal;

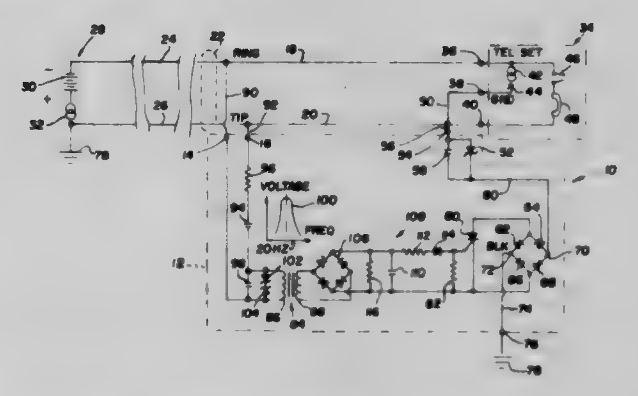
programmable unijunction transistor (PUT) means having cathode, gate and anode electrodes, said cathode being electrically connected to the other terminal of said timing capacitor;

first bipolar transistor means having its primary conduction path electrically connected between the other terminal of said storage capacitor and the charging circuit for selectively providing startup current for an active element of the latter and having a base electrode electrically connected to said PUT means anode, non-conduction of said first transistor means making said startup current available for charging said storage capacitor;

first means responsive to both high voltage and low voltage conditions on the cable pair that exceed and fall below the first and second threshold levels for producing a voltage change on said PUT means gate that makes it sufficiently negative with respect to the voltage on said PUT means anode to cause said PUT means to conduct and discharge said storage capacitor into said timing capacitor; and

second means responsive to a charge voltage on said timing capacitor for holding the charging circuit inoperative for at least the prescribed time interval during discharge of said timing capacitor following conduction of said PUT means.

4,380,688
TELEPHONE RINGING RANGE EXTENDER
Frank L. Simokat, Broken Arrow, Okla., assignor to TII Industries Inc., Copiague, N.Y.
Filed Jul. 13, 1981, Ser. No. 283,114
Int. Cl.[3] H04M *19/00*
U.S. Cl. 179—84 R **11 Claims**



1. A ringing range extender for single party telephone service on long rural line loops wherein the ringer and a blocking capacitor of a subscriber's telephone instrument has been connected across the tip and ring electrical conductors of said loop comprising, in combination:

(a) first and second terminals adapted to be DC coupled to said tip and ring conductors of said subscriber's line connecting said subscriber's telephone instrument to a central office to provide for the application of the central office battery and AC ringing signal voltages across said terminals;

(b) semiconductor, breakover means;

(c) capacitor means, connected in parallel with said semiconductor breakover means, one end of said capacitor means being connected to one of said subscriber loop conductors;

(d) switching means, said switching means being connected between a ground reference and the other end of said capacitor means for providing a relatively low impedance DC series current path from said one of the subscriber loop conductors through said semiconductor breakover means to said ground reference upon activation of said

switching means, said switching means providing a relatively high impedance when de-activated; and

(e) circuit means responsive to the application of a ringing signal voltage from the other of said subscriber loop conductors to said reference ground for providing an activating voltage to said switching means.

4,380,689

ELECTROACOUSTIC TRANSDUCER FOR HEARING AIDS

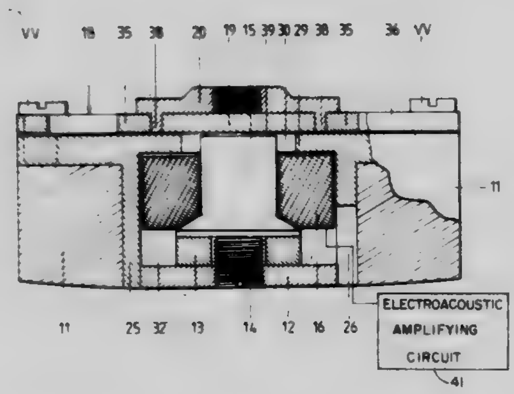
Vittorio Giannetti, Via di Vigna Murata 202, 00143 Roma, Italy

Filed Jul. 15, 1980, Ser. No. 169,096

Claims priority, application Italy, Aug. 1, 1979, 49930 A/79

Int. Cl.^{3} H04R *11/00*

U.S. Cl. 179—114 R **12 Claims**



1. An electroacoustic transducer comprising:

(a) a main support having a hollow cylindrical body defining a bore, and a central opening communicating with said bore;

(b) a body defining a central bore and attached to said main support such that said central bore is disposed about said cylindrical body;

(c) a closure disc attached to said cylindrical body across said bore;

(d) an annular, flat permanent magnet located on said closure disc within said bore;

(e) a magnetizable core attached to, and aligned with said permanent magnet;

(f) an electrical winding or coil disposed around said magnetizable core and located between said core and said cylindrical body, said winding or coil being electrically connected to an electroacoustic amplifying circuit;

(g) a vibrating disc;

(h) means attaching said vibrating disc across said central opening in the main support such that it is in close proximity to an end of said magnetizable core; and

(i) means to adjustably modify the magnetic flux of said annular, flat permanent magnet.

4,380,690

HYBRID CIRCUIT

Teruo Matsufuji, Koganei; Akira Hirato, Ebina, and Yoshihiro Kawada, Hitaka, all of Japan, assignors to Iwasaki Tsushinki Kabushiki Kaisha, Japan

Filed Jun. 29, 1981, Ser. No. 278,459

Claims priority, application Japan, Jul. 22, 1980, 55-99386

Int. Cl.^{3} H04B *1/58*

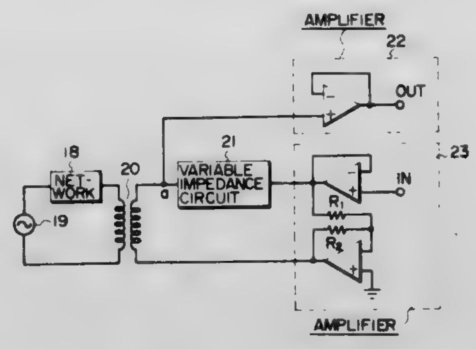
U.S. Cl. 179—170 NC **1 Claim**

1. A hybrid circuit comprising:

a series-connection composed of a variable impedance circuit and the primary winding of a transformer connected to the two-wire port of the hybrid circuit;

an amplifier of the four-wire receive port of the hybrid circuit having a differential output of low impedance connected across said series-connection; and

an amplifier of the four-wire transmit port of the hybrid circuit having a high input impedance connected to the node connection of the variable impedance circuit and the primary winding of the transformer, the impedances of the variable impedance circuit and the primary winding of the transformer being in a state of mutual equilibrium, and the



neutral point potential of the amplifier of the four-wire receive port being applied to an input to the amplifier of the four-wire transmit port.

4,380,691

MAIN SWITCH FOR TAPE RECORDER

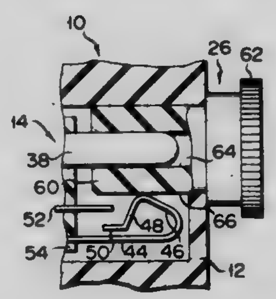
Masanobu Sato, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Sep. 11, 1980, Ser. No. 301,224

Claims priority, application Japan, Sep. 19, 1981, 55-133178[U]

Int. Cl.^{3} H01R *33/30*

U.S. Cl. 200—51 R **3 Claims**



1. In a tape recorder provided with a power jack, into which a cylindrical plug including a first conductive member mounted on the inner periphery of the plug, an insulating member mounted on the top end portion of the outer peripheral surface of the plug, and a second conductive member mounted on the intermediate portion of the outer peripheral surface of the plug and constituting a part of the outer peripheral surface and being insulated from the first conductive member, is inserted, and which includes a rod-like conductive member adapted to snugly fit in the inner periphery of the plug and be electrically connected to the first conductive member, a relay conductive member insulated with respect to the first and second conductive members of the plug, and an elastic conductive member having elasticity and capable of assuming a first position, at which the elastic conductive member is in contact with and electrically connected to the second conductive member of the plug inserted and is separated from the relay conductive member, and a second position, which results from the removal of the plug from the jack and at which the elastic conductive member is in contact with and electrically connected to the relay conductive member,

a main switch for the tape recorder comprising a cylindrical rotary member having an inner periphery, an outer periphery and a recess formed in said outer periphery and adapted to snugly fit on said rod-like conductive member of the power jack when inserted thereinto, said rotary member being rotatable on and about said rod-like conductive member between a first position, at which said outer periphery and said elastic conductive member are in contact with each other and said elastic conductive member and said relay conductive member are separated and

insulated from each other, and a second position, at which said recess corresponds to and faces said elastic conductive member and said elastic conductive member and said relay conductive member are in contact with and electrically connected to each other.

4,380,692

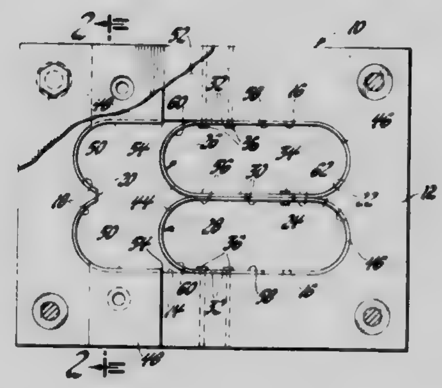
ROLLER BAND SENSOR

Houston F. Blanchard, Santa Barbara, and Lawrence D. Tuchscherer, Goleta, both of Calif., assignors to General Motors Corporation, Detroit, Mich.

Filed May 20, 1981, Ser. No. 266,081

Int. Cl.³ H01H *35/14*

U.S. Cl. 200—61.45 R **5 Claims**



1. A sensor comprising, in combination, a housing including a pair of spaced planar bearing portions, a pair of flexible bands of planar spring material disposed between the bearing portions and forced thereby into generally elongate shape, the adjacent portions of the bands abutting each other and the remote portions of the bands each abutting a respective bearing portion,

means securing the abutting portions to each other,

means securing the remote portion of each band to a respective bearing portion whereby each band is divided into respective first and second end loops intermediate the adjacent and remote portions thereof,

means limiting movement of the bands in one direction to establish a preload position of the bands,

a velocity change of predetermined extent applied to the bands causing said bands to concurrently roll relative to each other along a respective bearing portion and translate from the preload position in an opposite directon to actuated position,

means actuated upon movement of the bands to the actuated position to indicate the occurrence of such a velocity change of predetermined extent,

like end loops of each band having a reduced effective width symmetrical section contiguous like portions of each such band to provide complementary integral preload forces biasing the bands in the one direction to the preload position and resisting movement of the bands in the opposite direction to actuated position by applied velocity changes.

4,380,693

SWITCHING DEVICE

Gerhard Kuhlmann, Stuttgart; Erwin Wolf, Weissach i T., and Günter Wahl, Leinfelden-Echterdingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

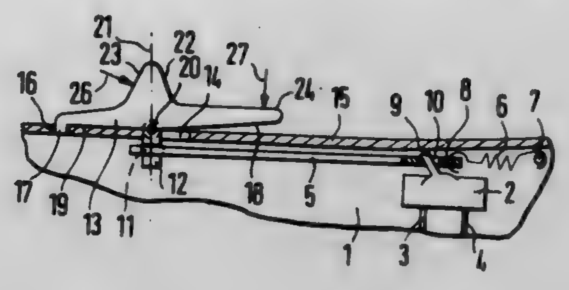
Filed May 22, 1981, Ser. No. 266,343

Claims priority, application Fed. Rep. of Germany, Jun. 25, 1980, 3023691

Int. Cl.³ H01H *15/24, 9/24*

U.S. Cl. 200—330 **17 Claims**

1. A switching device, comprising a switch; an actuating member displaceable in a switching-on direction so as to switch on said switch and also displaceable under the action of a spring force in a switching-off direction so as to switch off said switch, said actuating member being also tiltable, upon displacement in the switching-on direction, to an engaging position for arresting said actuating member and to a disengaging position for releasing said actuating member, so that when said actuating member is displaced in said switching-on direction and to said engaging position it switches on said switch



and is arrested and when said actuating member is tilted to said disengaging position and displaced in said switching-off direction it is released and switches off said switch; means for spring biasing said actuating member in said switching-off direction;

means for holding said actuating member in said engaging position; and means for mounting said actuating member for displacement and tilting.

4,380,694

LASER CUTTING APPARATUS

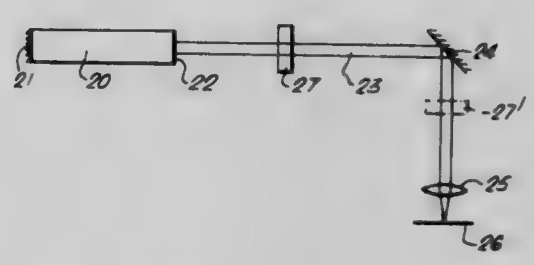
David J. Dyson, Dundee, Scotland, assignor to Ferranti Limited, Cheadle, England

Filed Feb. 18, 1981, Ser. No. 235,504

Claims priority, application United Kingdom, Feb. 26, 1980, 8006423

Int. Cl.³ B23K *27/00*

U.S. Cl. 219—121 LG **7 Claims**



1. Laser cutting apparatus for cutting a workpiece along a predetermined line comprising a laser producing a continuous output beam while in operation, means for producing circular polarization of the laser output beam, and means for directing the circularly polarized laser output beam onto the workpiece whereby a cut of uniform section is produced in the workpiece in any direction of cut.

4,380,695

CONTROL OF TORCH POSITION AND TRAVEL IN AUTOMATIC WELDING

Jerome W. Nelson, Houston, Tex., assignor to Crutcher Resources Corporation, Houston, Tex.

Filed Jul. 6, 1976, Ser. No. 702,865

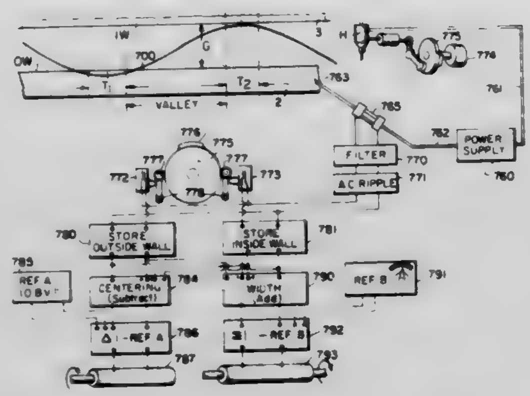
Int. Cl.³ B23K *9/12*

U.S. Cl. 219—125.12 **6 Claims**

1. In welding where an electric arc welding torch moves in an undulating path along a gap having spaced opposed sidewalls to deposit metal in said gap for joining said walls into a unitary structure and where a continuous signal having various frequency components is generated at the torch and in which the torch is caused to weave laterally across said gap, the steps of:

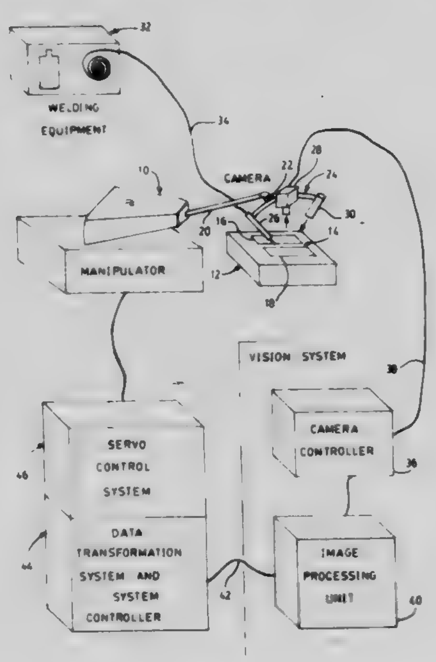
(a) imposing a periodic extreme lateral position-indicating amplitude-modulated carrier signal on said continuous signal, said imposed signal being of frequency different from components contained in said continuous signal to obtain a composite signal having periodic values varying

in amplitude corresponding to consecutive extreme lateral positions and containing other signal components which tend to conceal said periodic values;
(b) removing said concealing signal components from said composite signals by filtering to isolate said periodic values;



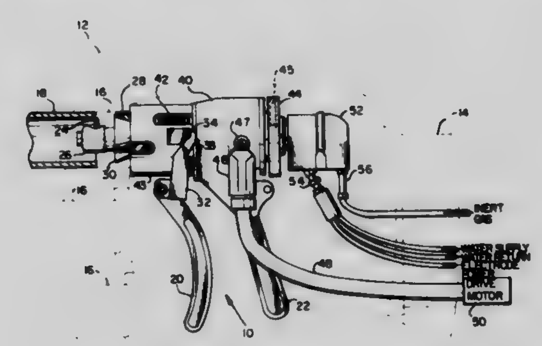
(c) taking discrete samples of said periodic values;
(d) summing the signal amplitude values occurring at said opposed sidewalls to produce a sum signal;
(e) comparing said sum signal to a reference value; and
(f) using the result of such comparision to control the width of said weaving path of said arc between said sidewalls.

4,380,696
METHOD AND APPARATUS FOR MANIPULATOR WELDING APPARATUS WITH VISION CORRECTION FOR WORKPIECE SENSING
Ichiro Masaki, Brookfield, Conn., assignor to Unimation, Inc., Danbury, Conn.
Filed Nov. 12, 1980, Ser. No. 206,279
Int. Cl.^{3} B23K *9/12*
U.S. Cl. 219—124.34 **47 Claims**



1. Control apparatus for manipulator welding apparatus, the manipulator apparatus having a manipulator arm controllable in one or more axes and arranged to perform a weld path on a workpiece at a workpiece station, the control apparatus comprising:
means for storing manipulator arm position data during an initial teach phase representing a desired taught weld path with respect to a reference workpiece at a predetermined location at the workpiece station;
means for projecting a predetermined light pattern on the workpiece at said workpiece station;
means for storing a reference image of said projected predetermined light pattern during said teach phase;
means for moving said manipulator arm along said taught weld path in accordance with said stored manipulator arm position data during a first repeat phase with respect to a second subsequent workpiece;
means for sensing said predetermined projected light pattern on said second subsequent workpiece as said manipulator arm moves along said taught weld path during said first repeat phase;
image processing means responsive to said sensing means for generating deviation data representing the deviation between the actual weld path of said second workpiece and said path described by said manipulator arm during said first repeat phase;
means responsive to said generated deviation data for generating corrected weld path data representing said actual weld path on said second workpiece; and
means responsive to said corrected weld path data for moving said manipulator arm and controlling said manipulator welding apparatus to weld said second workpiece along said actual weld path during a second repeat phase.

4,380,697
INTERNAL TUBE WELDING APPARATUS
Gasparas Kazlauskas, Sun Valley, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Continuation-in-part of Ser. No. 222,704, Jan. 5, 1981. This application Jun. 29, 1981, Ser. No. 278,785
Int. Cl.^{3} B23K *9/225*
U.S. Cl. 219—136 **7 Claims**



1. An apparatus for welding the inside of a circular opening, comprising:
a housing;
an electrode shaft member rotatably mounted within said housing;
jaw means coupled to said housing and movable about said electrode shaft member for releasably gripping the inside of the circular opening;
handle means pivotally coupled to said housing for actuating said jaw means, said handle means being rotatable to permit folding thereof;
a collet disposed about said electrode shaft member and having an expanded outer surface at the forward end thereof;
a plurality of radially-projecting jaw segments movable over and in sliding contact with the expanded outer surface of said collet;
said collet is fixed about said electrode shaft member; and
said jaw segments are mounted to move axially over said collet.

4,380,698

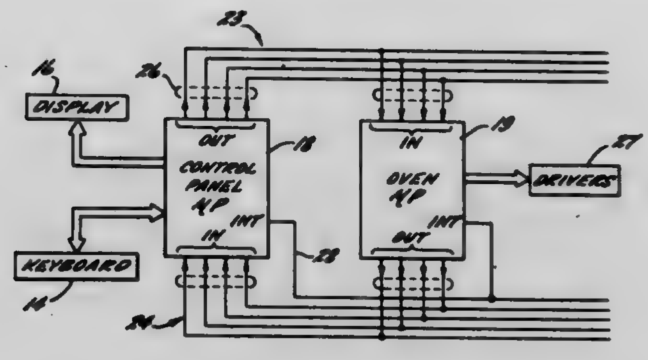
MULTIPROCESSOR CONTROL BUS

Orville R. Butts, West Lafayette, Ind., assignor to Roper Corporation, Kankakee, Ill.

Filed Jul. 25, 1980, Ser. No. 172,408

Int. Cl.³ H05B *1/02*

U.S. Cl. 219—492 12 Claims



1. A cooking appliance having a plurality of cooking functions performed within a single appliance cabinet including a distributed control arrangement comprising:

(a) a plurality of microprocessor-based control circuits each associated with a different portion of the appliance control, and each physically located within the appliance cabinet but physically located on different printed circuit boards;

(b) a multi-line bus arrangement coupling the control circuits to one another, each said control circuit including means for exchanging control information with another said control circuit via the bus, each said control circuit also including means for preventing exchange of invalid data resulting from noise on the bus; and

(c) a user-control system interface physically connected to and in close proximity with the appliance cabinet for manual entry of cooking control data by the user, said interface being the sole source of user-supplied cooking control information,

in which each microprocessor-based control circuit is associated with a different one of the plurality of cooking functions of the cooking appliance, and

in which one of the microprocessor-based control circuits is a master circuit with the remainder of the circuits being slave circuits, the slave circuits being operable to transfer information onto the bus only in response to data placed on the bus by the master circuit.

4,380,699

PORTABLE, IDENTIFYING ELEMENT CONSTRUCTED AS A LAMINATION OF SHEETS

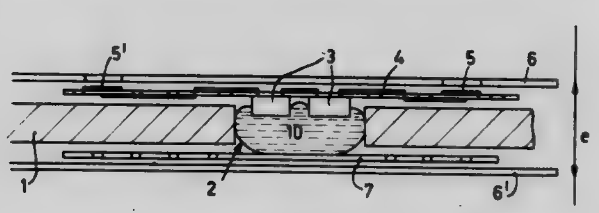
Michel J. Monnier, Montgeron; Marc A. Monneraye, St Maur; Claude Foucher, Palaiseau, and Pierre Le Marchant, Clamart, all of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 29, 1981, Ser. No. 278,144

Claims priority, application France, Jul. 9, 1980, 80 15303

Int. Cl.³ G06K *19/06*

U.S. Cl. 235—492 4 Claims



1. A portable identifying element comprising a lamination of sheets composed of electrically insulating synthetic resin material, in which is included at least one integrated solid state electronic circuit for data processing, said element being provided with external access ports for the solid state electronic circuit, said electronic circuit being supported by a carrier sheet composed of electrically insulating synthetic resin material and extending in a cavity which is provided in a main support sheet composed of electrically insulating thermoplastic material and said main support sheet, said carrier sheet being provided with holes which are located on opposite sides of said cavity and through which parts of the first cover sheet and the main support sheet are laminated together.

4,380,700

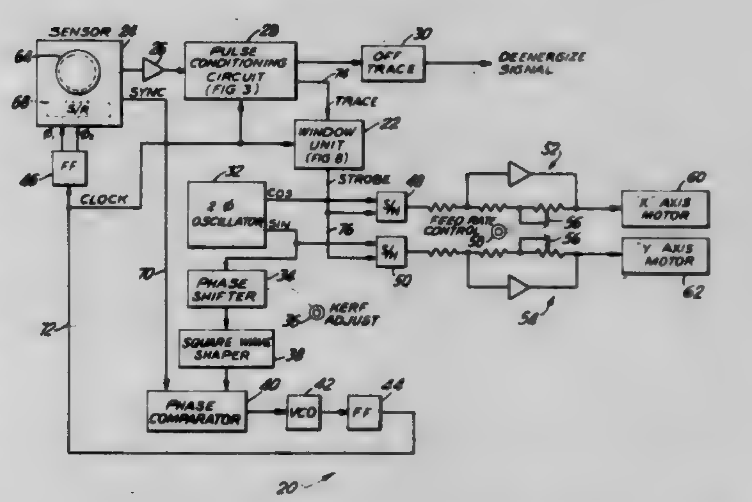
IMAGE BLANKING CIRCUIT FOR LINE FOLLOWER

George H. Kallen, Indianapolis, Ind., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jun. 29, 1981, Ser. No. 278,137

Int. Cl.³ G05B *1/00*

U.S. Cl. 250—202 17 Claims



1. In a curve follower circular scanning apparatus, a gating circuit for setting a sector window comprising:

first means for timing the duration of a scan of a first sector;

second means, triggered by said first timing means, for timing the duration of a scan of a second sector;

means for signaling the presence of a subject within said window, said window being bounded by the sum of said first and said second sectors; and

means responsive to said signaling means for resetting said first and said second timing means upon the detection of said subject.

4,380,701

NUCLEAR WELL LOGGING WITH NEUTRON SOURCE AND SEPARATE SPACED RADIATION DETECTORS TO DETERMINE SILICON/OXYGEN RATIO

Harry D. Smith, Jr., and Ward E. Schultz, both of Houston, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Oct. 2, 1980, Ser. No. 192,967

Int. Cl.³ G01V *5/00*

U.S. Cl. 250—266 20 Claims

1. A well logging apparatus for simultaneously obtaining a measuring of the relative presence of the elements silicon and oxygen in earth formations in the vicinity of a fluid-filled well borehole, comprising:

(a) sonde means for moving through the well borehole past formations of interest;

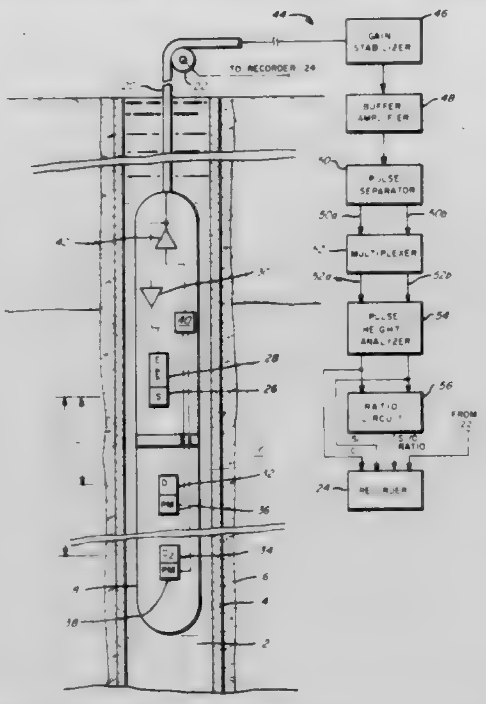
(b) source means mounted in said sonde means for bombarding the formation with high energy neutrons;

(c) first detector means mounted in said sonde spaced a first distance from said source means for detecting gamma radiation from neutron activation of oxygen;

(d) second detector means mounted in said sonde spaced a second distance from said source means for detecting gamma radiation from neutron activation of silicon;

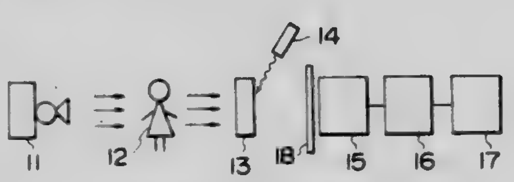
(e) said second distance being such that when said second

detector is moved to a formation of interest substantially all oxygen activation gamma radiation has dissipated; and



(f) sonde circuit means for forming electrical signals representing gamma radiation detected by said first and second detectors.

4,380,702
RADIATION IMAGE STORAGE PANEL
Kenji Takahashi, and Junji Miyahara, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Jul. 11, 1980, Ser. No. 168,801
Claims priority, application Japan, Jul. 11, 1979, 54-87813
Int. Cl.[3] G03C *5/16*
U.S. Cl. 250—327.2 **56 Claims**



1. A radiation image storage panel having a fluorescent layer comprising a binder and a stimulable phosphor dispersed therein upon stimulation by rays having a wavelength ranging from 500 to 800 nm, wherein said phosphor is characterized in that said panel has a light-reflecting white pigment layer on one side thereof with respect to the fluorescent layer opposite to the side exposed to the stimulating rays for said stimulable phosphor and that said phosphor is represented by the following general formula (I) or (II);

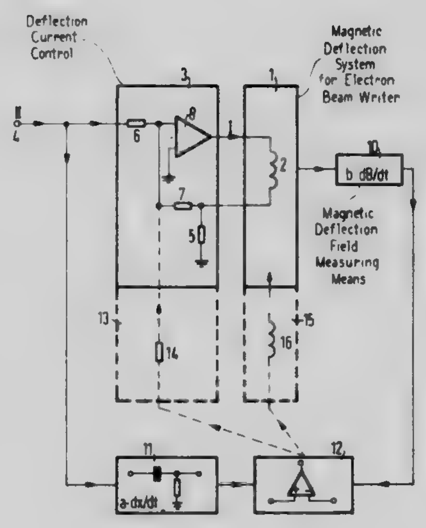
$$LnOX{:}aA \qquad (I)$$

wherein Ln represents an element selected from the group of La, Y, Gd and Lu, X represents an element selected from the group of Cl and Br, A represents an element selected from the group of Ce and TB, and X is a number satisfying the condition of $0<X<0.1$;

$$(Ba_{1-x}M^{II}_x)FX_1{:}yA_1 \qquad (II)$$

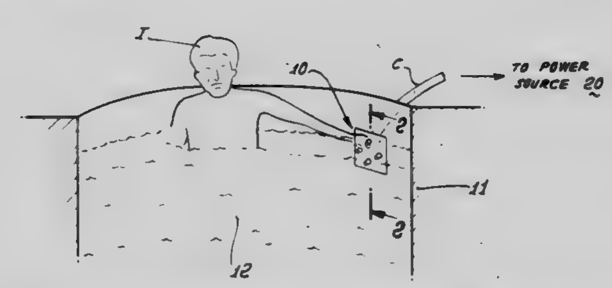
wherein M^{II} represents at least one divalent metal selected from the group consisting of Mg, Ca, Sr, Zn and Cd, X_1 represents at least one halogen selected from the group consisting of Cl, Br and I, A_1 represents at least one element selected from the group consisting of Eu, Tb, Ce, Tm, Dy, Pr, Ho, Nd, Yb and Er, and x and y are numbers satisfying the conditions of $0 \leqq x \leqq 0.6$ and $0 \leqq y \leqq 0.2$.

4,380,703
METHOD AND DEVICE FOR THE REGULATION OF A MAGNETIC DEFLECTION SYSTEM
Reinhold Schmitt, Berlin, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Sep. 4, 1980, Ser. No. 183,946
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1979, 2936911
Int. Cl.[3] H01J *3/20*
U.S. Cl. 250—396 ML **5 Claims**



1. A method for regulating a magnetic deflection system for a particle radiation optical device, particularly an electron beam writer, in which the current flowing through deflection coil means is measured and a control signal is generated in a first control loop for readjusting the deflection magnetic field produced by said deflection coil means by means of comparison with a command value, characterized in that given changes in the command value supplied to the first control loop, a second control loop is superimposed for supplementing the control action of said first control loop in that a signal proportional to the magnetic field rate of change (dB/dt) is generated and is compared in the second control loop to a value proportional to the command value rate of change (dx/dt); and in that the comparison output of the second control loop serves as an additional control signal for controlling the deflection magnetic field.

4,380,704
ELECTRICAL SWITCH
Michael S. Wisda, 1142 Sheila Ct., Upland, Calif. 91786
Filed Apr. 28, 1980, Ser. No. 144,442
Int. Cl.[3] H01H *19/00*
U.S. Cl. 307—116 **12 Claims**



1. An electrical switch for use in explosive environments, under water, and the like, comprising

a printed circuit board having an electrical circuit pattern deposited thereon, at least a single magnetic reed switch mounted on said board and connected in electrical series

circuit relationship with the electrical circuit pattern on said board, the reed switch having switch contacts in a normally open circuit condition,

an electrical cable having a plurality of electrical conductors arranged therein in an insulatively spaced relationship, said cable being constructed of an electrical insulative material, and being adapted to have one end of each of the electrical connectors connected to an electrical power source,

means for electrically connecting the remaining ends of the individual electrical conductors of the cable in circuit relationship with the electrical circuit pattern of the printed circuit board to provide an electrical circuit path on the printed circuit board through the reed switch to thereby electrically switch the power through the electrical cable in accordance with the electrical circuit condition of the reed switch,

means for completely encapsulating the printed circuit board including the circuit pattern thereon and the connected reed switch and a portion of the electrical cable beyond said cable conductor connecting means in an electrical insulative medium to form a solid unit without any voids in the insulative medium to thereby eliminate any exposed electrical contacts externally of the insulative encapsulated medium whereby the encapsulated elements may be completely immersed in an explosive or corrosive environment, under water or the like,

said encapsulating medium including an aperture spaced adjacent the reed switch while being spaced from the circuit pattern on the printed circuit pattern and extending through the printed circuit board to permit mounting a control shaft therethrough,

a control shaft mounted in said aperture for rotation therein, one end of the control shaft mounting a permanent magnet rotatable with the control shaft to operate the encapsulated reed switch in accordance with the positions of the magnetic poles of the magnet to thereby provide an electrical circuit path through the cable, printed circuit pattern on said board and the closed contacts of the reed switch when the contacts are magnetically operated by said permanent magnet to a closed circuit position.

4,380,705
DIGITAL SEMICONDUCTOR CIRCUIT

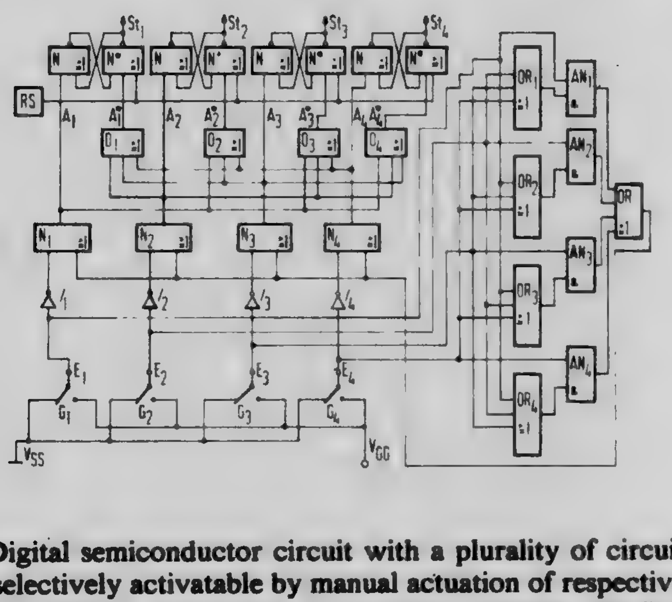
Helmut Rösler, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed May 29, 1980, Ser. No. 154,576

Claims priority, application Fed. Rep. of Germany, Jun. 5, 1979, 333863

Int. Cl.³ H03K *17/56, 19/20*

U.S. Cl. 307—247 R **8 Claims**



1. Digital semiconductor circuit with a plurality of circuit parts selectively activatable by manual actuation of respective control switches comprising a respective bistable flip-flop associated with each of the control switches, a common logic circuit disposed between the control switches and the bistable flip-flops and being connectible by n signal inputs thereof via the control switches, respectively, to a level of a logical "1", said common logic circuit having 2 n signal outputs pairwise combined, respective pairs of said signal outputs being disposed for controlling respective ones of said bistable flip-flops, each of said bistable flip-flops having a respective signal output for controlling a respective one of the circuit parts activatable by the respective control switches, said bistable flip-flops being initially in a first operating state wherein the circuit parts to be activated are in rest condition immediately subsequent to switching on of the digital semiconductor circuit, said common logic circuit having means responsive to sole actuation of a respective control switch for effecting a transition of the respectively associated bistable flip-flop from said first to said second operating state thereof only and for automatically resetting to said first operating state, with said transition, any nonselected bistable flip-flop which may yet be in said second operating state when the respective control switch is actuated, whereby the circuit part is associated with the respective control switch is activated, the circuit including respective inverters connected to respective ones of said n signal inputs of said common logic circuit addressable by respective ones of the control switches for controlling respective NOR gates having two inputs, one of the inputs of a respective NOR gate being connected to one of said inverters, respectively, and the other of the inputs of the NOR gates being connected in common to another part of said common logic circuit from which a blocking signal is deliverable to all of said NOR gates, the respective NOR gates having an output forming a respective first signal output of said common logic circuit, and including a respective second signal output of said common logic circuit formed by an output of a respective OR gate having (n−1) signal inputs respectively controllable by one of the signal inputs to said common logic circuit which is associated with the others of the control switches, the circuit further including respective AND gates and (n−1) of a total of n additional OR gates having respective inputs connected to the signal inputs of said common logic circuit and controllable thereby, each of said AND gates being associated respectively with one of said (n−1) additional OR gates, said (n−1) additional OR gates having a respective output connected to another input of the respective AND gates associated therewith, said other part of said common logic circuit from which the blocking signal is deliverable comprising yet a further OR gate having respective inputs connected to respective outputs of said AND gates and controllable thereby.

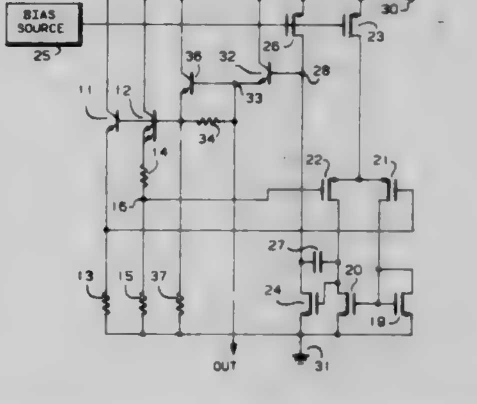
4,380,706
VOLTAGE REFERENCE CIRCUIT

Robert S. Wrathall, Tempe, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 24, 1980, Ser. No. 219,797

Int. Cl.³ H03K *3/26, 3/01*

U.S. Cl. 307—297 **6 Claims**



1. A voltage reference circuit having a differential amplifier with a first and a second input and an output, the voltage reference circuit comprising: a first transistor having a base

coupled to the output of the differential amplifier and having a first electrode coupled to a first power terminal and having a second electrode; a second transistor having a base coupled to the second electrode of the first transistor, the second transistor also having a first electrode coupled to the first power terminal and having a second electrode; a first resistor coupled between the second electrode of the second transistor and a second power terminal; a third transistor having a base coupled to the second electrode of the second transistor and having a first electrode coupled to the first power terminal and having a second electrode; a second and a third resistor coupled in series between the second electrode of the third transistor and the second power terminal and forming a node between the second and third resistor, the node being coupled to the first input of the differential amplifier; a fourth transistor having a base coupled to the base of the third transistor and having a first electrode coupled to the first power terminal and having a second electrode; and a fourth resistor coupled between the second electrode of the fourth transistor and the second power terminal, and the second electrode of the fourth transistor also being coupled to the second input of the differential amplifier.

4,380,707

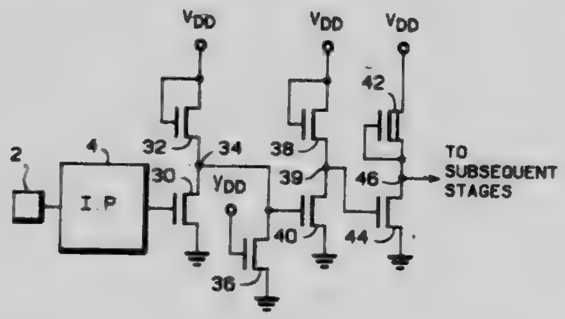
TRANSISTOR-TRANSISTOR LOGIC INPUT BUFFER CIRCUIT WITH POWER SUPPLY/TEMPERATURE EFFECTS COMPENSATION CIRCUIT

Richard D. Crisp, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 16, 1980, Ser. No. 150,536

Int. Cl.[3] **G05F** *1/56;* **H03K** *17/687, 19/003, 19/094*

U.S. Cl. 307—443 **2 Claims**



1. An MOS input buffer circuit with compensation for process, supply voltage, and temperature variations, comprising:

a first amplifying stage coupled to a source of supply voltage and having a first input and a first output, said first input for receiving an input signal representative of high and low logic levels;

at least one additional amplifying stage coupled to said source and having a second input coupled to said first output and having a second output;

said first amplifying stage and said second amplifying stage comprising inverters each having at least two enhancement type semiconductor devices with substantially equal channel lengths to provide operating stability over temperature and process variations;

means coupled to said source and to said first amplifying stage comprising a field effect transistor having a channel width substantially equal to the channel width of a first semiconductor device of said first amplifying stage such that the conductivity of the field effect transistor tracks that of said first semiconductor device, for altering the gain of said first amplifying stage in response to fluctuations in said supply voltage; and

wherein said field effect transistor has a gate electrode coupled to said source, a source electrode coupled to ground and a drain electrode coupled to the output of said first inverter.

4,380,708

I^2**L WITH POLYSILICON DIODES AND INTERCONNECTS**

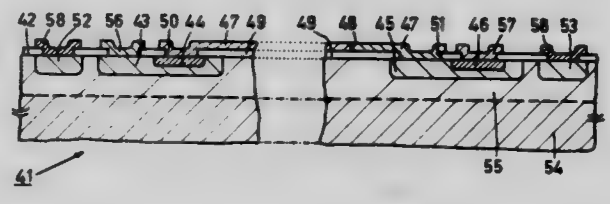
Cornelis M. Hart, Sunnyvale, Calif., assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 50,004, Jun. 18, 1979, abandoned. This application Jul. 23, 1981, Ser. No. 286,233

Claims priority, application Netherlands, Jun. 29, 1978, 7806989

Int. Cl.[3] **H01L** *29/04, 27/04;* **H03K** *19/091, 19/092*

U.S. Cl. 307—457 **2 Claims**



1. An integrated circuit having a plurality of gate circuits, which comprises:

a semiconductor body having a major surface;

at least first, second and third bipolar transistors, each having an emitter zone, a base zone forming a signal input and a collector zone located successively in a direction transverse to said major surface, at least the base and collector zones of said transistors adjoining said major surface;

means for supplying surrent connected to each signal input;

a plurality of diodes connected to each collector zone to form a plurality of signal outputs from each transistor;

an insulating layer on at least a portion of said major surface;

a system of signal connections for connecting at least the collector zone of said first transistor to the base zones of said second and third transistors, said system of signal connections comprising a plurality of paths of conductive material on said insulating layer and locally extending down to said major surface through apertures in said insulating layer to contact at least the collector zone of said first transistor and the base zones of said second and third transistors, said paths of conductive material comprising a polycrystalline semiconductor track and at least first and second diode junctions for coupling the collector zone of said first transistor respectively to the base zones of said second and third transistors, said first and second diode junctions comprising p-n junctions each adjoining and formed from said polycrystalline semiconductor track on at least one side of each junction, each junction being spaced apart from the collector zone of said first transistor and the base zones of said second and third transistors, the distance between the collector zone of the first transistor and the first diode junction measured along the signal connection being larger than the distance between the first diode junction and the base zone of the second transistor measured along the signal connection, and the first and second diode junctions being situated closer to the second and third transistors, respectively, than to the first transistor; and

fourth, fifth and sixth bipolar transistors and third and fourth p-n junctions, the collector zones of said fourth and fifth transistor being connected to the base of said sixth transistor by, respectively, said third and fourth p-n junctions, said third p-n junction being closer to said fourth transistor than said sixth, and said fourth p-n junction being closer to said fifth transistor than said sixth.

4,380,709

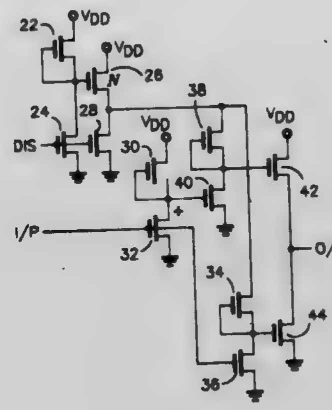
SWITCHED-SUPPLY THREE-STATE CIRCUIT

Kenneth K. Au, Round Rock, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 15, 1980, Ser. No. 150,019

Int. Cl.³ H03K *19/094, 19/20*

U.S. Cl. 307—473 **9 Claims**



1. A switched-supply three-state circuit capable of assuming first, second and third conditions, comprising:

first means for receiving an enabling signal and a source of supply voltage;

second means for receiving an input signal;

third means coupled to said first and second means and having an output for generating true and complement signal representations of said input signal when the source voltage is supplied to said third means, said output being disabled when said source voltage is blocked from said third means; and

fourth means coupled between said first means and said third means for supplying the source voltage to said third means when said enabling signal is in a first predetermined state, comprising:

first inverter means having a first MOS inverter coupled between ground and said source voltage and having an input coupled to said enabling signal and having an output;

a first field-effect transistor having a drain coupled to said source voltage, a gate coupled to the output of said first MOS inverter and having a source coupled to said third means for supplying voltage thereto; and

a second field-effect transistor having a source coupled to ground, a gate coupled to said enabling signal and a drain coupled to the source of said first field-effect transistor.

4,380,710

TTL TO CMOS INTERFACE CIRCUIT

Paul B. Cohen, New City, N.Y.; William R. Young, Indialantic, and W. Dale Edwards, Indian Harbour Beach, both of Fla., assignors to Harris Corporation, Melbourne, Fla.

Filed Feb. 5, 1981, Ser. No. 231,671

Int. Cl.³ H03K *19/092, 19/094, 19/20, 17/04*

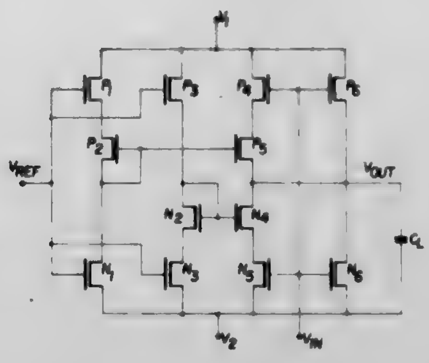
U.S. Cl. 307—475 **10 Claims**

1. An interface circuit having a signal input terminal, a reference terminal and a signal output terminal comprising:

a complementary field effect transistor inverter having an N and P channel device connected between a pair of supply terminals with the input terminal of the circuit being the input of said inverter and the output terminal of said circuit being the output of said inverter;

a first complementary field effect transistor current mirror means connected between said pair of supply terminals with the reference terminal being the input for the controlling leg and said N channel device being in a first portion of the controlled leg; and said signal input being an input to a second portion of the controlled leg; and

a second complementary field effect transistor current mirror means connected between said pair of supply terminals with the reference terminal being the input for the controlling leg and said P channel device being in a first



portion of the controlled leg and said input signal being an input to a second portion of the controlled leg.

4,380,711

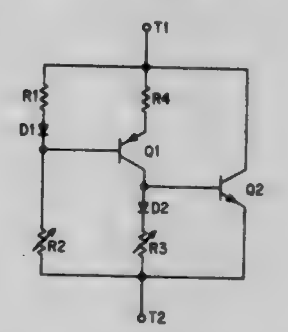
LINEARIZATION CIRCUIT

Vernon R. Cunningham, Melissa, Tex., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Dec. 15, 1980, Ser. No. 216,398

Int. Cl.³ H03K *4/00*

U.S. Cl. 307—491 **3 Claims**



3. Variable impedance circuit element means for use as a variable curvature compensation load in an amplifier circuit to minimize nonlinearities in a signal introduced by AGC circuitry upstream in a signal path comprising, in combination:

a first parallel circuit branch comprising resistors R1 and R2;

a second parallel circuit branch comprising R3, a transistor Q1 and a resistor R4 where R4 is a common emitter impedance for Q1, R3 is a collector load impedance for Q1 and the base of Q1 is connected to a point in said first circuit branch between R1 and R2; and

a third parallel circuit branch comprising a collector-emitter path of a transistor Q2 having its base connected to the collector of Q1 and wherein,

the curvature is varied in accordance with changes in the value of resistance in resistors R2 and R3.

4,380,712

ARRANGEMENT FOR COOLING A SUPERCONDUCTING MAGNET WINDING

Lutz Intichar; Christoph Schnapper, both of Erlangen, and Erich Weghaupt, Mülheim, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Apr. 16, 1981, Ser. No. 254,612

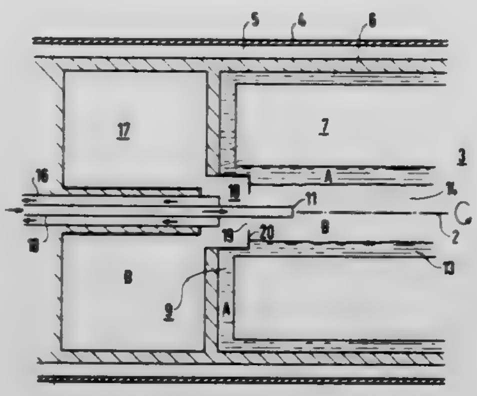
Claims priority, application Fed. Rep. of Germany, Apr. 23, 1980, 3015682

Int. Cl.³ H02K *9/00*

U.S. Cl. 310—52 **8 Claims**

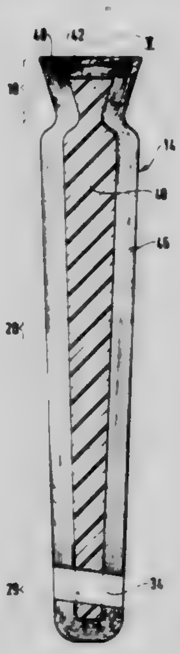
1. In an arrangement for cooling a superconducting magnet winding, especially the superconducting field winding in the rotor of an electric machine, said arrangement including; at least one coolant chamber which, in the operating condition, contains a gaseous phase and a liquid phase of a coolant; at least one feed line for feeding coolant to said chamber; coolant paths through the magnet winding connecting to a liquid space in the

chamber occupied by the liquid phase; and at least one coolant discharge line with a predetermined high flow resistance connected to a vapor space in the chamber occupied by the gaseous phase, the improvement comprising:



(a) a buffer tank; and
(b) a connecting path having a relatively low flow resistance connecting said buffer tank to the vapor space occupied by the gaseous phase.

4,380,713
DOVETAILED TEETH FOR USE IN A SYSTEM FOR FIXING STATOR WINDING BARS IN A ROTATING ELECTRIC MACHINE
Gillet Roger, and Nithart Henri, both of Belfort, France, assignors to Alsthom-Atlantique and Electricite de France, both of Paris, France
Filed Aug. 6, 1981, Ser. No. 290,449
Claims priority, application France, Aug. 7, 1980, 80 17444
Int. Cl.³ H02K *3/48*
U.S. Cl. 310—214 **6 Claims**

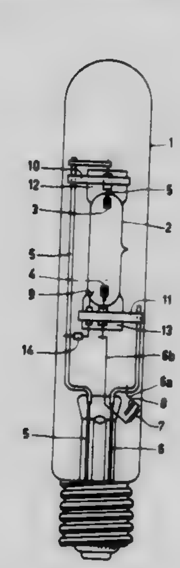


1. Dovetailed teeth for use in fixing stator winding bars of an electric rotating machine having a rotor that rotates about a longitudinal axis inside a stator, the stator having a magnetic circuit with a cylindrical inner surface disposed around the rotor and carrying angularly spaced winding bars that extend longitudinally and fixed against said cylindrical inner surface by means of said dovetailed teeth which are fixed to said magnetic circuit, said teeth protruding radially inwards and being spaced out angularly, each of said teeth being generally prismatic with longitudinal generatrices and comprising: a foot defining a trapezium in cross-section having a large base and a small base both disposed in the tangential direction with the small base nearest the inside of the machine, two flanks connecting said bases together; and a body which extends in the radial direction from the small base of said trapezium and terminating in a head; the teeth being fixed by engaging their feet in longitudinal slots of a trapezoidal cross-section which corresponds to that of said feet, said slots being formed in the inner surface of said stator magnetic circuit; the winding bars being fixed to the stator magnetic circuit by means of the bodies of these teeth which extend radially inwards from the inner surface of the stator magnetic circuit; the improvement wherein each of said dovetailed teeth includes:

a core which extends along the whole length of the tooth with parts within the foot, body and head thereof, a covering for said core parts of said core being disposed inside said foot of said tooth having a base surface which is parallel to and which faces a middle portion of the large base of the foot and two flank surfaces which extend towards the body of the tooth from the side edges of said base surface and coming progressively closer to each other; and

said covering being applied to said core, the thickness of said covering being substantially constant, said covering being constituted by superposed layers of a sheathing fabric disposed parallel to the longitudinal direction completely wrapped about said core foot, body and head following the side surfaces of the tooth, said layers being impregnated with a hard resin so that the covering runs along the foot, body and head in order to transmit radial traction forces from said body and head to said foot; whereby the foot has high resistance to radial inward traction forces.

4,380,714
HIGH-PRESSURE DISCHARGE LAMP
Anton J. Bouman, and Eise B. Geertsema, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Dec. 15, 1980, Ser. No. 216,106
Claims priority, application Netherlands, Jan. 15, 1980, 8000228
Int. Cl.³ H01J *19/68*
U.S. Cl. 313—549 **1 Claim**



1. A high-pressure discharge lamp having a vacuum-tight glass outer envelope in which a vacuum-tight, light-transmitting discharge vessel is situated in a non-oxidizing medium and is provided with a pair of electrodes and an ionizable filling, in which lamp current conductors extend through the wall of the outer envelope and the wall of the discharge vessel to said pair of electrodes and in which an oxidation-sensitive element is situated between the said two walls, electrically in series with said current conductors, characterized in that the oxidation-sensitive element consists of an electric insulator on which two spaced conductors are provided and are interconnected electrically by a layer of an oxygen gettering metallic evaporable getter vapour-deposited on said insulator.

4,380,715

COLOR TELEVISION DISPLAY TUBE WITH RESISTOR FOR INTERFERENCE RADIATION REDUCTION

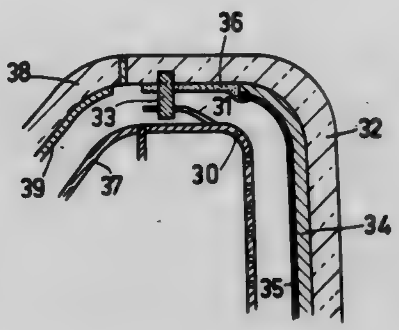
Gosse J. Postma, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 25, 1980, Ser. No. 191,042

Claims priority, application Netherlands, Oct. 15, 1979, 7907596

Int. Cl.³ H01J *29/96, 29/88, 29/81*

U.S. Cl. 315—3 **3 Claims**



1. A color television display tube comprising an envelope having a neck, a cone and a window, an electron beam producing means located in said neck, a display screen provided on the internal surface of said window and covered with an electrically conductive layer, a shadow mask situated at a short distance from the display screen, and means for electrically connecting the shadow mask to the conductive layer, said electrical connection means having a resistance of approximately 5 kOhms to 100 kOhms.

4,380,716

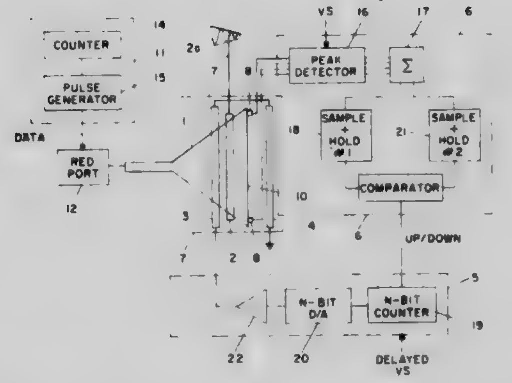
EXTERNAL MAGNETIC FIELD COMPENSATOR FOR A CRT

Arthur L. Romeo; Robert T. Bonelli, both of Greenlawn, and Harvey E. Fishman, Brooklyn, all of N.Y., assignors to Hazeltine Corporation, Greenlawn, N.Y.

Filed Oct. 9, 1981, Ser. No. 309,947

Int. Cl.³ H01J *29/06*

U.S. Cl. 315—8 **21 Claims**



1. Apparatus for compensating for an external magnetic field affecting a cathode ray tube (CRT) display, said apparatus comprising:

(a) means for generating a reference display of a given color in a predetermined area on the face of said CRT;

(b) means for sensing an optical characteristic of the reference display and generating an output signal representative thereof;

(c) means for generating a compensating magnetic field about said CRT; and

(d) means for controlling the strength of said compensating magnetic field in response to said output signal.

4,380,717

MAGNETRONS

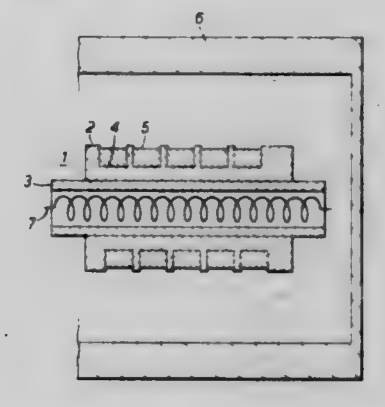
Alan H. Pickering, Chelmsford, England, assignor to English Electric Valve Company Limited, Chelmsford, England

Continuation of Ser. No. 71,714, Aug. 31, 1979. This application Sep. 11, 1981, Ser. No. 301,815

Claims priority, application United Kingdom, Sep. 2, 1978, 35425/78

Int. Cl.³ H01J *25/50*

U.S. Cl. 315—39.51 **13 Claims**



1. A magnetron including a cathode in which a cylindrical support of good electrical conductivity material carries electron emissive material located in recesses formed in the outer cylindrical surface to provide an electron emissive surface area of a predetermined area having interruptions formed by walls of the exposed outer, cylindrical surface, the recesses having substantially constant cross sectional area in the direction of their depth so that as the volume of electron emissive material decreases during operation of the magnetron, said electron emissive surface area remains substantially unreduced.

13. A magnetron including a cathode in which a cylindrical support of good electrical conductivity material carries electron emissive material located in recesses formed in the outer cylindrical surface, the lateral dimensions of each recess in at least one given direction being small compared with the overall dimension of the cathode in the same direction whereby a plurality of areas of electron emissive material which are separated by intervening raised portions of said cylindrical support are positioned along said direction, and the area of the outer cylindrical surface which is occupied by said electron emissive material is large as compared to the rest of said outer cylindrical surface, and wherein the recesses have substantially constant cross sectional areas in the direction of their depth so that as the volume of electron emissive material decreases during operation of the magnetron, the electron emissive surface area remains substantially unreduced.

4,380,718

TRAILER MARKER LIGHT SUBSTITUTION CIRCUIT

Roger L. Miller, Ann Arbor, Mich., assignor to Kelsey-Hayes Co., Romulus, Mich.

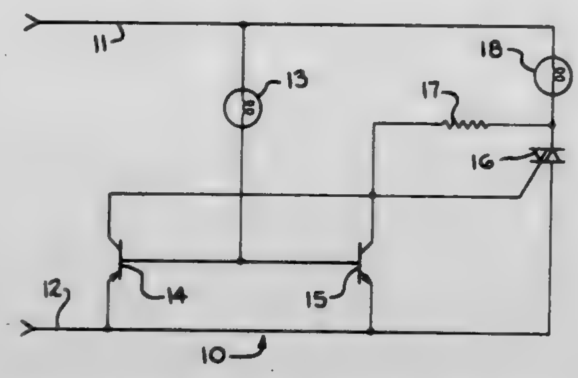
Filed May 22, 1981, Ser. No. 267,218

Int. Cl.³ H05B *39/10;* **B60Q** *1/26*

U.S. Cl. 315—93 **7 Claims**

1. A dual polarity alarm circuit for applying power from two power terminals to a second load in response to failure of a first load comprising a PNP transistor and an NPN transistor each having a base, an emitter and a collector, means connecting said emitters to one of said power terminals, means connecting said first load between the other of said power terminals and said bases of said transistors whereby current normally flows through said first load and the base to emitter junctions of one of said transistors, a bidirectional switch having main terminals and gate means for triggering said switch into conduction, means connecting said switch main terminals and said second load in series between said power terminals, means connecting said gate means to said transistor collectors, and resistor means connected between said gate means and said other power

terminal for causing said gate means to trigger said switch when a conducting one of said transistors ceases to conduct



due to failure of said first load whereby said second load is energized.

4,380,719

ELECTRONIC DEVICE FOR THE STARTING AND A.C. VOLTAGE OPERATION OF A GAS AND/OR VAPOR DISCHARGE LAMP

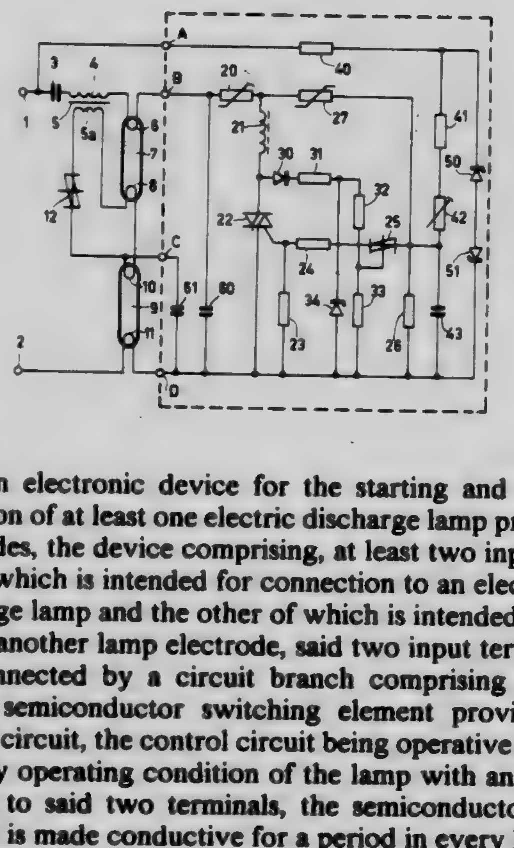
Adrianus M. J. De Bijl, and Hubertus M. J. Chermin, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 17, 1980, Ser. No. 207,321

Claims priority, application Netherlands, Dec. 19, 1979, 7909128

Int. Cl.³ H05B *41/16*

U.S. Cl. 315—101 **16 Claims**



1. An electronic device for the starting and a.c. voltage operation of at least one electric discharge lamp provided with electrodes, the device comprising, at least two input terminals one of which is intended for connection to an electrode of the discharge lamp and the other of which is intended for connection to another lamp electrode, said two input terminals being interconnected by a circuit branch comprising a first controlled semiconductor switching element provided with a control circuit, the control circuit being operative such that, in the fully operating condition of the lamp with an a.c. voltage applied to said two terminals, the semiconductor switching element is made conductive for a period in every half cycle of the applied a.c. voltage, the control of the semiconductor switching element depending on the magnitude of the voltage between the said two input terminals, a second controlled semiconductor switching element having two switching states and connected to the first switching element so that only in a first switching state of the second switching element is the current through the first switching element blocked, means connecting a control electrode of the second switching element to a second control circuit arranged in parallel with a portion of the circuit branch which interconnects the said two input terminals and comprises at least the first switching element, and wherein the second control circuit includes a rectifier and has such a small time constant that, at least immediately after switch-on of the device, the second control circuit causes the second switching element to switch to its first switching state at the beginning of each alternate half cycle of the a.c. voltage.

4,380,720

APPARATUS FOR PRODUCING A DIRECTED FLOW OF A GASEOUS MEDIUM UTILIZING THE ELECTRIC WIND PRINCIPLE

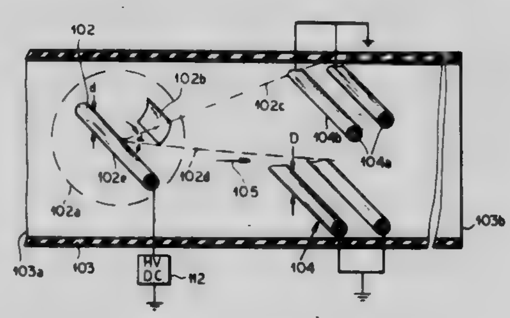
Carl M. Fleck, Schelleingasse 14, 1040 Wien, Austria

Filed Nov. 19, 1980, Ser. No. 208,417

Claims priority, application Austria, Nov. 20, 1979, 7384/79; May 6, 1980, 2397/80; May 6, 1980, 2398/80; Jul. 23, 1980, 3806/80; Jul. 23, 1980, 3808/80

Int. Cl.³ H01J *7/24*

U.S. Cl. 315—111.91 **16 Claims**



1. In an apparatus wherein charged particles are generated by a discharge electrode and are collected on a plurality of spaced-apart collector plates at a potential different from that of said discharge electrode, the improvement which comprises intermediate collector plates not connected to any voltage source and disposed between but insulated from the first-mentioned collector plates and positioned in the electric field between said first collector plates and said discharge electrode to have induced on said intermediate collector plates potentials between those of said first collector plates and said discharge electrode.

4,380,721

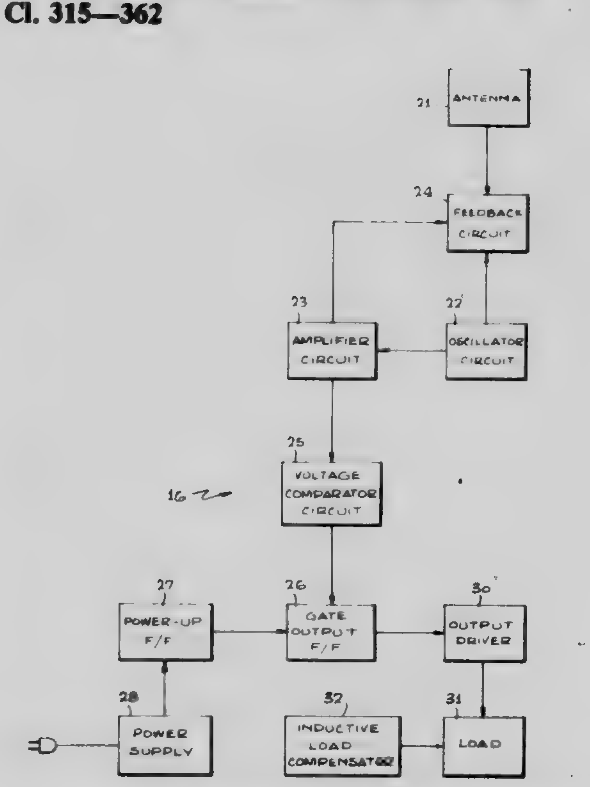
PROXIMITY SWITCH

John W. Bullock, 67 Margarita, Camarillo, Calif. 93010, and Lawrence T. Miranda, 91-564 Pupu St., Ewa Beach, Hi. 96706

Filed Dec. 29, 1980, Ser. No. 221,085

Int. Cl.³ H05B *37/02;* H01K *7/00*

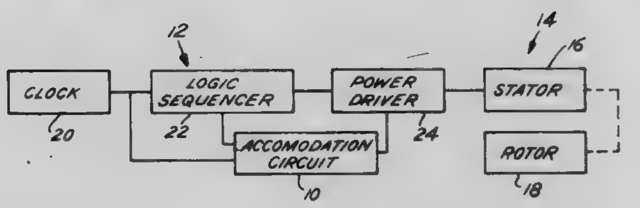
U.S. Cl. 315—362 **1 Claim**



1. A proximity switch for sensing the presence of an object or agent comprising the combination of:

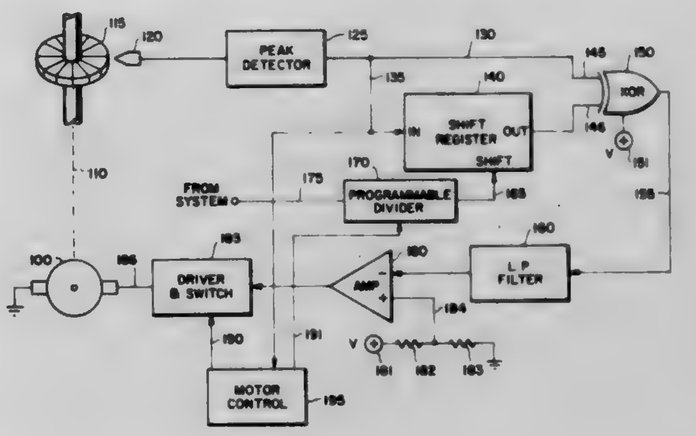
an antenna;
an oscillator coupled to said antenna and adapted to modify oscillations in response to the presence of an object or agent in close proximity to said antenna;
a voltage comparator operably coupled to said oscillator for initiating a trigger signal in response to modification of oscillations from said oscillator;
a voltage setting circuit producing a threshold voltage level;
a bistable circuit operatively coupled to said voltage setting circuit and responsive to said trigger signal in the presence of said threshold voltage level to provide an output voltage level;
a load operably connected to said bistable circuit for receiving said output voltage level and being actuated thereby;
a feedback circuit connected between said antenna and said oscillator;
an amplifier circuit interconnecting said oscillator circuit with said feedback circuit for rectifying its output;
an output driver network including a light emitting diode circuit operably coupled between said load and said bistable circuit;
said voltage setting circuit is a first flip-flop circuit and said bistable circuit is a gate circuit having a second flip-flop circuit;
an inductive load compensator network coupled to said load;
said voltage comparator is coupled to said oscillator circuit via said amplifier circuit for sensing a dip in voltage therefrom resulting from the inference with an electromagnetic field surrounding said antenna; and
said electromagnetic field is established by said oscillator.

4,380,722
ACCOMMODATION CIRCUIT FOR A STEP MOTOR
Norman E. Oltendorf, Algonquin, Ill., assignor to Bodine Electric Company, Chicago, Ill.
Filed Jan. 14, 1981, Ser. No. 225,126
Int. Cl.³ H02K *29/00*
U.S. Cl. 318—696 **16 Claims**



1. An accommodation circuit for use in conjunction with a step motor of the type controlled by a clock, a logic sequencer and a series of power drivers, said logic sequencer providing a series of energization signals, defining an energization pattern, to said power drivers in response to said clock, comprising, in combination:
conversion means, responsive to said clock, for providing a series of override signals to said power drivers for combination with said energization signals to convert said energization pattern to a predetermined alternate pattern;
initialization means for initializing said conversion means; and
sequence-matching means for sequentially matching said conversion means to said logic sequencer whereby said override signals are properly coordinated with respect to said energization signals.

4,380,723
DIGITAL VELOCITY SERVO
Michael D. Leis, Framingham, and Robert C. Rose, Hudson, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.
Filed Jun. 5, 1979, Ser. No. 46,130
Int. Cl.³ H02P *5/16*
U.S. Cl. 318—314 **6 Claims**

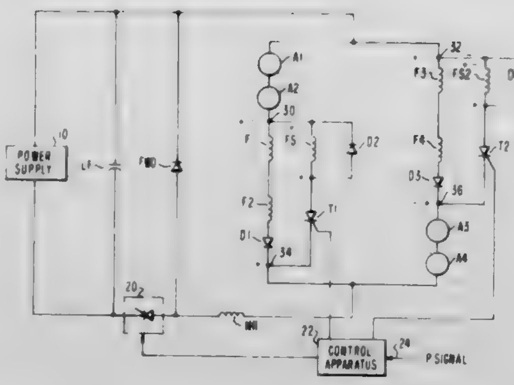


1. An electric motor servo control system for controlling the speed of an electric motor comprising:
A. speed signal means for producing a speed signal consisting essentially of pulses whose time period of repitition is proportional to the rotational period of the motor,
B. delay means for receiving the speed signal from said speed signal means and producing a delayed speed signal consisting essentially of pulses delayed from the pulses of the speed signal by a predetermined time interval that is less than the duration of the pulses of the speed signal whenever the speed of the motor is within an intended speed range,
C. logical-combination means for receiving said speed signal and said delayed speed signal and for generating a sequence of constant-width, variable-frequency motor-control pulses wherein the pulse width is substantially equal to said predetermined time interval and the pulse frequency is proportional to the repetition frequency of the speed signal, the duty cycle of the motor-control pulses thereby varying in response to variations of the rotational speed of the motor, and
D. means for receiving the motor-control pulses from said logical-combination means and adapted for coupling to the motor to drive the motor in accordance with the duty cycle of said motor-control pulses.

4,380,724
SHUNT FIELD CONTROL APPARATUS AND METHOD
James H. Franz, Jr., Murrysville, and Stanley W. Jones, McMurray, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Nov. 24, 1980, Ser. No. 209,762
Int. Cl.³ H02P *7/06*
U.S. Cl. 318—353 **5 Claims**

1. In shunt field control apparatus for a motor operative with a voltage supply and having a shunt field and a series connected armature and main field, the combination of
chopper means coupled between the voltage supply and the series connected armature and main field, said chopper means having successive ON and OFF operations to determine the average voltage across the series connected armature and main field and providing a predetermined polarity voltage across the main field during each of said OFF operations,
switch means coupled with the shunt field and conductive for connecting the shunt field across the main field, and
means connected across the shunt field for providing a cur-

rent path around the shunt field in relation to voltage across the shunt field and providing said predetermined



polarity voltage across the switch means to turn OFF the conduction of the switch means.

4,380,725

GENERATOR-BATTERY DC POWER SUPPLY SYSTEM

Moshe Sherman, Rishon le Zion, Israel, assignor to Israel Aircraft Industries, Ltd., Lod, Israel

Filed Apr. 1, 1981, Ser. No. 249,950

Claims priority, application Israel, Apr. 4, 1980, 59777

Int. Cl.³ H02J *7/14, 7/16;* **H02P** *9/00*

U.S. Cl. 320—35 **10 Claims**

1. A power supply system comprising a plurality of sub-systems; each sub-system including a generator producing a DC output voltage, a battery supplying the power in case of failure or termination of operation of the generator, and generator regulating means regulating the output voltage of its respective generator; circuit means connecting the batteries of all said sub-systems in parallel; each of said generator regulating means including a temperature sensor sensing the temperature of its respective battery; comparator means for comparing the output of said temperature sensors and for determining the battery at the highest temperature; and control means effective to control the generator regulating means of all the generators of said sub-systems to decrease their output voltages in response to an increase in the temperature of the battery in the sub-system having the highest temperature, to thereby prevent overheating of any of the batteries by over-charging them.

4,380,726

BATTERY SERVICE LIFE INDICATOR

Ichiro Sado, and Toshiaki Ozawa, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 18, 1978, Ser. No. 925,748

Claims priority, application Japan, Jul. 18, 1977, 52-85843

Int. Cl.³ H01M *10/48*

U.S. Cl. 320—48 **16 Claims**

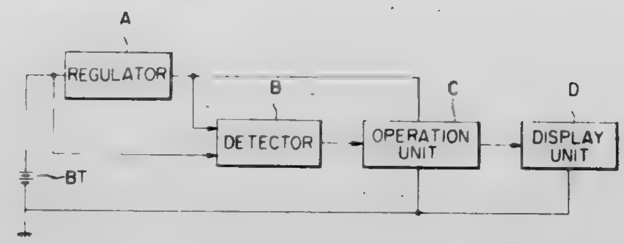
1. An electronic apparatus comprising:

detecting means for detecting a variable output voltage level of a battery;

storage means for previously storing datum corresponding to a predetermined output voltage level of said battery;

life time memory means for storing life time datum of said battery, said life time datum being associated with the datum stored in said storage means;

comparison means for comparing the voltage level detected by said detecting means with the datum stored in said storage means; and



means for reading out the life time datum stored in said life time memory when said comparison means produces a coincidence of the output voltage level of said battery with the datum stored in said storage means.

4,380,727

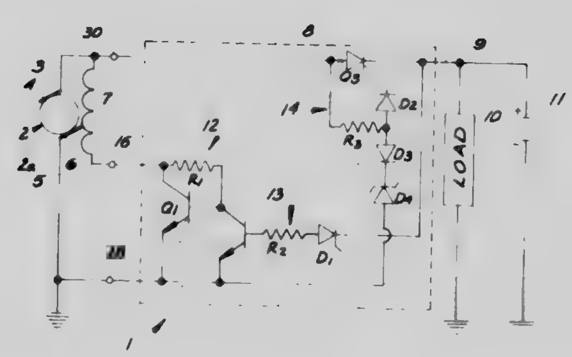
VOLTAGE REGULATOR SYSTEM FOR MOTORCYCLES AND THE LIKE

Roger Gray, Cincinnati, Ohio, assignor to Thomas H. Rudd, Wayzata, Minn.

Filed Mar. 25, 1981, Ser. No. 247,515

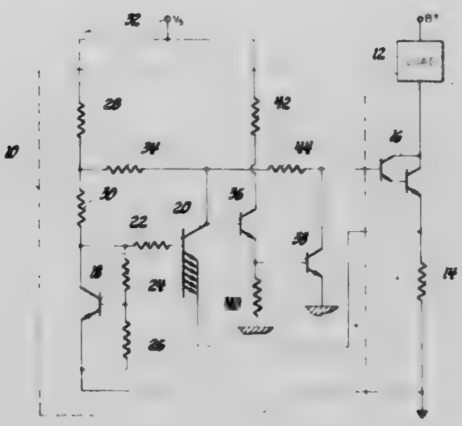
Int. Cl.³ H02P *9/30*

U.S. Cl. 322—28 **26 Claims**



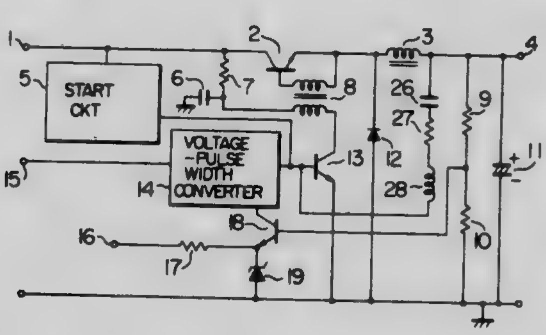
1. In a motor vehicle electrical charging system for producing a relatively low regulated DC output voltage of the type having generator means for producing a generator output voltage comprising a DC generator having a pair of armature contacts and a field winding having one terminal connected to one of said contacts, and load means connected to said regulated output voltage comprising a storage battery and a variable load, the improvement in combination therewith comprising means for regulating said generator output voltage to a relatively constant value including field winding control means for regulating the flow of current through said field winding, sensing means connected between said control means and said regulated output voltage operating to cause increased current flow through said field winding when said regulated output voltage is less than a first predetermined value and to cause decreased current to flow through said field winding when said regulated output voltage is greater than a predetermined value, and output voltage control means comprising switch means connected between said first mentioned field winding terminal and said regulated output voltage and second sensing means for enabling said switch means for permitting current flow to said load from said generator means only when the value of regulated output voltage is less than a second predetermined value.

4,380,728
CIRCUIT FOR GENERATING A TEMPERATURE STABILIZED OUTPUT SIGNAL
Mark B. Kearney, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed May 19, 1981, Ser. No. 265,205
Int. Cl.³ G05F *1/58*
U.S. Cl. 323—281 **5 Claims**



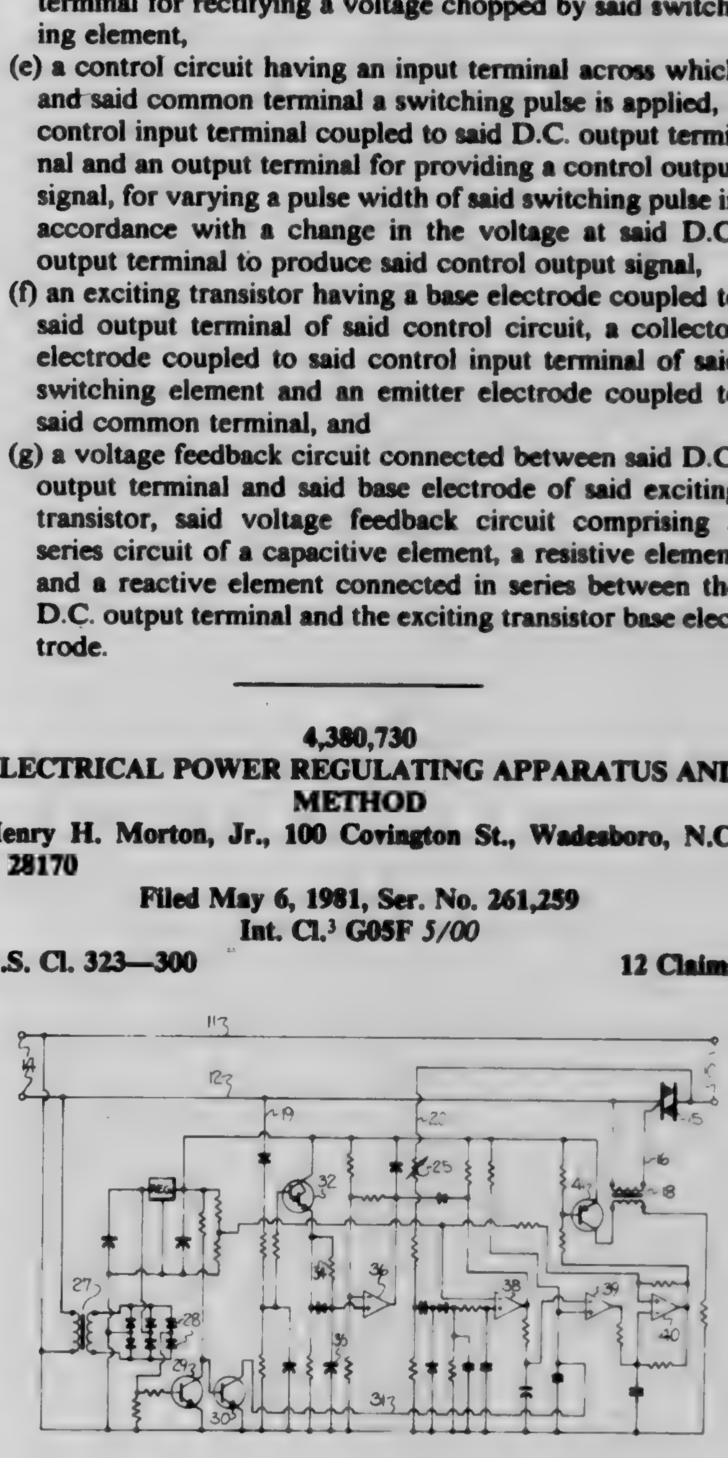
1. A circuit for providing a voltage that is substantially independent of temperature variations, comprising in combination:
 first and second transistors;
 a first resistor coupled between the bases of the first and second transistors;
 a second resistor coupled between the base and emitter of the first transistor;
 a load impedance coupled between the emitters of the first and second transistors; and
 supply means effective to bias the first and second transistors conductive so that the emitter current density of the first transistor is greater than the emitter current density of the second transistor to produce a difference in the base-emitter voltages of the first and second transistors having a positive temperature coefficient, the voltage across the first resistor being proportional to the base-emitter voltage of the first transistor and having a negative temperature coefficient, whereby a substantially temperature independent voltage is provided across the load impedance that is the sum of the voltage across the first resistor having a negative temperature coefficient and the difference in the base to emitter voltages of the first and second transistors having a positive temperature coefficient.

4,380,729
SWITCHING REGULATOR
Masaro Kaku, Ebina; Yasumasa Sawaki, and Kunio Ando, both of Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jun. 19, 1981, Ser. No. 275,256
Claims priority, application Japan, Jun. 19, 1980, 55-82165
Int. Cl.³ G05F *1/46*
U.S. Cl. 323—285 **6 Claims**



1. A switching regulator comprising:
 (a) a D.C. input terminal across which and a common terminal an unstabilized D.C. voltage is applied,
 (b) a switching element having a control input terminal, an output terminal and an input terminal connected to said D.C. terminal,
 (c) a D.C. output terminal across which and said common terminal a stabilized D.C. voltage is produced,
 (d) a rectifying filter circuit having an input terminal connected to said output terminal of said switching element and an output terminal connected to said D.C. output terminal for rectifying a voltage chopped by said switching element,
 (e) a control circuit having an input terminal across which and said common terminal a switching pulse is applied, a control input terminal coupled to said D.C. output terminal and an output terminal for providing a control output signal, for varying a pulse width of said switching pulse in accordance with a change in the voltage at said D.C. output terminal to produce said control output signal,
 (f) an exciting transistor having a base electrode coupled to said output terminal of said control circuit, a collector electrode coupled to said control input terminal of said switching element and an emitter electrode coupled to said common terminal, and
 (g) a voltage feedback circuit connected between said D.C. output terminal and said base electrode of said exciting transistor, said voltage feedback circuit comprising a series circuit of a capacitive element, a resistive element and a reactive element connected in series between the D.C. output terminal and the exciting transistor base electrode.

4,380,730
ELECTRICAL POWER REGULATING APPARATUS AND METHOD
Henry H. Morton, Jr., 100 Covington St., Wadesboro, N.C. 28170
Filed May 6, 1981, Ser. No. 261,259
Int. Cl.³ G05F *5/00*
U.S. Cl. 323—300 **12 Claims**



1. Apparatus for regulating alternating current electrical power conducted to an electrical load and comprising:
 conductor means for operative connection with an alternating current electrical power source and an electrical load and for conducting power from the source to the load,
 a gate controlled bidirectional semiconductor switch electrically interposed in said conductor means and operable in conductive and nonconductive states for controlling conductance of alternating current electrical power from the source to the load, and
 sensing circuit means electrically coupled to said semiconductor switch for gating said switch into conductive state and electrically coupled to said conductor means for sensing fluctuation in voltage supplied from the source and fluctuation in voltage delivered to the load caused by load current changes and line resistance, said sensing circuit means comprising setpoint means for establishing a predetermined average voltage for conductance through

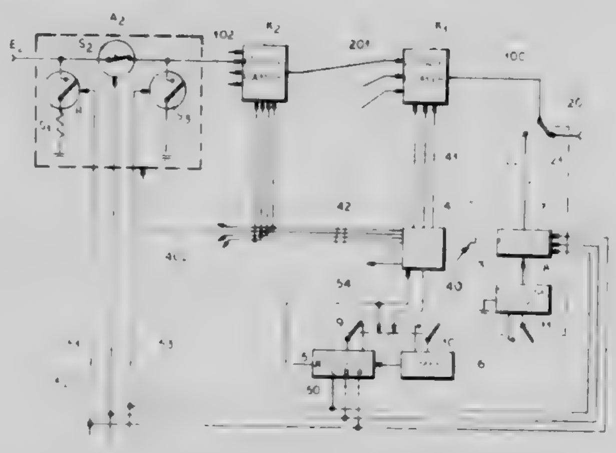
said semiconductor switch and feedback means for responding to voltage and current fluctuation by maintaining said predetermined average voltage.

4,380,731

SYSTEM FOR MONITORING THE OPERATION OF INDIVIDUAL CONNECTORS IN A MULTIPATH COUPLING NETWORK

Dietrich E. Alker, Eningen U.A., Fed. Rep. of Germany, assignor to Wandel U. Goltermann GmbH & Co., Reutlingen, Fed. Rep. of Germany

Filed Mar. 5, 1980, Ser. No. 127,311
Claims priority, application Fed. Rep. of Germany, Mar. 9, 1979, 2909268
Int. Cl.³ G01R *31/02, 15/12*
U.S. Cl. 324—51 7 Claims



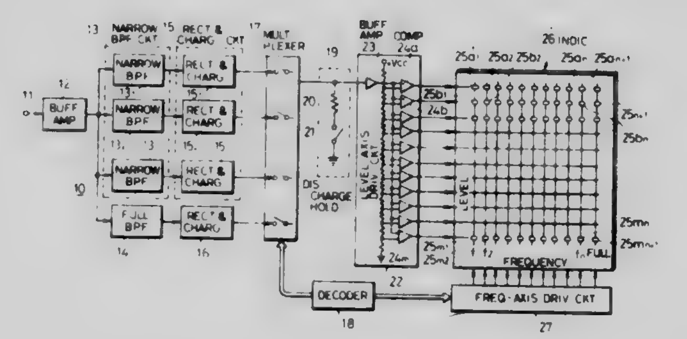
1. In a signal-processing system, in combination:
a coupling network comprising a plurality of connectors which are selectively activable, one at a time, for establishing one of a plurality of signal paths through said network, each of said connectors including an alternation of shunt and series switches, each series switch being closed and each shunt switch being open in an active state to facilitate the transmission of a pilot signal therethrough in series with an outlying terminal of the respective connector, each series switch being open and each shunt switch being closed in an inactive state to decouple said outlying terminal of the connector from the remainder of said network;
selector means operable to emit commands deactivating an active connector and activating an inactive connector for a switchover from one signal path to another;
a source of test signals;
switching means responsive to operation of said selector means for connecting said source via a common section of the signal paths of said network to a hitherto active connector involved in said switchover before decoupling same from said common section and for overriding the commands of said selector means with successive reversal of all shunt and series switches of said hitherto active connector in a sequence causing the impedance thereof to alternate between low and high levels until the opposite state is reached, said hitherto active connector remaining coupled to said common section throughout said sequence; and
evaluating means between said source and said common section for comparing the responses of said test signal to said low and high levels with predetermined values and generating a malfunction indication upon detection of a significant deviation from said predetermined values.

4,380,732

SIGNAL SPECTRUM DISPLAY APPARATUS

Yoshiaki Tanaka, Tokyo, and Mamoru Inami, Yokohama, both of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Aug. 22, 1980, Ser. No. 180,502
Claims priority, application Japan, Aug. 24, 1979, 54-107768
The portion of the term of this patent subsequent to Dec. 22, 1998, has been disclaimed.
Int. Cl.³ G01R *23/16*
U.S. Cl. 324—77 D 8 Claims

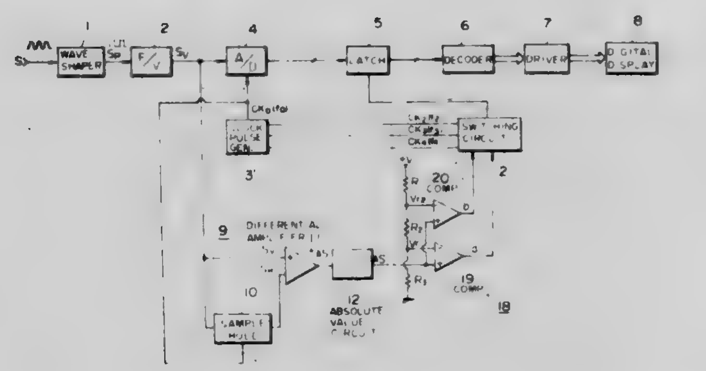


1. A signal spectrum display apparatus comprising:
a plurality of band-pass filters respectively having filtering bands of different center frequencies and operating to filter an input signal thereby to band-divide the input signal fed through an input terminal;
a plurality of rectification and charging circuits connected respectively to said band-pass filters, each of said rectification and charging circuits comprising a rectifying element, and a capacitor which is charged and discharged by being supplied with voltage rectified by said rectifying element;
a display section having displaying means including the same number of display systems as band-pass filters each of said systems respectively corresponding to a band-pass filter;
means for supplying the output signals of rectification and charging circuits to the displaying means and causing level displaying by the displaying means of those systems corresponding respectively to the output signal levels of said band-pass filters; and
switching means connected between a point between said rectification and charging circuit and said display section, and the ground,
said capacitor charging and discharging when said switching means is closed, whereby the input signal level is displayed in real-time in said display section, and said capacitor stopping charging and discharging when said switching means is opened, whereby the maximum input signal level is successively displayed in said display section in response to the output voltage held in response to successive higher input signal voltage.

4,380,733
FREQUENCY AND SPEED DISPLAY DEVICE

Hiroshi Yano, Higashiyamato; Teruo Kawasaki, Yokohama; Hiroyuki Nomura, Fujisawa, and Mikio Takeuchi, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

Filed Aug. 25, 1980, Ser. No. 180,956
Claims priority, application Japan, Aug. 24, 1979, 54-107181
Int. Cl.³ G01P *3/48, 3/54*
U.S. Cl. 324—166 11 Claims

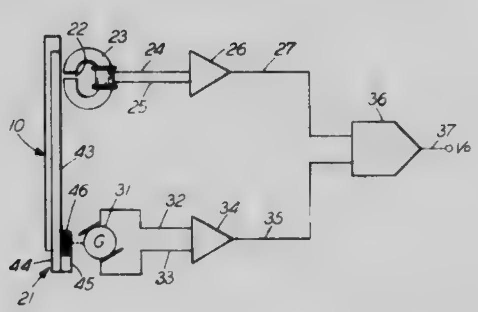


1. A speed display device comprising:
means for sensing the magnitude of the rate of change of a speed to be displayed, and
means for controlling the time interval for updating the speed displayed according to the sensed magnitude.

4,380,734
MEASURING MAGNETIC INTENSITY INDEPENDENT OF SPEED IN A SUCCESSION OF MOVING MAGNETIC STRIPS

George L. Allerton, Orefield, Pa., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,376
Int. Cl.³ G01R *33/12;* **G01N** *27/72;* **G06K** *9/00*
U.S. Cl. 324—225 12 Claims

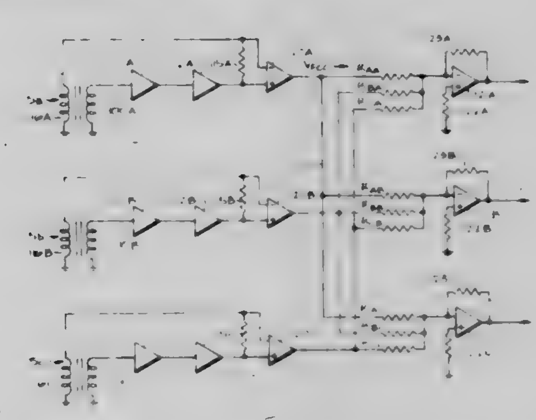


1. A method of measuring magnetic intensity in each of a succession of magnetic strips in an article, comprising:
producing relative motion between the article and a magnetic sensing head to produce a succession of first voltage waveforms, each having a shape substantially characterized by the positions of the poles in a respective strip and wherein each incremental portion of the shape has an amplitude proportional to the magnetic intensity sensed along the surface of the strip and to the instantaneous speed of the relative motion between the sensing head and such surface;
producing a second voltage waveform having a shape for each strip wherein each incremental portion has an amplitude proportional to an instantaneous speed equivalent to the speed producing the first voltage waveform for the respective strip; and
simultaneously feeding the first waveform for each strip into the numerator input and the second waveform into the denominator input of a dividing circuit having a processing speed sufficient to produce a third voltage waveform of a shape wherein each incremental portion is independent of the speed of the relative motion and is faithful in amplitude and position to the poles in the strip.

4,380,735
COMPENSATING FEEDBACK SYSTEM FOR MULTI-SENSOR MAGNETOMETERS

Malcolm E. Bell, Medicine Hat, Canada, assignor to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence, Ottawa, Canada

Filed Dec. 1, 1980, Ser. No. 211,938
Claims priority, application Canada, Feb. 29, 1980, 345355
Int. Cl.³ G01R *33/025*
U.S. Cl. 324—244 4 Claims

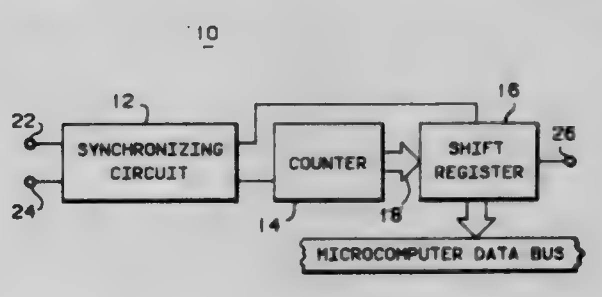


1. A magnetometer having first and second sensor feedback systems each comprising:
sensor means for sensing a magnetic field;
feedback coil means associated with said sensor means for providing a feedback field at the latter;
feedback circuit means for energizing said feedback coil means in response to sensing of the magnetic field by said sensor means and thereby producing at said sensor means a feedback field for cancelling the sensed field at said sensor means;
means for deriving from said feedback circuit means a first electrical signal proportional to the feedback field at said sensor means; and
means for converting said first electrical signal to a second electrical signal proportional to said feedback field of said feedback coil at the sensor means of the other one of said sensor feedback systems; and
means for combining the first electrical signal of each of said systems with the second electrical signal of the other of said systems to provide two output signals corresponding, respectively, to the sensed magnetic fields at said sensor means.

4,380,736
PERIPHERAL INTERFACE ADAPTER CIRCUIT FOR COUNTER SYNCHRONIZATION

William Pfaff, Round Rock, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 4, 1981, Ser. No. 260,520
Int. Cl.³ H03K *17/00, 5/13;* **H03L** *7/00*
U.S. Cl. 328—73 7 Claims



1. An interface circuit for providing in synchronization with

a synchronizing signal, an output signal in response to an input signal, the interface circuit comprising:

first storage means for receiving the input signal and the output signal, the first storage means assuming a first logic state in response to the input signal and a second logic state in response to the output signal, and providing a transfer signal indicative of the logic state thereof;

second storage means for receiving the transfer signal, the synchronizing signal and a first reset signal, the second storage means assuming the logic state of the first storage means as indicated by the transfer signal in response to the synchronizing signal and the second logic state in response to the first reset signal, and providing the output signal indicative of the logic state thereof;

first reset logic means for receiving the synchronizing signal and the output signal, and for providing the first reset signal in response to the absence of the synchronizing signal, but only when the second storage means are in the first logic state as indicated by the output signal;

third storage means for receiving the output signal and a second reset signal, the third storage means assuming the first logic state in response to the second storage means assuming the second logic state as indicated by the output signal and the second logic state in response to the second reset signal, and providing an enable signal indicative of the logic state thereof; and

second reset logic means for receiving the synchronizing signal and the enable signal, and providing the second reset signal in response to the presence of the synchronizing signal, but only when the third storage means are in the first logic state as indicated by the enable signal.

4,380,737

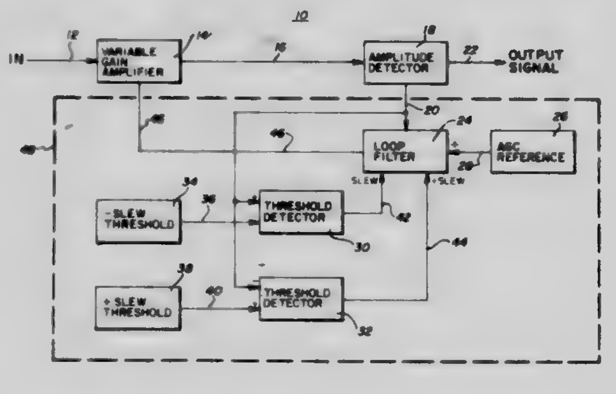
FAST AGC SLEW CIRCUIT

David E. Sanders, Kenneth City, Fla., assignor to E-Systems, Inc., Dallas, Tex.

Filed Nov. 12, 1980, Ser. No. 206,073

Int. Cl.³ H03G *3/20*

U.S. Cl. 330—134 10 Claims



1. An automatic gain control circuit comprising:

a variable gain amplifier having input thereto a received signal and having the gain thereof responsive to a gain control signal;

an amplitude detector connected to receive from said amplifier the received signal transmitted therethrough, said amplitude detector generating an amplitude signal corresponding to the amplitude of the received signal input to said amplitude detector;

means for generating a first drive signal when said amplitude signal exceeds a first threshold signal;

means for generating a second drive signal when said amplitude signal is less than a second threshold signal; and

means for generating a first gain control signal varying as a function of said amplitude signal when said amplitude signal is between the amplitudes of said threshold signals, generating a second gain control signal varying as a function of said first drive signal when said amplitude signal exceeds the amplitude of said first threshold signal and generating a third gain control signal varying as a function of said second drive signal when said amplitude signal is less than the amplitude of said second threshold signal.

4,380,738

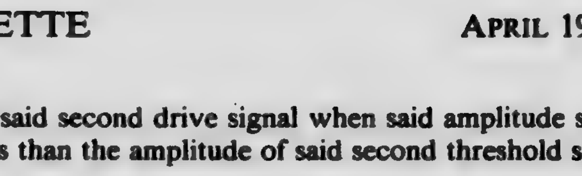
RF AMPLIFIER APPARATUS

Robert S. Wagner, Quincy, Ill., assignor to Harris Corporation, Melbourne, Fla.

Filed Feb. 10, 1981, Ser. No. 233,059

Int. Cl.³ H03F *3/189*

U.S. Cl. 330—151 12 Claims



1. Apparatus for interconnecting two high gain, low input impedance amplifiers to amplify an RF signal, comprising:

means for providing said RF signal to the input of a first one of said amplifiers such that said first amplifier provides a first amplified signal;

coupling means responsive to said first amplified signal for passively coupling said signal to the input of the second one of said amplifiers such that said second amplifier provides a second amplified signal, and to a combining means; and

combining means for combining the first amplified signal provided thereto by said coupling means and the second amplified signal provided thereto by said second amplifier means to provide a combined amplified signal;

wherein said coupling means divides the power of said first amplified signal between the signals provided to said combining means and to said second amplifier means such that the signal provided to said second amplifier means has a first power level for providing a selected signal drive to said second amplifier means and substantially all of the residual power of said first amplified signal over and above said first power level is fed forward to the combining means, and wherein said coupling means has an input impedance which matches the output impedance of said first amplifier means.

4,380,739

ELECTRONIC DIFFERENTIAL CONTROLLER

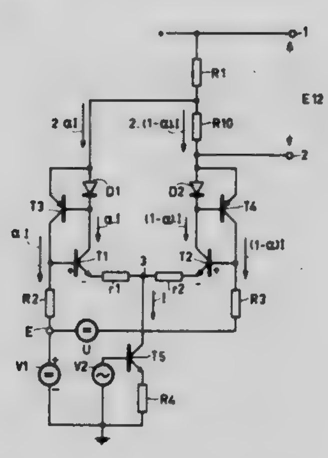
Henri J. Velo, Hilversum, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 17, 1980, Ser. No. 198,097

Claims priority, application Netherlands, Nov. 19, 1979, 7908411

Int. Cl.³ H03F *3/45;* H03G *3/30*

U.S. Cl. 330—254 11 Claims



1. An electronic differential controller comprising first and second transistors coupled together to form a differential am-

plifier with each transistor having an emitter connected to a point of constant voltage via an input signal current source, means for deriving an output signal from the collector circuit of one of said transistors, means coupling base electrodes of the first and second transistors to a control circuit for adjusting the currents in said transistors, said control circuit comprising first and second resistors having a first terminal connected to the base electrodes of the first and second transistors, respectively, and means for connecting a second terminal of said resistors together, and wherein the collector circuits of the first and second transistors include means for injecting currents into said resistors that are proportional to the collector currents flowing through the first and second transistors.

4,380,740

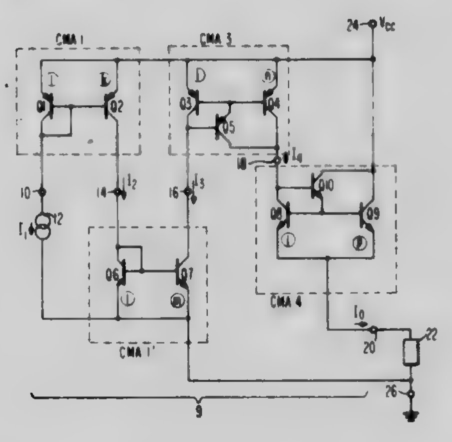
CURRENT AMPLIFIER

Leonard A. Kaplan, Fords, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 31, 1980, Ser. No. 202,485

Int. Cl.[3] H03F *3/18*

U.S. Cl. 330—288 10 Claims



1. A current amplifier having input and output terminals comprising:

a first current mirror amplifier having input and output electrodes, the input electrode thereof being connected to said input terminal;

a second current mirror amplifier having respective input and output electrodes, the output electrode thereof being connected to said output terminal;

means for connecting the output electrode of said first current mirror amplifier to the input electrode of said second current mirror amplifier;

one of said first and second current mirror amplifiers comprising first and second transistors of like conductivity type having respective emitter, base and collector electrodes, means for connecting said collector electrode of said first transistor to said input electrode of said first current mirror amplifier; and means for connecting said first and second transistors as a current mirror amplifier wherein the current gain thereof decreases as the respective beta of said first and second transistors decrease; and

the other of said first and second current mirror amplifiers comprising third and fourth transistors of like conductivity type having respective emitter, base, and collector electrodes, means for connecting said collector electrode of said third transistor to said input electrode of said second current mirror amplifier; and means for connecting said third and fourth transistors as a current mirror amplifier wherein the current gain thereof increases as the respective beta of said third and fourth transistors decreases.

4,380,741

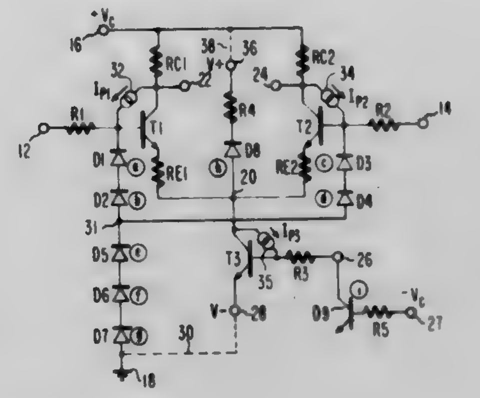
PHOTOCURRENT COMPENSATION FOR ELECTRONIC CIRCUITRY EXPOSED TO IONIZING RADIATION

James D. Mazgy, Parsippany, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 10, 1980, Ser. No. 205,341

Int. Cl.[3] H03F *3/08*; H03K *17/00*; H03F *17/00*

U.S. Cl. 330—308 17 Claims



1. In combination:

supply means for receiving an operating potential;

a transistor having base, emitter and collector electrodes, and having a semiconductor junction between its collector and base electrodes;

means including load means for coupling the base, emitter and collector electrodes of said transistor to said supply means to condition said transistor for conduction; and

compensating means for conducting a current substantially equal to a photocurrent induced in the semiconductor junction of said transistor by ionizing radiation incident thereon including:

a plurality of serially connected semiconductor junctions poled for conduction in like direction and responsive to said ionizing radiation for generating a compensating photocurrent substantially equal to said induced photocurrent;

means coupling said supply means to one end of said plurality of serially connected semiconductor junctions to reverse bias said plurality of serially connected semiconductor junctions; and

means for coupling the other end of said plurality of serially connected semiconductor junctions to one of the collector and base electrodes of the semiconductor junction of said transistor to make said compensating photocurrent flow with polarity sense opposite to that of said induced photocurrent.

4,380,742

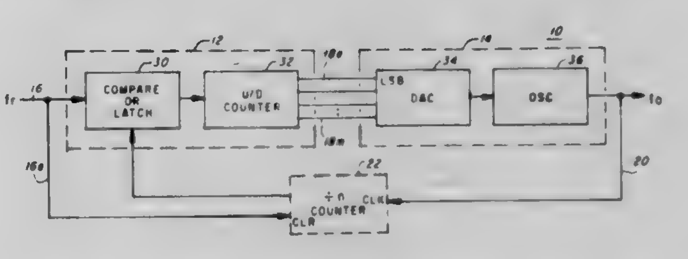
FREQUENCY/PHASE LOCKED LOOP CIRCUIT USING DIGITALLY CONTROLLED OSCILLATOR

Patrick J. Hart, Johnson City, Tenn., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 4, 1980, Ser. No. 175,170

Int. Cl.[3] H03L *7/14*

U.S. Cl. 331—1 A 9 Claims



1. A circuit for synchronizing the frequency and/or phase of an output signal to a reference frequency signal comprising:

a digitally controlled oscillator for producing said output signal which can be varied dependent upon a digital signal

which can be varied and applied to the input of the oscillator,

comparator means coupled to said output signal from said oscillator and to said reference frequency signal for determining which of said signals occurs first and generating at least one said digital signal to be applied to the input of the oscillator indicating whether the frequency of said output signal should be increased or decreased, the comparator means including a compare means, up/down counter means whose input is coupled to the compare means and whose output is coupled to said oscillator,

an additional counter means whose input is coupled to said output signal and whose output is coupled to said compare means for dividing down the frequency of said output signal, and

means responsive to the occurrence of a rising edge in said reference frequency signal waveform for clearing the additional counter and resetting the up/down counter means.

4,380,743

FREQUENCY SYNTHESIZER OF THE PHASE LOCK LOOP TYPE

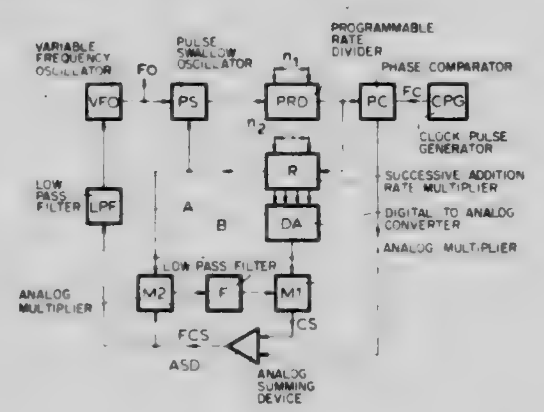
Michael J. Underhill, and Nigel J. Walters, both of Horsham, England, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 19, 1981, Ser. No. 226,326

Claims priority, application United Kingdom, Jan. 21, 1980, 8001889

Int. Cl.³ H03L *7/18*

U.S. Cl. 331—1 A 8 Claims



1. A phase lock loop type frequency synthesizer for producing a synthesized frequency signal comprising:

(a) a variable frequency oscillator for providing the synthesized frequency signal in response to a frequency control signal;

(b) a clock pulse generator for producing a reference frequency signal;

(c) a phase comparator for comparing the phases of first and second signals applied to first and second inputs thereof, thereby effecting production of the frequency control signal;

(d) first and second means for coupling the variable frequency oscillator output and the clock pulse generator output to the first and second inputs of the phase comparator, respectively, one of said means digitally reducing the frequency of the respective frequency signal and applying the reduced frequency signal to the respective input of the phase comparator;

(e) a successive addition rate multiplier, including an accumulator, for adding a predetermined increment Y to any accumulated values stored in the accumulator in response to each pulse of the reduced frequency signal, said multiplier producing an overflow pulse each time the capacity C (where $C \geqq Y$) of the accumulator is exceeded while leaving the excess as residue in the accumulator;

(f) means for producing a correction signal in response to said residue; and

(g) means coupled to the phase comparator for correcting the frequency control signal in response to the correction signal to compensate for any variation in the frequency control signal caused by jitter in the pulse rate of the reduced frequency signal;

characterized in that the means for producing a correction signal further includes a feedback loop responsive to any residual ripple on the frequency control signal to eliminate said ripple.

4,380,744

STABILIZED OSCILLATOR FOR MICROWAVES WITH FREQUENCY CONVERSION AND ITS SOLID STATE CONSTRUCTION

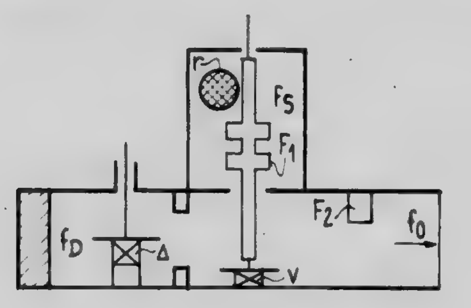
Gerard Kantorowicz, Paris, France, assignor to Thomson - CSF, Paris, France

Filed Jun. 12, 1980, Ser. No. 158,864

Claims priority, application France, Jun. 15, 1979, 79 15452

Int. Cl.³ H03B *9/14*

U.S. Cl. 331—107 R 7 Claims



1. A stabilized microwave oscillator with frequency conversion for producing a wave of frequency f_o comprising: a non-linear reactance; three parallel branches coupled to said non-linear reactance; said non-linear reactance's value being dependent on the voltage applied to it; the first of said three branches having a resonant circuit at frequency f_s; the second of said three branches having a resonant circuit at frequency f_o; and the third of said three branches having a negative resistance dipole for providing a pump wave at frequency f_p; said frequency f_p substantially exceeding said frequency f_s, and frequency f_o=frequency f_p−frequency f_s; means for inputting power in the third branch; and means for extracting power at frequency f_o from the second branch; stabilization in said second branch at frequency f_o being achieved by adjusting the first branch at frequency f_s.

4,380,745

DIGITALLY CONTROLLED TEMPERATURE COMPENSATED OSCILLATOR SYSTEM

Michael L. Barlow, Silverdale, and Alan L. Lindstrum, Bainbridge Island, both of Wash., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 7, 1980, Ser. No. 205,027

Int. Cl.³ H03L *1/02*

U.S. Cl. 331—176 3 Claims

1. A temperature-compensated oscillator system for producing a system output signal of a constant frequency, which comprises:

(a) an oscillator having a known output frequency versus temperature characteristic;

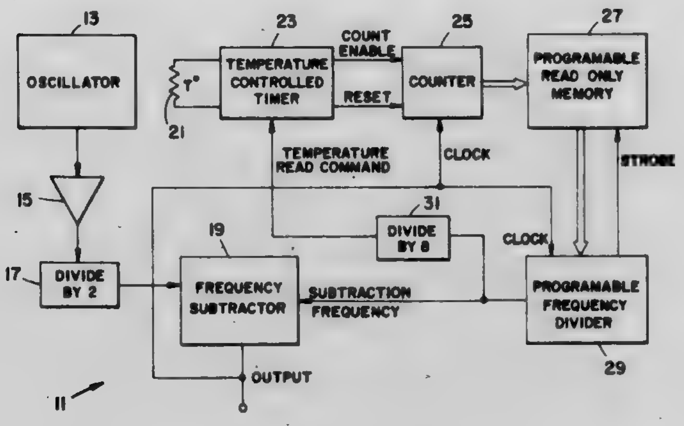
(b) a temperature sensor for producing a first output signal proportional to the temperature at which the oscillator is operating;

(c) a temperature-controlled timer coupled to receive the first output signal, said temperature controlled timer producing a second output signal having a duration which is related to the temperature sensed by said temperature sensor;

(d) means for converting said second output signal to a first

binary number representing the temperature sensed by said temperature sensor;

(e) a programmable memory coupled to receive said first binary number on its address input, the memory address identified by said first binary number containing a second binary number representing an error frequency to adjust the frequency of the output signal from the oscillator;



(f) means for generating a signal having said error frequency in response to said second binary number, said means for generating coupled to receive said addressed second binary number; and

(g) means for combining said signal at said error frequency with the output signal from said oscillator to produce said temperature-compensated system output signal.

4,380,746

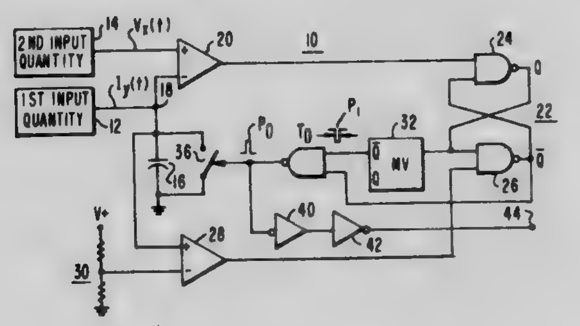
PULSE MODULATOR USING CAPACITOR CHARGING AND DISCHARGING CIRCUITS

Shan C. Sun, Bell, Pa., and Larry L. Church, Jefferson, Ohio, assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 3, 1981, Ser. No. 239,917

Int. Cl.[3] H03K *7/06*

U.S. Cl. 332—9 R **7 Claims**



1. A pulse modulator for providing pulses having a predetermined parameter proportional to at least one input quantity, comprising:

a first input quantity,

energy storage means,

said energy storage means being charged by said first input quantity to provide a changing quantity,

a second input quantity,

first means comparing said second input quantity and said changing quantity, said first means providing a predetermined signal when the compared quantities have a predetermined relationship,

second means responsive to the predetermined signal being provided by said first means for providing a first discharge signal,

third means responsive to the predetermined signal being provided by said first means for providing a second discharge signal,

fourth means for discharging said energy storage means in response to either of the discharge signals, and for immediately enabling said energy storage means to be charged by said first input quantity,

and output means providing a pulse in response to each occurrence of the predetermined relationship between the compared quantities.

4,380,747

TUNABLE ULTRA-HIGH FREQUENCY FILTER WITH VARIABLE CAPACITANCE TUNING DEVICES

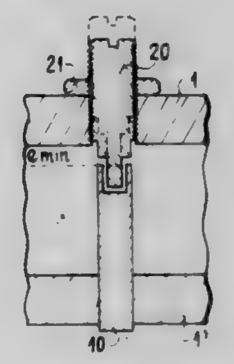
Jean C. Curtinot; Xavier Delestre, and Jean Fouillet, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Feb. 25, 1981, Ser. No. 237,997

Claims priority, application France, Mar. 4, 1980, 80 04833

Int. Cl.[3] H01P *1/207, 1/00*

U.S. Cl. 333—202 **9 Claims**



1. A tunable ultra-high frequency filter comprising at least one variable capacitance tuning device incorporating first and second coaxial fingers fitted up in the filter, the first finger being a hollow cylindrical body having an external diameter with an end face at least partly flat, and the second finger comprising a cylindrical body having the same external diameter with an end face at least partly flat, extended with a plunger having a diameter much smaller than the external diameter of the cylindrical bodies which is displaceable relative to the first finger between a minimum and a maximum penetration positions where the plunger and the hollow body of the first finger have minimum and maximum facing surfaces for determining a first capacitance variation, said two cylindrical bodies being displaceable relative to one another, the variable distance between the corresponding flat faces determining a second capacitance variation.

4,380,748

BOBBINS FOR ELECTRICAL COILS

John Hill, 8 Westleigh Dr., Bickley, Kent, and Royston W. Bannister, 11 Foalhurst Close, Tonbridge, Kent, both of England

Filed Dec. 15, 1980, Ser. No. 216,751

Claims priority, application United Kingdom, Dec. 21, 1979, 7944088

Int. Cl.[3] H01H *1/66*

U.S. Cl. 335—151 **9 Claims**

1. A reed relay assembly, comprising:

a bobbin having a hollow interior;

first and second spaced apart flanges integrally formed on said bobbin for defining therebetween a first main winding space, at least one of said flanges having at least one slot for defining a wire passageway;

third and fourth flanges integrally formed on said bobbin and axially spaced from said first and said second flanges for

defining a second and a third annular termination winding space;

a selected length of electrical wire wrapped a preselected number of turns around said first winding space to provide a main coil and wrapped a preselected number of turns around said second and said third annular termination winding spaces to provide termination windings the individual turns of which are electrically joined together to provide first and second electrical terminals for said main coil; and

a reed switch disposed through said hollow interior and within said main coil.

4,380,749

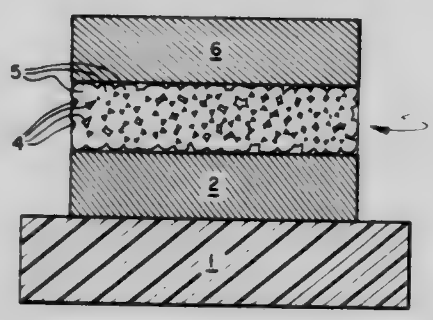
ONE-TIME ELECTRICALLY-ACTIVATED SWITCH

Charles W. Eichelberger, Schenectady, and Robert J. Wojnarowski, Clifton Park, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 29, 1980, Ser. No. 220,343

Int. Cl.^{3} H01C *13/00*

U.S. Cl. 338—215 **14 Claims**



1. A one-time electrically-activated switch, comprising: a polymeric binder containing an agglomeration of particles of a conductive material, essentially all of said particles having a surface normally coated with a layer of an oxide compound of the conductive material, said conductive material being present in an amount sufficient to establish particle-to-particle contact throughout the binder, the oxide surface and the thickness of said binder being sufficient to resist the flow of electricity before a given threshold voltage of between about 8 volts and about 15 volts is applied thereto.

4,380,750

INDIUM OXIDE RESISTOR INKS

Ashok N. Prabhu, Plainsboro, and Kenneth W. Hang, Princeton Junction, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Jul. 6, 1981, Ser. No. 280,934

Int. Cl.^{3} H01C *1/012;* **B05D** *5/12;* **H01B** *1/08;* **C09D** *11/00*

U.S. Cl. 338—308 **10 Claims**

1. A resistor ink suitable for forming a resistor film on a circuit board comprising:

(a) from about 25 to about 80 percent by weight of indium oxide;

(b) from about 1 to about 20 percent by weight of magnesium oxide;

(c) from about 5 to about 60 percent by weight of a barium calcium borosilicate glass frit; and

(d) from about 10 to about 35 percent by weight of a suitable organic vehicle.

4,380,751

WARNING SYSTEM FOR PASSIVE VEHICLE OCCUPANT RESTRAINT BELTS

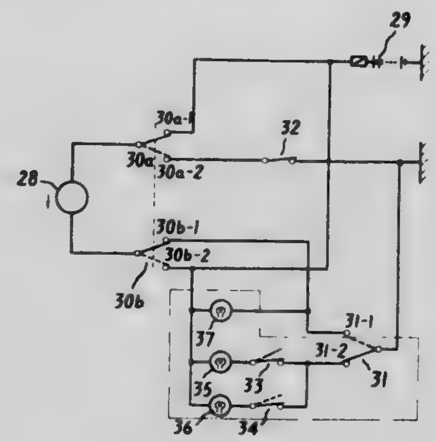
Juichiro Takada, 3-12-1, Shinmachi, Setagayaku, Takyoto, Japan

Filed Nov. 25, 1980, Ser. No. 210,152

Claims priority, application Japan, Nov. 30, 1979, 54-164948[U]

Int. Cl.^{3} B60R *21/02, 21/10*

U.S. Cl. 340—52 E **7 Claims**



1. A passive vehicle occupant seat belt system comprising a shoulder belt extending upwardly and outwardly across the vehicle seat from adjacent the inboard lower rear portion of the seat, a guide rail affixed to the edge of the vehicle roof generally above the door, a movable anchor received by the guide rail for movement between a restraint location adjacent the rear end of the guide rail and a release location adjacent the front end of the guide rail, means for moving the movable anchor between the release and restraint locations in response to closing and opening of the vehicle door, emergency release buckle means for releasably connecting the outboard end of the shoulder belt to the movable anchor, a fixed anchor adjacent the restraint location of the movable anchor and including a locking pawl adapted to lock the movable anchor at the restraint location, means for detecting the presence of the movable anchor at the restraint location and for producing a warning signal when the movable anchor is not at the restraint location, means for detecting when the pawl is disengaged from the movable anchor and for producing a warning signal thereof only when the movable anchor is at the restraining location, and means for detecting when the buckle is not fastened and for producing a warning signal indicative thereof only when the movable anchor is at the restraining location.

4,380,752

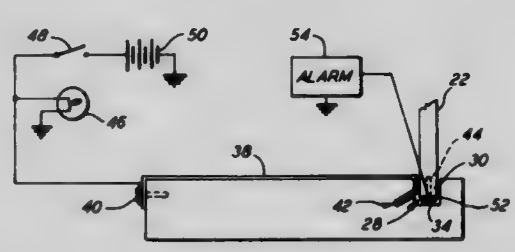
AUTOMATIC TRANSMISSION SELECTOR LEVER LOCK

Carlton J. Reynolds, R.D. 1, Coal Hill Rd., North Bangor, N.Y. 12966

Filed Feb. 9, 1981, Ser. No. 232,453

Int. Cl.^{3} G08B *21/00*

U.S. Cl. 340—52 D **12 Claims**



9. Apparatus for releasably locking a transmission selector lever in the "park" position and for signaling to indicate that the lever is not in the "park" position in response to a predetermined vehicular condition, said apparatus comprising, in combination:

(a) an electrical power source;

(b) a first electrical switch which is closed in response to movement of a first vehicle part;

(c) a locking device having two elements respectively mounted on second and third vehicle parts which are moved relative to one another in response to movement of the transmission selector lever;

(d) said two elements being constructed and arranged for movement into locking engagement to prevent further relative movement of said second and third vehicle parts, and thereby of said selector lever, upon movement of the latter to the "park" position;

(e) said two elements having electrically conducting portions which remain in contact when said selector lever is in other than the "park" position and which are removed from contact when said lever is placed in the "park" position;

(f) said electrically conducting portions forming a second electrical switch wired in series with said first switch; and

(g) an electrically actuated signaling device connected to said first and second switches and to said power source for actuation only when both of said switches are closed.

4,380,753

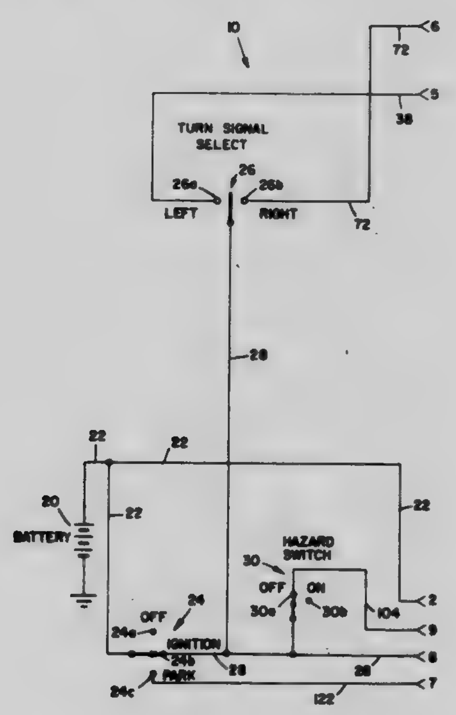
TURN SIGNAL AND HAZARD SIGNAL CONTROL CIRCUIT

LeRoy A. Gant, 521 Jasmine La., Santa Maria, Calif. 93454

Division of Ser. No. 95,549, Nov. 19, 1979, Pat. No. 4,302,748. This application Jun. 19, 1981, Ser. No. 275,544

Int. Cl.³ B60Q *1/00, 1/40, 1/46*

U.S. Cl. 340—66 **2 Claims**



1. An electronic control circuit for controlling left and right turn signal lamps of a vehicle, comprising:

(a) an ignition switch having an off position, an ignition position and a park position;

(b) means for supplying electrical power through said ignition switch when said switch is in said ignition position or said park position;

(c) means for flashing the left turn signal lamp and the right turn signal lamp on and off simultaneously in response to the electrical power; and

(d) two-state hazard switch means, connected to said ignition position of said ignition switch, for activating said flashing means when said ignition switch is in said ignition position dependent on the state of said hazard switch means and for automatically activating said flashing means when said ignition switch is in said park position independent of the state of said hazard switch means.

4,380,754

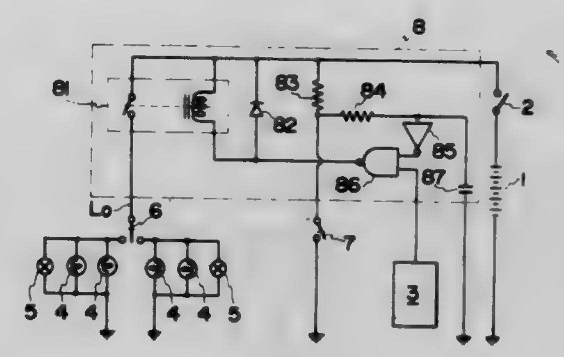
ELECTRIC INDICATOR UTILIZING AN OSCILLATION SOURCE OF A CRYSTAL CLOCK FOR AUTOMOBILES

Akio Simizu, Tonemachi, Japan, assignor to Niles Parts Co., Ltd., Tokyo, Japan

Filed Jan. 19, 1978, Ser. No. 870,805

Int. Cl.³ B60Q *1/34*

U.S. Cl. 340—73 **7 Claims**



1. An electronic turn indicator for automobiles utilizing an oscillation of a crystal clock comprising:

an oscillation source of a crystal clock providing a continuously alternating output signal, a selectively operable amplification circuit operable when enabled to amplify the output signal from said oscillation source of said crystal clock to thereby provide an amplified power signal to an output of said amplification circuit, said amplification circuit including enable logic means including an AND GATE having a signal input connected to receive the output signal from said oscillation source and an enable input for receiving an enable signal and having a plurality of resettable cascaded frequency divider means for dividing the output of said oscillation source, said amplification circuit disabled from amplification and said plural frequency divider means each held in a reset state in the absence of an enable signal, said amplification circuit, when enabled by an enable signal applied to said enable input, releasing simultaneously said plural frequency divider means from their reset state to effect frequency division of the output of said oscillation source and providing the so-divided amplified power signal to the output of said amplification circuit, the alternations of the frequency divided amplified power signal synchronized to the output of said oscillation source, a turn indication lamp, a turn indicator switch for selectively connecting the output of said amplification circuit to said turn indication lamp to energize said lamp intermittently, and circuit means for applying an enable signal to said enable input of said logic means to enable said amplification circuit and to release simultaneously said plural frequency divider means from said reset state only when said turn indicator switch connects the output of said amplification circuit to said indication lamp so that said turn indication lamp is energized within one cycle of the output of said oscillation source after actuation of said turn indicator switch.

4,380,755

MONOLITHICALLY INTEGRATED TWO-DIMENSIONAL IMAGE SENSOR WITH A DIFFERENCE FORMING STAGE

Frank Endlicher, Munich, and Rudolf Koch, Germering, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jun. 30, 1980, Ser. No. 164,300

Claims priority, application Fed. Rep. of Germany, Sep. 28, 1979, 2939490

Int. Cl.³ H04N *5/30*

U.S. Cl. 382—68 **8 Claims**

1. A monolithically integrated two-dimensional image sensor having a difference-forming stage, said image sensor hav-

ing a plurality of sensor elements disposed in rows and columns on a doped semiconductor body, with all sensor elements in a column being connected to a common column line selectively connectable to a reference potential, and with all sensor elements in a row being connected to a common row line connected to a means for selectively energizing all sensor elements in a row for collection of radiation incident on said sensor elements, said difference-forming stage comprising:

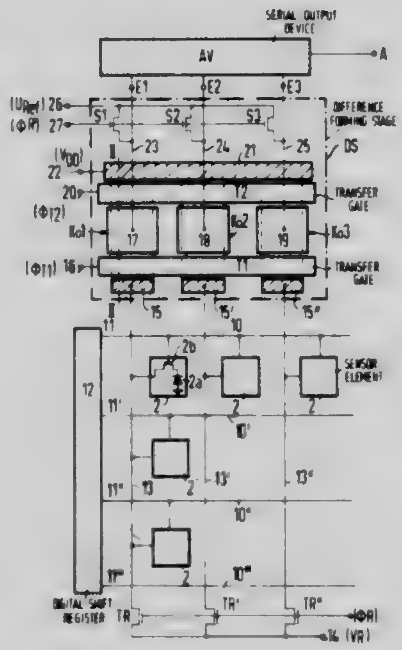
a plurality of first oppositely doped regions in said semiconductor body respectively connected to said column lines for generating a charge packet corresponding to respective voltages on said column lines;

a plurality of storage capacitors formed by respective electrodes disposed above an insulating layer on said semiconductor body, each column line having a storage capacitor associated therewith;

a first transfer gate having a clock pulse voltage connected thereto disposed on said insulating layer on said semiconductor body between said first oppositely doped regions and said storage capacitors;

a second oppositely doped region in said semiconductor body connected to a supply voltage;

a second transfer gate disposed on said insulating layer on said semiconductor body between said storage capacitors



and said second oppositely doped region, said second transfer gate connected to a clock pulse voltage;

a reset means for resetting said electrodes of said storage capacitors to a reference potential after a readout operation; and

a serial output device having a plurality of inputs respectively connected to said electrodes of said storage capacitors for sequentially reading out signals from said electrodes,

whereby first charge packets are generated in said first oppositely doped regions during a first readout of said sensor elements and said first charge packets are transferred by said first transfer gate into said storage capacitors while the electrodes of these are at said reference potential, the storage capacitors being subsequently disconnected from the reference potential and the first charge packets being transferred then into said second oppositely doped region by said second transfer gate, and whereby second charge packets are generated in said oppositely doped regions by a second readout of said sensor elements and are transferred into said storage capacitors and the voltage of said electrodes of said capacitors corresponding to the difference between said first and second charge packets is subsequently output by said serial output device and said second charge packets are subsequently transferred into said second oppositely doped region by said second transfer gate.

4,380,756

CHARGE REDISTRIBUTION CIRCUIT HAVING REDUCED AREA

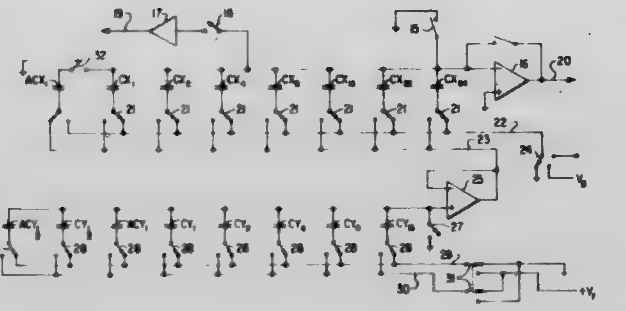
Adrian D. Worsman, Swindon, England, assignor to Mitel Corporation, Kanata, Canada

Filed Dec. 22, 1980, Ser. No. 219,110

Claims priority, application Canada, Aug. 27, 1980, 359106

Int. Cl.^{3} H03K *13/02*

U.S. Cl. 340—347 AD 9 Claims



1. A charge redistribution circuit for translation of an input signal comprising:

(a) a first plurality of capacitors, one terminal of each capacitor being connected together,

(b) means for switching said one terminal to a first reference voltage,

(c) means for selectively switching the other terminal of each capacitor between a first lead and a second lead,

(d) means for selectively switching the first lead between a source of said input signal, said first reference voltage, and a high impedance,

(e) a second plurality of capacitors, one terminal of each capacitor being connected together,

(f) a buffer having its input connected to said one terminal of the second plurality of capacitors, and its output connected to said second lead,

(g) means for switching the input of the buffer to said first reference voltage,

(h) means for selectively switching the other terminal of each of the second plurality of capacitors to a third or a fourth lead,

(i) means for switching the third and fourth leads interchangeably to the first reference voltage and to a second reference voltage having a single polarity with respect to said first reference voltage,

whereby upon switching of sequences of said other terminal of capacitors of the first plurality of capacitors between the first and second leads, a distribution of charge is effected therebetween, and upon switching of sequences of said other terminal of capacitors of the second plurality of capacitors between the third and fourth leads a distribution of charge is effected therebetween, and

(j) output means for carrying an output signal from said one terminal of the first plurality of capacitors, resulting from the distribution of charge between the first capacitors and the distribution of charge between the second capacitors.

4,380,757

DATA ACQUISITION SYSTEM AND ANALOG TO DIGITAL CONVERTER THEREFOR

Gyorgy I. Vancsa, Pittsburgh, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

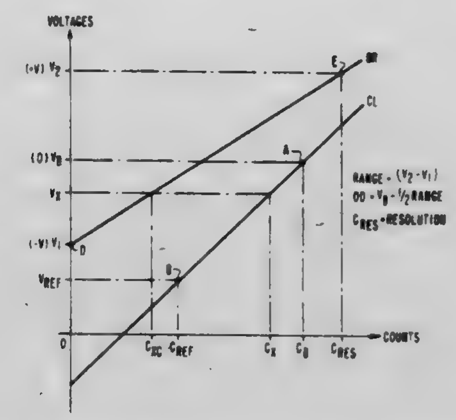
Division of Ser. No. 116,053, Jan. 28, 1980, Pat. No. 4,349,821. This application Dec. 9, 1981, Ser. No. 328,888

Int. Cl.^{3} H03K *13/02*

U.S. Cl. 340—347 CC 2 Claims

1. A method of deriving through a channel of communication including an anlog-to-digital (A/D) converter, a corrected value C_{XC} applicable to any count C_X derived from said (A/D) converter through said channel of communication in relation to an analog input signal of magnitude V_X applied from at least one measuring point, comprising the steps of:

(1) applying a bias voltage V_B at the input of said channel of communication and deriving a count C_B at the output of said A/D converter;
(2) applying a known voltage reference V_{REF} at the input of said channel of communication and deriving a count C_{REF} at the output of said A/D converter;

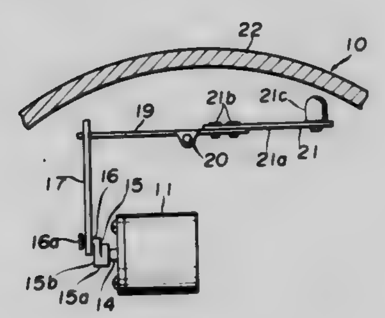


(3) applying the analog input signal of magnitude V_X of the measuring point and deriving a count C_X at the output of said A/D converter;
(4) computing C_{XC} with the formula:

$$C_{XC} = \frac{RES}{\text{Range}}\left[\frac{(V_B - V_{REF})}{(C_B - C_{REF})} \times (C_X - C_B)\right] + \frac{RES}{2}$$

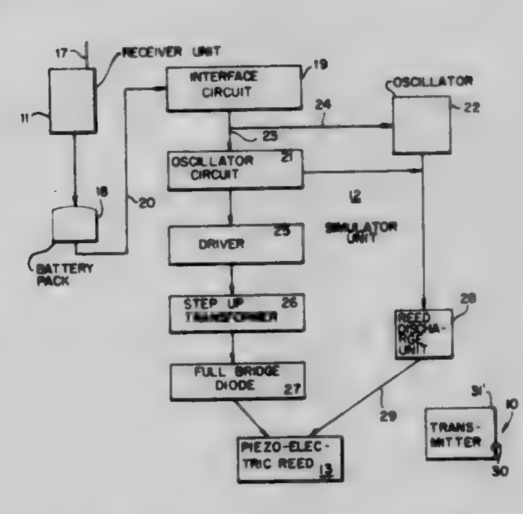
where "RES" is the Resolution C_{RES} of measurement and "Range" is the spread of the input signal V_X in magnitude; the deriving steps (1) and (2) of counts C_B and C_{REF} being refreshed from applied voltages V_B and V_{REF} from time to time before deriving counts C_X and computing C_{XC} under steps (3) and (4).

4,380,758
MOTOR ACTUATED BELL
Tadashi Ishii, Tokyo, Japan, assignor to Kobishi Electric Co., Ltd., Tokyo, Japan
Filed Jul. 10, 1980, Ser. No. 168,405
Int. Cl.³ G08B *3/10;* G10K *1/064*
U.S. Cl. 340—396 1 Claim



1. A motor actuated bell which comprises:
(a) a gong;
(b) a base mounted with said gong;
(c) a motor mounted on said base and having a rotatable drive shaft;
(d) a crank member fixedly secured to said motor drive shaft for rotation therewith, said crank member having an eccentric pin extending away from said motor in eccentric relation to the axis of said motor drive shaft;
(e) a rectangular connecting plate disposed generally in parallel relation to said base and lying in a plane generally perpendicular to the axis of said eccentric pin, said connecting plate having a slot formed therethrough at one end thereof and extending perpendicular to the longitudinal axis thereof, and said eccentric pin being received in said slot for sliding movement therealong, whereby said connecting plate is reciprocally moved along its axis through said eccentric pin upon rotation of said motor drive shaft;
(f) a rigid lever pivotally mounted on said base intermediate opposite ends thereof, said lever being fixedly secured at one end thereof generally perpendicularly to the other end of said connecting plate for swinging movement in parallel spaced relation to said base; and
(g) a hammer means having a hammer element for striking against the inner wall of said gong, said hammer means having a leaf spring fixedly secured at one end thereof to the other end of said lever and extending therefrom along the axis of said lever, and said leaf spring carrying said hammer element at the other end thereof.

4,380,759
APPARATUS TO ALERT A DEAF PERSON
Jerome Sulkoski, 7258 Bell Rd., Harborcreek, Pa. 16511, and Richard D. Brugger, 5433 Clinton Dr., Erie, Pa. 16509
Filed Nov. 5, 1980, Ser. No. 204,089
Int. Cl.³ H04B *1/08;* G08B *21/00*
U.S. Cl. 340—407 7 Claims



1. Apparatus to alert a deaf person of an emergency situation comprising:
a vibration sensor for sensing an audible alarm,
a radio receiver,
a radio transmitter having a vibration pickup adapted to sense the vibration of a smoke alarm,
said radio receiver having means to receive transmissions from said transmitter,
a tactile stimulator connected to said receiver,
said tactile stimulator being adapted to be disposed in engagement with the skin of a person whereby said person is alerted by a transmission from said transmitter to said receiver and to said tactile stimulator when said smoke alarm is operating,
said tactile stimulator being a piezoelectric reed connected to a skin engaging member terminating in an end that is substantially a conical member having a point adapted to vibrate at a frequency in the range of 160 HZ,
said piezoelectric reed comprises a conductor member sandwiched between two relatively thin non-conductor members supported in fixed position at a first end and having said point member supported on its distal end, and adapted to vibrate in contact with said skin in response to a signal received by said receiver from said transmitter.

4,380,760

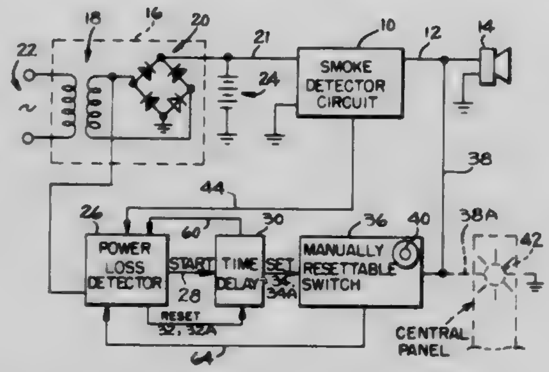
SMOKE DETECTOR WITH DELAYED ALARM AFTER CHANGE TO STAND-BY POWER

Morris J. Kornblit, Pittsburgh, Pa., assignor to General Electric Company, New York, N.Y.

Continuation-in-part of Ser. No. 123,274, Feb. 21, 1980, abandoned. This application Mar. 26, 1981, Ser. No. 247,878

Int. Cl.³ G08B *17/10, 1/08*

U.S. Cl. 340—628 **11 Claims**



1. A smoke detector apparatus including:

means for receiving energizing power from a first power source,

a stand-by power source automatically operable to supply power to said apparatus upon failure of said first power source,

a first switching means connected to said means for receiving energizing power and operable upon failure of the first power source,

a time delay means connected to be triggered on by said first switching means upon failure of said first power source,

a second switching means connected to be triggered on by said time delay means at the end of the time delay period,

a signal means connected for energization by said second switching means at the end of the time delay period, and

reset means connected to said means for receiving energizing power and operable upon reestablishment of power from the first power source prior to the timing out of said time delay means to reset said time delay means to prevent the energization of said signal means.

4,380,761

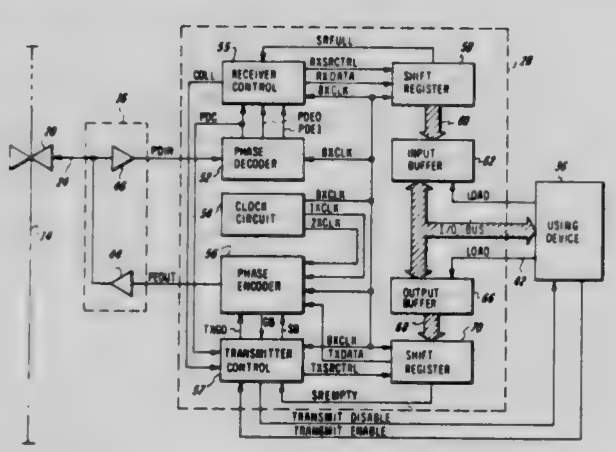
DIGITAL PHASE DECODER WITH COLLISION DETECTION

David R. Boggs, Palo Alto, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Feb. 4, 1980, Ser. No. 118,262

Int. Cl.³ H04Q *9/00*

U.S. Cl. 340—825.5 **8 Claims**



1. A digital phase decoder for receiving and decoding phase encoded data transmitted as a plurality of bitcells, each of a predetermined time period, with a predetermined number of said bitcells representing a packet comprising

means for synchronizing received phase encoded data with the frequency of a predetermined clock signal having a rate exceeding the frequency of said bitcells,

means coupled to the output of said synchronizing means for developing a pair of output signals respectively indicative of a transitional change of a binary state of said received data,

means coupled to said developing means for generating a decode signal representative of one of several conditions due to a transitional change, said conditions being indicative of either a data transition from a low state to a high state or a data transition from a high state to a low state or an illegal transition treated as a data collision,

means for counting the number of clock intervals of said predetermined clock signal under the control of said generating means,

said generating means monitoring said counter means to ascertain relative to each bitcell period where a transitional change has occurred in relation therewith, the point of occurrence indicative of one of said several conditions.

4,380,762

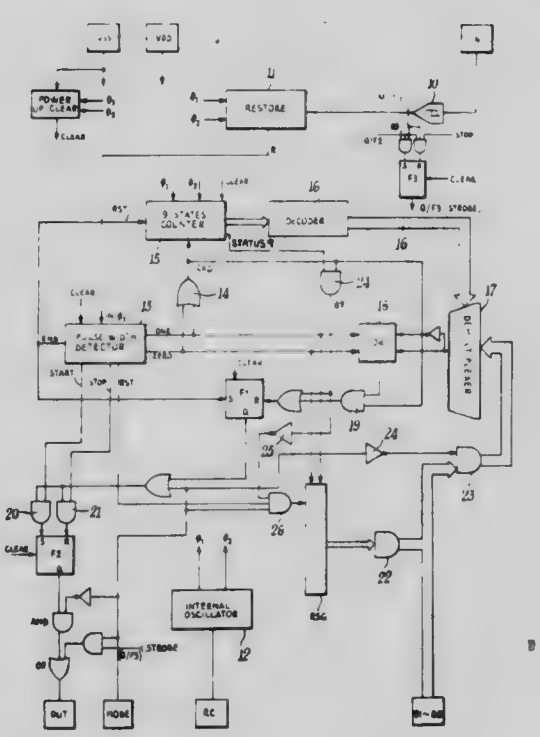
POLYFUNCTION PROGRAMMABLE DATA RECEIVER

Gaetano Capasso, Ottaviano, Napu, Italy

Continuation of Ser. No. 117,317, Jan. 31, 1980, abandoned. This application Feb. 20, 1981, Ser. No. 236,367

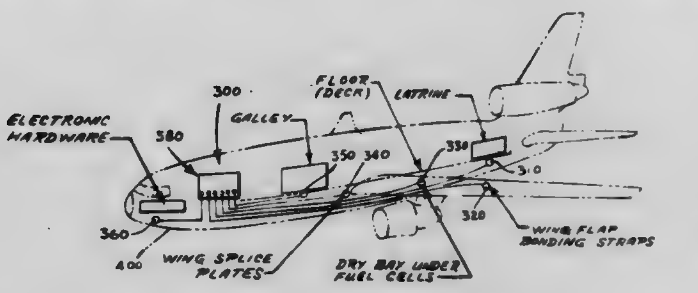
Int. Cl.³ G08C *19/22*

U.S. Cl. 340—825.63 **9 Claims**



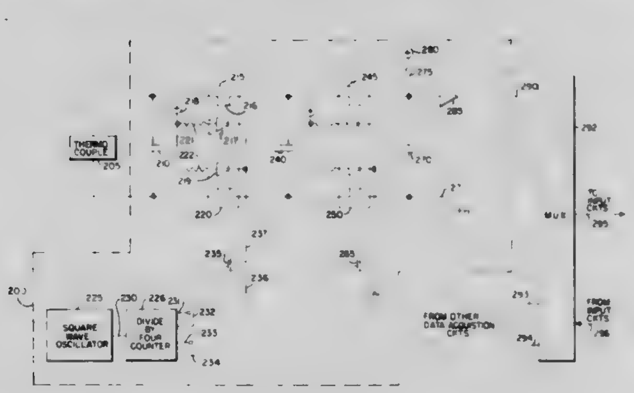
1. A programmable polyfunction data receiver comprising means for receiving a sequence of serial data signals followed by a control signal; pulse length analyzer means for detecting said signals; mode selection circuit means for controlling operation of said receiver in an input data validation mode or in a serial/parallel data conversion mode; bidirectional bus means for setting up a digital word to be identified or for providing in parallel the data of said sequence according to the state of said mode selection circuit; means for providing an output signal if the comparison validates said serial sequence and said set up digital word when the receiver operates as identifier, and for providing an enabling signal when the receiver operates as a series/parallel converter.

4,380,763
CORROSION MONITORING SYSTEM
Leland L. Peart, Sedona, Ariz., and John Farrar, Santa Ana, Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Jan. 6, 1981, Ser. No. 222,845
Int. Cl.^{3} G01N *27/46;* G08G *19/16*
U.S. Cl. 340—870.16 6 Claims



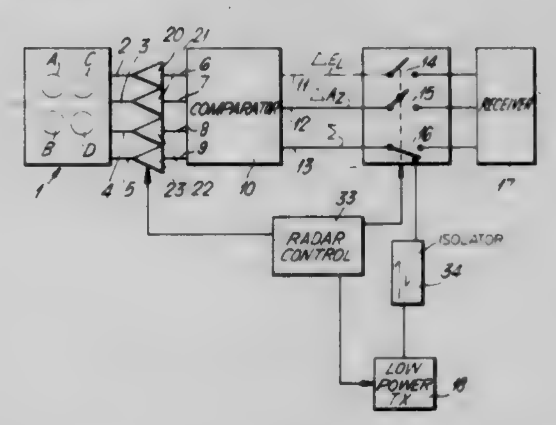
1. A corrosion monitoring system, comprising:
a. means for sensing galvanic corrosion, with said means disposed in an environment where galvanic corrosion of preselected metals is to be monitored, whereby when galvanic corrosion is sensed an amount of galvanic current flows from said means, wherein said means includes a sensor head device which further includes a galvanic couple made of metals identical to said preselected metals to be monitored for galvanic conversion, with said couple coiled in the shape of a spiral and potted in a housing made of electrically insulating material; and
b. means, in electrical connection with said galvanic corrosion sensing means, for amplifying, integrating, and storing in a non-volatile memory for recalling and displaying said amount of galvanic current that is flowing and has flowed from said galvanic corrosion sensing means, wherein said amplifying, integrating, and storing means includes:
(1) amplifier means in electrical connection with said galvanic corrosion sensing means;
(1) integrator means in electrical connection with said amplifier means;
(3) non-volatile memory means in electrical connection with said integrator means, wherein this means includes a bubble memory component; and
(4) digital display means in electrical connection with said non-volatile memory means.

4,380,764
DATA ACQUISITION APPARATUS
Stephen A. Connors, Tewksbury, Mass., assignor to Data Translation, Inc., Marlboro, Mass.
Filed Mar. 12, 1981, Ser. No. 242,840
Int. Cl.^{3} H04J *3/02;* H04Q *7/00;* G01R *11/52*
U.S. Cl. 340—870.37 14 Claims



1. Data acquisition apparatus for transferring signals produced by a sensing element to input circuitry while maintaining electrical isolation between said sensing element and said input circuitry, said data acquisition apparatus comprising:
first means for temporarily storing said signals,
second means for temporarily storing said signals,
first means operable to transfer signals from said sensing element to said first storage means,
second means operable to transfer signals from said first storage means to second storage means,
means for alternately operating said first transferring means and said second transferring means in a continuous sequence and,
third means responsive to control signals produced by said input circuitry for selectively transferring signals stored in said second storage means to said input circuitry.

4,380,765
RADAR SYSTEMS
Michael F. Godfrey, St. Albans, and David Lynam, Bushey, both of England, assignors to The Marconi Company, Ltd., Chelmsford, England
Filed May 3, 1978, Ser. No. 903,702
Claims priority, application United Kingdom, May 4, 1977, 18751/77
Int. Cl.^{3} G01S *13/44*
U.S. Cl. 343—16 M 9 Claims



1. A radar system comprising a multi-channel transmit/-receiver aerial system, comparator means for providing sum and difference channels for target detection, a low power radar transmitter, means for coupling said radar transmitter into the sum channel, a radar receiver, means for coupling said sum and difference channels to the radar receiver, amplifying means individual to each of the aerial channels, said amplifying means being controllable to provide high gain in the transmitting direction and negligible loss in the receiving direction, and control means for switching said amplifying means, said means for coupling said transmitter, and said means for coupling said receiver, in accordance with pulsed operation of the radar system.

4,380,766
MULTI-CHANNEL AMPLIFIER APPARATUS
Rolf Bächtiger, Oberwill, Switzerland, assignor to Siemens-Albis AG, Zurich, Switzerland
Continuation of Ser. No. 97,318, Nov. 26, 1979, abandoned. This application Aug. 3, 1981, Ser. No. 289,501
Claims priority, application Switzerland, Dec. 15, 1978, 12778/78; Aug. 24, 1979, 7708/79
Int. Cl.^{3} G01S *7/02;* H03K *17/00*
U.S. Cl. 343—5 SW 7 Claims

1. A multi-channel amplifier apparatus for oscillation packets, comprising:
an amplifier having an input and an output;
input and output delay line means;
input switches and output switches;
the input delay line means being formed by at least one primary electro-acoustical multiple delay line having a receiver transducer and a plurality of transmitter transducers;
said transducers being contained on a crystal substrate;

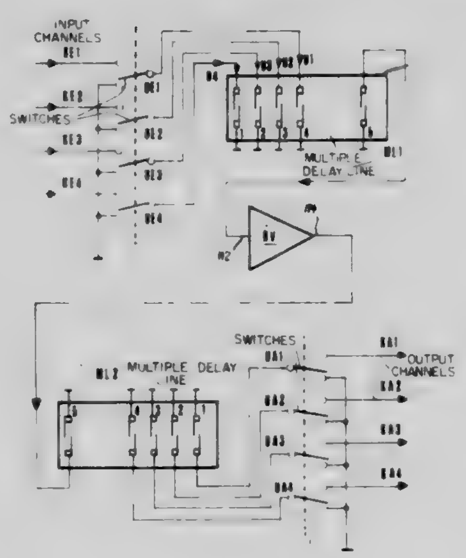
said amplifier further being connected at its input with the receiver transducer of the primary multiple delay line;

a plurality of input channels connected with a respective transmitter transducer of the primary multiple delay line;

each of said input channels being capable of being connected via a related input switch with correlated outputs of a radar front-end simultaneously delivering sporadic oscillation packets to be transmitted over the multi-channel amplifier apparatus;

said input switches insuring that said electro-acoustical transmitter transducers are always collectively short-circuited with a reference potential or earth when the oscillation packets are not present;

the output delay line means being formed by at least one secondary electro-acoustical multiple delay line having a transmitter transducer and a plurality of receiver transducers;



said transducers being contained on a crystal substrate;

said amplifier further being connected at its output with the transmitter transducer of the secondary multiple delay line;

a plurality of output channels connected with a respective receiver transducer of the secondary multiple delay line;

each of said output channels being capable of being connected via a related output switch with correlated inputs of a signal processor receiving the sporadic oscillation packets simultaneously transmitted over the multi-channel amplifier apparatus; and

said output switches insuring that said electro-acoustical receiver transducers are collectively always short-circuited with a reference potential or earth when the oscillation packets are not present.

4,380,767
CONTROLLED ANTENNA TUNER
Kenneth Goldstein, and Claude A. Sharpe, both of Plano, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Oct. 27, 1980, Ser. No. 200,833
Int. Cl.³ H04B *17/00*
U.S. Cl. 343—745 **10 Claims**

1. An antenna tuner comprising:

a. a transceiver and an antenna

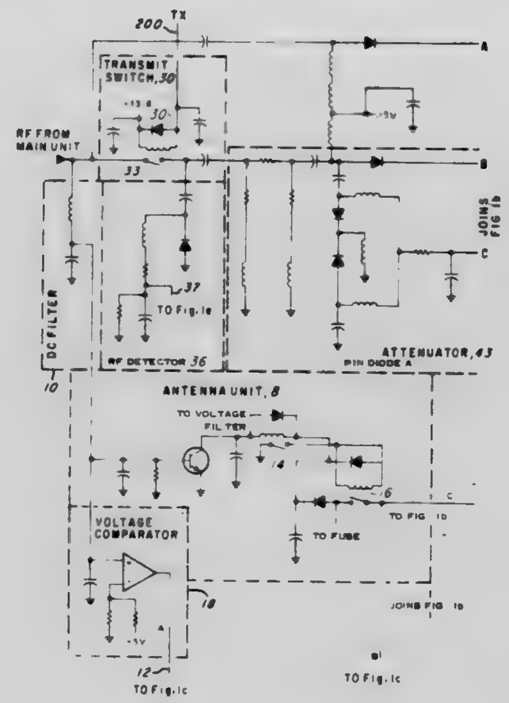
b. an antenna coupler circuit interconnecting the antenna to the transceiver said circuit including a

capacitance and inductance network means for selectively loading the antenna;

c. phase bridge means for comparing the transmitter power and antenna power for producing selectively an inductive and capacitive antenna indicating signal;

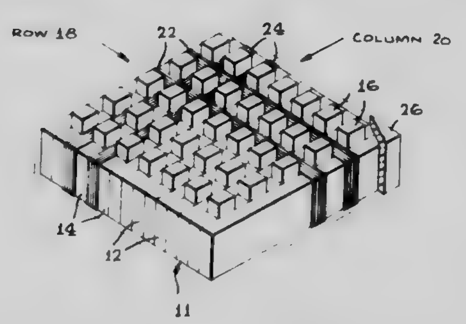
d. magnitude impedance bridge means for comparing the transmitter power and antenna power for producing selectively a signal indicative of a load resistance greater than and less than the characteristic impedance of the antenna; and

e. computer controller means connected to the means for determining whether an antenna is inductive or capacitive, and to the means for determining whether the load resistance is greater than or less than the characteristic impedance of the antenna and to the capacitance and inductance means for tuning the antenna by selectively



coupling capacitance and inductance into the antenna coupler circuit responsive to inductive or capacitive indicating signals and load resistance greater than or less than the characteristic impedance of the antenna indicating signals.

4,380,768
MAGNETIC PRINTER AND PRINTHEAD
Gaston Palombo, Agoura, and Stephen M. Fortescue, Northridge, both of Calif., assignors to Dataproducts Corporation, Woodland Hills, Calif.
Filed Aug. 4, 1980, Ser. No. 174,815
Int. Cl.³ G01D *15/12*
U.S. Cl. 346—74.5 **14 Claims**

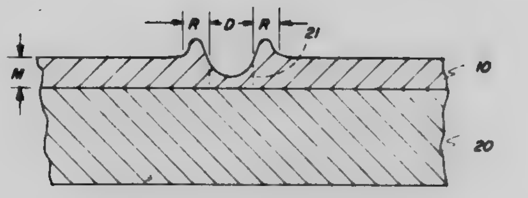


1. A printhead module for perpendicular magnetic printing comprising:

a magnetizable base having a matrix of a plurality of columns and a plurality of rows of protrusions extending upward from the base;

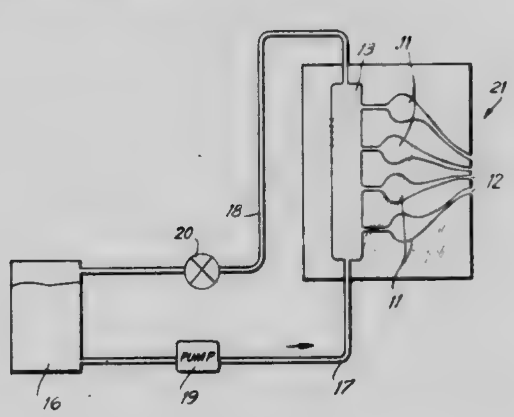
a plurality of first conductors, each extending between adjacent columns of said matrix; and a plurality of second conductors, each extending between adjacent rows of said matrix, whereby each protrusion within the interior of said matrix is surrounded by two of said first conductors and two of said second conductors, wherein in recording a selected one of the protrusions functions as a recording pole and protrusions surrounding the selected protrusion together function as a flux closing pole.

4,380,769
ELEMENT FOR RECORDING BY THERMAL DEFORMATION
Harold T. Thomas, and Joseph J. Wrobel, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Continuation of Ser. No. 23,434, Mar. 23, 1979, abandoned, which is a continuation-in-part of Ser. No. 862,069, Dec. 19, 1977, abandoned. This application Sep. 5, 1980, Ser. No. 184,554
Int. Cl.³ G01D *15/34*
U.S. Cl. 346—135.1 30 Claims



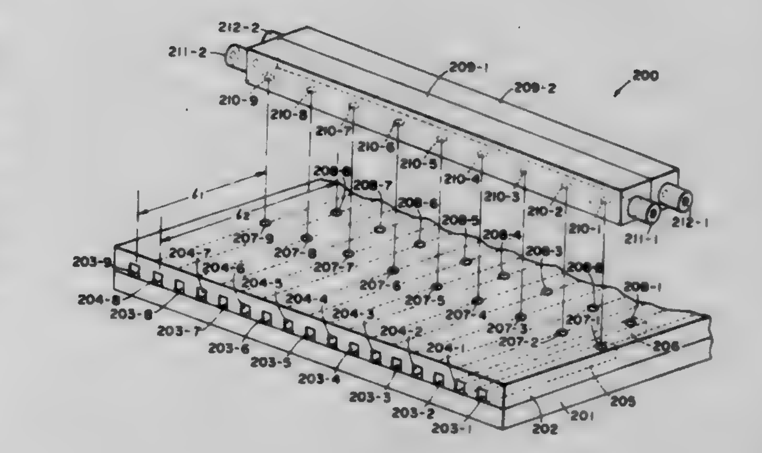
1. A recording element comprising a support having thereon a recording layer of an amorphous material having a signal-to-noise ratio of at least 40 decibels and comprising a mixture of a dye and a binder wherein:
(a) said amorphous material has an absorption factor of at least about 20 at a first wavelength and is substantially transparent at a second wavelength wherein the absorption factor is a product of the weight fraction of dye included in the amorphous material and the molar extinction coefficient of the dye at the wavelength of a recording beam of choice (ϵ_λ), divided by the molecular weight of the dye (MW), and having the units of liter per gm-cm;
(b) said amorphous material is capable of being thermally deformed by a beam of high energy-density radiation of said first wavelength to form a deformation comprising a hole or depression surrounded by a sharply defined ridge, wherein the width of the ridge is less than or equal to the breadth of the hole or depression, as measured in the plane of the undeformed outer surface of the layer and in the direction of the relative motion, if any, between the recording beam and the layer, which deformation represents encoded information capable of being detected by a beam of high energy-density radiation of said second wavelength.

4,380,770
INK JET PRINTER
Mitsuaki Maruyama, Shiojiri, Japan, assignor to Epson Corporation and Kabushiki Kaisha Suwa Seikosha, both of, Japan
Filed Nov. 20, 1980, Ser. No. 208,743
Claims priority, application Japan, Nov. 22, 1979, 54-151823
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R 18 Claims



1. An ink jet printer comprising:
a printer head including a substrate, a vibration plate, at least one pressure chamber and nozzle formed by providing a gap between said substrate and said vibration plate, each said pressure chamber being connected to one of said ink nozzles;
ink tank means for containing ink for printing;
a reservoir having an inlet and an outlet each said pressure chamber being connected by a channel to said reservoir for receiving ink from said reservoir, said ink reservoir having a low hydraulic resistance to fluid flow from said inlet to said outlet relative to the hydraulic flow resistance through said pressure chambers, channels and nozzles;
first tube means for connecting said ink tank means to said printer head inlet;
second tube means for connecting said printer head outlet to said ink tank means, ink flowing from said ink tank means passing through said ink reservoir from said inlet to said outlet to expel gas bubbles and return to said ink tank means without loss of ink.

4,380,771
INK JET RECORDING PROCESS AND AN APPARATUS THEREFOR
Yasushi Takatori, Sagamihara, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 23, 1981, Ser. No. 276,673
Claims priority, application Japan, Jun. 27, 1980, 55-87461; Jun. 27, 1980, 55-87462; Jun. 27, 1980, 55-87464; Jun. 27, 1980, 55-87465; Jun. 27, 1980, 55-87466; Jun. 27, 1980, 55-87469
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R 8 Claims

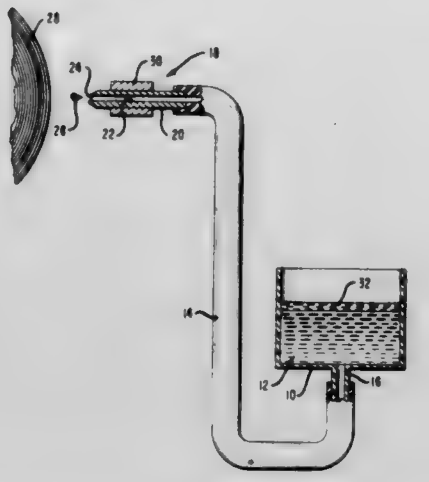


1. An ink jet recording process carrying out color printing by using plural inks of various colors and an ink jet recording head which comprises: plural orifices for each of color inks; common liquid chambers, each chamber being common to said orifices for the same color ink; and a plurality of long and thin liquid chambers communicative with said orifices, said each common chamber corresponding to the plural orifices possessing means for forming flying ink droplets, length of the liquid chamber varying for different color inks, characterized in that printing is carried out by using plural color inks, each having an adjusted viscosity so that the loss of head in-friction inside the liquid chamber is substantially equal with regard to each of color inks.

4,380,772
LOW INK INDICATION FOR INK JET PRINT HEAD
Victor J. Italiano, Ithaca, N.Y., assignor to NCR Corporation, Dayton, Ohio
Filed Dec. 24, 1981, Ser. No. 334,106
Int. Cl.³ G01D *18/00*
U.S. Cl. 346—140 R 16 Claims

1. Means for indicating low ink supply comprising:
means containing a supply of ink,

means operably associated with said ink supply means for ejecting ink in droplet form onto record media, and a



liquid placed on the surface of said supply of ink and different in color therefrom and visually observed on said record media when said ink supply is exhausted.

4,380,773

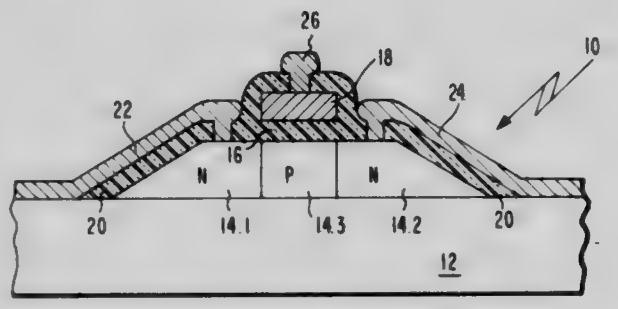
SELF ALIGNED ALUMINUM POLYCRYSTALLINE SILICON CONTACT

Alvin M. Goodman, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,345

Int. Cl.^{3} H01L ***29/78, 23/52, 21/285, 29/04***

U.S. Cl. 357—23 **11 Claims**



1. In a semiconductor device having a pair of active regions of a first conductivity type embedded in a body of semiconductor material of a second conductivity type at the surface of the body; a channel region in the semiconductor body, at the surface thereof, separating the active regions; a gate member aligned with the channel region and separated from the semiconductor body by a layer of insulating material and contact means in ohmic contact with each of the active regions and the gate member respectively, the gate member comprising:

a conductive layer of oxygen doped polycrystalline silicon.

4,380,774

HIGH-PERFORMANCE BIPOLAR MICROWAVE TRANSISTOR

Max N. Yoder, Falls Church, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

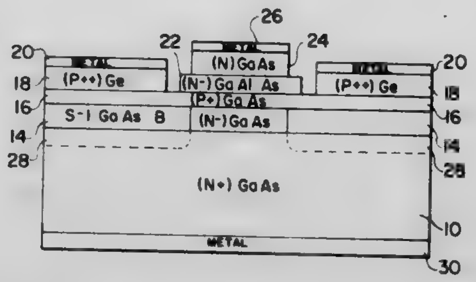
Filed Dec. 19, 1980, Ser. No. 217,977

Int. Cl.^{3} H01L ***29/161, 29/72, 29/12***

U.S. Cl. 357—34 **4 Claims**

1. An improved bipolar transistor of the type having a collector layer lying on one side of a substrate and an ohmic contact lying on the other side thereof, a base layer lying on the collector layer, an emitter structure including a tunnel barrier layer lying on a center region of the base layer, an emitter layer lying on the tunnel barrier layer and another ohmic contact lying on the emitter layer, and a base contact structure including a contact layer lying on outer regions of the base layer and a metal layer lying on the contact layer, the emitter and base contact structures being spaced from each other, wherein the improvement comprises:

forming a semi-insulative region in the collector layer underlying the base contact structure, so that the region



through which charge carriers travel from the emitter structure through the base layer into the collector layer is restricted substantially to the center region of the base layer underlying the tunnel barrier layer of the emitter structure.

4,380,775

SEMICONDUCTOR UNIT WITH CONNECTING WIRES

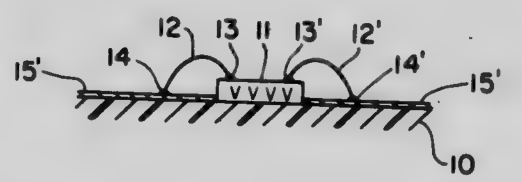
Albrecht Bischoff, Bruchköbel, Fed. Rep. of Germany, assignor to W. C. Heraeus GmbH, Hanau, Fed. Rep. of Germany

Filed Jul. 11, 1980, Ser. No. 168,634

Claims priority, application Fed. Rep. of Germany, Jul. 21, 1979, 2929623

Int. Cl.^{3} H01L ***23/48, 29/46, 29/62***

U.S. Cl. 357—67 **8 Claims**



1. A semiconductor unit comprising

a semiconductor chip (11);

a connecting frame (15, 15');

and means connecting selected zones of the semiconductor chip to the frame comprising, in accordance with the invention,

connecting lead wires consisting of a homogeneous aluminum-copper alloy, having a thickness of between about 0.01 mm to 0.06 mm, and in which the aluminum alloy consists essentially of 3 to 5% copper, the balance aluminum, by weight.

4,380,776

IMAGE POSITIONING APPARATUS

David L. Smith, and Gerald E. O'Brien, both of Atlanta, Ga., assignors to Computer Microfilm International Corporation, Atlanta, Ga.

Continuation of Ser. No. 895,154, Apr. 10, 1978. This application Feb. 4, 1980, Ser. No. 118,443

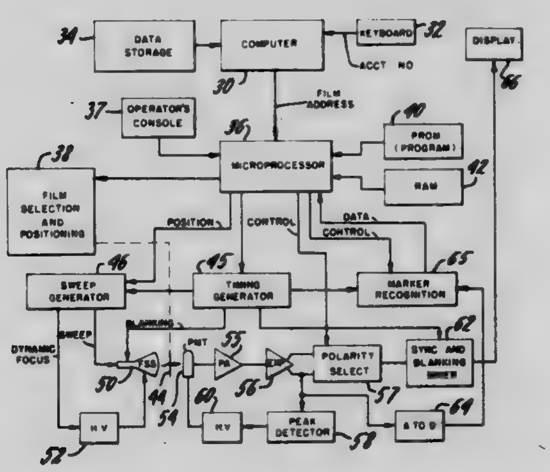
Int. Cl.^{3} H04N ***7/18***

U.S. Cl. 358—102 **10 Claims**

1. Automatic film positioning and scanning apparatus, responsive to supplied address signals representative of the location of an information image on a film, including a plurality of image frames each having a marker image, at least one of said frames comprising a reference frame and having only said marker image, comprising:

image illuminating and detecting means, responsive to supplied horizontal and vertical deflection signals, for generating a video signal representative of an image in an operative position with respect to said detecting means;

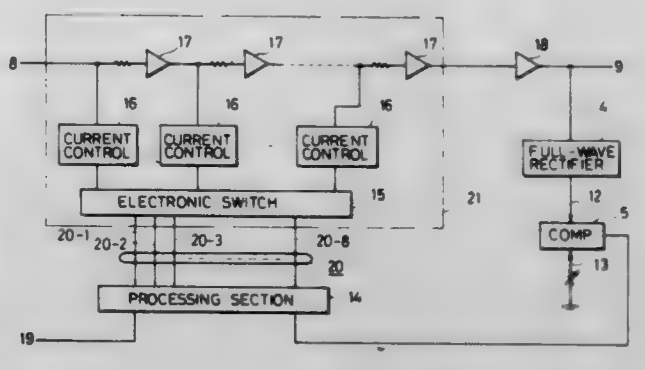
mechanical positioning means, responsive to position control signals, for moving portions of said film into said operating position;
a deflection signal generator, responsive to supplied deflection timing signals and raster position signals for generating said horizontal and vertical deflection signals;
means for generating said deflection timing signals;
an analog to digital converter for digitizing said video signal to form a digitized video signal;
means, responsive to said deflection timing signals and said digitized video signals, for generating marker position signals representative of the timing of marker representative portions of said digitized video signals with respect to said deflection timing signals;
and data processing means, including a control program, for:
(a) generating first position control signals to cause said positioning means to position said reference frame in said operative position;



(b) generating second position control signals, in accordance with said address signals, to position a selected frame in said operative position;
(c) generating nominal raster position signals;
(d) generating first raster position signals in response to said marker position signals when said reference frame is in said operative position and said nominal raster position signals are supplied to said deflection signal generator;
(e) generating second raster position signals in response to said marker position signals when said selected frame is in said operative position and said first raster position signals are supplied to said deflection signal generator;
said first and second raster position signals being computed from the deviation of said marker position signals from ideal marker position signals;
whereby said deflection signal generator can generate horizontal and vertical deflection signals using said second raster position signals and cause said image detecting means to generate a video signal representative of an image frame corresponding to said address signals.

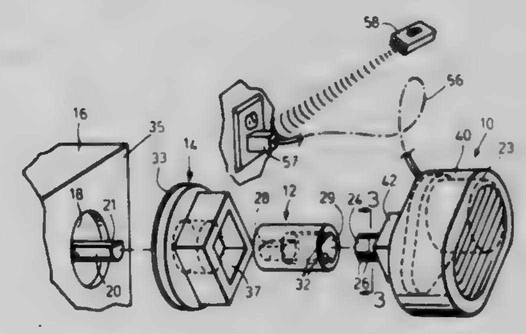
4,380,777
KEYED AGC CIRCUIT FOR VIDEO DATA TRANSMITTING DEVICE
Fumio Miyao, Kanagawa, and Kazumi Tsukioka, Nagano, both of Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan
Filed Dec. 15, 1980, Ser. No. 216,703
Claims priority, application Japan, Dec. 18, 1979, 54/163593
Int. Cl.³ H04N *5/52*
U.S. Cl. 358—178 **5 Claims**

1. A keyed AGC circuit for a video data transmitting device comprising: a process circuit for carrying out a digital process to determine whether a synchronizing signal level at an output terminal thereof is higher than or lower than a reference level; and a multi-stage digital attenuator coupled to be controlled in response to an output of said processing circuit, said processing circuit comprising means for setting an attenuation level of said



attenuator in a plurality of successive steps in accordance with said synchronizing signal level.

4,380,778
CONTROL ASSEMBLY FOR REMOTE SWITCHING
Manohar A. Singh, and Manohar Mudhar, both of 162 Spadina Rd., #201, Toronto, Ontario, Canada (M5R 2T8)
Filed May 5, 1981, Ser. No. 260,712
Int. Cl.³ H04N *5/44*; H03J *9/04*
U.S. Cl. 358—194.1 **8 Claims**



1. For use with an appliance having an operating shaft with a non-circular end section, a control assembly comprising:
a drive means having a low-speed, high-torque output shaft,
a coupling member having a first opening complementary to said non-circular end section and adapted to receive the operating shaft, and having a second opening aligned with the first, the second opening and said output shaft being engagable to provide a lost-motion connection that allows the output shaft to engage the second opening over an angular range while still allowing the output shaft to engage and drive the coupling member,
mounting means for mounting the drive means non-rotatively on the appliance,
said output shaft being cylindrical with two diametrally opposed longitudinal splines projecting therefrom, the said second opening being circular in section with a diameter greater than the distance between said tops of the splines, and having two inwardly projecting longitudinal ribs sized so as to have mechanical interference with said splines when the output shaft is rotated within said second opening sufficiently far to bring the ribs into contact with the splines.

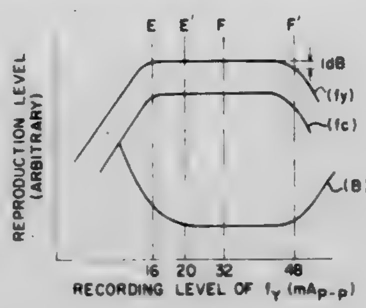
4,380,779
METHOD FOR RECORDING MULTIPLEXED SIGNALS ON METAL EVAPORATED TAPE
Sadafumi Kitamura, Neyagawa, and Hiroshi Taniguchi, Hirakata, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Mar. 23, 1981, Ser. No. 246,317
Claims priority, application Japan, Mar. 25, 1980, 55-38447
Int. Cl.³ H04N *9/491*; H03F *1/00*; H03G *3/20*, *5/16*
U.S. Cl. 358—330 **6 Claims**

1. A magnetic recording method for recording a multiplex

signal comprising two principal signals, comprising the steps of:

using a magnetic recording medium having a magnetic layer with the thickness which is smaller than a recorded wavelength of each of said two principal signals;

recording one of said principal signals having a higher frequency than that of the other signal at a current which is



more than 2 dB greater than the lower limit of the recording current with which a reproduced output level is saturated, and which is smaller than a current with which the reproduced output level is reduced by 1 dB beyond said saturated condition; and

recording said other principal signal of a lower frequency at a current which is smaller than one half of that of said signal of a higher frequency.

4,380,780

DISC-SHAPED RECORDING MEDIUM REPRODUCING APPARATUS

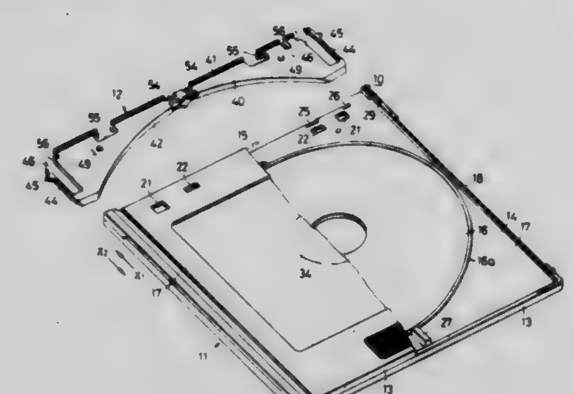
Atsumi Hirata, Fujisawa; Osamu Tajima, Ayase; Isami Kaneda, Yokohama; Hiroyuki Sugiyama, Isehara; Takashi Saito, Yokohama, and Masafumi Mochizuki, Yamato, all of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Mar. 13, 1981, Ser. No. 243,438

Claims priority, application Japan, Mar. 14, 1980, 55/32542

Int. Cl.³ G11B *5/012, 5/016, 23/02, 5/52*

U.S. Cl. 360—97 **7 Claims**



1. A reproducing apparatus for reproducing a disc-shaped recording medium which is accomodated within a case, said case comprising a jacket which has a space for accomodating said disc-shaped recording medium and an opening for allowing said disc-shaped recording medium to go in and out of said jacket, and a lid member inserted through said opening of said jacket for closing said opening of said jacket, said reproducing apparatus comprising:

an inserting opening through which said case is inserted;

a turntable for rotating said disc-shaped recording medium;

clamping means for clamping at least one of said disc-shaped recording medium or said lid member provided at the innermost part on the opposite side from said inserting opening with respect to said turntable;

detecting means for detecting whether said disc-shaped recording medium is loaded within said reproducing apparatus; and

arresting means provided at the vicinity of said inserting opening, for arresting the insertion of a jacket having said lid member into said reproducing apparatus and allowing the insertion of a jacket not having said lid member into said reproducing apparatus, by displacing according to the detecting operation of said detecting means,

said arresting means allowing the insertion of the jacket having or not having said lid member into said reproducing apparatus in a state where said detecting means is not performing a detecting operation.

4,380,781

DISC-SHAPED RECORDING MEDIUM REPRODUCING APPARATUS

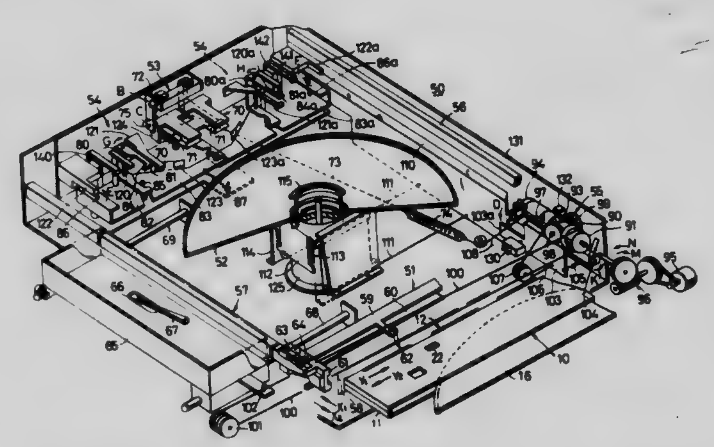
Atsumi Hirata, Fujisawa, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Mar. 16, 1981, Ser. No. 244,058

Claims priority, application Japan, Mar. 17, 1980, 55/32718

Int. Cl.³ G11B *5/012, 5/016, 23/02, 5/52*

U.S. Cl. 360—97 **5 Claims**



1. A reproducing apparatus for reproducing a disc-shaped recording medium which is accommodated within a case, said case comprising a jacket which has a space for accommodating said disc-shaped recording medium and an opening for allowing said disc-shaped recording medium to go in and out of said jacket, and a lid member inserted through said opening of said jacket for closing said opening of said jacket, said lid member having cutouts and ride-over parts,

said reproducing apparatus comprising:

an inserting opening through which said case is inserted;

a turntable for rotating said disc-shaped recording medium;

clamping means for clamping at least one of said disc-shaped recording medium and said lid member provided at an innermost part on the opposite side from said inserting opening with respect to said turntable;

detecting means for detecting whether said disc-shaped recording medium is loaded within said reproducing apparatus;

a reproducing transducer for reproducing the disc-shaped recording medium placed on said turntable;

reproducing operation means for moving said reproducing transducer from a waiting position to a reproducing position with respect to the disc-shaped recording medium to perform a reproducing operation; and

operating means connected to said detecting means and said reproducing operation means and operated upon starting of the reproducing operation, for operating said reproducing operation means only when operated in a state where said detecting means is detecting whether a disc-shaped recording medium is loaded within said reproducing apparatus.

4,380,782

DRIVE APPARATUS FOR FLEXIBLE MAGNETIC DISCS

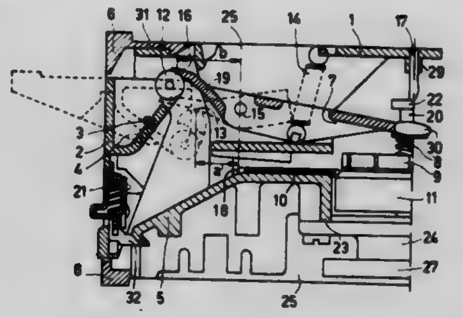
Yasuyuki Hirose; Motohiro Shimaoka; Shoichiro Saito, and Toru Kowaguchi, all of Furukawa, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed Dec. 26, 1979, Ser. No. 107,067

Claims priority, application Japan, Dec. 28, 1978, 53-162525

Int. Cl.³ G11B *5/016, 17/02, 21/12*

U.S. Cl. 360—99 **11 Claims**



1. A disc drive apparatus for bringing a magnetic head into engagement with a flexible magnetic disc; capable of storing information, comprising

means for rotating a flexible magnetic disc, said rotating means including a rotatable spindle adapted to engage one side of said disc and a clamping member movable into engagement with the other side of said disc to hold said disc to said spindle;

means including a pivotal arm member connected to said clamping member for moving said clamping member into and out of engagement with said disc;

a magnetic head assembly including at least one magnetic head;

a solenoid having a movable plunger;

positioning means connected to said movable plunger of said solenoid for moving each said magnetic head into and out of engagement with said disc, said positioning means serving to move each said magnetic head into a first position where said magnetic head is away from the path of movement of said disc, a second position near said disc upon movement of said arm member to move said clamping member relative said disc and into a third position engaging said disc upon movement of said plunger into said solenoid, said solenoid including a bore slidably receiving said plunger, said bore being sealed against said plunger to allow air within said bore to be compressed by said plunger as it moves inwardly of said solenoid so to bring each said head into gentle engagement with said disc.

4,380,783

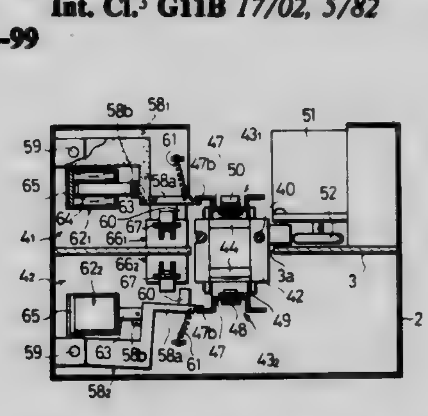
FLEXIBLE DISK DRIVE

Manfred Adamek, Kirchen-Freusburg, and Klaus Rinneburger, Wilnsdorf, both of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 26, 1981, Ser. No. 247,583

Int. Cl.³ G11B *17/02, 5/82*

U.S. Cl. 360—99 **10 Claims**



1. A drive apparatus for a flexible magnetic disc enveloped in a flat envelope having a central opening through which a central portion of the disc is accessible for driving engagement during operation, the apparatus comprising:

a frame having an entrance opening adapted for receiving an enveloped disc inserted therethrough;

a pivoted cover having a front and a rear side, and arranged on the frame for movement between an open position and a closed position at which the opening is covered, the cover having a projection extending from the rear side;

means, associated with the frame, for driving the disc, the driving means including a turntable rotatable about an axis of rotation and a rotatable clamping member coaxially spaced from the turntable;

a guide spindle mounted in the frame and extending toward the turntable, the clamping member being movably mounted on the spindle for axial movement therealong; and

linking means, arranged between the cover and the clamping member, for moving the clamping member toward and away from the turntable to cause a received disc to be clamped between the clamping member and the turntable, and to be driven thereby, when the cover, after inserting the enveloped disk through the opening, is in the closed position, and to be unclamped, when the cover is moved into the open position;

characterized in that the linking means includes an engaging surface provided on the projection, and a lever, the lever being pivotally mounted to the frame about a pivoting axis and having means for engaging the clamping member to move it axially along the spindle, and the lever also having a surface for contact by the engaging surface at a point spaced a leverage distance from the pivoting axis, and the cover, the projection and the lever being arranged such that the leverage distance increases from a minimum to a maximum as the cover moves from the open position to the closed position.

4,380,784

MAGNETIC TRANSDUCER FOR READING AND/OR RECORDING OF DATA CONTAINED ON A MAGNETIC CARRIER

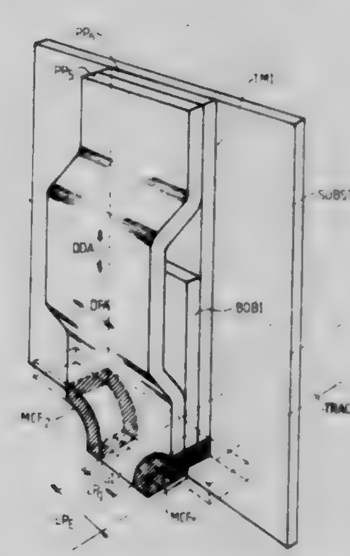
Jacques Desserre, Rambouillet; Michel Helle, Marcq, and Jean-Pierre Lazzari, Montfort l'Amaury, all of France, assignors to Compagnie Internationale pour l'Informatique CII-Honeywell Bull (Societe Anonyme), Paris, France

Filed Mar. 12, 1981, Ser. No. 242,923

Claims priority, application France, Apr. 2, 1980, 80 07454

Int. Cl.³ G11B *5/22, 5/20*

U.S. Cl. 360—126 **5 Claims**



1. A magnetic transducer adapted to perform read and/or write functions on a magnetic data carrier which travels before the same, the data being contained within a plurality of tracks on the carrier comprising:

a magnetic circuit formed by two pole pieces separated by a gap parallel to the carrier, the gap having a larger dimen-

sion perpendicular to the direction of travel of the data of a track as it passes in front of said gap, said larger dimension being defined thin superimposed magnetic layers having a constricted width at one end formed by lateral cutouts at opposite sides of the layers,

a winding coupled magnetically to the magnetic circuit, and means disposed on said lateral cutouts at either side of the gap as seen in the direction of its larger dimension and operatively associated with the pole pieces for channelling magnetic flux emitted by the immediate surroundings of the track of the record carrier to be read by the transducer in such manner that said flux does not pass through said winding.

4,380,785

SOLID STATE TRIP UNIT FOR AN ELECTRICAL CIRCUIT BREAKER

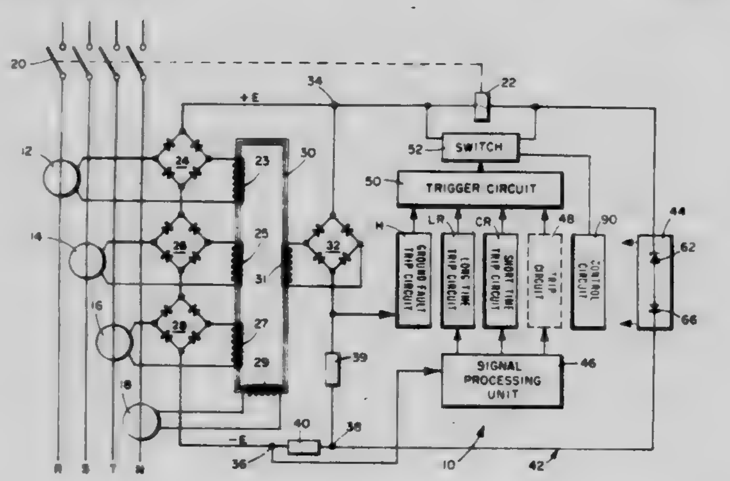
Pierre Demeyer, Uriage, and Paul Claudin, Grenoble, both of France, assignors to Merlin Gerin, Grenoble, France

Filed Mar. 17, 1981, Ser. No. 244,691

Claims priority, application France, Mar. 31, 1980, 80 07284

Int. Cl.^{3} H02H *3/093, 3/10*

U.S. Cl. 361—96 **6 Claims**



1. An electronic trip device for initiating automatic tripping of an electric circuit breaker in response to an abnormal circuit condition in a protected electrical distribution circuit comprising:

a detector including current transformers, said detector operating to deliver a current signal having a predetermined relationship to the current flowing in said distribution circuit;

a series circuit connected to said detector and including a metering resistor for generating a voltage signal proportional to said current signal, a trip coil for initiating said automatic tripping when it is energized, and means forming a power supply, said metering resistor, trip coil and power supply means being electrically connected in series;

electronic trip circuits responsive to said voltage signal for generating a tripping signal in response to said abnormal circuit conditions, said electronic trip circuits being powered by said power supply means;

a shunt circuit electrically connected in parallel to said trip coil and including a switch responsive to said tripping signal and being either in an ON-state to shunt the trip coil or in an OFF-state after the generation of said tripping signal for energization of said trip coil.

4,380,786

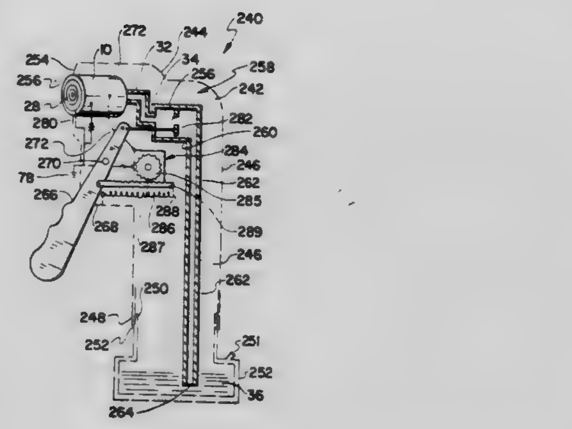
ELECTROSTATIC ATOMIZING DEVICE

Arnold J. Kelly, Princeton Junction, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 853,499, Nov. 21, 1977, Pat. No. 4,255,777. This application Sep. 2, 1980, Ser. No. 183,207

Int. Cl.^{3} B05B *5/00*

U.S. Cl. 361—228 **10 Claims**



1. A hand held aerosol generator device which comprises:
(a) a cylindrically shaped housing of an L-shaped configuration having a short leg and a longer leg and a chamber therein, the open end of said longer leg being internally threaded, the closed end of said short leg having an opening therethrough;
(b) a liquid pump means disposed within said chamber of said housing of said L-shaped configuration;
(c) a bottle having an externally threaded neck adapted to threadably engage into said internally threaded end of said longer leg of said housing of said L-shaped configuration, said bottle adapted to receive a liquid therein;
(d) a conduit joined in serial communication with said liquid pump means and extending into said liquid in such bottle;
(e) means for activating said liquid pump means; and
(f) an electrostatic atomizing device disposed within said chamber of said housing of said L-shaped configuration, said electrostatic atomizing device comprising:
(1) a housing having a chamber therein, said fluid being disposed within said chamber, said chamber of such housing being joined in serial communication with said liquid pump means;
(2) means for generating an electrical charge and passing an electrical charge through said fluid in said chamber thereby generating a free excess charge in said fluid within said chamber; wherein said generating means for said electrical charge includes at least a first and a second electrode, said first and said second electrodes being in liquid contact with said fluid within said chamber;
(3) a ground electrode disposed externally to said housing, said ground electrode forming an electrostatic field; and
(4) means for issuing said fluid from said chamber in the form of said charged droplets, said charged droplets passing through said electrostatic field, said means for issuing said fluid extending outwardly through such opening in said closed end of said shorter leg of said L-shaped configuration.

4,380,787

CLAMP FOR BOUNCE-FLASH APPARATUS

Kenneth Stone, P.O. Box G, Boulder Creek, Calif. 95006

Filed Sep. 21, 1981, Ser. No. 303,861

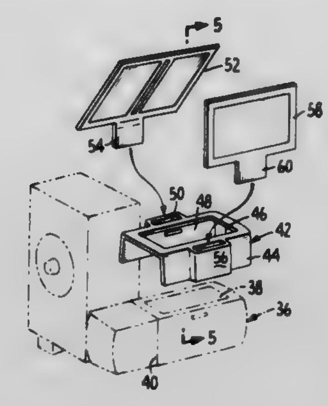
Int. Cl.^{3} G03B *15/02*

U.S. Cl. 362—16 **3 Claims**

1. A clamp and reflector combination for a bounce-flash unit wherein a flash gun is employed having a generally rectangular end surrounding a light emitting surface, comprising in combination:

(a) a band at least partially surrounding said rectangular end in releasably gripping relationship,

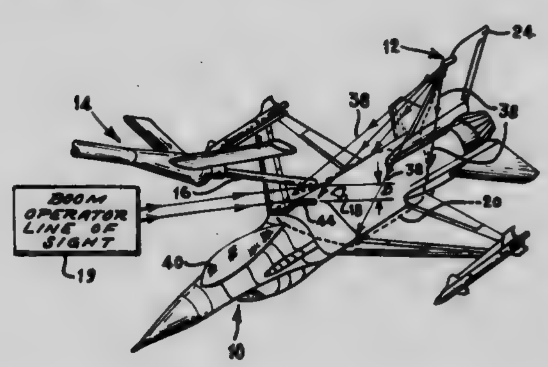
(b) said band carrying at least one slot member, and



(c) a reflector having a tongue whereby said tongue can be placed in said slot and retained in a fixed relationship with said light emitting surface.

4,380,788
AERIAL REFUEL FLOODLIGHT

Victor E. Korski, Fort Worth, Tex., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed May 11, 1981, Ser. No. 262,656
Int. Cl.³ B64D *39/00, 47/02*
U.S. Cl. 362—62 **8 Claims**

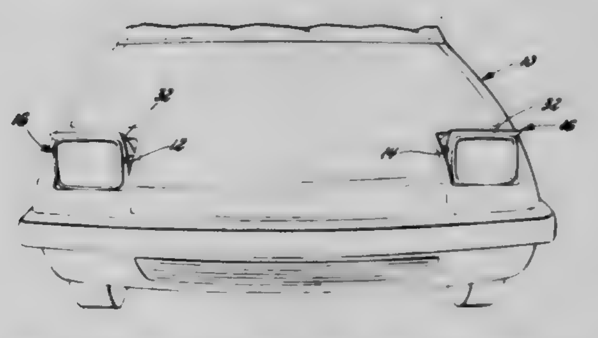


1. In a receiver aircraft utilized for in flight refueling having a fuselage, a vertically extending stabilizer and a refuel receptacle, the improvement therein being in the form of an aerial refuel floodlight mounted upon the leading edge of the top portion of said vertical stabilizer, said aerial refuel floodlight comprising an elongated fixture having a projectile-like configuration, a lamp, means situated within said fixture for mounting said lamp in position therein, means surrounding said lamp for reflecting light emanating from said lamp in a predetermined direction, a lens situated adjacent said lamp along an axis being at an angle with respect to the axis of said lamp, means situated adjacent said lens for directing light passing through said lens in a predetermined direction, and an opening situated within said fixture juxtaposed said light directing means and said lens for allowing said directed light as well as light passing through said lens to pass therethrough thereby illuminating a portion of said fuselage adjacent and including said refuel receptacle.

4,380,789
ACTUATOR FOR A CONCEALABLE HEADLAMP ASSEMBLY

Gale M. Craig, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 28, 1980, Ser. No. 211,375
Int. Cl.³ B60Q *1/06*
U.S. Cl. 362—65 **2 Claims**

1. In combination with a vehicle having a body, a pair of openings formed in the forward end of said body on opposite sides of the longitudinal axis of said body, a headlamp assembly including a housing located in each of said pair of openings and having a headlamp mounted therein; means connecting said housing to said body for rotation between a first position wherein said housing conceals the associated opening and a second position wherein said headlamp in said housing is exposed to project a beam of light forwardly of said body; an actuator for rotating said headlamp assembly from said first position to said second position; the improvement wherein said actuator comprises a motor connected to an output shaft, a crank rigidly mounted on said output shaft for rotation therewith, said crank having an eccentric shaft and a cam formed therewith; a first link having an intermediate portion thereof rotatably mounted on said eccentric shaft and having a first end portion and a second end portion; a second link, a first pivotal connection connecting one end of said second link to said first end portion of said first link, a second pivotal connection connecting the other end of said second link to said headlamp assembly; the arrangement of said first link, said second



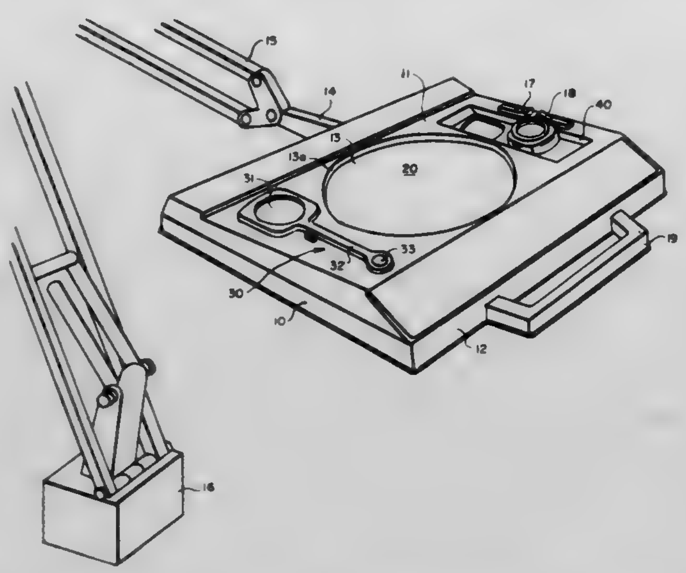
link and said crank being such that when the headlamp assembly is in said first position the center of said eccentric shaft and the center of said output shaft are located substantially in alignment with and between the centers of said first and said second pivotal connections and said cam is positioned between the center of said eccentric shaft and the center of said second pivotal connection in contact with said second end portion of said first link so when said housing of said headlamp resists opening movement, rotation of said crank approximately 180° in one direction causes corresponding rotation of said eccentric shaft resulting in translational movement of said first and second links along the longitudinal axes thereof towards said housing to provide an increased force which moves said headlamp assembly to an intermediate position between said first and second positions, after which continued rotation of said crank in said one direction causes said cam to contact said first end portion of said first link and rotate said first link about said center of said output shaft to allow said first link and said second link to complete the movement of said headlamp assembly to said second position.

4,380,790
MULTI-FUNCTION LIGHT DEVICE

Al Saferstein, and Gilbert Spector, both of Greenwich, Conn., assignors to Innomed Corporation, Greenwich, Conn.
Filed Nov. 17, 1980, Ser. No. 207,528
Int. Cl.³ F21V *9/00*
U.S. Cl. 362—231 **9 Claims**

1. A multi-function light device comprising: a base having two opposed main surfaces and an aperture extending through the main surfaces; a first magnifying lens mounted on the base and aligned with the aperture to enable magnified viewing through the base from one main surface to the other main surface; an energizable source of blacklight blue light and an energizable source of white light; means mounting the light sources on the other main surface about the first magnifying

lens; and means for connecting the light sources to an energy source wherein the one main surface of the base has a substan-



tially planar portion forming the top thereof and at least one indentation for receiving an object.

4,380,791

ELECTRICALLY CONTROLLED ADDITIVE LAMP HOUSING FOR OPTICAL PRINTING

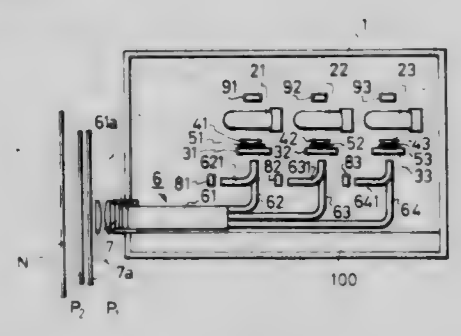
Masayuki Nishizawa, Koshigaya, Japan, assignor to Hoei Sangyo Kabushiki Kaisha, Japan

Filed May 26, 1981, Ser. No. 267,413

Claims priority, application Japan, Jun. 3, 1980, 55-75137

Int. Cl.^{3} F21V *9/08, 7/04, 5/04, 13/12*

U.S. Cl. 362—231 **9 Claims**



1. An electrically controlled additive lamp housing for optical printing, said lamp housing comprising
first, second and third light sources;
first, second and third dichroic filters positioned at corresponding ones of the first, second and third light sources for deriving red, green and blue beams, respectively, from said light sources;
a beam guide member having first, second and third branched bundles and a main bundle composed of said first, second and third branched bundles, each branched bundle having an end surface at which a corresponding one of said beams derived from said dichroic filters is provided, and said main bundle having an end surface for emitting said beams; and
a light quantity control circuit for controlling the quantities of light of said light sources.

4,380,792

PIVOT MOUNTING

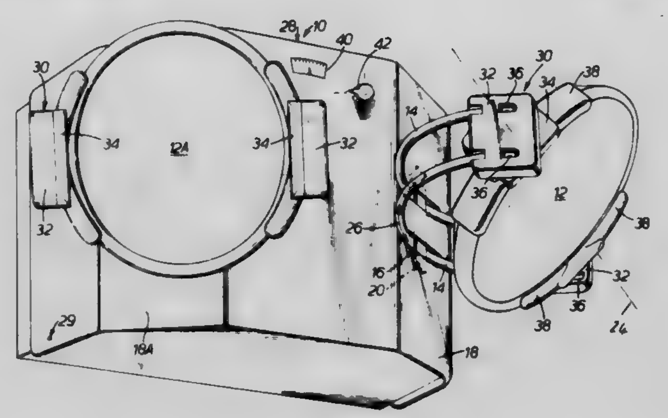
Christopher Terrell, London, England, assignor to Chloride Group Limited, London, England

Filed Oct. 14, 1980, Ser. No. 196,829

Claims priority, application United Kingdom, Apr. 3, 1980, 8011389; Jul. 30, 1980, 8024974

Int. Cl.^{3} F21V *21/14*

U.S. Cl. 362—250 **15 Claims**



1. A pivot mounting for an object, comprising:
a pair of journal bearings having a common journal axis and being relatively movable along said axis, each said bearing comprising a journal component and a housing component, one of said components including an object gripping surface, wherein said object is gripped between said journal bearings by said gripping surfaces; and
spring means urging said journal bearings towards one another along said journal axis,
wherein said components are held together and said object is held between said gripping surfaces solely by the biasing of said spring means along said axis.

4,380,793

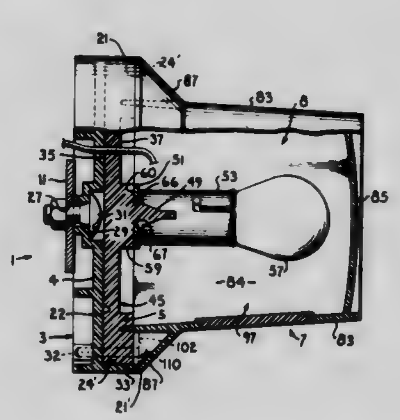
SUBMERSIBLE VEHICULAR LAMP ASSEMBLY

Virgil W. Potts, Cass County, Mo., assignor to Peterson Manufacturing Co., Grandview, Mo.

Filed Dec. 19, 1980, Ser. No. 218,078

Int. Cl.^{3} F21V *29/00*

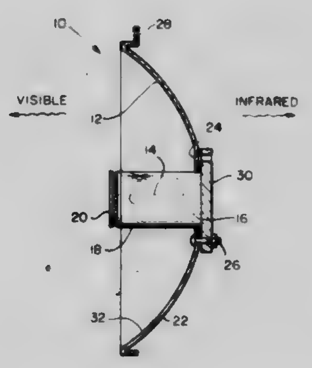
U.S. Cl. 362—267 **6 Claims**



1. A submersible lamp assembly comprising:
(a) a lens body having a face and surrounding wall members defining a cavity therein, said lens body wall members terminating in a continuous lip;
(b) a substantially planar elastomeric lens base having illumination means mounted thereon, said illumination means being operably received in said cavity, said lens base having a continuous groove extending inwarding thereof, said groove receiving said lens lip when said lens base is placed in covering relationship with said lens cavity, said lip engaging said groove in a watertight, sealable relationship, and
(c) whereby said lens lip and lens base groove cooperate as

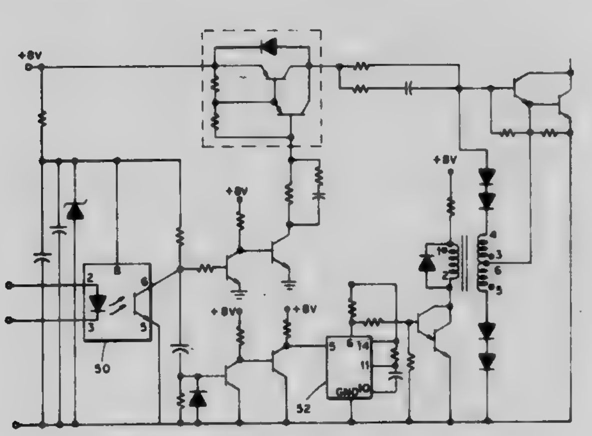
an alignment means assuring that said lens base is positioned in proper covering relation relative to said cavity when said lip is received within said groove.

4,380,794
SURGICAL LAMP CHARACTERIZED BY HAVING AN IMPROVED REFLECTOR
Alfred C. Lawson, Fairport, N.Y., assignor to Sybron Corporation, Rochester, N.Y.
Filed Jun. 15, 1981, Ser. No. 274,055
Int. Cl.[3] F21V *7/00*
U.S. Cl. 362—296 1 Claim



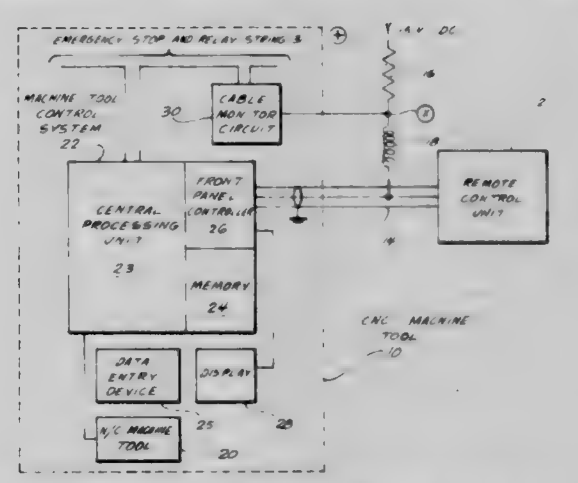
1. An improved surgical lamp of the type having a broad spectrum light source which emits ultraviolet, visible and infrared light and a reflector, wherein the improvement is comprised of:
(a) a reflector blank molded from polyetherimide resin; and
(b) a dichroic coating deposited directly upon the front surface of said reflector blank for reflecting visible light while passing infrared light.

4,380,795
BASE DRIVE CIRCUIT FOR A FOUR-TERMINAL POWER DARLINGTON
Fred C. Lee, Blacksburg, and Roy A. Carter, Salem, both of Va., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.
Filed Mar. 24, 1981, Ser. No. 246,975
Int. Cl.[3] H02M *7/537*
U.S. Cl. 363—131 6 Claims



1. An electrical power switching device, comprising:
a. a four-terminal power Darlington including a first driver transistor stage having a first base and a second power transistor stage having a second base coupled to the emitter of said first transistor stage; and
b. means for respectively applying first and second independent reverse currents to the emitter-base junctions of said first and second transistor stages so as to independently sweep the minority carriers out of said emitter-base junctions, thereby turning off said driver stage and said power stage at their own respective sweep-out rates wherein said reverse current applying means includes a current transformer.

4,380,796
PORTABLE CONTROL BOX FOR COMPUTER NUMERICALLY CONTROLLED MACHINE TOOLS
Lyle D. Ostby, Brookfield, Wis., assignor to Kearney & Trecker Corporation, Milwaukee, Wis.
Filed Dec. 5, 1980, Ser. No. 213,203
Int. Cl.[3] G06F *15/46*
U.S. Cl. 364—171 14 Claims

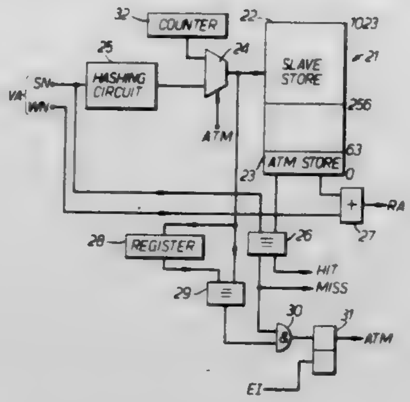


7. A computer numerically controlled machine tool system comprising:
a numerically controlled machine tool;
a machine tool control system coupled to said machine tool for controlling machine tool operation in accordance with radio frequency signals supplied thereto and for transmitting radio frequency signals indicative of machine tool operating conditions;
a remote control unit including computer means responsive to operator commands for transmitting radio frequency signals to said machine tool control system for controlling machine tool operation and for displaying machine tool operating conditions to the operator in accordance with radio frequency signals received from said machine tool control system; and
a radio frequency link coupled between said machine tool control system and said remote control unit for carrying radio frequency signals therebetween.

4,380,797
TWO LEVEL STORE WITH MANY-TO-ONE MAPPING SCHEME
Peter L. Desyllas, Wilmslow; Barry G. Radley; Alasdair Rawsthorne, both of Glossop; John R. Eaton, and John E. Murray, both of Salford, all of England, assignors to International Computers Ltd., London, England
Filed Jul. 7, 1980, Ser. No. 165,854
Claims priority, application United Kingdom, Jul. 4, 1979, 7923329
Int. Cl.[3] G06F *13/00*
U.S. Cl. 364—200 4 Claims

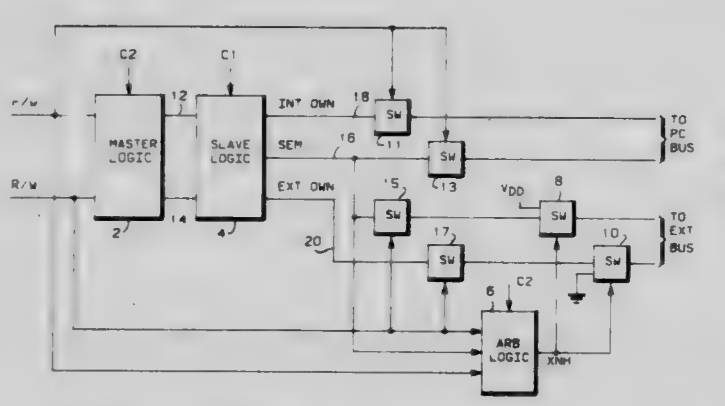
1. In a data processing system having a main store connected to a smaller, faster slave store into which data items are copied from the main store on demand, the data items in the main store being mapped on to the locations of the slave store according to a many-to-one mapping scheme, the improvement comprising:
(a) a further store connected in tandem with the slave store, the further store being of smaller size than the slave store and having an access speed comparable to that of the slave store;
(b) means connected to the slave store for producing a control signal when an attempt is made to access from the slave store two different data items which map on to the same location of the slave store, and

(c) means connected to the slave store and further store, and responsive to said control signal, for suspending address-



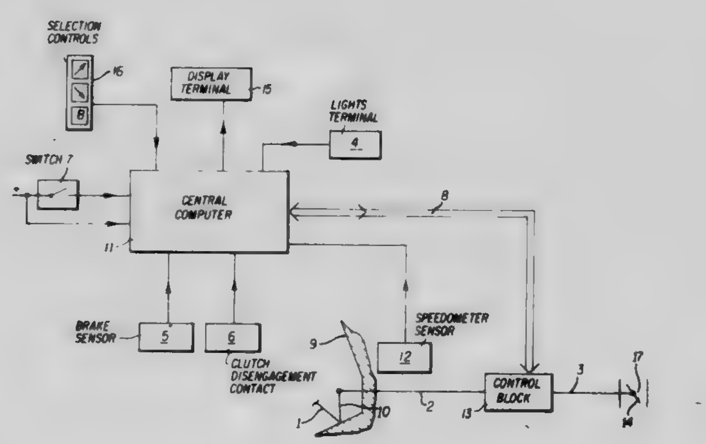
ing of the slave store and addressing the further store instead when the control signal is present.

4,380,798
SEMAPHORE REGISTER INCLUDING OWNERSHIP BITS
Paul D. Shannon, and William C. Bruce, Jr., both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Sep. 15, 1980, Ser. No. 187,259
Int. Cl.³ G06F *15/16*
U.S. Cl. 364—200 **3 Claims**



1. A semaphore register for use in a data processing system to indicate the status of a resource shared by first and second processors, comprising:
master latch means for providing a semaphore signal in a first state in response to a set signal and in a second state in response to a reset signal, said first state indicating unavailability of said resource and said second state indicating availability of said resource;
first slave latch means coupled to said master latch means, for latching the state of said semaphore signal during a first clock interval;
set logic means coupled to said master and first slave latch means and to said first and second processors, for providing said set signal to said master latch means if, during a second clock interval following said first clock interval, said semaphore signal is in said second state and a first control signal is received from either of said processors;
reset logic means coupled to said master and first slave latch means and to said first and second processors, for providing said reset signal to said master latch means if, during said second clock interval, said semaphore signal is in said first state and a second control signal is received from either of said processors;
output means coupled to said first slave latch means and to said first and second processors, for providing to said first and second processors a respective output signal corresponding in state to said latched semaphore signal in response to receiving said first control signal respectively therefrom during said second clock interval; and
arbitration logic means coupled to said output means and to said first and second processors, for forcing the output signal provided by said output means to said second processor to said first state to indicate that said resource is unavailable, in response to simultaneously receiving said first control signals from both of said processors.

4,380,799
SPEED CONTROL FOR AN AUTOMOBILE
Pierre-Yves Allard, Rueil, and Gilles Leconte, Paris, both of France, assignors to Regie Nationale des Usines Renault, Boulogne-Billancourt, France
Filed Jun. 13, 1980, Ser. No. 159,342
Claims priority, application France, Jun. 29, 1979, 79 16879
Int. Cl.³ B60K *31/00;* F02D *1/08;* G05D *13/62*
U.S. Cl. 364—426 **12 Claims**



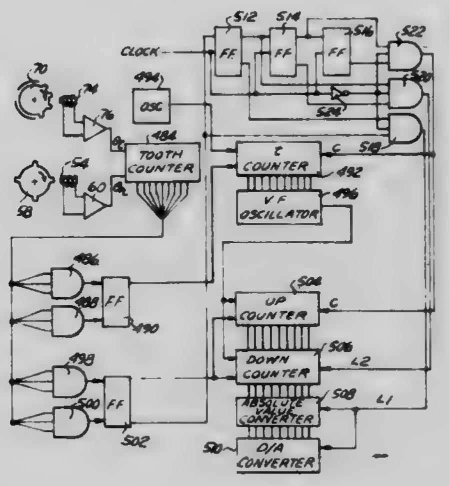
1. In a speed control for an engine of an automobile having an accelerator pedal, a speed sensor, and a butterfly valve, which is capable of serving as a driving aid, the improvement comprising:
a depressible return means for opposing, with a limited force equal to or greater than a predetermined value, the depression force exerted by the driver against the accelerator pedal as soon as the latter exceeds, in its position, a predetermined value; an electronic computer connected to means for selecting a reference speed and to means for display of said preselected reference speed; a potentiometer the movable part of which is dependent upon said accelerator pedal, and the output of which is connected to the electronic computer, the outputs of which are in turn connected to an electric motor which directly controls the angular displacements of the butterfly valve, in which the depressive force of said accelerator pedal corresponds to a first value over a given length of travel of said pedal, and to a second value, higher than the first, over the remaining travel of said accelerator pedal, creating a friction point at a given point in the travel of said accelerator pedal, corresponding to passage from a first depressive force to a second higher than the first, in which the displacements of said accelerator pedal are graduated in speed; a mechanical connection between said accelerator pedal and said butterfly valve, incorporating a control block, controlled by the electronic computer, wherein said control block includes an epicyclic train controlled by a motorized reduction gear, a recopy potentiometer, and a blade turning about the axis of symmetry of said epicyclic train.

4,380,800
DIGITAL ROUGHNESS SENSOR
John R. Wilkinson, Dearborn, Mich., assignor to The Bendix Corporation, Southfield, Mich.
Continuation of Ser. No. 904,132, May 8, 1978, abandoned. This application Sep. 19, 1980, Ser. No. 188,803
Int. Cl.³ F02D *5/02;* F02M *51/00;* F02B *3/08*
U.S. Cl. 364—431.08 **27 Claims**

1. A roughness sensor for generating roughness signals in-

dicative of the variation in the magnitude of the torque impulses imparted to a rotating element, the sensor comprising:

means detecting the rotational position of the rotating element for generating first interval signals indicative of a first angular interval of the rotating element's rotation for each torque impulse, and for generating second interval signals indicative of a subsequent angular interval of the rotating element's rotation, wherein the rotating member has a maximum rotational velocity in response to each torque impulse in said subsequent angular interval;



means response to said first and second interval signals for generating a normalized signal having a value proportional to the magnitude of the torque impulse determined by the time required by the rotating element to rotate through said subsequent angular interval and inversely proportional to engine speed determined by the time required for the rotating element to rotate through said first annular interval; and

means for generating a roughness signal from at least two sequentially generated normalized signals, said roughness signal having a value equal to the difference between said sequentially generated normalized signals.

4,380,801

APPARATUS FOR MEASURING INJECTION SPEED IN INJECTION MOLDING MACHINES

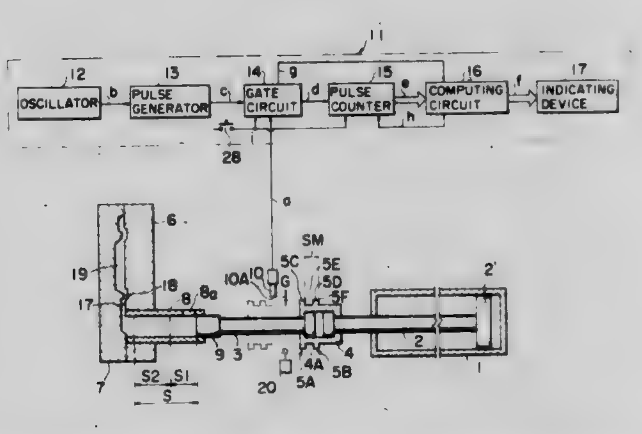
Noriyuki Motomura, and Hiroyuki Tsuboi, both of Zama, Japan, assignors to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 117,844, Feb. 4, 1980, abandoned. This application Nov. 12, 1981, Ser. No. 320,728

Claims priority, application Japan, Feb. 7, 1979, 54-14670

Int. Cl.³ G01P *3/48;* **G06F** *15/46*

U.S. Cl. 364—565 **2 Claims**



1. An apparatus for measuring an injection speed in an injection molding machine having:

a piston rod reciprocated by an injection cylinder of the injection molding machine,

a plunger rod having, at one end thereof, a plunger tip slidably received in a plunger sleeve connected to a die, and

a plunger coupling for interconnecting the plunger rod and the piston rod,

the improvement in which the plunger coupling is provided with two projections with a recess formed therebetween, and which comprises:

a magnetic proximity switch for detecting said projection while the plunger coupling moves along the axis of the plunger rod and producing an output in accordance with the result of the detection, and

a means for computing in accordance with the output of said magnetic proximity switch, the speed of the plunger coupling, said computing means comprising means for producing pulses at a predetermined interval (T_M), a gate circuit responsive to the output of said proximity switch for passing said pulses during the time interval after an edge of a first projection has passed said proximity switch and before a corresponding edge of a second projection passes said proximity switch, a pulse counter responsive to said output of said gate circuit for counting the number of pulses from said gate circuit, and a computing circuit responsive to the output of said pulse counter for computing the speed (V), in accordance with the number (N) of pulses counted by said pulse counter, the interval (T_M), and the distance (S_M) between said edge of said first projection and said edges of said second projection.

4,380,802

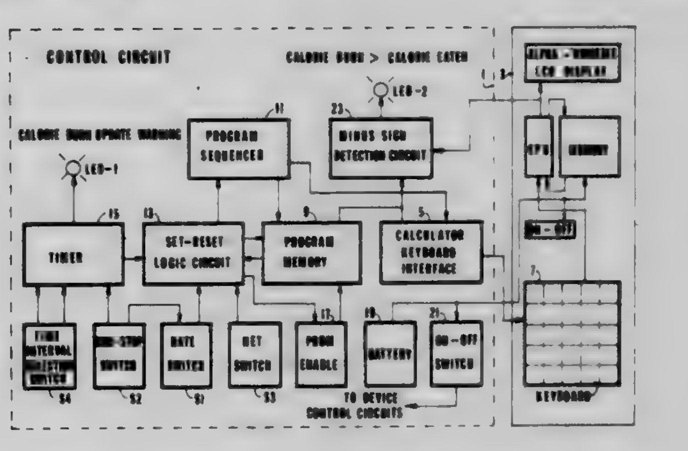
ELECTRONIC CALORIE COUNTER

Richard B. Segar, Annapolis, Md., and Lewis C. Marascalco, Pittsburgh, Pa., assignors to GPD Inc., Mitchellville, Md.

Continuation-in-part of Ser. No. 907,338, May 18, 1978, Pat. No. 4,212,079. This application Jul. 2, 1980, Ser. No. 165,268

Int. Cl.³ G06F *15/42*

U.S. Cl. 364—900 **13 Claims**



1. A calorie monitoring device for calculating the calories burned by a person, the calories consumed by the person and the net difference therebetween, said device comprising:

(a) calculator means for performing arithmetic calculations, said calculator means having a a plurality of memory means for storing alpha-numeric data therein, a keyboard means for entering data into said calculator means and display means for displaying data therein;

(b) program memory means for storing a plurality of control programs for said calculator means;

(c) interface means coupling said program memory means to said calculator means;

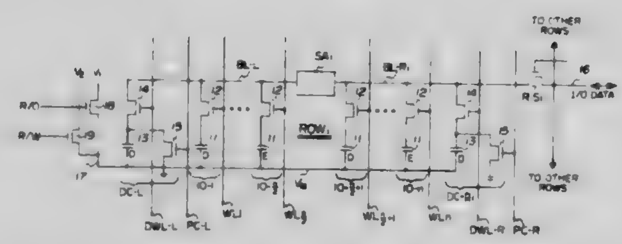
(d) program sequencer means, coupled to said program memory means, for controlling the sequence of program steps read from said program memory means;

(e) timer means coupled to said program sequencer means for intiating the operation of said program sequencer means at predetermined time intervals for calculating the calories burned; and

(f) switch means for initiating the operation of said device and for selecting one of said plurality of control programs, wherein said switch means includes set-reset logic means coupled between said timer means, said program sequencer means and said program memory means, said

set-reset logic means receiving an input from said timer means at the beginning of said predetermined time intervals for the calculation of calories burned and producing an output in response thereto to initiate the operation of said program sequencer means and for receiving an output from said program memory means upon completion of a program therein and producing an output in response thereto for stopping operation of said program sequence means.

4,380,803
READ-ONLY/READ-WRITE MEMORY
Hsing T. Tuan, Poway, Calif., assignor to Burroughs Corporation, Detroit, Mich.
Filed Feb. 10, 1981, Ser. No. 233,066
Int. Cl.³ G11C *7/00*
U.S. Cl. 365—183 **6 Claims**

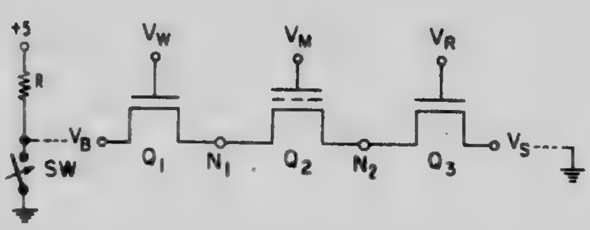


1. An improved read-only/read-write semiconductor memory comprising a semiconductor substrate having a body containing dopant atoms of a first conductivity type, a pair of spaced-apart charge storage regions at the surface of said substrate, a bit line at the surface of said substrate spaced apart from said pair of charge storage regions, respective MOSFET transistor gate regions at the surface of said substrate between said bit line and said charge storage regions, and a conductor over said storage regions; the improvement comprising:

dopant atoms of a second conductivity type in one of said storage regions, and dopant atoms of said first conductivity type in the other of said storage regions having a greater doping concentration than is in the body of said substrate; and

means for applying a read-write mode voltage to said conductor to permit charge to be stored in both of said storage regions, and for applying a read-only mode voltage to said conductor to permit charge to be stored in said one storage region and simultaneously prevent charge from being stored in said other storage region by producing a potential barrier in said other storage region.

4,380,804
EAROM CELL MATRIX AND LOGIC ARRAYS WITH COMMON MEMORY GATE
George C. Lockwood, Dayton, and Murray L. Trudel, Centerville, both of Ohio, assignors to NCR Corporation, Dayton, Ohio
Filed Dec. 29, 1980, Ser. No. 220,644
Int. Cl.³ G11C *11/40, 7/00*
U.S. Cl. 365—184 **8 Claims**



1. A three element programmable memory cell capable of being erased, programmed and read using a first address line, a second address line, a memory line, a read line and a third line, comprising:

a first field effect transistor, having a gate electrode, electrically coupled to said first address line, a first conductive path electrode, electrically coupled to said second address line, and a first conductive path virtual node;

a second field effect transistor, having a gate electrode, electrically coupled to said read line, a first conductive path electrode, electrically coupled to said third line, and a first conductive path virtual node;

memory means, having a gate electrode, electrically coupled to said memory line, first and second conductive path virtual nodes respectively coupled to said first conductive path virtual nodes of said first and second field effect transistors, and a threshold voltage level responsive to a voltage pulse on said memory line in time coincidence with the formation of a conductive path through said first field effect transistor between said second address line and said first conductive path virtual node, for forming a conductive path between said first and second conductive path virtual nodes of said memory means in response to the relative mangitude between a voltage on said memory line and an alterable threshold voltage in said memory means;

means for generating voltages, coupled to the lines of said memory means, said first field effect transistor and said second field effect transistor, characterized in its provision of voltage sequences, including;

a first sequence, suitable to program said cell to a first binary state, comprising, a coupling of voltages to said first address line and said memory line in substantial time synchronism with substantially zero voltages on said second address line and on said read line;

a second sequence, suitable to program said cell to an alternate, second binary state, comprising, a coupling of voltages to said memory line and to said first and second address electrodes, suitable to electrically decouple said second address line from said first conductive path virtual node of said first field effect transistor, in substantial time synchronism with a substantially zero voltage on said read line; and

a third sequence, suitable to read the binary state programmed into said cell, comprising, a coupling of voltages to said first address line and to said read line in substantial time synchronism with a substantially zero voltage on said memory line; and

means for sensing the conductivity between said second address line and said third line.

4,380,805
TAPE BURN-IN CIRCUIT
Robert J. Proebsting, Plano, Tex., assignor to Mostek Corporation, Carrollton, Tex.
PCT No. PCT/US80/01149, § 371 Date Sep. 8, 1980, § 102(e) Date Sep. 8, 1980, PCT Pub. No. WO82/00917, PCT Pub. Date Mar. 18, 1982
PCT Filed Sep. 8, 1980, Ser. No. 277,652
Int. Cl.³ G11C *29/00*
U.S. Cl. 365—201 **4 Claims**

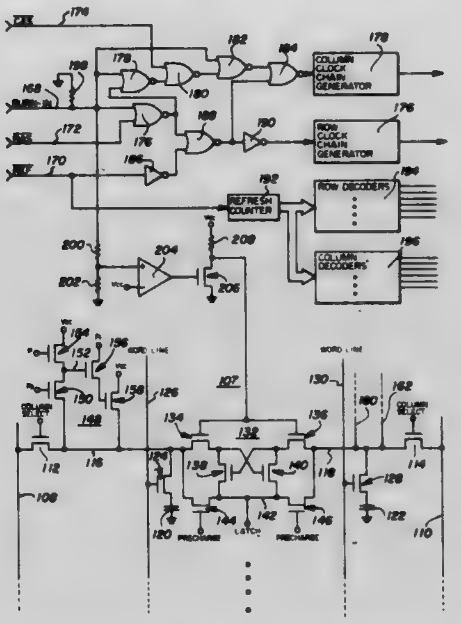
1. A circuit for burning-in and an integrated semiconductor memory which has a plurality of memory cells that are accessed in response to an address which is provided to row and column decoders, and to row and column clock signals, the memory having a sense amplifier for each of a plurality of digit lines which are connectable to the memory cells, the memory further having pullup circuits for driving digit lines to a high voltage state and a refresh counter responsive to an externally supplied refresh signal for generating addresses for the row and column decoders, the burn-in circuit comprising circuit elements integral with the memory including:

a burn-in terminal connected to receive an externally supplied burn-in command having first and second voltage states for burning-in the memory;

means connected to said burn-in terminal for disconnecting the sense amplifiers when said burn-in command is at said

first state to write a high voltage state into the memory cells by operation of the pullup circuits;

means for receiving a repetitive refresh signal to cycle the refresh counter and supply a sequence of row and column addresses to the row and column decoders;



means for generating the row clock signals when said burn-in command is at said first state or said second state and the refresh signal is received; and

means for generating the column clock signals when said burn-in command is at said first state or said second state and the refresh signal is received.

4,380,806

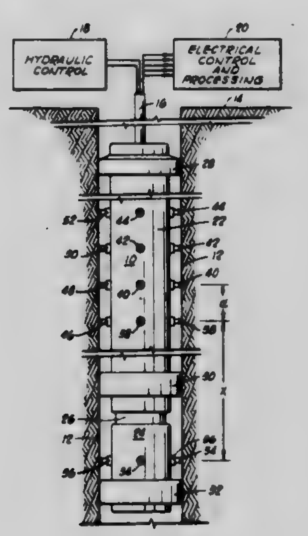
METHOD AND APPARATUS FOR SHEAR WAVE LOGGING

Kenneth H. Waters, Oakland, Calif.; John R. Hopkins, and Charles E. Payton, both of Houston, Tex., assignors to Conoco Inc., Ponca City, Okla.

Filed Mar. 19, 1980, Ser. No. 131,814

Int. Cl.³ G01V *1/40, 1/36*

U.S. Cl. 367—27 **3 Claims**



1. Apparatus for shear wave logging of a borehole formed in the earth surface, comprising:

frame means for controlled suspension down said borehole;

four quadrature arrayed shear wave transmitters carried by said frame means at a first position along said frame means and actuatable between a retracted position and firm contact with the borehole wall;

four quadrature arrayed shear wave receivers carried by said frame means at a second position spaced by a selected vertical distance from said first position and actuatable between a retracted position and firm contact with the borehole wall and providing a receiver signal output;

control means generating a control signal of selected frequency and duration for energization of each of said shear wave transmitters;

recording means receiving signal output from each of said shear wave receivers;

correlator means correlating the control signal with each respective signal output from the recording means to provide output indication of shear wave travel time over the selected vertical distance; and

hydraulic actuation means controllable to actuate said transmitters and receivers simultaneously to enable selected progressive positioning of said frame means along said borehole.

4,380,807

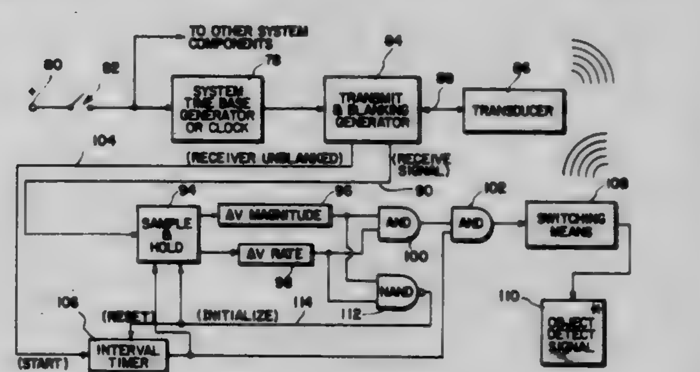
ECHO RECOGNITION SYSTEM

John M. Reynard, Framingham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation of Ser. No. 81,357, Oct. 3, 1979, abandoned. This application May 26, 1981, Ser. No. 266,901

Int. Cl.³ G01S *7/66, 15/04*

U.S. Cl. 367—97 **10 Claims**



1. A method of detecting a previously transmitted signal of energy returning from a selected target in the presence of energy signals from the source of other than the target, comprising the steps of:

continuously sampling said returning target signal for a number of consecutive time intervals that are of very short time duration relative to the total time duration of said target signal;

establishing that the sampled target signal magnitude increases between consecutive sampling intervals;

establishing that the rate of increase of target signal magnitude between consecutive sampling intervals is greater than or equal to a predetermined rate of increase; and

establishing that said signal magnitude increase and said rate of signal magnitude increase between consecutive sampling intervals is continuous for at least a predetermined portion of the total time duration of said returning target signal.

4,380,808

THINNED ARRAY TRANSDUCER FOR SONAR

Eugene E. Hill; Marvin S. Scrimshaw, and Edward W. Showalter, all of Cornwall, Canada, assignors to Canadian Patents & Development Limited, Ottawa, Canada

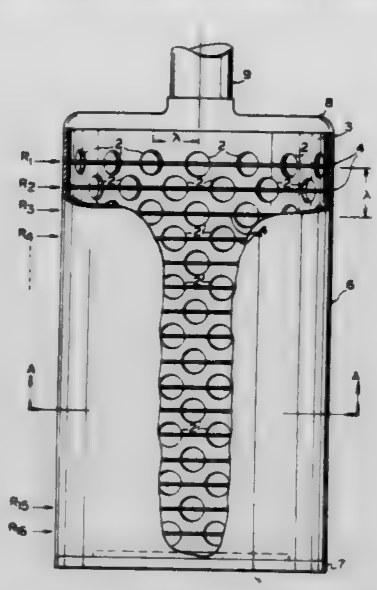
Filed Feb. 6, 1981, Ser. No. 232,314

Int. Cl.³ H04R *1/40*

U.S. Cl. 367—153 **4 Claims**

1. A sonar transducer for operation in a particular medium at a predetermined frequency f_o, comprising: an array of sonar elements mounted in rows and columns on a structure to form a checkerboard pattern wherein the spacing between the centers of adjacent elements in the direction of the rows and columns is M λ_m and wherein the diagonal spacing between

the centers of adjacent elements in the adjacent rows and columns is 0.707 M λ_m, where $\frac{1}{2} \leqq M \leqq 1$ and where λ_m, is the



wavelength of the signal of frequency f_0 transmitted in the medium.

4,380,809
AUTOMATIC POWER SUPPLY SYSTEM

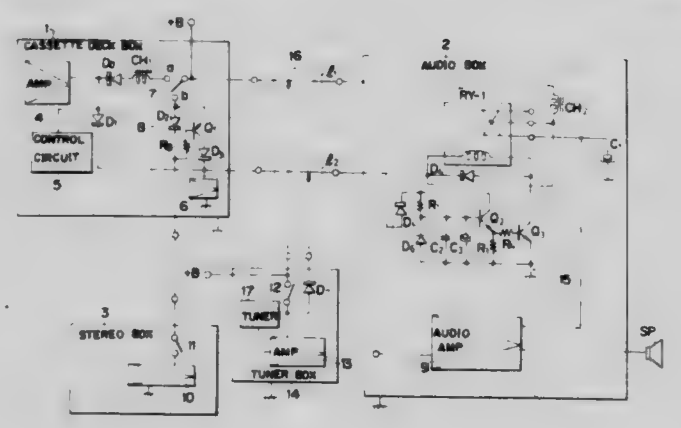
Tadashi Sato, Toda, Japan, assignor to Clarion Co., Ltd., Tokyo, Japan

Filed Aug. 5, 1980, Ser. No. 175,455

Claims priority, application Japan, Aug. 6, 1979, 54-107644[U]

Int. Cl.[3] G11B *31/00*

U.S. Cl. 369—6 2 Claims



1. In a power supply apparatus for electrically connecting an electric power supply to a plurality of boxes, including at least a cassette deck box, a stereo box and an audio box, which apparatus includes:

an electric power supply line connected to an electric power supply;

a cassette responsive selector switch connected to said electric power supply line, said switch being located in said cassette deck box and being switched by loading of a cassette into said cassette deck box and by unloading of the cassette from said cassette deck box;

an automatic electric power supply circuit located within said cassette deck box, said circuit being connected to said cassette responsive switch and supplied thereby with electric power, depending on the state of said cassette responsive switch;

a relay located within said audio box and connected by a control line to said automatic supply circuit, which circuit energizes said relay and thereby causes said relay to provide electric power from said power supply line to a circuit within said audio box in response to said cassette responsive switch being switched so as to provide power to said automatic supply circuit; and

a first manually operable switch located within said stereo box and connected between said automatic supply circuit and a circuit within said stereo box;

said automatic supply circuit including at least one transistor and a first diode, said first diode being coupled to said cassette responsive switch and to said transistor, said transistor being turned on and providing electric power to said relay and to a circuit within said cassette box when said automatic supply circuit is actuated by a forward voltage across said first diode; and

said cassette responsive switch being switchable between a tape operating terminal and a stereo box operating terminal, said first manually operable switch in said stereo box being connected to said stereo box operating terminal of said cassette responsive switch through said first diode, closure of said first manually operable switch in said stereo box and switching of said cassette responsive switch to said stereo box operating terminal both being required to produce a forward voltage across said first diode and turn on said transistor and thereby provide electrical power to said relay and said circuit within said cassette deck box, the last-mentioned circuit being a control amplifier, a second diode being connected between said tape operating terminal of said cassette responsive switch and a point at which said transistor applies said electric power to said control amplifier, said second diode being oriented to positively block electric current flow from said point back toward said tape operating terminal of said cassette responsive switch, said cassette deck box further including a tape pre-amp connected between said tape operating terminal of said cassette responsive switch and said second diode, said tape pre-amp receiving electric power only when said cassette responsive switch is switched to said tape operating terminal,

the improvement comprising a tuner box and a junction cable for connecting said tuner box to said power supply line and said control line, said tuner box including a second manually operable switch, a tuner, a tuner amplifier connected to said tuner and a third diode, said second manually operable switch being connected between said tuner amplifier and said power supply line through said cable, and said third diode being connected from the junction between said second switch and said tuner amplifier to said control line through said cable, whereby electric power is provided to operate said tuner amplifier and to energize said relay when said second manually operable switch is closed.

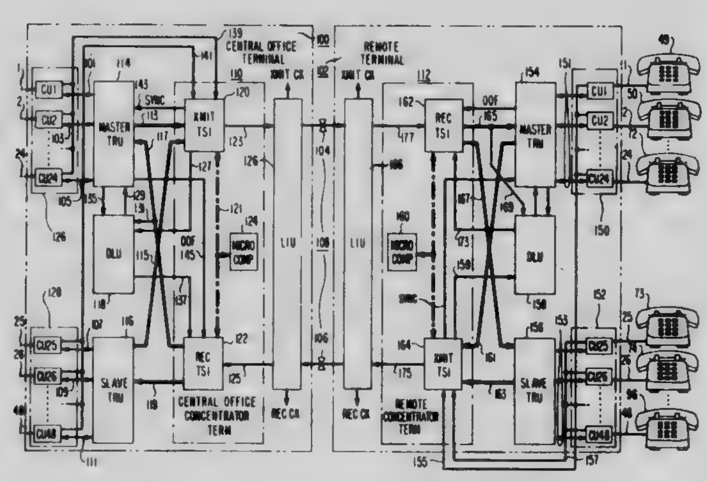
4,380,810
LOOPBACK TEST

Ronald J. Canniff, Naperville, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 12, 1980, Ser. No. 186,619

Int. Cl.[3] H04J *3/14*

U.S. Cl. 370—15 12 Claims



1. A method of real time testing of a transmission path

through a digital concentrator system comprising a central office concentrator terminal (110), a remote concentrator terminal (112), and a digital line (108) Characterized by the steps of

disabling the storage of encoded signals from subscriber lines (1,2,3 . . . 48) to be connected to concentrator trunks,

storing a looping test code word in place of the encoded signals from said subscriber lines,

transmitting said looping test code word as part of a multiplexed stream to said remote concentrator terminal (112) over said concentrator trunks, and

returning said looping test code word from said remote concentrator terminal (112) over said concentrator trunks, said concentrator trunks being part of said digital line.

4,380,811

PROGRAMMABLE LOGIC ARRAY WITH SELF CORRECTION OF FAULTS

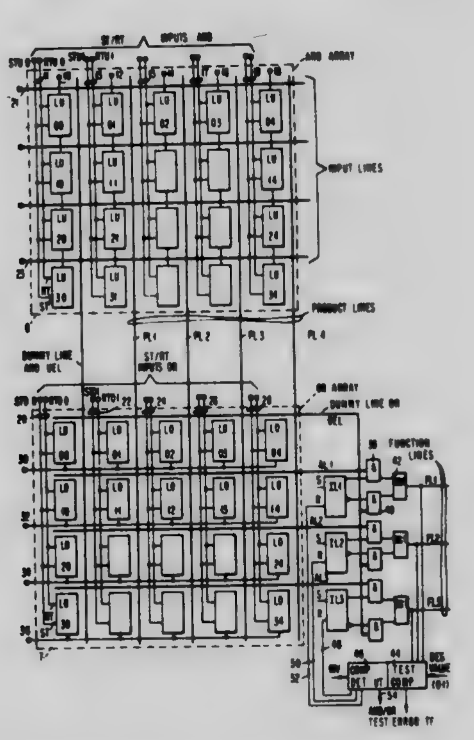
Volkmar Götze, Grafenau, and Dieter Schütt, Munich, both of Fed. Rep. of Germany, assignors to International Business Machines Corp., Armonk, N.Y.

Filed Apr. 14, 1981, Ser. No. 254,027

Claims priority, application Fed. Rep. of Germany, Apr. 25, 1980, 3015992

Int. Cl.³ G01R ***31/28;*** **G11C** ***29/00***

U.S. Cl. 371—10 **14 Claims**



1. A programming logic array (PLA) having an AND array and an OR array with input lines to the AND array, output lines from the OR array, and product term lines interconnecting the two arrays, the PLA having storage flip-flops at the cross points of the arrays, wherein the improvement comprises,

means connecting the flip-flops along individual product term lines of the AND array and along individual output lines of the OR array to form shift registers,

means for sequentially loading data for a test sequence into the shift registers of the PLA,

whereby the array can be tested to locate faults, and

dummy lines in the array connectable to replace a line in which a fault is detected.

4,380,812

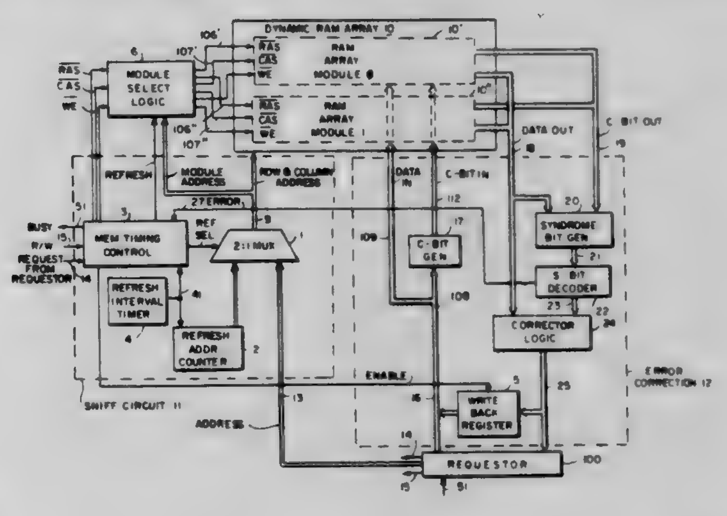
REFRESH AND ERROR DETECTION AND CORRECTION TECHNIQUE FOR A DATA PROCESSING SYSTEM

Michael L. Ziegler, II, Whitinsville; Michael B. Druke, Chelmsford, both of Mass.; John R. Van Roekel, Ann Arbor, Mich., and Ward Baxter, II, Carlisle, Mass., assignors to Data General Corporation, Westboro, Mass.

Filed Apr. 25, 1980, Ser. No. 143,675

Int. Cl.³ G06F ***11/10;*** **G11C** ***29/00***

U.S. Cl. 371—38 **6 Claims**



1. In a data processing system having a memory in which binary words, each comprising a plurality of bits, are stored:

refresh means connected to said memory for periodically refreshing the bits of one or more stored words at a selected refresh time interval;

error detection means connected to said memory for detecting an error which may exist in at least one binary bit of one of said one or more stored words the detection thereof being performed at substantially the same time as the refreshing of said one or more stored words;

a single error correcting means connected to said error detection means and responsive to the detection of an error in said one of said one or more stored words for correcting said error when said error has been detected during said refresh operation; and

means connected to said error correcting means and to said memory for writing said corrected word back into said memory.

4,380,813

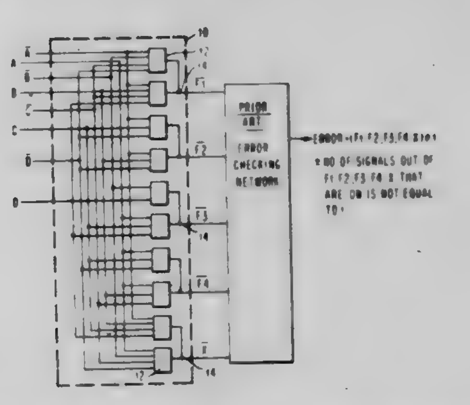
ERROR CHECKING OF MUTUALLY-EXCLUSIVE CONTROL SIGNALS

Leonard L. Fogell, Hyde Park; Samuel R. Levine, and Arnold Weinberger, both of Poughkeepsie, all of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Apr. 1, 1981, Ser. No. 249,808

Int. Cl.³ G06F ***11/12***

U.S. Cl. 371—52 **5 Claims**



1. In apparatus for checking a set of control signals F1 to FN generated from a set of variables a to y for invalid conditions

by applying said set of control signals to a detector means which determines when none or more than one of the set of control signals are on, the improvement comprising:

means for generating an additional control signal X=F1·F2· . . . ·FN from the set of variables a to y,

means in said detector means responsive to the additional control signal X to said detector means along with the set of control signals F1 to FN to determine if more than one or none of said control signals F1 to FN and X are on so that said apparatus does not indicate as invalid any valid conditions where none of the control signals F1 to FN are on.

4,380,814

BASEBAND DATA SWITCHING APPARATUS FOR DIGITAL COMMUNICATIONS SYSTEM

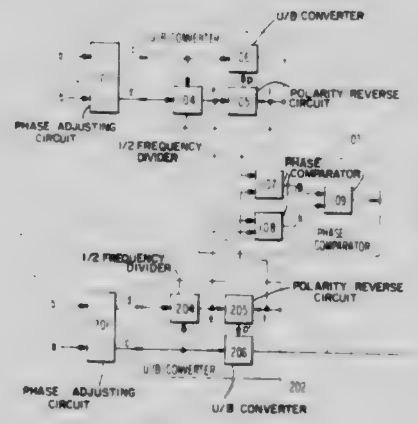
Saburo Shinmyo, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Oct. 9, 1980, Ser. No. 195,686

Claims priority, application Japan, Oct. 9, 1979, 54-130133

Int. Cl.³ H04B *7/08*

U.S. Cl. 375—40 **8 Claims**



1. A baseband data switching apparatus for alternately switching between first and second channels, each channel having means for receiving baseband unipolar data and clock recovering means for recovering a clock from said baseband unipolar data, said switching apparatus comprising:

first and second data phase adjusting means (301–303, 305) connected to the outputs of said receiving means and of said clock recovering means in said first and second channels, respectively, for adjusting the phase of said baseband unipolar data in each channel in a timed relationship with the respective recovered clocks;

first and second clock phase adjusting means (304) respectively connected to the output of said clock recovering means in said first and second channels for respectively adjusting the phases of said recovered clocks;

first (106) and second (206) unipolar/bipolar conversion means respectively connected to said first and second phase adjusting means and to said first and second clock phase adjusting means for respectively converting the phase-adjusted baseband unipolar data into bipolar data in response to a first control signal and to a second control signal, respectively;

first (104) and second (204) frequency divider means respectively connected to said first and second clock phase adjusting means for respectively dividing the frequencies of the phase adjusted recovered clocks;

first (105) and second (205) control signal supply means for respectively and selectively reversing the polarities of the outputs of said first and second frequency divider means in response to respective third and fourth control signals to provide said first and second control signals;

coincidence detecting means for detecting coincidence or non-coincidence between the outputs from said first and second unipolar/bipolar conversion means, said third and fourth control signals being produced in response to an output from said coincidence detecting means such that said third and fourth control signals have polarities which cause the polarities of said outputs from said first and second unipolar/bipolar conversion means to be coincident; and

means for switching between the outputs of said first and second unipolar/bipolar conversion means.

4,380,815

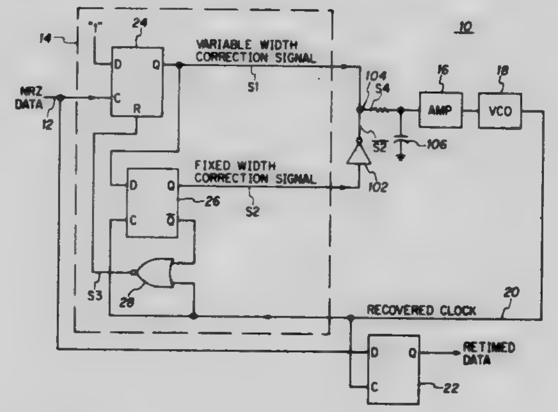
SIMPLIFIED NRZ DATA PHASE DETECTOR WITH EXPANDED MEASURING INTERVAL

Steven J. Clendening, Plano, Tex., assignor to Rockwell International Corporation, El Sequndo, Calif.

Filed Feb. 25, 1981, Ser. No. 238,176

Int. Cl.³ H03K *1/17, 5/156*

U.S. Cl. 375—80 **17 Claims**



1. An NRZ data phase detector comprising:

phase error means responsive to a data transition for initiating a measuring interval and responsive to a clock transition for terminating said measuring interval, and including means for generating a variable length subinterval between said data transition and a given polarity clock transition and for generating a fixed length subinterval between designated common polarity clock transitions such that said fixed subinterval has a duration of one full clock cycle, the duration difference between said variable subinterval and said fixed subinterval providing phase indication.

4,380,816

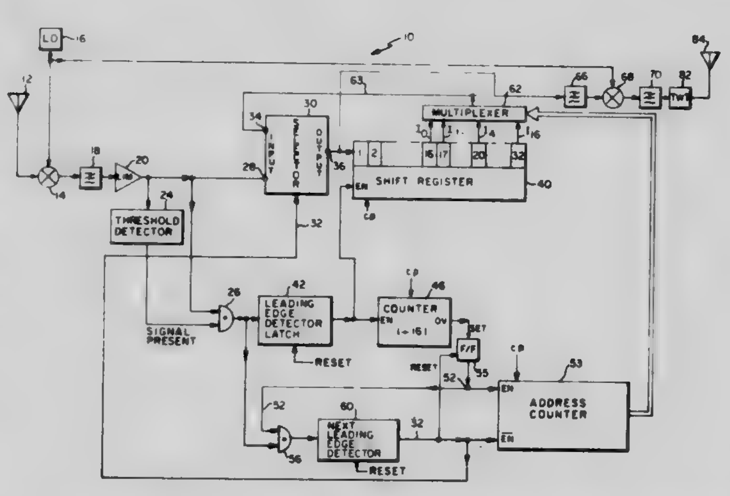
APPARATUS FOR RECYCLING COMPLETE CYCLES OF A STORED PERIODIC SIGNAL

Robin P. Nicholls, Santa Barbara, Calif., assignor to Raytheon Company, Lexington, Mass.

Filed Jun. 3, 1981, Ser. No. 270,301

Int. Cl.³ H04B *1/16;* **G11C** *9/00*

U.S. Cl. 375—94 **3 Claims**



1. Apparatus for storing a periodic signal and for recycling complete cycle portions of such stored periodic signal comprising:

means for producing first control signals indicating the start of each cycle of the periodic signal;

storage means;

means for commencing storage of the periodic signal in response to one of the first control signals;

means for producing a second control signal indicating that a predetermined portion of the storage means has stored therein a first portion of the periodic signal;

means responsive to both the second control signal and one of the first control signals produced subsequent to the production of the second control signal, for producing a signal indicating the portion of the memory means having stored therein complete cycles of the stored signal; and

means, responsive to the indicating signal, for recycling complete cycles of the stored signal through the storage means.

4,380,817

METHOD FOR EXAMINING A BODY WITH PENETRATING RADIATION

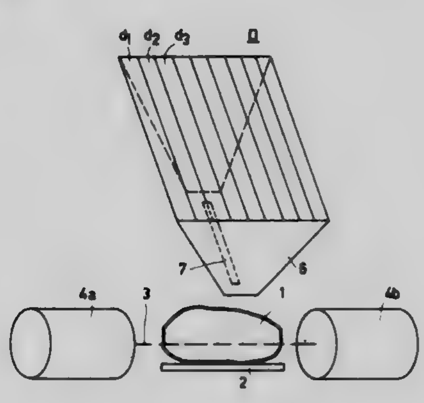
Geoffrey Harding, Rellingen, and Wolfgang Wagner, Hamburg, both of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 10, 1980, Ser. No. 185,845

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1979, 2939146

Int. Cl.³ G01N *23/20*

U.S. Cl. 378—87 **4 Claims**



1. In a device for examining a body using penetrating radiation which comprises: source means which generate a primary beam of said radiation, detector array means for measuring, and for generating output signals representing, scattered radiation generated in the body along the primary beam, diaphragm means disposed between the detector array means and the primary beam which define a slit shaped aperture having a longitudinal direction which is oriented at right angles to the primary beam; and a large plurality of lamellae of radiation-absorbing material disposed between the aperture and the detector array means which lamellae are disposed at least approximately in planes which intersect colinearly in and along the primary beam whereby the detector array means measure radiation which is both singly and multiply scattered in the body; the improvement which comprises:

means for generating a relative displacement between the primary beam and the diaphragm means, the detector array means, and the lamellae so that, during a portion of the examination, the planes of the lamellae intersect outside of the primary beam whereby the detector array means only measure radiation which is multiply scattered in the body; and

means which subtract output signals from the detectors which represent only said multiply scattered radiation from respective output signals which represent both singly and multiply scattered radiation to produce signals which represent only singly scattered radiation.

4,380,818

X-RAY DIAGNOSTIC SYSTEM COMPRISING A RADIOGRAPHY UNIT WITH AN X-RAY TUBE WHICH EMITS A FAN-SHAPED RADIATION BEAM

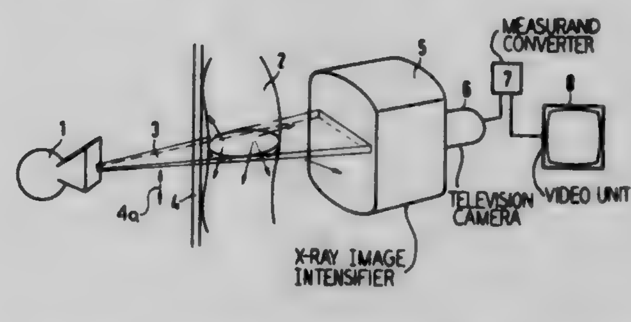
Manfred Pfeiler, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed May 27, 1981, Ser. No. 267,664

Claims priority, application Fed. Rep. of Germany, Jun. 23, 1980, 3023401

Int. Cl.³ A61B *6/00;* **G01J** *1/29;* **H01J** *31/49;* **H05G** *1/64*

U.S. Cl. 378—099 **8 Claims**



1. A diagnostic radiology system comprising a radiographic unit having a support for a radiography subject, having an X-ray tube, which emits a fan-shaped radiation beam, having a radiation detector for receiving the radiation emerging from the radiography subject, which radiation detector delivers electric output signals corresponding to the received radiation profile, having means for generating relative movement between the support for the radiography subject and the radiation beam over an excursion range, and having a measurand converter which, from the detector output signals, determines the X-ray shadow image corresponding to the excursion range and provides an output for effecting display of such image, characterized in that the radiation detector (5, 6) is of the electrostatic memory type for electrostatically storing signals in accordance with the received radiation, and that a canceling device is present which cancels the stored signals in the memory area which, in the direction of movement of the line image formed by the X-ray beam (3), are disposed before the line image.

4,380,819

SPOTFILMING APPARATUS

Dennis Everett, Garfield Heights, and Vjekoslav Jukic, Cleveland, both of Ohio, assignors to Picker Corporation, Cleveland, Ohio

Filed Nov. 24, 1980, Ser. No. 209,739

Int. Cl.³ G21F *5/04*

U.S. Cl. 378—114 **12 Claims**

1. A masking apparatus for an X-ray spot-filmer, comprising:

(a) a first pair of shutter-like members constructed of radiation absorptive materials;

(b) guide means for slidably supporting said members for motion in a first direction;

(c) drive means operatively connected to said members for imparting reciprocating motion towards and away from each other;

(d) a second pair of shutter-like members constructed of radiation absorptive material, each member including first and second relatively movable elements;

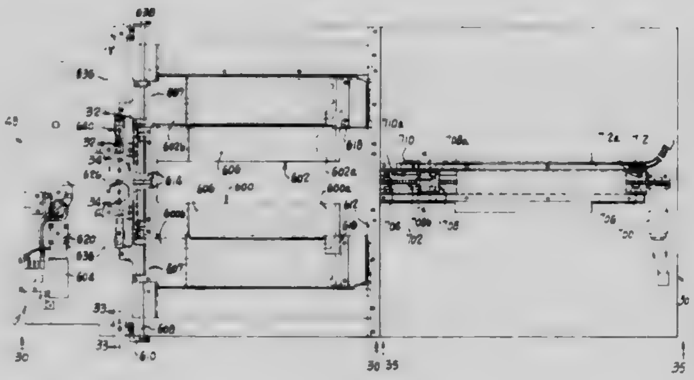
(e) guide means for slidably supporting said second pair of members for motion in a direction substantially transverse to the direction of motion of said first pair of members;

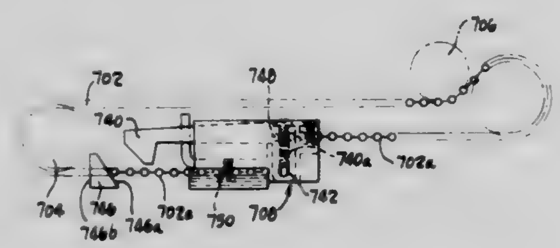
(f) drive means operatively connected to said second pair of members for imparting reciprocating motion towards and away from each other, said drive means actuating said first and second elements at first and second speeds, respectively.

6. An X-ray spotfilming apparatus, comprising:

(a) an X-ray source;

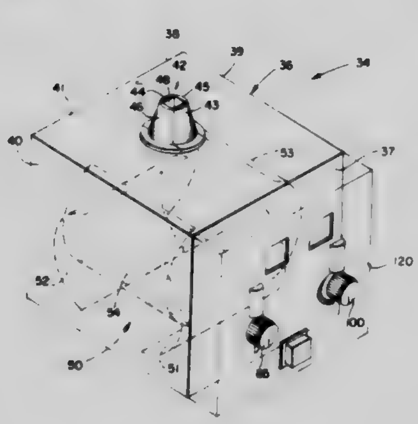
(b) a spotfilmer housing including a means for clamping and conveying a film cassette between exposure and retracted positions within said housing;
(c) a palpitator cone assembly mounted for movement along a surface of said spotfilmer housing and movable between retracted and operative positions and disposed intermediate the X-ray source and the cassette clamping and conveying means;
(d) cone drive means operatively attached to said palpitator cone for driving said cone between the retracted and operative positions;





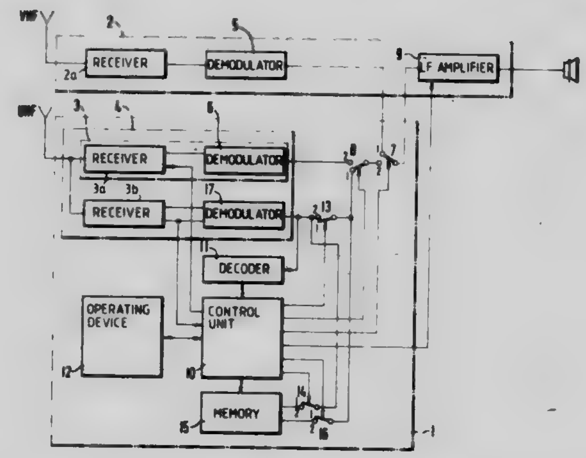
(e) cone lock means for locking the position of said cone when said cone is driven to its operative position by said drive means;
(f) said cone drive means including a means for releasing said lock means when said drive means is energized to retract said cone and further including a drive belt driven by a reversible motor and limit switches mounted in the path of movement of said cone lock means, said switches being operated by said lock means when said cone travels to predetermined positions.

4,380,820
COMPACT X-RAY COLLIMATOR
James W. Cutter, Hollister, Calif., assignor to The Machlett Laboratories, Incorporated, Stamford, Conn.
Filed Jun. 19, 1980, Ser. No. 161,108
Int. Cl.³ A61B *6/06*
U.S. Cl. 378—153 **17 Claims**



1. A radiation collimator, comprising:
(a) a housing;
(b) a first and a second pair of shutter elements disposed within the housing and rotatably mounted with respect to the housing, each one of such shutter elements having a surface with an edge portion thereof defining a different peripheral portion of an aperture, the surfaces of the first pair of shutter elements being adapted to rotate within a space disposed between the surfaces of the second pair of shutter elements and the surfaces of the second pair of shutter elements being adapted to rotate within a space disposed between the surfaces of the first pair of shutter elements.

4,380,821
TRAFFIC BROADCASTING SYSTEM
Gert Eckhardt, Backnang, Fed. Rep. of Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany
Filed Jul. 24, 1980, Ser. No. 171,792
Claims priority, application Fed. Rep. of Germany, Jul. 27, 1979, 2930509
Int. Cl.³ H04B *3/60, 7/155*
U.S. Cl. 455—33 **9 Claims**



1. A method of transmitting information from a central ground station to a plurality of mobile auxiliary ground stations via at least one base station, each of said auxiliary ground stations being located within the transmitting range of at least one of said base stations and being provided with a receiving device having a control unit and a memory, said method comprising the steps of:
transmitting from said central ground station a block of messages cyclically repeated within a time frame, each message including an address code corresponding to the area code of the region adjacent a corresponding base station, said block of messages being transmitted on a single frequency;
receiving said block of messages at each of said base stations;
transmitting from each of said base stations said received block of messages, said block of messages being transmitted on a single frequency;
receiving said block of messages at the receiving device of said auxiliary ground stations;
recording in said memory those received messages having a selected area code and controlling said memory with said control unit to effect said recording;
converting said recorded messages to an information signal;
recording changed messages having said selected area code and a changed signal associated therewith; and
converting said recorded changed messages to an information signal and controlling said memory with said control unit to effect said converting of said recorded changed messages to said information signal.

4,380,822

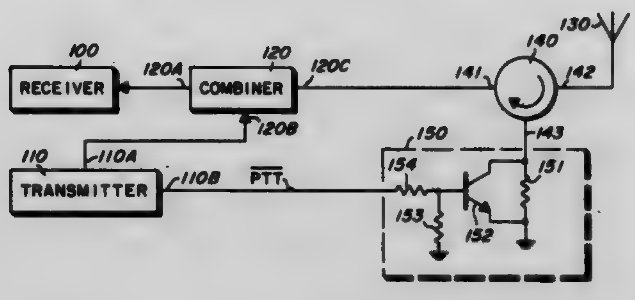
TRANSMIT-RECEIVE SWITCHING CIRCUIT FOR RADIO FREQUENCY CIRCULATORS

Robert M. Broton, Palatine, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 2, 1981, Ser. No. 317,707

Int. Cl.³ H04B *1/48*

U.S. Cl. 455—80 **2 Claims**



1. Apparatus for switching a receiver and a transmitter to a common antenna comprising:

combining means, electrically coupled to said receiver and said transmitter, for providing signals from said transmitter to a common signal path and for providing signals from said common path to said receiver in a manner maintaining isolation between said receiver and said transmitter;

a circulator exhibiting a predetermined characteristic impedance and including first, second and third ports, said first and second ports being electrically coupled to said common signal path and said common antenna, respectively, and

selectively actuable impedance means, electrically coupled to said third port, for exhibiting an impedance approximately equal to the characteristic impedance of said circulator when said transmitter is transmitting and exhibiting an impedance substantially less than said characteristic impedance when said transmitter ceases transmitting.

4,380,823

MULTI-CHANNEL SIGNAL PROCESSING CIRCUIT FORMED IN A SEMICONDUCTOR INTEGRATED CIRCUIT

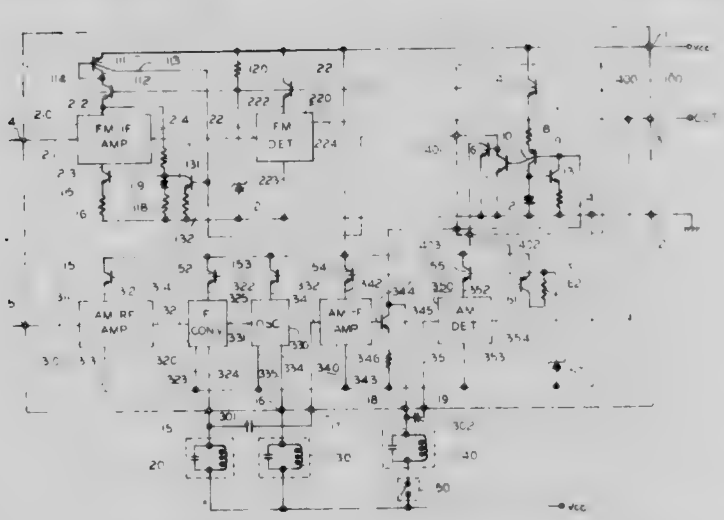
Naotoshi Higashiyama, and Kazuyuki Doi, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Jul. 13, 1979, Ser. No. 57,370

Claims priority, application Japan, Jul. 14, 1978, 53-86337

Int. Cl.³ H04B *1/16*

U.S. Cl. 455—143 **16 Claims**



13. A system comprising:

an integrated circuit chip having a plurality of terminals;

means in said integrated circuit chip for providing signal processing functions in different frequency bands;

means external to said integrated circuit chip for selectively supplying a voltage from a power supply line through an inductive element to one of said terminals; and

means in said integrated circuit chip and coupled to said one terminal for shifting said functions between said different frequency bands in response to said voltage.

4,380,824

RECEIVING REPRODUCING SYSTEM

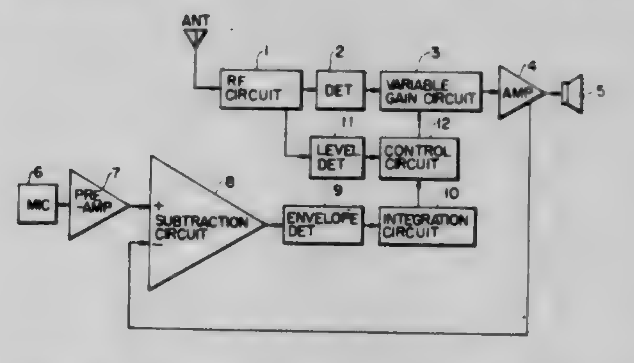
Takao Inoue, Kodaira, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 12, 1981, Ser. No. 233,869

Claims priority, application Japan, Apr. 18, 1980, 55-50381

Int. Cl.³ H04B *1/10;* **H03G** *3/24*

U.S. Cl. 455—143 **5 Claims**



4. A receiving reproducing system comprising:

an AM tuner for obtaining an AM detected output signal from an AM radio-frequency signal;

an FM front end for obtaining an FM intermediate-frequency signal from an FM radio-frequency signal;

an FM intermediate-frequency signal processing circuit for obtaining an FM detected output signal from said FM intermediate-frequency signal;

an FM stereo demodulator for obtaining a left-channel demodulated output signal and a right-channel demodulated output signal from said FM detected output signal;

a first terminal which can be supplied by way of a selection means with a selected one of said AM detected output signal and said left-channel demodulated output signal;

a second terminal which can be supplied by way of said selection means with a selected one of said AM detected output signal and said right-channel demodulated output signal;

a first voltage-controlled attenuator having an input terminal, a control terminal and an output terminal, the signal transmission from said input terminal to said output terminal being controllable by a control voltage impressed upon said control terminal and said input terminal being connected to said first terminal;

a second voltage-controlled attenuator having an input terminal, a control terminal and an output terminal, the signal transmission from said input terminal to said output terminal being controllable by a control voltage impressed upon said control terminal and said input terminal being connected to said second terminal;

a first power amplifier the input terminal of which is connected with said output terminal of said first voltage-controlled attenuator;

a second power amplifier the input terminal of which is connected with said output terminal of said second voltage-controlled attenuator;

a first speaker which is driven by the output signal of said first power amplifier;

a second speaker which is driven by the output signal of said second power amplifier;

noise detector means for detecting the surrounding noise level of a sound field;

received level detector means for detecting an AM level which is dependent upon said AM radio-frequency signal as well as an FM level which is dependent upon said FM radio-frequency signal, and

control means responsive to an output signal of said received

level detector means and connected between the output terminal of said noise detector means and both of said control terminals of said first and second voltage controlled attenuator, said control means including means for transmitting the detected output of said noise detector means to both of said control terminals of said first and said second voltage controlled attenuator in case the output signal of said received level detector means is higher than a preset value so as to control said output signals of said first and second power amplifier proportionally in accordance with said surrounding noise level of said sound field and said control means forcibly lowering the level of said output signals of said first and second power amplifier in case said output signal of said received level detector means is lower than said preset value, thereby disabling sound field effects on said power amplifier output signals.

4,380,825

AUTOMATIC SWEEP DIGITAL TUNING CIRCUIT

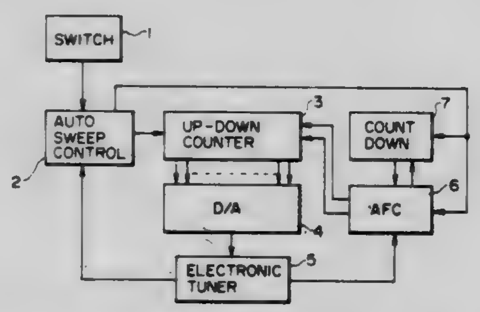
Hideharu Takebe, and Hiroshi Kobayashi, both of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 4, 1981, Ser. No. 299,502

Claims priority, application Japan, Sep. 9, 1980, 55-125611; Sep. 9, 1980, 55-125612

Int. Cl.[3] H04B *1/26*

U.S. Cl. 455—164 **8 Claims**



1. An automatic sweep digital tuning circuit operatively connected to receive a switching signal, comprising:

an automatic sweep control circuit for receiving the switching signal and for generating a pulse signal and a fine control start signal;

an up-down counter, operatively connected to said automatic sweep control circuit, for receiving said pulse signal and for performing a count-up operation to generate a digital output signal;

a digital-to-analog converter, operatively connected to said up-down counter, for converting the digital output signal into an analog signal;

an electronic tuner, operatively connected to said digital-to-analog converter and said automatic sweep control circuit, for receiving said analog signal and for providing a tuning frequency, said automatic sweep control circuit stopping the count-up operation of said up-down counter when the tuning frequency of said electronic tuner approaches a predetermined frequency;

an automatic frequency fine control circuit, operatively connected to said electronic tuner, said automatic sweep control circuit and said up-down counter, for finely controlling the tuning frequency of said electronic tuner in dependence upon said fine control start signal, so that the tuning frequency of said electronic tuner becomes coincident with the predetermined frequency; and

count down means, operatively connected to said automatic frequency fine control circuit and said automatic sweep control circuit, for providing a count down signal to said automatic frequency fine control circuit in dependence upon said fine control start signal, said automatic frequency fine control circuit causing said up-down counter to perform a count down operation, in dependence upon said count down signal, until the tuning frequency of said electronic tuner is an optimum frequency.

4,380,826

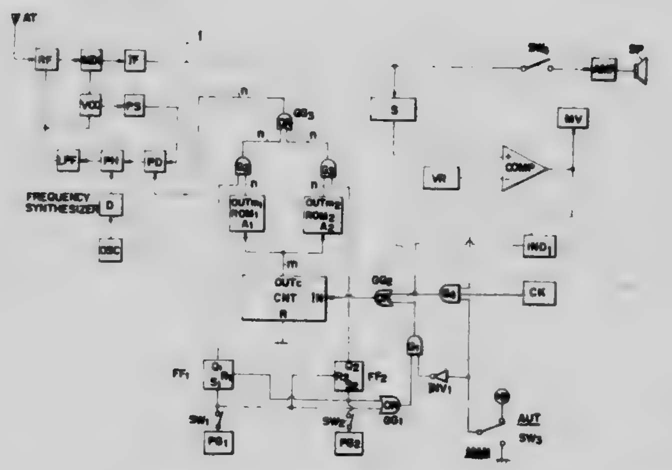
CONTROL SYSTEM FOR CHANNEL SELECTION

Kikuo Usugi, Toda, Japan, assignor to Clarion Co., Ltd., Tokyo, Japan

Filed Dec. 9, 1980, Ser. No. 214,509

Int. Cl.[3] H04B *1/26;* **H03L** *7/18*

U.S. Cl. 455—165 **5 Claims**



1. A control system for channel selection in a frequency synthesized radio receiver which comprises:

a frequency synthesizer coupled to a receiver front end portion;

a memory means provided for storing data signals respectively corresponding to broadcasting waves having the same broadcasting content;

a clock generating means for producing clock pulses;

a first counter means counting the clock pulses for producing an address signal of the memory means and supplying said signal to the memory means;

a channel-selecting means for selecting a data signal outputted from said memory means in response to the address signal and for applying said data signal to said frequency synthesizer to control it so that said front end portion receives a broadcasting wave signal having a desired frequency corresponding to said data signal;

a reference level setting means;

a means for comparing a level of the received broadcasting wave signal outputted from said front end portion and a reference level set by said reference level setting means; and

a first gate means coupled to said means for comparing for selectively supplying clock pulses to said first counter means from said clock generating means, said channel-selecting means being comprised of selecting switches corresponding to respective channels, pulse generating circuits connected to said switches, respectively, flip-flop circuits each adapted to be set by a pulse supplied from the respective pulse generating circuit through the respective selecting switch, and a second gate means for selecting the data signal from said memory means in response to an output from one of said flip-flop circuits.

4,380,827

OSCILLATOR FOR TELEVISION TUNER

Frederick H. Moon, Mt. Prospect, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

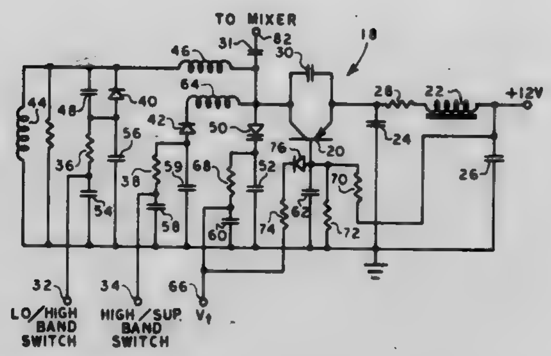
Filed Sep. 21, 1981, Ser. No. 304,391

Int. Cl.[3] H04B *1/26*

U.S. Cl. 455—179 **5 Claims**

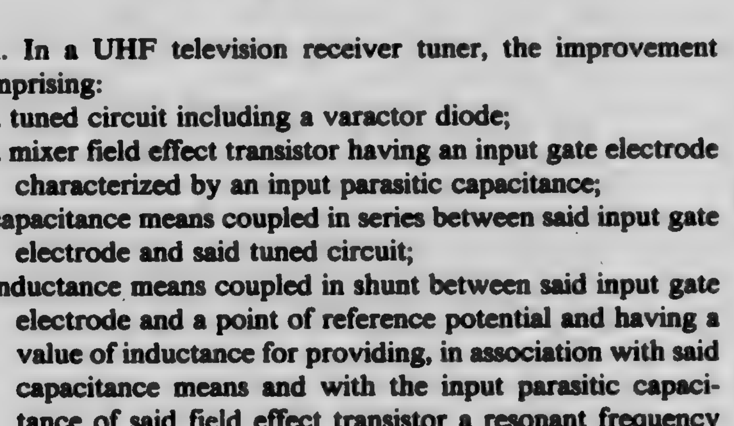
1. In a television receiver having a tuner which is tunable in response to a tuning voltage and in which an oscillator provides signal injection to a mixer, an improved oscillator, comprising:

a tuning network continuously tunable in response to said tuning voltage;
transistor means coupled to the tuning network for establishing oscillations therein;
a biasing network for establishing a given operating current in said transistor means; and



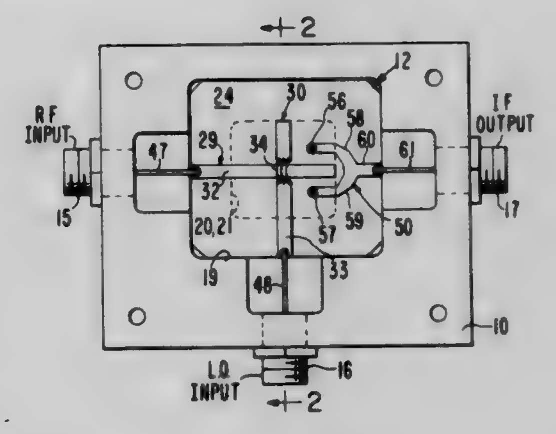
circuit means coupled to the biasing network and responsive to the tuning voltage for changing the operating current in said transistor means so as to increase the oscillator's signal injection level to the mixer at values of tuning voltage which correspond to relatively low channel numbers.

4,380,828
UHF MOSFET MIXER
Frederick H. Moon, Mount Prospect, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.
Filed May 26, 1981, Ser. No. 267,136
Int. Cl.³ H04B *1/26*
U.S. Cl. 455—319 **8 Claims**



1. In a UHF television receiver tuner, the improvement comprising:
a tuned circuit including a varactor diode;
a mixer field effect transistor having an input gate electrode characterized by an input parasitic capacitance;
capacitance means coupled in series between said input gate electrode and said tuned circuit;
inductance means coupled in shunt between said input gate electrode and a point of reference potential and having a value of inductance for providing, in association with said capacitance means and with the input parasitic capacitance of said field effect transistor a resonant frequency below the lowest channel frequency in the UHF frequency band; and
means developing and coupling a local oscillator signal to the input gate electrode of said mixer field effect transistor via said inductance means.

4,380,829
SIMPLIFIED DOUBLE BALANCED FREQUENCY CONVERTER
David M. Stevenson, Topsfield, Mass., and Gale L. Flanders, Dover-Foxcroft, Me., assignors to Varian Associates, Inc., Palo Alto, Calif.
Filed May 18, 1981, Ser. No. 264,499
Int. Cl.³ H04B *1/26*; H03H *7/42*
U.S. Cl. 455—327 **17 Claims**



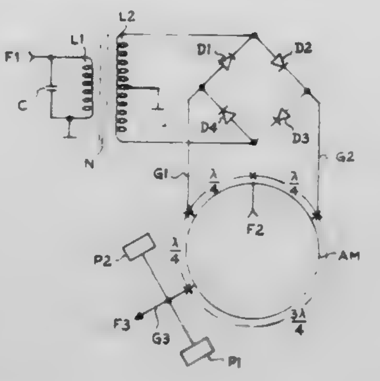
8. Compact, simplified assembly for microwave frequency converter, comprising:
a generally flat dielectric substrate having first and second faces;
a diode bridge defining first and second opposite corner pairs and mounted on said first face;
a first pair of flat conductors on said first face, each extending in a first path outwardly from a respective corner of said first opposite corner pair of said bridge;
a second pair of flat conductors on said first face, each and extending in a second path outwardly from a respective corner of said second opposite corner of said bridge;
a third flat conductor on said second face extending along said first path, so as to be opposed to said first pair of conductors on said first face;
a fourth generally flat conductor on said second face extending along said second path so as to be opposed to said second pair of conductors on said first face;
said third and fourth conductors on said second face being in electrical isolation from each other;
and a pair of fifth flat conductors on one of said faces electrically isolated from conductors extending along said first and second paths each of said fifth conductors extending from a respective corner of one of said bridge opposite corner pairs along said one face to a respective location spaced from said bridge, each of said fifth conductors passing through at a corresponding one of said locations and extending over the other of said faces to join in a junction, wherefrom a heterodyned output signal is obtained when a radio frequency signal and a local oscillator signal are supplied to the conductors, respectively, at ends of said first and second paths distal said bridge.

4,380,830
MICROWAVE UP-CONVERTER
Maurice Marchand, and Christian Petitjean, both of Colombes, France, assignors to L.M.T. Radio Professionelle, Colombes, France
Filed Jul. 15, 1981, Ser. No. 283,724
Claims priority, application France, Jul. 18, 1980, 80 15906
Int. Cl.³ H04B *1/26*
U.S. Cl. 455—327 **6 Claims**

1. An up converter for mixing a first radio-frequency wave with a second ultrahigh-frequency wave and for obtaining a third ultrahigh-frequency wave, which comprises:
a mixer diode bridge;
a coil for feeding the first wave to the mixer diode bridge;
a microstrip ring;

a first microstrip waveguide for feeding the second wave to this ring;

a second and a third microstrip waveguide for connecting the diode bridge to the ring;



a fourth microstrip waveguide for extracting the third wave from the ring.

4,380,831

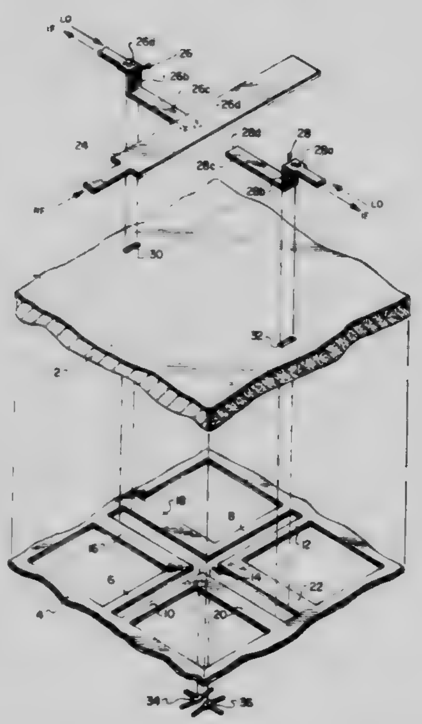
SYMMETRIC MICROWAVE MIXER WITH IMPROVED ISOLATION

Ben R. Hallford, Wylie, Tex., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Jul. 24, 1981, Ser. No. 286,405

Int. Cl.^{3} H04B *1/26;* H03H *7/42*

U.S. Cl. 455—327 **11 Claims**



1. Balun coupled microwave circuit layout and structure comprising:

a dielectric substrate;

ground plane means on a bottomside of said substrate;

a first balun secondary conductor pair having first and second conductors and a second balun secondary conductor pair having third and fourth conductors, each conductor pair being on the bottomside of said substrate with the respective conductors of each of said first and second pairs extending from said ground plane means towards each other and terminating in respective spaced ends facing each other at a separation gap therebetween;

a transmission line on the topside of said substrate juxtaposed said first and second pairs of secondary conductors for interacting therewith to dual balun couple a field balanced between the first secondary conductor pair across said gap and a field balanced between the second secondary conductor pair across said gap;

fifth and sixth conductors having topside coplanar sections on the topside of said substrate and having respective linking sections extending down through said substrate to respective bottomside coplanar sections on the bottomside of said substrate, said bottomside sections having spaced ends proximate the spaced ends of said first and second pairs of secondary conductors and said bottomside sections extending oppositely away therefrom; and

a diode mixer having first and second separate, isolated sections, said first section comprising a first diode pair interconnecting the first and second conductors of said first secondary conductor pair and the bottomside section of said fifth conductor at coplanar connection points on the bottomside of said substrate for heterodyne modulation product signal generation, said second section comprising a second diode pair interconnecting the third and fourth conductors of said second secondary conductor pair and the bottomside section of said sixth conductor at coplanar connection points on the bottomside of said substrate for heterodyne modulation product signal generation.

4,380,832

PORTABLE RADIO COMMUNICATION DEVICE HAVING SIGNAL PROCESSING CIRCUIT WITH PRESETTING FUNCTION

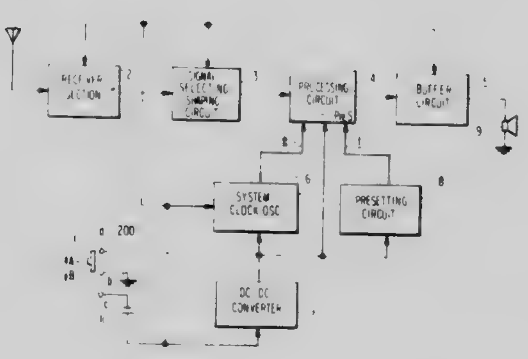
Koichi Nagata, and Shinjiro Umetsu, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Jul. 30, 1981, Ser. No. 288,448

Claims priority, application Japan, Jul. 31, 1980, 55-108571[U]

Int. Cl.^{3} H04B *1/16*

U.S. Cl. 455—343 **7 Claims**



1. A portable radio communication device comprising:

(a) battery means;

(b) voltage converter means connected to said battery means for converting the voltage of said battery means to another voltage;

(c) processing circuit means, having a presetting terminal and a power supply terminal to which said other voltage is supplied, for detecting and processing received signals;

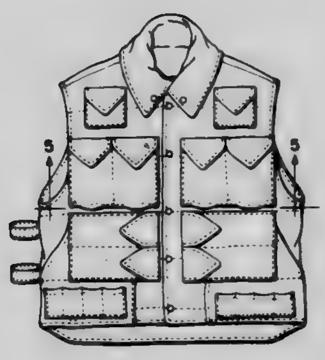
(d) presetting circuit means provided between the output of said volage converter means and said presetting terminal for setting said processing circuit means in an initial state in response to said other voltage; said presetting circuit having at least one element which is chargeable and dischargeable; and

(e) power supply switch means having a first terminal connected to said battery means, a second terminal connected to a reference potential point, a third terminal connected to the input of said presetting circuit either directly or by way of a low impedance means and a connecting means for selectively connecting pairs of said terminals; the voltage of said battery means being supplied in response to a connection of said first and second terminals, and the voltage supply from said battery means being stopped and a discharge time of said element in said presetting circuit being set at a sufficiently low value so that said processing means is securely maintained in said initial state when battery voltage is supplied initially or after prior battery voltage stoppage in response to a connection of said second and third terminals.

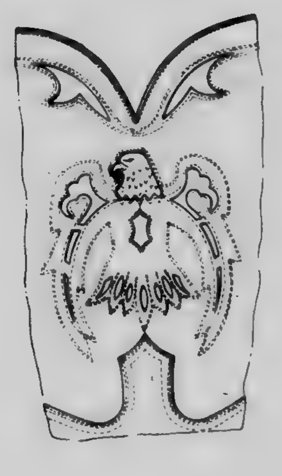
DESIGNS

APRIL 19, 1983

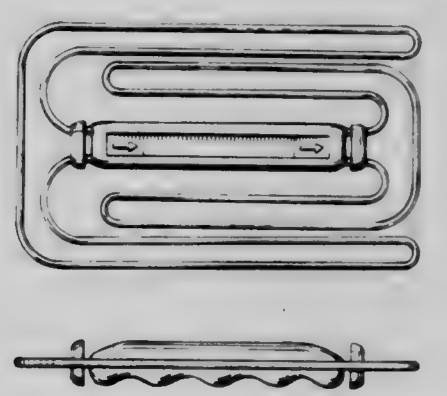
268,624
VETERINARIAN VEST
Gary B. Taylor, 1404 Hereford Hwy., Canyon, Tex. 79015
Filed Feb. 24, 1981, Ser. No. 237,748
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—190



268,625
COWBOY BOOT
Harry Vise, Nashville, Tenn., assignor to Texas Boot Company, Cincinnati, Ohio
Filed Feb. 19, 1981, Ser. No. 235,890
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—273



268,626
COMBINED SKI AND BOOT CARRIER
Joseph A. Spollino, 1453 N. Cleveland Ave., Orange, Calif. 92667, and Ronald A. Spollino, 4255 S. Tamarus St. #109, Las Vegas, Nev. 89109
Filed Nov. 3, 1980, Ser. No. 203,262
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D3—36

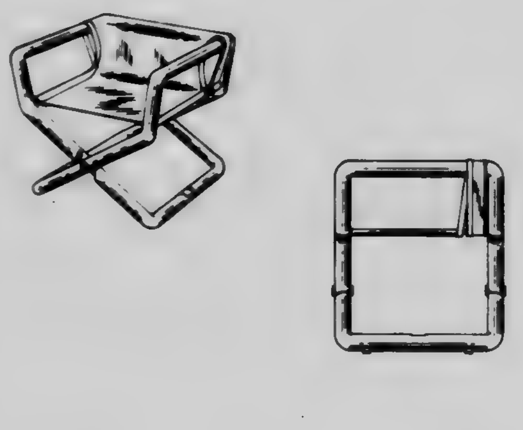


268,627
LUGGAGE
Ted Stark, Jersey City, N.J., assignor to M & M Luggage Co., Inc., Jersey City, N.J.
Filed Feb. 4, 1981, Ser. No. 231,424
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—71

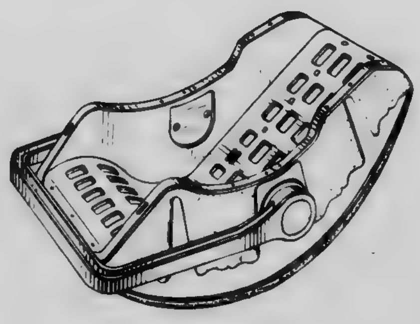
268,628
LUGGAGE
Ted Stark, Jersey City, N.J., assignor to M & M Luggage Co., Inc., Jersey City, N.J.
Filed Feb. 17, 1981, Ser. No. 235,002
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—71

268,629
LUGGAGE
Ted Stark, Jersey City, N.J., assignor to M & M Luggage Co., Inc., Jersey City, N.J.
Filed Apr. 6, 1981, Ser. No. 251,094
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—71

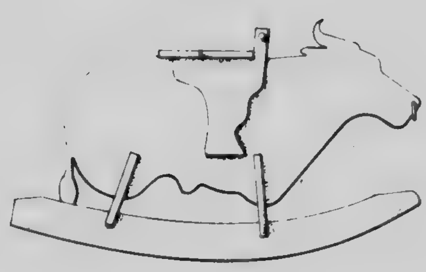
268,630
PORTABLE BOOSTER SEAT
Michael C. Wilson, Glen Ellyn, Ill., assignor to The Tyke Corporation, Chicago, Ill.
Filed Mar. 12, 1981, Ser. No. 243,242
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—9



268,631
ROCKABLE INFANT SEAT
Edward M. Johnson, Jr., Matteson, Ill., assignor to Kolcraft Products, Inc., Chicago, Ill.
Filed Feb. 26, 1981, Ser. No. 238,457
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—10

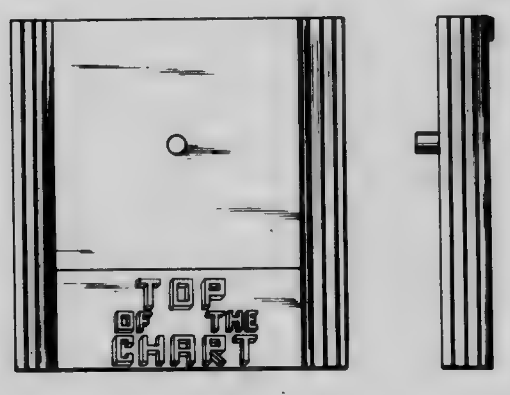


268,632
CHILD'S ROCKING CHAIR OR SIMILAR ARTICLE
Robert E. Gentry, 7504 Deer Tract Dr., Raleigh, N.C. 27612
Filed Jan. 22, 1981, Ser. No. 227,516
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—11

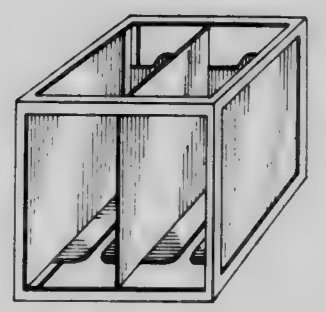


268,633
ROCKING CHAIR
Thomas P. Sauls, P.O. Box 1138, and Douglas M. Lane, P.O. Box 657, both of Dunnellon, Fla. 32630
Division of Ser. No. 13,032, Feb. 21, 1979. This application Dec. 22, 1980, Ser. No. 219,236
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—49

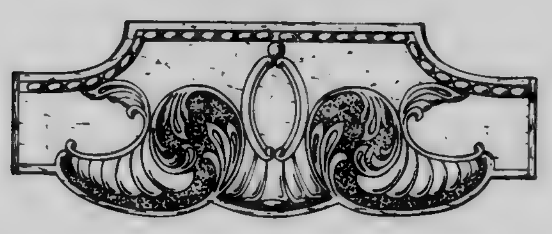
268,634
MOUNTABLE RECORD DISPLAY DEVICE
Dennis J. Fontana, 18 Davison Pl., Rockville Centre, N.Y. 11570
Filed Oct. 2, 1980, Ser. No. 192,985
Term of patent 14 years
Int. Cl. D6—*06*; D11—*02*
U.S. Cl. D6—114



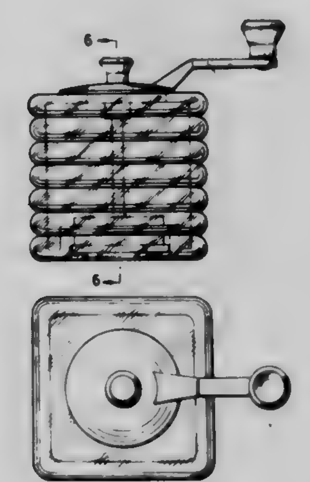
268,635
DISPOSABLE DIAPER RACK
Mary A. Redwine, P.O. Box 17399, Euclid, Ohio
Filed Aug. 25, 1980, Ser. No. 180,954
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—130



268,636
CHAIR PANEL
James W. Hull, Huntington Beach, Calif., assignor to H. W. Hull & Sons, Inc., Gardena, Calif.
Division of Ser. No. 166,377, Jul. 7, 1980. This application Jan. 29, 1982, Ser. No. 343,965
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—193

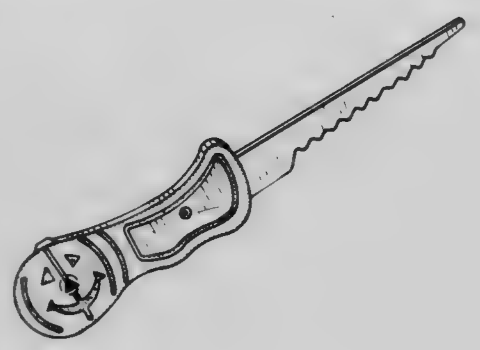


268,637
CONDIMENT MILL
David A. Cowan, London, England, assignor to Cole & Mason, USA, Ltd., Great Neck, N.Y.
Filed Jul. 30, 1980, Ser. No. 173,845
Claims priority, application United Kingdom, Jan. 31, 1980, 993381
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—53

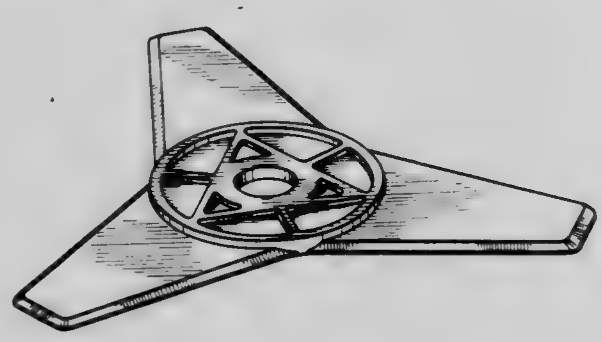


268,638
NUTMEG GRATER
William E. Bounds, 3737 W. 240th St., Torrance, Calif. 90505
Filed Oct. 27, 1980, Ser. No. 200,938
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—53

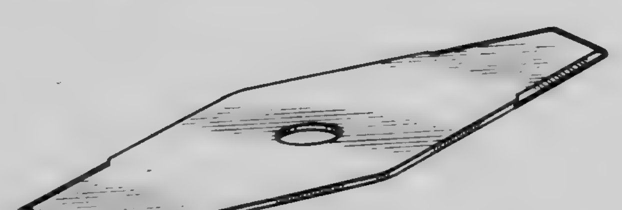
268,639
PUMPKIN CARVING KNIFE
Donald R. Johannsen, 26110 Michigan Ave., Inkster, Mich. 48141
Filed Aug. 3, 1981, Ser. No. 289,535
Term of patent 14 years
Int. Cl. D07—*03*
U.S. Cl. D7—143



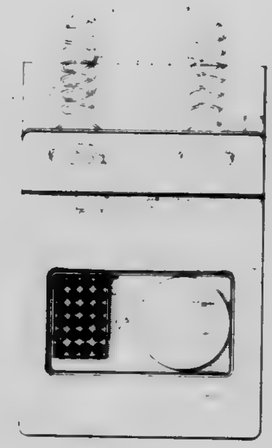
268,640
TRIM BLADE FOR LAWNS AND THE LIKE
Anthony G. Bonforte, P.O. Box 1844, Rancho Santa Fe, Calif. 92069
Filed Aug. 14, 1980, Ser. No. 178,023
Term of patent 14 years
Int. Cl. D8—*03*; D15—*03*
U.S. Cl. D8—08



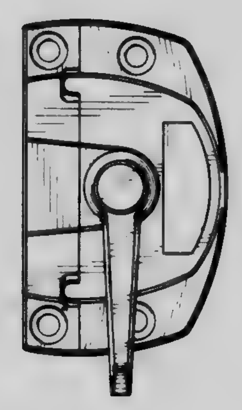
268,641
TRIM BLADE FOR LAWNS AND THE LIKE
Anthony G. Bonforte, P.O. Box 1844, Rancho Santa Fe, Calif. 92069
Filed Aug. 14, 1980, Ser. No. 178,376
Term of patent 14 years
Int. Cl. D8—*03*; D15—*03*
U.S. Cl. D8—08



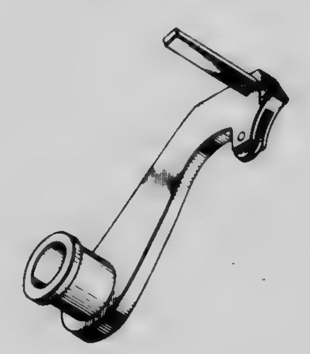
268,642
COMBINED POWER SUPPLY, TOOL HOLDER AND SUPPORT THEREFOR
Jean C. Fielder, Silver Spring, Md., assignor to Pace Incorporated, Laurel, Md.
Filed May 5, 1980, Ser. No. 146,287
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—71



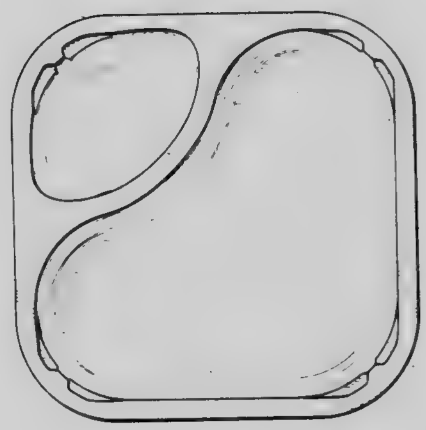
268,643
COMBINED CHECK RAIL LOCK AND KEEPER
Donald L. Anderson, Owatonna, Minn., assignor to Truth Incorporated, Owatonna, Minn.
Filed Dec. 29, 1981, Ser. No. 220,297
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—337



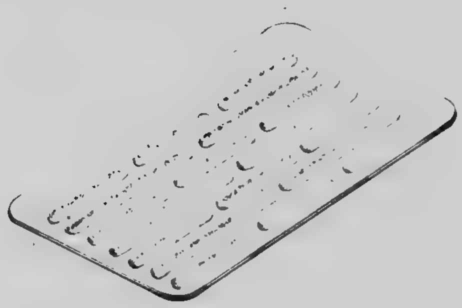
268,644
COMBINATION LOCK FENCE LEVER WITH ECCENTRIC ROLLER NOSE
Harry C. Miller, Nicholasville, Ky., assignor to Sargent & Greenleaf, Inc., Nicholasville, Ky.
Filed Nov. 5, 1980, Ser. No. 204,258
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—343



268,645
PACKAGING CONTAINER FOR FOOD
Wyatt L. Phillips, and Ronald D. Schooler, both of Tulsa, Okla., assignors to QuikTrip Corporation, Tulsa, Okla.
Filed Dec. 15, 1980, Ser. No. 216,086
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—341



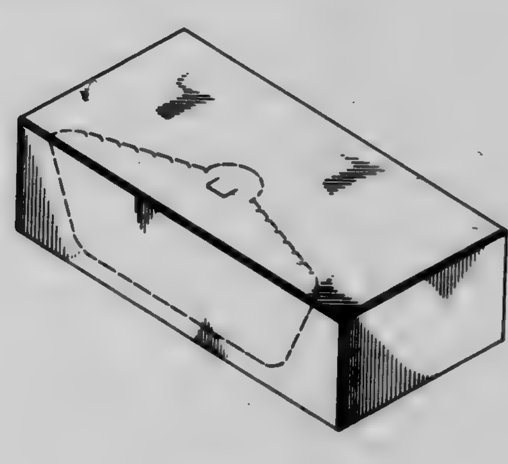
268,646
PACKAGING TRAY OR THE LIKE
Isaac J. Hudson, Jr., Bayboro, Pamlico County, N.C. 28515
Filed Nov. 17, 1980, Ser. No. 207,365
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—347



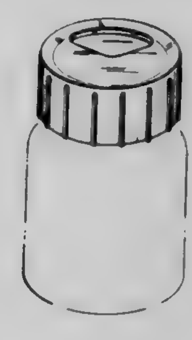
268,647
COSMETIC CONTAINER
Ted I. Kingsford, Memphis, Tenn., assignor to Plough, Inc., Memphis, Tenn.
Filed Feb. 5, 1981, Ser. No. 231,700
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—389

268,648
PACKAGING CONTAINER
Sven O. S. Stark, Rydsgård, Sweden, assignor to Tetra Pak International AB, Lund, Sweden
Filed Apr. 11, 1979, Ser. No. 28,995
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—416

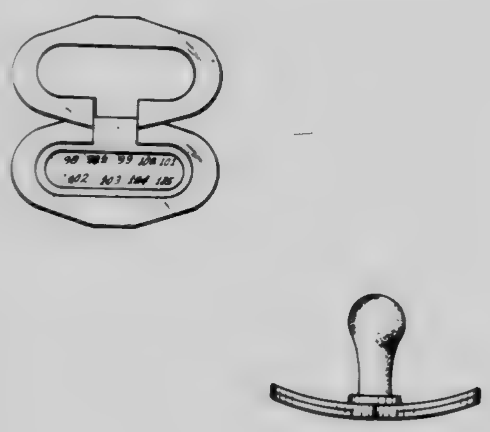
268,649
PACKAGING CONTAINER
Gerhard Adamson, West Milford, and Walter F. Rousseau, Glen Rock, both of N.J., assignors to Union Carbide Corporation, Danbury, Conn.
Filed Aug. 20, 1980, Ser. No. 179,814
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—416



268,650
DISPENSER CAP
Dale J. Kirstine, San Juan Capistrano, Calif., assignor to Kirstine/Hendricks, Irvine, Calif.
Filed Feb. 27, 1981, Ser. No. 238,698
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—450



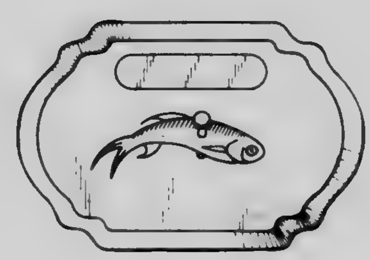
268,651
INFANT THERMOMETER
Barbara Doyle, 8585 Burton Way, Suite 310, Los Angeles, Calif. 90048
Filed Dec. 9, 1980, Ser. No. 214,503
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—57



268,652
MEDAL
Emile Rousseau, Paris, France, assignor to Helior S.A., Geneva, Switzerland
Filed Nov. 21, 1980, Ser. No. 209,117
Claims priority, application Hague, May 23, 1980, DM/000 202
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D11—102

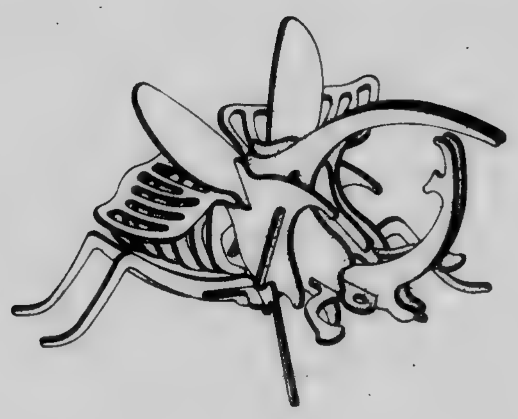
268,653
ORNAMENT
George C. Sun, 530 Rhode Island Ave., Cherry Hill, N.J. 08002
Filed Nov. 14, 1980, Ser. No. 206,571
Term of patent 14 years
Int. Cl. D11—*05*
U.S. Cl. D11—121

268,654
PLAQUE WITH MINNOW
Charles H. Allgood, II, 3886 Healy Rd., Memphis, Tenn. 38111
Filed Oct. 20, 1980, Ser. No. 198,823
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—134



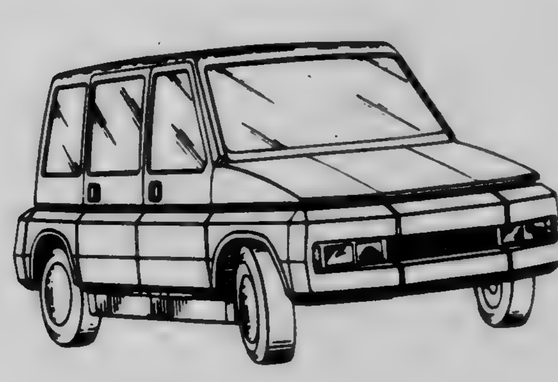
268,655
STAG-BEETLE FIGURE
Tatsuya Kodaka, 25-6 Wakamiya 1-chome, Nakano-ku, Tokyo, Japan
Filed Jun. 9, 1981, Ser. No. 271,841
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—162

268,656
BEETLE FIGURE
Tatsuya Kodaka, 25-6 Wakamiya 1-chome, Nakano-ku, Tokyo, Japan
Filed Jun. 9, 1981, Ser. No. 271,842
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—162

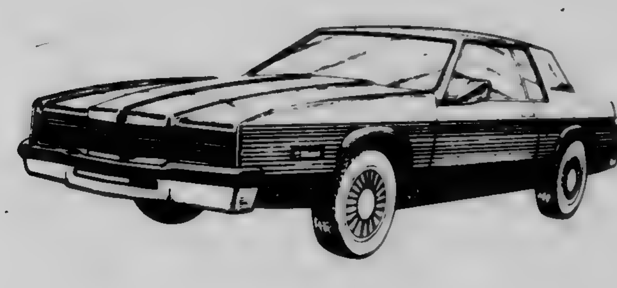


268,657
BUTTERFLY FIGURE
Tatsuya Kodaka, 25-6, Wakamiya 1-chome, Nakano-ku, Tokyo, Japan
Filed Jun. 5, 1981, Ser. No. 270,976
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—162

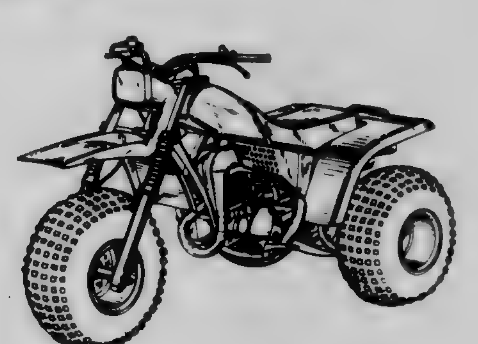
268,658
AUTOMOBILE
Morley L. Smith, Jr., Beaconsfield, Canada, assignor to Guillon, Smith, Marquart & Associes Ltee, Montreal, Canada
Continuation-in-part of Ser. No. 38,869, May 14, 1979, Pat. No. Des. 260,627. This application May 26, 1981, Ser. No. 267,401
Claims priority, application Canada, May 2, 1979, 02-05-79-1
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—91



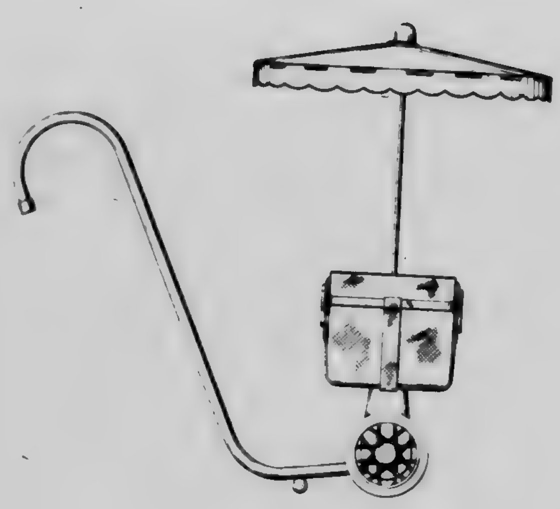
268,659
AUTOMOBILE
Merlin F. Reaume, New York, N.Y., assignor to Standard Motors, Inc., New York, N.Y.
Filed Oct. 27, 1980, Ser. No. 200,849
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—92



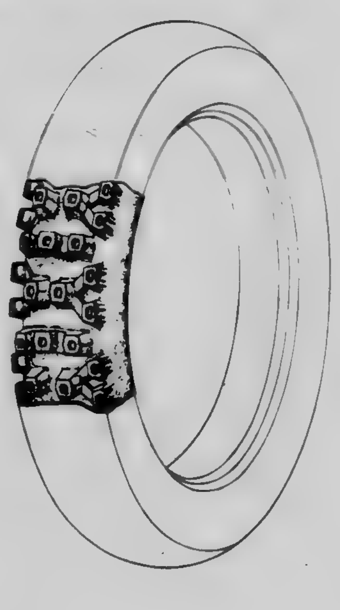
268,660
MOTORTRICYCLE
Yasuhiro Ohba, Kamifukuoka, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 23, 1980, Ser. No. 171,402
Claims priority, application Japan, Jan. 24, 1980, 55-1841
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—110



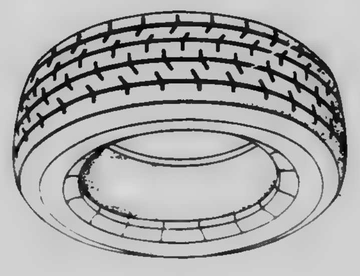
268,661
STROLLER
Philip D. Bart, 9864 NW. 13th Ct., Coral Springs, Fla. 33065
Filed Sep. 22, 1980, Ser. No. 189,642
Term of patent 14 years
Int. Cl. D12—*12*
U.S. Cl. D12—129



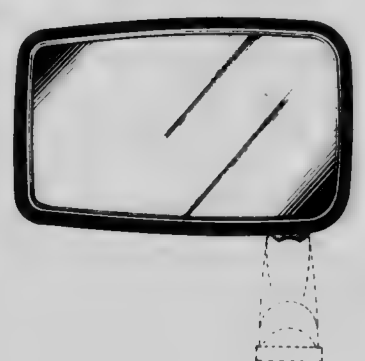
268,662
TIRE FOR A VEHICLE WHEEL
Hisashi Shirashoji, Kobe, Japan, assignor to Dunlop Limited, London, England
Filed Jul. 9, 1980, Ser. No. 167,001
Claims priority, application Japan, Jan. 19, 1980, 55-001121
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—140



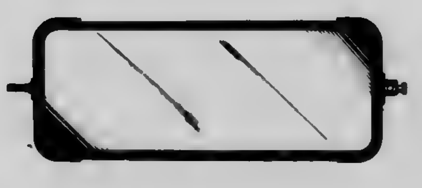
268,663
TIRE FOR A VEHICLE WHEEL
Brian S. Bennett, Barton-Under-Needwood, England, assignor to Dunlop Limited, London, England
Filed Sep. 10, 1980, Ser. No. 185,958
Claims priority, application United Kingdom, Mar. 22, 1980, 994168
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—145



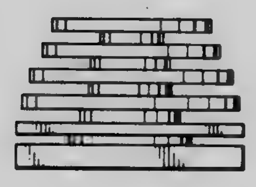
268,664
MOTORIZED REAR VIEW MIRROR
Bernard C. Sharp, White Plains, N.Y., assignor to Parker-Hannifin Corporation, Shelton, Conn.
Filed Dec. 22, 1980, Ser. No. 218,960
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—187



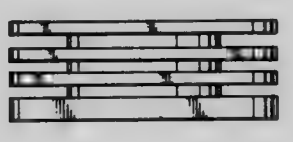
268,665
MOTORIZED TRUCK MIRROR
Bernard C. Sharp, White Plains, N.Y., assignor to Parker-Hannifin Corporation, Shelton, Conn.
Filed Dec. 22, 1980, Ser. No. 218,961
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—187



268,666
HEAT SINK OR SIMILAR ARTICLE
Marvin F. Moore, Carrollton, Tex., assignor to Thermalloy Incorporated, Dallas, Tex.
Filed May 18, 1981, Ser. No. 264,935
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—23

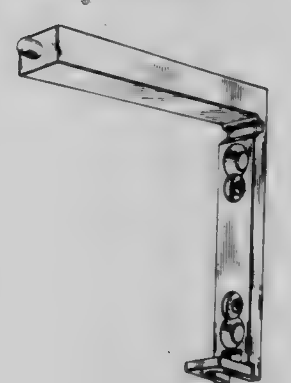


268,667
HEAT SINK OR SIMILAR ARTICLE
William D. Jordan, Dallas, and Marvin F. Moore, Carrollton, both of Tex., assignors to Thermalloy Incorporated, Dallas, Tex.
Filed May 28, 1981, Ser. No. 264,936
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—23

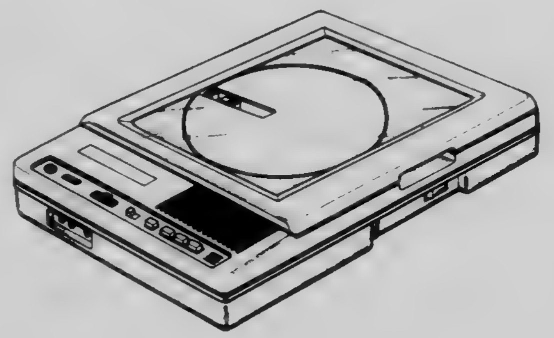


268,668
CONTROL PANEL FOR ELEVATOR SYSTEMS
Ernest M. Bevilaqua, Wilton; Allan L. McCroskery, Weston, both of Conn., and Theodore N. Knerr, New York, N.Y., assignors to Otis Elevator Company, Farmington, Conn.
Filed Feb. 2, 1981, Ser. No. 230,841
Term of patent 14 years
Int. Cl. D13—*03*; D10—*06*
U.S. Cl. D13—35

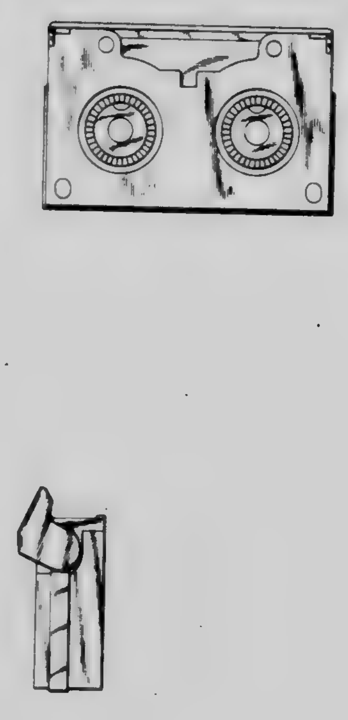
268,669
COMBINED SWITCH HOUSING AND INTEGRAL MOUNTING BRACKET
Thomas J. Holce, Portland, and Charles M. Huckins, Tigard, both of Oreg., assignors to Sentrol, Inc., Portland, Oreg.
Filed Aug. 12, 1980, Ser. No. 177,521
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—38



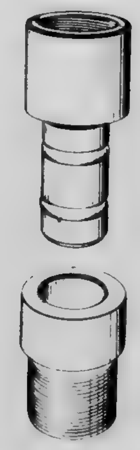
268,670
AUDIO-VISUAL SHEET PLAYER
Masao Iwaoka; Yousuke Igeta, and Fumio Kobayashi, all of Tokyo, Japan, assignors to Gakken Co., Ltd. (Kabushiki Kaisha Gakushu Kenkyusha), Tokyo, Japan
Filed Oct. 6, 1980, Ser. No. 193,893
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—1



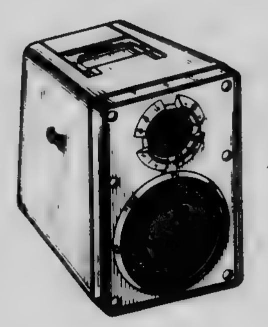
268,671
VIDEO TAPE CASSETTE
Toshio Ohya, Tokyo, and Masaharu Kobayashi, Ohmiya, both of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Nov. 10, 1980, Ser. No. 205,640
Claims priority, application Japan, Jun. 23, 1980, 55-25018
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—11



268,672
ADAPTER MOUNT FOR MICROPHONES AND THE LIKE
Mathew A. McPherson, 5817 Olinger Rd., Edina, Minn. 55436
Filed Jul. 3, 1980, Ser. No. 165,685
Term of patent 14 years
Int. Cl. D14—*99*
U.S. Cl. D14—13

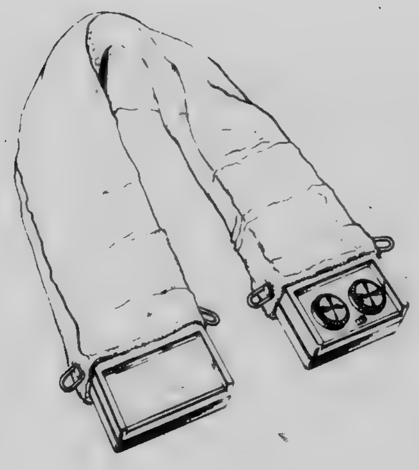


268,673
LOUDSPEAKER
Takekazu Iijima, Tokyo, Japan, assignor to Pioneer Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 2, 1980, Ser. No. 212,130
Claims priority, application Japan, Jun. 2, 1980, 55-21912
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—34

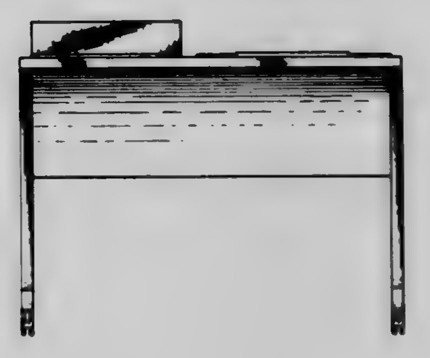


268,674
DECORATIVE SHELL COVER FOR TELEPHONES
John S. Jordan, Roswell, Ga., assignor to Jordan Concepts, Inc., Roswell, Ga.
Filed Jul. 17, 1980, Ser. No. 169,908
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—60

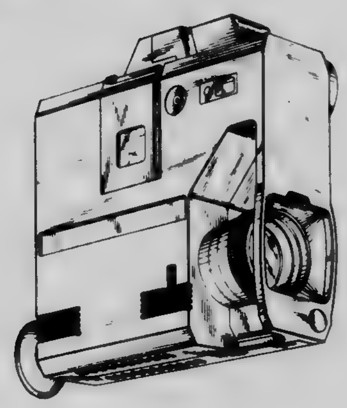
268,675
RADIO RECEIVER
William J. Hass, 3707 Russett La., Northbrook, Ill. 60062
Filed Nov. 3, 1980, Ser. No. 203,342
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—68



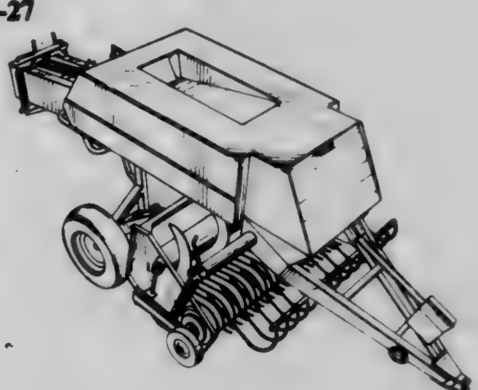
268,677
ELECTRONIC COMPUTER
Yoshihisa Ohie; Akira Esaki; Masaji Sawada, and Tsutomu Yamasaki, all of Osaka, Japan, assignors to Sharp Corporation, Osaka, Japan
Filed Jul. 8, 1980, Ser. No. 166,896
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—103



268,676
VIDEO CAMERA WITH VIDEO TAPE RECORDER
Toshio Ohya, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Nov. 10, 1980, Ser. No. 205,307
Claims priority, application Japan, Jun. 12, 1980, 55-023426
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—78

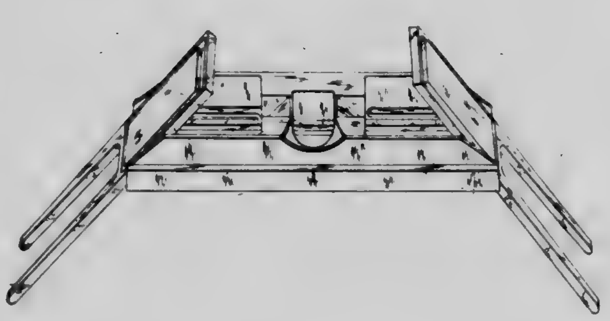


268,678
BALER
Edward L. Swenson, Hesston; Allen K. Roth, Whitewater; Larry B. Jones, Anthony, and Richard J. Robbins, Derby, all of Kans., assignors to Hesston Corporation, Hesston, Kans.
Filed Oct. 14, 1980, Ser. No. 196,354
Term of patent 14 years
Int. Cl. D15—*03*
U.S. Cl. D15—27

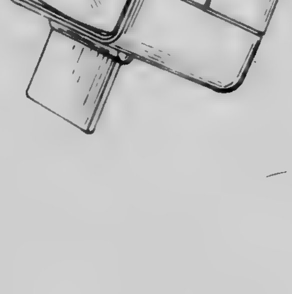


268,679
HOUSING FOR A PORTABLE BAG CLOSING SEWING MACHINE
David B. Johnson, and Verdell H. Schroeder, both of Minneapolis, Minn., assignors to Bliss & Laughlin Industries Incorporated, Minneapolis, Minn.
Filed Feb. 11, 1980, Ser. No. 120,549
Term of patent 14 years
Int. Cl. D15—*06*
U.S. Cl. D15—76

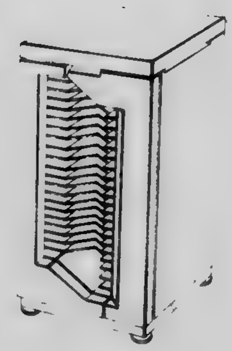
268,680
MIRROR STEREOSCOPE
Francesco Smargiassi, 21 Greenshields St., Albany, Western Australia, Australia
Filed Jun. 20, 1980, Ser. No. 161,283
Term of patent 14 years
Int. Cl. D16—*99*
U.S. Cl. D16—12



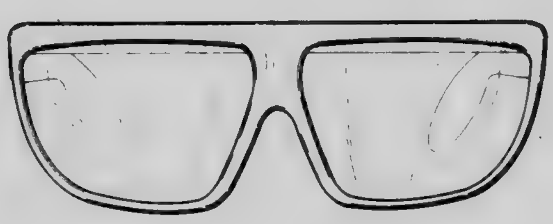
268,681
SLIDE VIEWER
Rudolph Hanke, Monheim, Fed. Rep. of Germany, assignor to Hama Hamaphot KG, Monheim, Fed. Rep. of Germany
Filed Nov. 13, 1980, Ser. No. 206,432
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—17



268,682
SORTER FOR ELECTROSTATIC COPIER
Kenichi Nakade, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan
Filed Sep. 11, 1980, Ser. No. 186,275
Claims priority, application Japan, Mar. 11, 1980, 55-9351
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—32

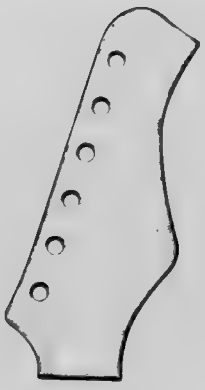


268,683
PAIR OF SAFETY SPECTACLES
Dale E. Tenny, Vernon, Conn., assignor to American Optical Corporation, Southbridge, Mass.
Filed Aug. 28, 1980, Ser. No. 182,278
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D16—102

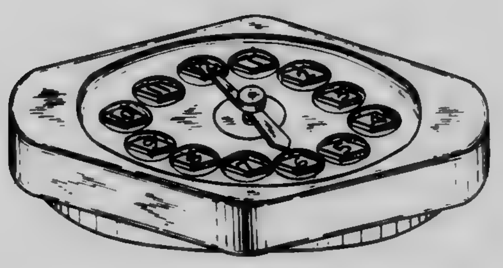


268,684
PAIR OF SPECTACLES
David P. Chuboff, North Barrington; Francis J. Greb, Palatine, and Tom Takeuchi, Mount Prospect, all of Ill., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.
Filed Dec. 29, 1980, Ser. No. 221,079
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D16—102

268,685
GUITAR HEAD
Makoto Seshimoto, Hamamatsu, Japan, assignor to Tokai Gakki Company, Ltd., Hamamatsu, Japan
Filed Jun. 30, 1980, Ser. No. 164,679
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D17—20

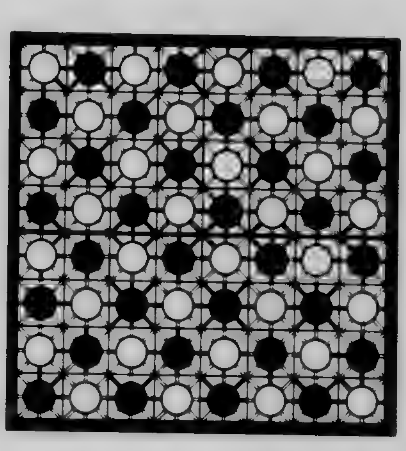


268,686
CHILDREN'S CLOCK
Dieter Wolf, Hattersheim, Fed. Rep. of Germany, assignor to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany
Filed Sep. 22, 1980, Ser. No. 189,544
Term of patent 14 years
Int. Cl. D19—*07*
U.S. Cl. D19—64

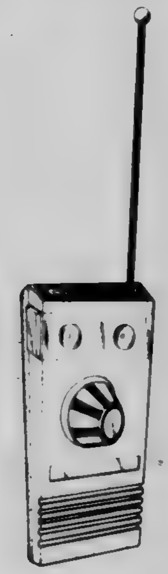


268,687
STIRRUP FOR SUSPENDING BOOKS, PAPERS AND THE LIKE ON THE FACE OF AN INCLINED DRAWING BOARD
James C. Rogers, 144 Main St., Lakeville, Mass. 02346
Filed Feb. 23, 1981, Ser. No. 236,827
Term of patent 14 years
Int. Cl. D19—*99*
U.S. Cl. D19—91

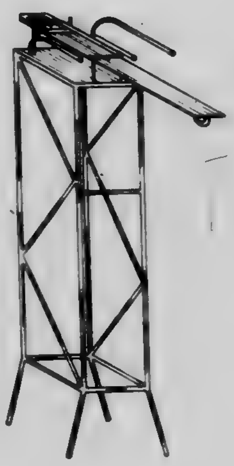
268,688
GAME BOARD OR SIMILAR ARTICLE
Robert L. Johnson, 3655 Pruneridge #261, Santa Clara, Calif. 95051
Filed Apr. 24, 1981, Ser. No. 257,326
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—34



268,689
REMOTE CONTROL UNIT FOR ELECTRONIC GAME
Roy M. Nishi, San Jose, Calif., assignor to Atari, Inc., Sunnyvale, Calif.
Filed Jan. 8, 1981, Ser. No. 223,651
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—48



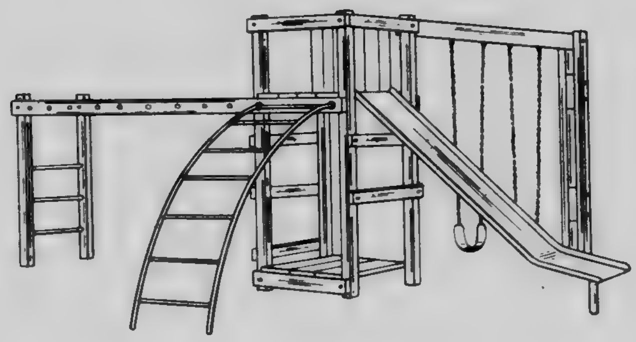
268,690
TOY DIVING BOARD
William G. Bennett, P.O. Box 393, Slidell, La. 70458
Filed Jun. 3, 1980, Ser. No. 156,053
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—109



268,691
GOLF CLUB
Christopher K. Collins, 61 Hilton St., Manchester, M1 2EJ, England
Filed Nov. 3, 1980, Ser. No. 203,755
Claims priority, application United Kingdom, May 3, 1980, 994766
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—217

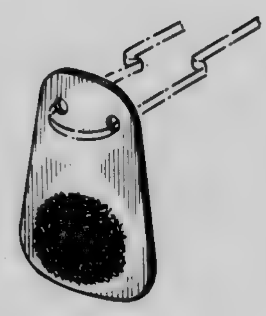
268,692
STUFFED DRAGON-LIKE ANIMAL
Barbara A. D. Thorndike, Meredith, N.H., assignor to Annalee Mobilitee Dolls, Inc., Meredith, N.H.
Filed Sep. 29, 1980, Ser. No. 192,046
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—148

268,693
OUTDOOR RECREATIONAL DEVICE
Michael L. Works, 7814 N. Blvd., Tampa, Fla. 33604
Filed May 30, 1980, Ser. No. 154,766
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—244

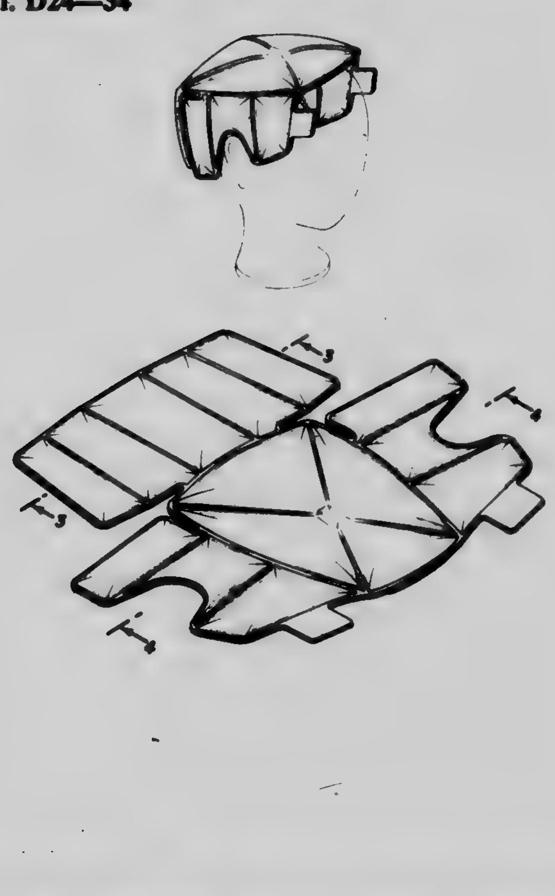


268,694
KNIFE
Lasse Liukko, Lahti, and Pentti Maunu, Rovaniemi, both of Finland, assignors to J. Marttiinin Puukkotehdas Oy, Rovaniemi, Finland
Filed Apr. 10, 1979, Ser. No. 28,711
Claims priority, application Finland, Oct. 11, 1978, 63078
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D22—1

268,695
DEER SCENT DISPENSER
John W. Kolf, Rolling Meadows, Ill., assignor to K. G. M. Corporation, Palatine, Ill.
Filed Nov. 24, 1980, Ser. No. 209,382
Term of patent 14 years
Int. Cl. D22—*99*
U.S. Cl. D22—99



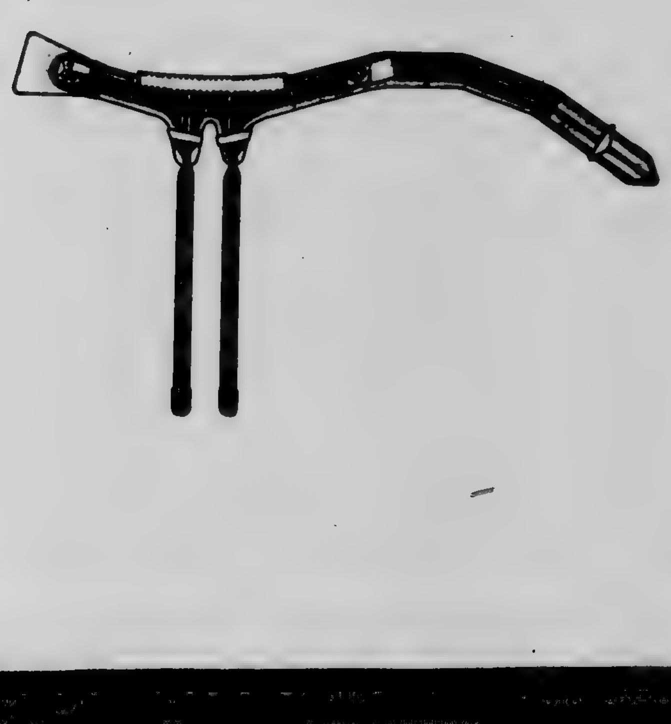
268,696
SCALP HYPOTHERMIA CAP
Mark Bowen, 919 Chantilly Rd., Los Angeles, Calif. 90024
Filed Aug. 18, 1980, Ser. No. 179,034
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—34



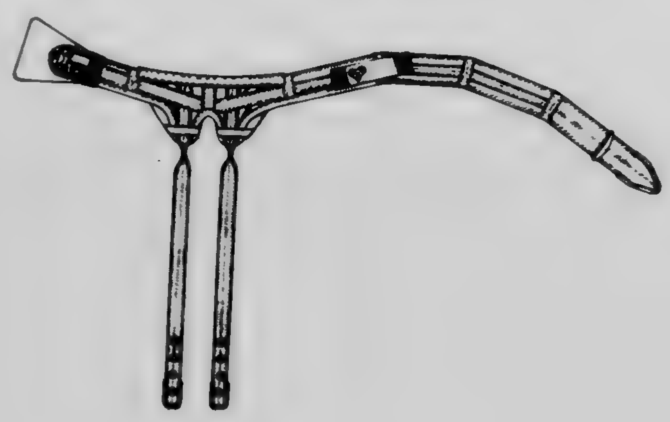
268,697
GUM-CLEANING IMPLEMENT
Michelene F. Bukowski, Los Angeles, Calif., assignor to Mark F. Bukowski, Salt Lake City, Utah
Filed Sep. 2, 1980, Ser. No. 183,412
Term of patent 14 years
Int. Cl. D28—*02*
U.S. Cl. D24—36

268,698
IV SPIKE AND DROP FORMER HOUSING
Wallace L. Knute, San Diego, Calif., assignor to Ivac Corporation, San Diego, Calif.
Filed Nov. 7, 1980, Ser. No. 204,774
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—52

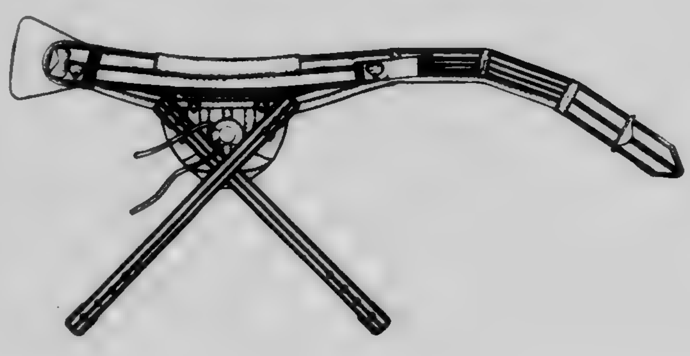
268,699
HERNIAL BELT
Pierre M. Sailhen, Lyons, France, assignor to Ormihl, Lyons, France
Filed Aug. 18, 1980, Ser. No. 179,363
Term of patent 14 years
Int. Cl. D24—*04, 99*
U.S. Cl. D24—64



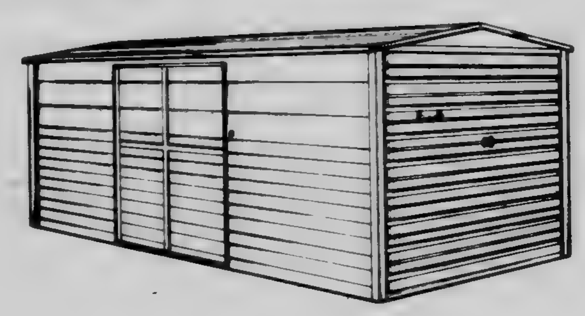
268,700
HERNIAL BELT
Pierre M. Sailhen, Lyons, France, assignor to Ormihl, Lyons, France
Filed Aug. 18, 1980, Ser. No. 179,362
Term of patent 14 years
Int. Cl. D24—*04, 99*
U.S. Cl. D24—64



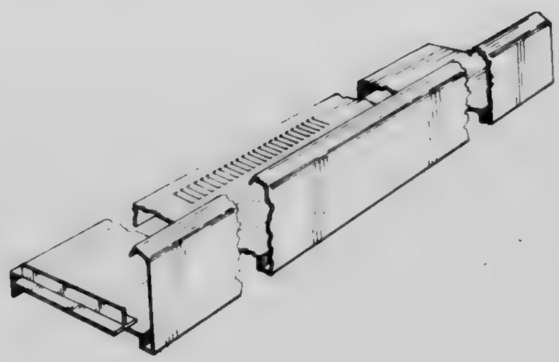
268,701
HERNIAL BELT
Pierre M. Sailhen, Lyons, France, assignor to Ormihl, Lyons, France
Filed Aug. 18, 1980, Ser. No. 179,364
Term of patent 14 years
Int. Cl. D24—*04, 99*
U.S. Cl. D24—64



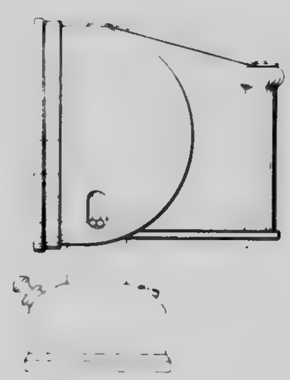
268,702
PORTABLE GARAGE
Harry L. Todd, 11233 Tierrasanta Blvd., San Diego, Calif. 92124
Filed Aug. 11, 1980, Ser. No. 176,845
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—22



268,703
COMBINED SOFFIT AND FASCIA PANEL
Robert Lloyd-Jones, Redcliffe, Australia, assignor to Salkhad Pty. Ltd., Brisbane, Australia
Filed Nov. 25, 1980, Ser. No. 210,264
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D25—55



268,704
REFLECTOR
Harry E. James, Jr., 75 Forbes Rd., Bedford, Ohio 44146
Filed Jul. 23, 1980, Ser. No. 171,313
Term of patent 14 years
Int. Cl. D26—*05, 02*
U.S. Cl. D26—118



268,705
COMBINED AQUARIUM AND COVER
Jessie R. Clayton, P.O. Box 782, Mabank, Tex. 75147
Filed Oct. 6, 1980, Ser. No. 193,969
Term of patent 14 years
Int. Cl. D30—*2*
U.S. Cl. D30—6

268,706

SHOE SOLE CLEANING MACHINE

Max Muller, 10920 W. 100 Terr., Overland Park, Kans. 66214, and James F. Corn, 5032 Clark Dr., Roeland Park, Kans. 66205

Filed Nov. 24, 1980, Ser. No. 209,871

Term of patent 14 years

Int. Cl. D15—*05*

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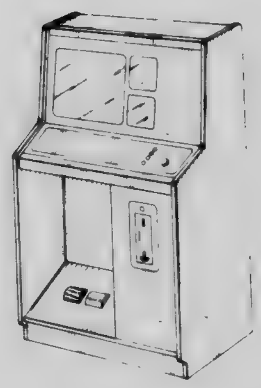

268,707

FILTER FOR AUTOMATIC WASHER AGITATOR OR SIMILAR ARTICLE

William Ohmann, and Edward E. Wiessner, both of St. Joseph, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Jul. 1, 1980, Ser. No. 165,133

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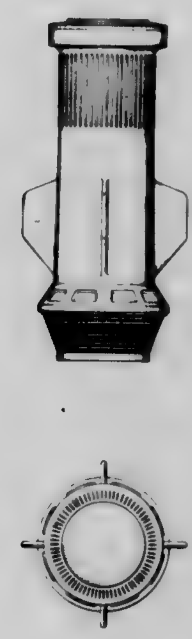

268,708

WALL COVERING

Florence J. Marganne, Paris, France, assignor to Peinture Corona S.A., Valenciennes, France

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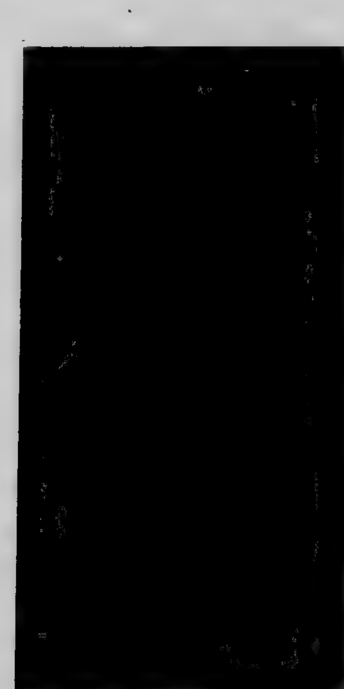

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Boden, Richard M., to International Flavors & Fragrances Inc. Branched ketones, organoleptic uses thereof and process for preparing same. 4,380,674, Cl. 568-417.000.
Bodimer, Theodore B.; David, Joseph S.; and Calder, Alexander W., to Joy Manufacturing Company. Conveyor. 4,380,288, Cl. 198-820.000.
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Oltendorf, Norman E., 4,380,722, Cl. 318-696.000.
Boeing Company, The: *See—*
Soderberg, Mark S.; Hametner, Albert L.; Leppink, Herman F.; and Strand, David E., 4,380,295, Cl. 209-558.000.
Boggs, David R., to Xerox Corporation. Digital phase decoder with collision detection. 4,380,761, Cl. 340-825.500.
Boguslaski, Robert C.; Carrico, Robert J.; and Christner, James E., to Miles Laboratories, Inc. Heterogenous chemiluminescent specific binding assay. 4,380,580, Cl. 435-7.000.
Bonasch, James H.; and Bouchard, William J., Jr., to Leesona Corporation. Weft guidance tube for looms. 4,380,254, Cl. 139-435.000.
Bonelli, Robert T.: *See—*
Romeo, Arthur L.; Bonelli, Robert T.; and Fishman, Harvey E., 4,380,716, Cl. 315-8.000.
Bosne, Jacques G. P. E., to Hamon-Sobelco, S.A. Ice preventing apparatus and method for gas and liquid contact means of an atmospheric cooling tower. 4,380,517, Cl. 261-142.000.
Bott, Kaspar, to BASF Aktiengesellschaft. Preparation of caffeine. 4,380,631, Cl. 544-275.000.
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Bonasch, James H.; and Bouchard, William J., Jr., 4,380,254, Cl. 139-435.000.
Boudin, Daniel: *See—*
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Bouman, Anton J.; and Geertsema, Eise B., to U.S. Philips Corporation. High-pressure discharge lamp. 4,380,714, Cl. 313-549.000.
Bournonville, Jean-Paul; Snappe, Roger; Miquel, Jean; and Martino, Germain, to Institut Francais Du Petrole. Catalyst and process for manufacturing a ketone by dehydrogenation of a secondary alcohol. 4,380,673, Cl. 568-361.000.
Bous, Karl, to Hacoba Textilmaschinen GmbH & Co. KG. Device for space-dyeing textile filaments. 4,380,158, Cl. 68-205.00R.
Bouteille, Rene: *See—*
Georlette, Pierre; and Bouteille, Rene, 4,380,522, Cl. 264-175.000.
Braley, Charles A. Overflow control system. 4,380,243, Cl. 137-312.000.
Brandewie, Joseph E.; and Hart, Granville S., to AMP Incorporated. Electrical harness fabricating apparatus. 4,380,117, Cl. 29-742.000.
Branson International Plasma Corporation: *See—*
Reichelderfer, Richard F.; Vogel, Diane C.; and Tang, Marian C., 4,380,488, Cl. 156-643.000.
Brasseries Kronenbourg: *See—*
Bauer, Gilbert; and Maurer, Michel, 4,380,176, Cl. 73-863.860.
Bray, John, to Staeng Ltd. Couplers for latching type plugs. 4,380,349, Cl. 285-417.000.
Bream, William A. Kinetic waveform device. 4,380,562, Cl. 428-8.000.
Bredow, Walter; and Otto, Gerhard, to C. Behrens AG. Arrangement for replaceably holding a stripper of a tool holder of the tool, and a replacing tool for replacing the stripper. 4,380,182, Cl. 83-140.000.
Bresie, Don A.; Fowler, Donald W.; and Burns, Jack M., to Texas Gas Transport Company. Method and system for distributing natural gas. 4,380,242, Cl. 137-113.000.
Bridges, Robert D.: *See—*
Moreno, Carlos M.; Bridges, Robert D.; and Uzee, Andre J., 4,380,521, Cl. 264-49.000.
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Crenshaw, Ronnie R.; and Algieri, Aldo A., 4,380,638, Cl. 548-135.000.
Crenshaw, Ronnie R.; and Algieri, Aldo A., 4,380,639, Cl. 548-135.000.
Gottstein, William J., 4,380,512, Cl. 260-245.20R.
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Horsewell, Henry G., 4,380,241, Cl. 131-336.000.
British Petroleum Company Limited, The: *See—*
Barclay, John L.; and Gane, Brian R., 4,380,681, Cl. 568-902.000.
Broad, David, to Fisons Limited. Container closure. 4,380,302, Cl. 220-235.000.
Broggi, Renato: *See—*
Falciani, Marco; and Broggi, Renato, 4,380,630, Cl. 544-30.000.
Brookhyser, Byron B.; Lictenwalter, Robert H.; McGee, Arthur L.; and Pierson, Darrell E., to Coe Manufacturing Company, The. Veneer lathe apparatus and method using independently adjustable powered back-up roll. 4,380,259, Cl. 144-357.000.
Brothers, Woodrow W. Accessory for using steel wool or other abrading materials. 4,380,092, Cl. 15-209.00C.
Broton, Robert M., to Motorola, Inc. Transmit-receive switching circuit for radio frequency circulators. 4,380,822, Cl. 455-80.000.
Brown, John D.: *See—*
MacLean, John P.; Cantwell, J. Edward; Brown, John D.; and Hoy, Harold D., 4,380,105, Cl. 29-157.00R.
Bruce, William C., Jr.: *See—*
Shannon, Paul D.; and Bruce, William C., Jr., 4,380,798, Cl. 364-200.000.
Brucker, Rainer: *See—*
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Brugger, Richard D.: *See—*
Sulkoski, Jerome; and Brugger, Richard D., 4,380,759, Cl. 340-407.000.
Brunner, Hans-Georg; and Fory, Werner, to Ciba-Geigy Corporation. Novel benzthiazolylurea derivatives, compositions containing them and their use as herbicides. 4,380,640, Cl. 548-163.000.
Bryhn, Odd R.: *See—*
Loken, Tor; and Bryhn, Odd R., 4,380,408, Cl. 405-263.000.
Buchel, Karl H.: *See—*
Kraatz, Udo; Jager, Gerhard; Buchel, Karl H.; and Frohberger, Paul-Ernst, 4,380,545, Cl. 424-269.000.
Buckeye Molding Company: *See—*
Allen, David O.; and Wombold, Harry A. E., 4,380,303, Cl. 220-276.000.
Budai, Zsuzsanna: *See—*
Szejtli, Jozsef; Budai, Zsuzsanna; Tetenyi nee Erdosi, Magda; and Pap nee Imrenyi, Gabriella, 4,380,626, Cl. 536-103.000.
Buhrer, Richard, to Schweizerische Eidgenossenschaft, represented by Eidg. Munitionsfabrik Thun der Gruppe fur Rustungsdienste. Method and apparatus for fabricating pipeless explosive and propellant charges. 4,380,186, Cl. 86-20.00D.
Bula, Roger M.: *See—*
Galloup, Clifford L.; Bula, Roger M.; Klemm, Robert W.; and Westerburg, Ralph E., Jr., 4,380,111, Cl. 29-564.400.
Bull, Hans; Ewich, Gerhard; Kuschke, Gunther; Maykemper, Alfred; and Welzel, Josef, to Hermann Hemscheidt Maschinenfabrik GmbH & Co. Mine-roof support. 4,380,410, Cl. 405-299.000.
Bullock, John W.; and Miranda, Lawrence T. Proximity switch. 4,380,721, Cl. 315-362.000.
Bunch, Earnest B., Jr., to B. Bunch Company, Inc. Paper stop adjustment mechanism for continuous form stationery folding machine. 4,380,448, Cl. 493-410.000.
Bunyan, Thomas W., to Pilgrim Engineering Developments Limited. Stud manipulating device. 4,380,181, Cl. 81-57.380.
Burgess, Basil A. Dispersion mixer. 4,380,398, Cl. 366-261.000.
Burkner, Wolfgant; and Ebert, Franz-Josef, to Carl Schenck A.G. Apparatus for aligning chips during the manufacture of chipboards. 4,380,285, Cl. 198-533.000.
Burns, Jack M.: *See—*
Bresie, Don A.; Fowler, Donald W.; and Burns, Jack M., 4,380,242, Cl. 137-113.000.
Burrage, Robert G.; and Joby, Michael J., to Lucas Industries Limited. Device for adjusting gas turbine engine fuel control system in accordance with engine parameter. 4,380,148, Cl. 60-39.281.
Burroughs Corporation: *See—*
Tuan, Hsing T., 4,380,803, Cl. 365-183.000.

Buser, Rudolph G.; Rohde, Robert S.; and Nomiyama, Neal T., to United States of America, Army. Short pulse CO_2 laser for ranging and target identification. 4,380,391, Cl. 356-5.000.
Butler, David V.: *See—*
Orlowski, Jan A.; and Butler, David V., 4,380,432, Cl. 433-9.000.
Butts, Orville R., to Roper Corporation. Multiprocessor control bus. 4,380,698, Cl. 219-492.000.
C. Behrens AG: *See—*
Bredow, Walter; and Otto, Gerhard, 4,380,182, Cl. 83-140.000.
Caillot, Luc, to Synthelabo. Control device for an artificial respirator. 4,380,233, Cl. 128-204.210.
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Callihan, Clayton D., to Louisiana State University. Novel desiccant. 4,380,458, Cl. 55-33.000.
Campagne, Jean-Claude; Chollet, Jean; and Redien, Pierre, to Rhone Poulenc Industries. Sucroglyceride on a support. 4,380,555, Cl. 426-549.000.
Campbell, John A. L.; Moynihan, Daniel J.; Roper, William D.; and Willis, Earl C., to Peabody Coal Company. Dust control system and method of operation. 4,380,353, Cl. 299-12.000.
Canada, Emily J., to Eli Lilly and Company. Insecticidal oxazolyl ureas. 4,380,641, Cl. 548-233.000.
Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defence: *See—*
Bell, Malcolm E., 4,380,735, Cl. 324-244.000.
Canadian Patents & Development Limited: *See—*
Hill, Eugene E.; Scrimshaw, Marvin S.; and Showalter, Edward W., 4,380,808, Cl. 367-153.000.
Cancio, Leopoldo V.; and Wu, Pai-Chuan, to Clopay Corporation. Cross-tearable decorative sheet material. 4,380,564, Cl. 428-167.000.
Cane Harvest Inc.: *See—*
Duncan, Richard A., 4,380,281, Cl. 198-304.000.
Canniff, Ronald J., to Bell Telephone Laboratories, Incorporated. Loopback test. 4,380,810, Cl. 370-15.000.
Canon Kabushiki Kaisha: *See—*
Sado, Ichiro; and Ozawa, Toshiaki, 4,380,726, Cl. 320-48.000.
Sato, Yasuhisa; and Tsuji, Sadahiko, 4,380,377, Cl. 350-427.000.
Suda, Shigeyuki; and Tanaka, Kazuo, 4,380,376, Cl. 350-427.000.
Takahashi, Yuji, 4,380,309, Cl. 222-450.000.
Takatori, Yasushi, 4,380,771, Cl. 346-140.00R.
Tamura, Tetsuo, 4,380,378, Cl. 350-429.000.
Tateoka, Masamichi; and Minoura, Kazuo, 4,380,390, Cl. 355-71.000.
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Capasso, Gaetano. Polyfunction programmable data receiver. 4,380,762, Cl. 340-825.630.
Capuano, Terry D., to Lamson & Sessions Co., The. Fastener. 4,380,414, Cl. 411-187.000.
Carl Freudenberg, Firma: *See—*
Amsel, Friedrich-Wilhelm, 4,380,442, Cl. 464-93.000.
Carl Schenck A.G.: *See—*
Burkner, Wolfgant; and Ebert, Franz-Josef, 4,380,285, Cl. 198-533.000.
Carlson, John C. Pump jack assembly for wells. 4,380,150, Cl. 60-372.000.
Carlson, Richard H.; and Gatcomb, Gerald L., to Du Pont de Nemours, E. I., and Company. Process for embossing polymeric substrates by using a composite structure of an aromatic polyamide fabric coated with a fluorosilicone rubber. 4,380,519, Cl. 264-26.000.
Carlson, Roy C., Jr.; and March, Edward J., to Western Electric Company, Inc. Technique for elevating the temperature of a fluid. 4,380,431, Cl. 432-29.000.
Carrico, Robert J.: *See—*
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Carrier Corporation: *See—*
Wright, William E., 4,380,263, Cl. 165-76.000.
Carter, Ned C.; and Cramer, Jerry W., to Sunkist Growers, Inc. Apparatus for printing indicia on objects. 4,380,194, Cl. 101-35.000.
Carter, Roy A.: *See—*
Lee, Fred C.; and Carter, Roy A., 4,380,795, Cl. 363-131.000.
Casale, Thomas M.; Schmitz, Frederick J., Jr.; and Pauperas, Victor, to Dayco Corporation. Butterfly valve and method of making same. 4,380,246, Cl. 137-375.000.
Caterpillar Mitsubishi Ltd.: *See—*
Ito, Takeshi; Ishizuka, Shuzo; Goto, Keiichi; and Saito, Keiki, 4,380,284, Cl. 198-494.000.
Caudill, Stanley D.; and Goode, Frederick R., to FMC Corporation. Hose control system. 4,380,244, Cl. 137-355.160.
Celanese Corporation: *See—*
Kliger, Howard S., 4,380,483, Cl. 156-169.000.
Chacour, Selim A.; and Degnan, John R., to Allis-Chalmers Corporation. Bearing support. 4,380,401, Cl. 384-438.000.
Champion International Corporation: *See—*
Bigelow, Stanley K., 4,380,289, Cl. 206-216.000.
Krankkala, Paul L., 4,380,565, Cl. 428-182.000.
Chandler, Lavern E.: *See—*
Hoffman, Robert P.; and Chandler, Lavern E., 4,380,359, Cl. 339-17.00F.
Chang, Clarence D.; and Lang, William H., to Mobil Oil Corporation. Process for synthesizing aniline. 4,380,669, Cl. 564-402.000.
Chaudhry, Jagdish C.; and Chaudhry, Lorena F., to Wichinsky, Michael. Pinball game apparatus. 4,380,335, Cl. 273-121.00A.
Chaudhry, Lorena F.: *See—*
Chaudhry, Jagdish C.; and Chaudhry, Lorena F., 4,380,335, Cl. 273-121.00A.
Check Mate Systems, Inc.: *See—*
Keifer, Terry A., 4,380,097, Cl. 24-160.000.
Chemische Werke Huls AG: *See—*
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Chermin, Hubertus M. J.: *See—*
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Chevron Research Company: *See—*
Loken, Tor; and Bryhn, Odd R., 4,380,408, Cl. 405-263.000.
Chiba, Kazumasa; Kobayashi, Kazuhiko; and Muraki, Toshio, to Toray Industries, Inc. Process for producing aliphatic copolyesteramide, an aliphatic copolyesteramide and tubing molded therefrom. 4,380,622, Cl. 528-288.000.
Chinoin Gyogyszer es Vegyeszeti Termekek Gyara R.T.: *See—*
Szejtli, Jozsef; Budai, Zsuzsanna; Tetenyi nee Erdosi, Magda; and Pap nee Imrenyi, Gabriella, 4,380,626, Cl. 536-103.000.
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Chong, Berni P., to Rohm and Haas Company. Emulsion copolymer cation exchange resins. 4,380,590, Cl. 521-33.000.
Christenson, Christopher P.: *See—*
Vance, Fred L., Jr.; Guerra, Rafael E.; and Christenson, Christopher P., 4,380,616, Cl. 526-101.000.
Christenson, Roger M.: *See—*
Welsh, David A.; Dowbenko, Rostyslaw; Das, Suryya K.; Kania, Charles M.; and Christenson, Roger M., 4,380,601, Cl. 524-555.000.
Christiani, Peter. Self-chilling dispenser for drinking fluids. 4,380,157, Cl. 62-315.000.
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Boguslaski, Robert C.; Carrico, Robert J.; and Christner, James E., 4,380,580, Cl. 435-7.000.
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Chugai Boyeki Co., Ltd.: *See—*
Masuda, Shuji; and Ueno, Keisuke, 4,380,568, Cl. 428-276.000.
Church, Larry L.: *See—*
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Ciba-Geigy AG: *See—*
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Ciba-Geigy Corporation: *See—*
Brunner, Hans-Georg; and Fory, Werner, 4,380,640, Cl. 548-163.000.
Huebner, Charles F.; and Gschwend, Heinz W., 4,380,653, Cl. 549-366.000.
Rasberger, Michael; and Evans, Samuel, 4,380,515, Cl. 260-936.000.
Rasberger, Michael, 4,380,676, Cl. 568-730.000.
Stingelin, Willy; and Loew, Peter, 4,380,627, Cl. 542-423.000.
Cioca, Gheorghe; and Fertell, Paul A., to Seton Company. Polyisocyanate reaction products. 4,380,474, Cl. 106-155.000.
Claiborne, J. Lyle, to Dixie Yarns, Inc. Extraneous dye or colorant scavenging system in laundry. 4,380,453, Cl. 8-606.000.
Clamp-All Corp.: *See—*
Swartz, Frederick R., 4,380,348, Cl. 285-236.000.
Clarion Co., Ltd.: *See—*
Sato, Tadashi, 4,380,809, Cl. 369-6.000.
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Claudin, Paul: *See—*
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Clendening, Steven J., to Rockwell International Corporation. Simplified NRZ data phase detector with expanded measuring interval. 4,380,815, Cl. 375-80.000.
Clopay Corporation: *See—*
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Coad, Brian C., to GTE Products Corporation. Foils of brittle alloys. 4,380,479, Cl. 148-11.50P.
Coates, Clarence A., Jr.; and Weaver, Max A., to Eastman Kodak Company. Methine dyes from tetrahydroquinoline compounds containing N-thioether substituents. 4,380,633, Cl. 544-316.000.
Coca-Cola Company, The: *See—*
Bachmann, G. Merle; Davis, Charles L.; and Morgan, Annis R., Jr., 4,380,130, Cl. 40-584.000.
Barrash, Marshall J., 4,380,129, Cl. 40-307.000.
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Brookhyser, Byron B.; Lictenwalter, Robert H.; McGee, Arthur L.; and Pierson, Darrell E., 4,380,259, Cl. 144-357.000.
Cohen, Paul B.; Young, William R.; and Edwards, W. Dale, to Harris Corporation. TTL to CMOS Interface circuit. 4,380,710, Cl. 307-475.000.
Coleman, James P.; Hallcher, Richard C.; and McMackins, Dudley E., to Monsanto Company. Lactone process. 4,380,650, Cl. 549-326.000.
Coleman, Ronald K.: *See—*
Dickson, J. Douglas; Sweeney, J. David; and Coleman, Ronald K., 4,380,446, Cl. 493-11.000.

Colucci, Bartholomew A.; and Comte, Pierre, to Institute Straunann. Disposable applicator for mini-laparotomy using a clip method. 4,380,238, Cl. 128-346.000.
Combustion Engineering, Inc.: *See*—
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Compagnie Internationale pour l'Informatique CII-Honeywell Bull (Societe Anonyme): *See*—
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Computer Microfilm International Corporation: *See*—
Smith, David L.; and O'Brien, Gerald E., 4,380,776, Cl. 358-102.000.
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Colucci, Bartholomew A.; and Comte, Pierre, 4,380,238, Cl. 128-346.000.
Conner, William V., to United States of America, Energy. Ductile transplutonium metal alloys. 4,380,470, Cl. 75-122.700.
Connors, Stephen A., to Data Translation, Inc. Data acquisition apparatus. 4,380,764, Cl. 340-870.370.
Conoco Inc.: *See*—
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Waters, Kenneth H.; Hopkins, John R.; and Payton, Charles E., 4,380,806, Cl. 367-27.000.
Consolidated Papers, Inc.: *See*—
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Consortium fur Elektrochemische Industrie GmbH: *See*—
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Container Technologies, Inc.: *See*—
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Cook Paint and Varnish Company: *See*—
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Franken, Adrianus J. J.; Coolen, Franciscus M.; Khoe, Giok D.; Langerhorst, Jacob; and Smulders, Henricus W. W., 4,380,366, Cl. 350-96.210.
Cooney, James J. Apparatus and method for cleaning paint roller covers. 4,380,478, Cl. 134-38.000.
Cooper Industries, Inc.: *See*—
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Coran, Aubert Y.; and Patel, Raman, to Monsanto Company. Acrylic copolymer rubber/polyvinylchloride. 4,380,606, Cl. 525-196.000.
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Craig, Gale M., to General Motors Corporation. Actuator for a concealable headlamp assembly. 4,380,789, Cl. 362-65.000.
Craig, Robert J. G., to Incosym, Inc. Universal joint flexure hinge suspension system, and method for manufacturing this system. 4,380,108, Cl. 29-434.000.
Cramer, Jerry W.: *See*—
Carter, Ned C.; and Cramer, Jerry W., 4,380,194, Cl. 101-35.000.
Cramer, Kathleen J. Parenteral needle receptacle. 4,380,292, Cl. 206-366.000.
Crawford, Daniel A.; and Levijoki, Wayne A., to General Motors Corporation. Vacuum pressure selection and generation device. 4,380,418, Cl. 417-87.000.
Crawford, John S.; and Wainman, Roy, to Hospital For Sick Children, The. Intubation of lacrimal ducts. 4,380,239, Cl. 604-28.000.
Crenshaw, Ronnie R.; and Algieri, Aldo A., to Bristol-Myers Company. Chemical compounds. 4,380,638, Cl. 548-135.000.
Crenshaw, Ronnie R.; and Algieri, Aldo A., to Bristol-Myers Company. Substituted 1,2,5-thiadiazole derivatives. 4,380,639, Cl. 548-135.000.
Crisp, Richard D., to Motorola, Inc. Transistor-transistor logic input buffer circuit with power supply/temperature effects compensation circuit. 4,380,707, Cl. 307-443.000.
Crisp, Terrence S., to Klippan S.A. Safety belt buckle. 4,380,100, Cl. 24-230.0AL.
Crombie, Robert A. Testing apparatus for a dual pressure indicator and control unit for pasteurization equipment. 4,380,166, Cl. 73-4.00R.
Crowley, Leslie B. Sustained ignition secondary combustion unit. 4,380,228, Cl. 126-76.000.
Crutcher Resources Corporation: *See*—
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Culbertson, Samuel W.; McCulloch, Charles W.; and Williams, Keith G., to Binks Manufacturing Company. Color change valve structure for rotary head electrostatic spray coating systems. 4,380,321, Cl. 239-700.000.
Cunningham, Vernon R., to Rockwell International Corporation. Linearization circuit. 4,380,711, Cl. 307-491.000.
Curry, Byron V. Variable pressure, constant flow drip emitter system and head. 4,380,318, Cl. 239-533.130.
Curtinot, Jean C.; Delestre, Xavier; and Fouillet, Jean, to Thomson-CSF. Tunable ultra-high frequency filter with variable capacitance tuning devices. 4,380,747, Cl. 333-202.000.
Cutter, James W., to Machlett Laboratories, Incorporated, The. Compact X-ray collimator. 4,380,820, Cl. 378-153.000.
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Smith, Hoyt L.; Frederick, Cecil S., deceased; and Frederick, Wallace, administrator, 4,380,330, Cl. 270-31.000.
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Damrau, Wayne A.: *See*—
Arndt, William A.; Damrau, Wayne A.; and Gunderson, Donald J., 4,380,396, Cl. 356-432.000.
Danby, Hal C., to Anatros Corporation. Metered drop dispensers. 4,380,235, Cl. 604-251.000.
D'Aniello, Michael J., Jr., to General Motors Corporation. Method of making layered catalysts. 4,380,510, Cl. 252-466.0PT.
Darling Store Fixtures: *See*—
Harig, Robert G., 4,380,110, Cl. 29-525.000.
Harig, Robert G., 4,380,298, Cl. 211-189.000.
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Stillinger, Scott H., 4,380,307, Cl. 222-142.900.
Das, Suryya K.: *See*—
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Ziegler, Michael L., II; Druke, Michael B.; Van Roekel, John R.; and Baxter, Ward, II, 4,380,812, Cl. 371-38.000.
Data Translation, Inc.: *See*—
Connors, Stephen A., 4,380,764, Cl. 340-870.370.
Dataproducts Corporation: *See*—
Palombo, Gaston; and Fortescue, Stephen M., 4,380,768, Cl. 346-74.500.
Dauby, Jacques F.: *See*—
Hanotier, Jacques D. V.; and Dauby, Jacques F., 4,380,662, Cl. 562-486.000.
David, Joseph S.: *See*—
Bodimer, Theodore B.; David, Joseph S.; and Calder, Alexander W., 4,380,288, Cl. 198-820.000.
Davis, Charles L.: *See*—
Bachmann, G. Merle; Davis, Charles L.; and Morgan, Annis R., Jr., 4,380,130, Cl. 40-584.000.
Davis, Dwight M., to Stone Container Corporation. Snubbing device for blank conveyor apparatus. 4,380,332, Cl. 271-224.000.
Davis, Leland E.; Dahle, David P.; Schneiter, Fred E.; and Kirchoff, George F., to Thiokol Corporation. Method of and apparatus for speeding the response of an air bag inflator at low temperatures. 4,380,346, Cl. 280-736.000.
Dayco Corporation: *See*—
Casale, Thomas M.; Schmitz, Frederick J., Jr.; and Pauperas, Victor, 4,380,246, Cl. 137-375.000.
De Bijl, Adrianus M. J.; and Chermin, Hubertus M. J., to U.S. Philips Corporation. Electronic device for the starting and a.c. voltage operation of a gas and/or vapor discharge lamp. 4,380,719, Cl. 315-101.000.
de Bruijn, Hans, to Aggregates Equipment, Inc. Cable suspended conveyor. 4,380,282, Cl. 198-318.000.
Deere & Company: *See*—
Behlmer, Wilbur D.; and Kass, John J., 4,380,249, Cl. 137-596.200.
Degnan, John R.: *See*—
Chacour, Selim A.; and Degnan, John R., 4,380,401, Cl. 384-438.000.
Dekker, Lambert: *See*—
Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., 4,380,658, Cl. 549-525.000.
Delestre, Xavier: *See*—
Curtinot, Jean C.; Delestre, Xavier; and Fouillet, Jean, 4,380,747, Cl. 333-202.000.
Delfino, Jean-Jacques; and Prevot, Maurice, to Vallourec. Method of making one-piece tubular axle blanks and the produced axle blanks. 4,380,480, Cl. 148-12.400.
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Swensrud, Roger L.; Pavlik, Dennis; and DeLuca, John J., 4,380,362, Cl. 339-112.00L.
Demeyer, Pierre; and Claudin, Paul, to Gerin, Merlin. Solid state trip unit for an electrical circuit breaker. 4,380,785, Cl. 361-96.000.
Den Herder, Marvin J.: *See*—
Kammann, Karl P., Jr.; Den Herder, Marvin J.; and Wagner, Terrence L., 4,380,498, Cl. 252-48.600.
Kammann, Karl P., Jr.; and Den Herder, Marvin J., 4,380,499, Cl. 252-48.600.
Dental Keramik Sande GmbH: *See*—
Kipp, Manfred, 4,380,436, Cl. 433-182.000.
Desserre, Jacques; Helle, Michel; and Lazzari, Jean-Pierre, to Compagnie Internationale pour l'Informatique CII-Honeywell Bull (Societe Anonyme). Magnetic transducer for reading and/or recording of data contained on a magnetic carrier. 4,380,784, Cl. 360-126.000.
Desyllas, Peter L.; Radley, Barry G.; Rawsthorne, Alasdair; Eaton, John R.; and Murray, John E., to International Computers Ltd. Two level store with many-to-one mapping scheme. 4,380,797, Cl. 364-200.000.
Detroit Radiant Products Company: *See*—
Rozzi, Mario, 4,380,428, Cl. 431-88.000.
Dewey, George G., to Illinois Tool Works Inc. Load-distributive washer for use with compressible material. 4,380,413, Cl. 411-161.000.

Diamond Shamrock Corporation: *See*—
Leitert, Frederick C.; and Vinson, Carl G., Jr., 4,380,682, Cl. 570-219.000.
Dick, Heinz; and Lux, Hans, to Ford Motor Company. Attachment device for components mounted in recesses in vehicle bodywork. 4,380,099, Cl. 24-211.00P.
Dickson, J. Douglas; Sweeney, J. David; and Coleman, Ronald K., to Rexham Corporation. Side sealing mechanism for a packaging machine. 4,380,446, Cl. 493-11.000.
Didier Engineerin GmbH: *See*—
Habermehl, Diethard; Rohde, Wolfgang; Kucharzyk, Werner; and Siebert, Werner, 4,380,125, Cl. 34-10.000.
Diffrient, Niels, to Knoll International, Inc. Reclining chair. 4,380,352, Cl. 297-61.000.
Digital Equipment Corporation: *See*—
Leis, Michael D.; and Rose, Robert C., 4,380,723, Cl. 318-314.000.
DiMatteo, Rocco J. Golf ball position marking device. 4,380,337, Cl. 273-162.00D.
Dineen, John J.: *See*—
Folsom, Lawrence R.; Dineen, John J.; Vitale, Nicholas G.; and Balas, Charles B., Jr., 4,380,152, Cl. 60-520.000.
Dion, Exsior. Bank construction. 4,380,201, Cl. 109-17.000.
Dixie Yarns, Inc.: *See*—
Claiborne, J. Lyle, 4,380,453, Cl. 8-606.000.
Dlugolecki, Jacek: *See*—
Frontczak, Stanislaw, 4,380,551, Cl. 426-28.000.
Dmitriev, Nikolai A.: *See*—
Mazurin, Igor M.; Netupsky, Mikhail L.; Shevtsov, Alexandr V.; Gladky, Viktor T.; Dmitriev, Nikolai A.; Lyapin, Andrei G.; Polyakov, Alexandr V.; Myshev, Mikhail A.; and Panov, Vladimir V., 4,380,532, Cl. 423-469.000.
Dobfar S.p.A.: *See*—
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Higashiyama, Naotoshi; and Doi, Kazuyuki, 4,380,823, Cl. 455-143.000.
Dolhyj, Serge R.; and Velenyi, Louis J., to Standard Oil Company, The. Hydroalkylation of benzene and analogs. 4,380,683, Cl. 585-268.000.
Dolza, John. Variable ratio belt drive. 4,380,444, Cl. 474-21.000.
Donan, David C., Jr., to Waiamea Company, Inc. Dual thrust anchor shell assembly. 4,380,407, Cl. 405-259.000.
Donguy, Rene: *See*—
Graftieaux, Jean; and Donguy, Rene, 4,380,527, Cl. 376-245.000.
Doren, Mark N., to Markson Manufacturing Company. Hot dog broiler and method for making same. 4,380,192, Cl. 99-441.000.
Dorn, Franz, to Hoffmann-La Roche Inc. 1,3-Dioxolane compounds and their use as fungicides. 4,380,544, Cl. 424-263.000.
Dotzer, Richard; and Plundrich, Winfried, to Siemens Aktiengesellschaft. Process for the chemical plotting of boundary layer flows, and chemigraphy materials for the practice thereof. 4,380,170, Cl. 73-147.000.
Douglas, Fred O., to W. C. Bradley Co. Safety guard for valve. 4,380,247, Cl. 137-382.000.
Dow Chemical Company, The: *See*—
Dunbar, Joseph E., 4,380,649, Cl. 549-285.000.
Fowler, Allan E.; White, Gordon E.; and Sims, Steve A., 4,380,684, Cl. 585-328.000.
Monroe, Roger F., 4,380,537, Cl. 424-200.000.
Moreno, Carlos M.; Bridges, Robert D.; and Uzee, Andre J., 4,380,521, Cl. 264-49.000.
Murchison, Craig B.; and Murdick, Dewey A., 4,380,589, Cl. 518-714.000.
Renga, James M.; and Wang, Pen-Chung, 4,380,636, Cl. 546-326.000.
Shipley, Randall S.; and Birkelbach, Donald F., 4,380,508, Cl. 252-431.00C.
Smith, Harry A., 4,380,455, Cl. 44-56.000.
Vance, Fred L., Jr.; Guerra, Rafael E.; and Christenson, Christopher P., 4,380,616, Cl. 526-101.000.
Dowbenko, Rostyslaw: *See*—
Welsh, David A.; Dowbenko, Rostyslaw; Das, Suryya K.; Kania, Charles M.; and Christenson, Roger M., 4,380,601, Cl. 524-555.000.
Doyle, James J. Whistle attachment for a snorkel, and snorkel-whistle unit. 4,380,232, Cl. 128-201.110.
Drilling Development, Inc.: *See*—
Lyons, William C.; and Scurlock, Scot L., 4,380,264, Cl. 166-169.000.
Driver, Donald E.; and Kaufman, John W., to AMP Incorporated. Terminal insertion tool. 4,380,118, Cl. 29-747.000.
Druke, Michael B.: *See*—
Ziegler, Michael L., II; Druke, Michael B.; Van Roekel, John R.; and Baxter, Ward, II, 4,380,812, Cl. 371-38.000.
Duke University, Inc.: *See*—
Jobsis, Frans F.; Keizer, Johannes H.; and Overaker, Ronald F., 4,380,240, Cl. 128-633.000.
Dumas, David H., to Hercules Incorporated. Water-soluble thermosettable resinous compositions containing dicyandiamide-formaldehyde condensates modified with epihalohydrin and process for preparing the same. 4,380,602, Cl. 524-598.000.
Dunbar, Joseph E., to Dow Chemical Company, The. Isophorone derivatives. 4,380,649, Cl. 549-285.000.
Duncan, Richard A., to Cane Harvest Inc. Associated running gear and piler improvements in a two row harvester and piler. 4,380,281, Cl. 198-304.000.
Du Pont de Nemours, E. I., and Company: *See*—
Carlson, Richard H.; and Gatcomb, Gerald L., 4,380,519, Cl. 264-26.000.
Fielding, Max J., 4,380,539, Cl. 424-200.000.
Howell, Gary W., 4,380,257, Cl. 141-1.000.
Khan, Ausat A.; and Morgan, Richard A., 4,380,618, Cl. 526-206.000.
Saltzman, Robert S., 4,380,586, Cl. 436-121.000.
Sandell, Lionel S., 4,380,482, Cl. 149-21.000.
Sauerbrunn, Robert D., 4,380,615, Cl. 526-65.000.
Duracell Inc.: *See*—
Bahary, William S., 4,380,578, Cl. 429-206.000.
Durkee, Doyle D.: *See*—
Greynolds, Fred L.; Whiteside, Robert C.; and Durkee, Doyle D., 4,380,183, Cl. 83-244.000.
Dvonch, William: *See*—
Sarantakis, Dimitrios; and Dvonch, William, 4,380,535, Cl. 424-177.000.
Dwyer Instruments, Inc.: *See*—
Wozniak, David A., 4,380,173, Cl. 73-747.000.
Dynamit Nobel Aktiengesellschaft: *See*—
Fortsch, Johann; Lorry, Cosmas; and Schweiger, Gustav, 4,380,486, Cl. 156-359.000.
Franzmann, Giselher, 4,380,646, Cl. 548-502.000.
Steffen, Klaus-Dieter, 4,380,632, Cl. 544-279.000.
Dyson, David J., to Ferranti Limited. Laser cutting apparatus. 4,380,694, Cl. 219-121.0LG.
E.G.O. Elektro-Gerate Blanc u. Fischer: *See*—
Gossler, Gerhard; and Wilde, Eugen, 4,380,116, Cl. 29-611.000.
E-Systems, Inc.: *See*—
Sanders, David E., 4,380,737, Cl. 330-134.000.
Eastman, George Y., to Thermacore, Inc. Clean coal power system. 4,380,154, Cl. 60-682.000.
Eastman Kodak Company: *See*—
Coates, Clarence A., Jr.; and Weaver, Max A., 4,380,633, Cl. 544-316.000.
Gabrielsen, Rolf S.; Graham, Patricia A.; and Klijanowicz, James E., 4,380,666, Cl. 564-82.000.
Thomas, Harold T.; and Wrobel, Joseph J., 4,380,769, Cl. 346-135.100.
Eaton Corporation: *See*—
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Eaton, Jefferson O., to United States of America, Navy. Safety and arming device/contact fuze. 4,380,197, Cl. 102-228.000.
Eaton, John R.: *See*—
Desyllas, Peter L.; Radley, Barry G.; Rawsthorne, Alasdair; Eaton, John R.; and Murray, John E., 4,380,797, Cl. 364-200.000.
Ebert, Franz-Josef: *See*—
Burkner, Wolfgant; and Ebert, Franz-Josef, 4,380,285, Cl. 198-533.000.
Ecker, Amir L., to Atlantic Richfield Company. Multiple source heat pump. 4,380,156, Cl. 62-235.100.
Eckhardt, Gert, to Licentia Patent-Verwaltungs-G.m.b.H. Traffic broadcasting system. 4,380,821, Cl. 455-33.000.
Edelman, David J. Caulking spout. 4,380,425, Cl. 425-458.000.
Edwards, W. Dale: *See*—
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Shevakin, Jury F.; Shpichinetsky, Efim S.; Fedorenko, Valentina P.; Efremov, Boris N.; Klevchenkova, Maria N.; Andrjuschenko, Ivan A.; Krasnoselsky, Iosif A.; Anikeev, Evgeny F.; Ivanov, Evgeny A.; Khomyachkov, Anatoly P.; Shvarts, Naum A.; Kozhevnikova, Ljudmila V.; Romanova, Roza M.; and Zhivotchenko, Alexandr D., 4,380,528, Cl. 420-505.000.
Eheim, Franz, to Robert Bosch GmbH. Regulating device for a fuel injection pump. 4,380,221, Cl. 123-343.000.
Eichelberger, Charles W.; and Wojnarowski, Robert J., to General Electric Company. One-time electrically-activated switch. 4,380,749, Cl. 338-215.000.
Eisman, Norman L., to Arvin Industries, Inc. Staked reinforced strips. 4,380,301, Cl. 220-73.000.
Elbe, Hans-Ludwig, to Bayer Aktiengesellschaft. Process for the preparation of azolyl-vinyl ketones. 4,380,628, Cl. 542-429.000.
Electricite de France: *See*—
Roger, Gillet; and Henri, Nithart, 4,380,713, Cl. 310-214.000.
Elevator GmbH: *See*—
Kahkipuro, Matti, 4,380,275, Cl. 187-29.00R.
Eli Lilly and Company: *See*—
Canada, Emily J., 4,380,641, Cl. 548-233.000.
Peters, Mary K., 4,380,635, Cl. 546-202.000.
Ellman, Alan G.; and Garito, Jon C. Dental wire dispenser and mounting tool. 4,380,433, Cl. 433-87.000.
Emery Industries, Inc.: *See*—
Fayter, Richard G., Jr., 4,380,656, Cl. 549-473.000.
Endlicher, Frank; and Koch, Rudolf, to Siemens Aktiengesellschaft. Monolithically integrated two-dimensional image sensor with a difference forming stage. 4,380,755, Cl. 382-68.000.
Endres, Bernhard; and Glombitza, Klaus, to J. S. Staedtler K.G. Closure cap for a writing instrument. 4,380,403, Cl. 401-213.000.
Energy Controls, Inc.: *See*—
Longini, Richard L., 4,380,167, Cl. 73-24.000.
Engelsmann, Dieter; Hoffacker, Franz; Kovacic, Guido; Lermann, Peter; Luhrig, Hermann; and Wagner, Karl, to Agfa-Gevaert Aktiengesellschaft. Film cassette for a photosensitive film strip. 4,380,382, Cl. 354-275.000.

England, Michael J.: *See—*
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English Electric Valve Company Limited: *See—*
Pickering, Alan H., 4,380,717, Cl. 315-39.510.
Enskat, Albert G.: *See—*
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Epson Corporation: *See—*
Maruyama, Mitsuaki, 4,380,770, Cl. 346-140.00R.
Epstein, Martin: *See—*
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Erwied, Werner; and Wegemund, Bernd, to Henkel Kommanditgesellschaft auf Aktien. Thermoplastic compositions based on vinyl chloride polymers stabilized with polyhydroxyl compounds. 4,380,597, Cl. 524-109.000.
Evans, Doyle R.; and Tuthill, Richard E., to Texas Instruments Incorporated. System and method for effecting electrical interconnections using a flexible media with radially extending electrical conductors. 4,380,357, Cl. 339-17.0CF.
Evans, Samuel: *See—*
Rasberger, Michael; and Evans, Samuel, 4,380,515, Cl. 260-936.000.
Everett, Dennis; and Jukic, Vjekoslav, to Picker Corporation. Spotfilming apparatus. 4,380,819, Cl. 378-114.000.
Ewich, Gerhard: *See—*
Bull, Hans; Ewich, Gerhard; Kuschke, Gunther; Maykemper, Alfred; and Welzel, Josef, 4,380,410, Cl. 405-299.000.
Extracorporeal Medical Specialties, Inc.: *See—*
Taylor, John A., 4,380,520, Cl. 264-40.300.
Exxon Research and Engineering Co.: *See—*
Gupta, Ramesh, 4,380,529, Cl. 422-220.000.
Kelly, Arnold J., 4,380,786, Cl. 361-228.000.
Fairbairn, LeRoy W.: *See—*
Normann, Richard W.; and Fairbairn, LeRoy W., 4,380,119, Cl. 29-884.000.
Fairchild Camera & Instrument Corp.: *See—*
Phy, William S., 4,380,566, Cl. 428-192.000.
Fairfield Optical Company, Inc.: *See—*
Ahern, John; Farmer, Wayne; Hawes, David; and McEvoy, Herbert J., Jr., 4,380,379, Cl. 351-106.000.
Falciani, Marco; and Broggi, Renato, to Dobfar S.p.A. N-Carboxy cefadroxil sodium salt. 4,380,630, Cl. 544-30.000.
Farmer, Wayne: *See—*
Ahern, John; Farmer, Wayne; Hawes, David; and McEvoy, Herbert J., Jr., 4,380,379, Cl. 351-106.000.
Farrar, John: *See—*
Peart, Leland L.; and Farrar, John, 4,380,763, Cl. 340-870.160.
Fayter, Richard G., Jr., to Emery Industries, Inc. 2-Vinyl- and 2-ethylcyclopropane carboxylates. 4,380,656, Cl. 549-473.000.
Federal Paper Board Co., Inc.: *See—*
Langston, Joseph, Jr.; and Murray, Robert J., 4,380,314, Cl. 229-33.000.
Federmann, Helmut; and Bausch, Joachim, to Felten & Guilleaume Carlswerk Aktiengesellschaft. Fiber-reinforced drive shaft. 4,380,443, Cl. 464-181.000.
Fedorenko, Valentina P.: *See—*
Shevakin, Jury F.; Shpichinetsky, Efim S.; Fedorenko, Valentina P.; Efremov, Boris N.; Klevchenkova, Maria N.; Andrjuschenko, Ivan A.; Krasnoselsky, Iosif A.; Anikeev, Evgeny F.; Ivanov, Evgeny A.; Khomyachkov, Anatoly P.; Shvarts, Naum A.; Kozhevnikova, Ljudmila V.; Romanova, Roza M.; and Zhivotchenko, Alexandr D., 4,380,528, Cl. 420-505.000.
Felix, Raymond A., to Stauffer Chemical Company. Isonitriles as herbicide extenders. 4,380,468, Cl. 71-100.000.
Felten & Guilleaume Carlswerk Aktiengesellschaft: *See—*
Federmann, Helmut; and Bausch, Joachim, 4,380,443, Cl. 464-181.000.
Fenton, Jeff T.; and Mack, Mark P., to Conoco Inc. Polyacetal comb polymers. 4,380,610, Cl. 525-400.000.
Ferranti Limited: *See—*
Dyson, David J., 4,380,694, Cl. 219-121.0LG.
Ferro Corporation: *See—*
Kammann, Karl P., Jr.; Den Herder, Marvin J.; and Wagner, Terrence L., 4,380,498, Cl. 252-48.600.
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Fertell, Paul A.: *See—*
Cioca, Gheorghe; and Fertell, Paul A., 4,380,474, Cl. 106-155.000.
Fielding, Max J., to Du Pont de Nemours, E. I., and Company. Nematocidal composition containing O,O-diethyl O-(5-phenylisoxazol-3-yl)phosphorothioate and an ethanimidothioate. 4,380,539, Cl. 424-200.000.
Fink, Hans-Ferdi: *See—*
Koerner, Gotz; Sanger, Gerd; Fink, Hans-Ferdi; and Grassmann, Friedhelm, 4,380,503, Cl. 252-314.000.
Finke, Paul E.: *See—*
Witzel, Bruce E.; Finke, Paul E.; and Allison, Debra L., 4,380,645, Cl. 548-430.000.
Fischer, Hermann, to M.A.N.-ROLAND Druckmaschinen Aktiengesellschaft. Sheet feeding and aligning apparatus for rotary printing machine. 4,380,331, Cl. 271-11.000.
Fish, Robert E. Safety barrier. 4,380,327, Cl. 256-24.000.
Fishman, Harvey E.: *See—*
Romeo, Arthur L.; Bonelli, Robert T.; and Fishman, Harvey E., 4,380,716, Cl. 315-8.000.
Fisons Limited: *See—*
Broad, David, 4,380,302, Cl. 220-235.000.
Fjeldsted, Thomas P., to Rockwell International Corporation. Four element infrared objective lens. 4,380,363, Cl. 350-1.300.
Flanders, Gale L.: *See—*
Stevenson, David M.; and Flanders, Gale L., 4,380,829, Cl. 455-327.000.
Fleck, Carl M. Apparatus for producing a directed flow of a gaseous medium utilizing the electric wind principle. 4,380,720, Cl. 315-111.910.
Fleming, Robert W., to Warner-Lambert Company. N-(2,6-Dimethylphenyl)-4,5-dihydro-4,4-dialkyl-2-methylthio-1H-imidazole-1-carboxamides, anticonvulsive composition and method. 4,380,548, Cl. 424-273.00R.
Flexible Steel Lacing Company: *See—*
Pray, Winston C., 4,380,109, Cl. 29-466.000.
Fling, George K., to Vought Corporation. Fluid sealing devices. 4,380,342, Cl. 277-188.00A.
FMC Corporation: *See—*
Ager, John W., 4,380,665, Cl. 564-61.000.
Caudill, Stanley D.; and Goode, Frederick R., 4,380,244, Cl. 137-355.160.
Franko-Filipasic, Borivoj R.; and Hobson, Philip B., 4,380,654, Cl. 549-462.000.
Fretz, Edward R., Jr.; and Green, Joseph, 4,380,571, Cl. 428-415.000.
Fogell, Leonard L.; Levine, Samuel R.; and Weinberger, Arnold, to International Business Machines Corp. Error checking of mutually-exclusive control signals. 4,380,813, Cl. 371-52.000.
Folsom, Lawrence R.; Dineen, John J.; Vitale, Nicholas G.; and Balas, Charles B., Jr., to Mechanical Technology Incorporated. Diaphragm displacer Stirling engine powered alternator-compressor. 4,380,152, Cl. 60-520.000.
Fonderie et Ateliers des Sablons: *See—*
Godat, Jean; Parmenon, Daniel; Krzywdziak, Alain; and Boudin, Daniel, 4,380,399, Cl. 366-289.000.
Foote, James C.; and Zander, Dennis R. Energy storage for indexing mechanism. 4,380,180, Cl. 74-821.000.
Ford Motor Company: *See—*
Dick, Heinz; and Lux, Hans, 4,380,099, Cl. 24-211.00P.
Woesler, Ehrenfried, 4,380,324, Cl. 248-610.000.
Fork, Werner, to J. M. Voith GmbH. Installation operated with wind or water power. 4,380,417, Cl. 416-108.000.
Fortescue, Stephen M.: *See—*
Palombo, Gaston; and Fortescue, Stephen M., 4,380,768, Cl. 346-74.500.
Fortsch, Johann; Lorry, Cosmas; and Schweiger, Gustav, to Dynamit Nobel Aktiengesellschaft. Machine installation for the production of thick-walled insulating pipes of foam synthetic resin sheets. 4,380,486, Cl. 156-359.000.
Fory, Werner: *See—*
Brunner, Hans-Georg; and Fory, Werner, 4,380,640, Cl. 548-163.000.
Foucher, Claude: *See—*
Monnier, Michel J.; Monneraye, Marc A.; Foucher, Claude; and Le Marchant, Pierre, 4,380,699, Cl. 235-492.000.
Fouillet, Jean: *See—*
Curtinot, Jean C.; Delestre, Xavier; and Fouillet, Jean, 4,380,747, Cl. 333-202.000.
Fowler, Allan E.; White, Gordon E.; and Sims, Steve A., to Dow Chemical Company, The. Linear alpha olefin production using a tank growth reactor. 4,380,684, Cl. 585-328.000.
Fowler, Donald W.: *See—*
Bresie, Don A.; Fowler, Donald W.; and Burns, Jack M., 4,380,242, Cl. 137-113.000.
Fox, Ronald L., to United States of America, Energy. Downhole steam generator having a downhole oxidant compressor. 4,380,267, Cl. 166-303.000.
Franck, Heinz-Gerhard: *See—*
Stadelhofer, Jurgen; Franck, Heinz-Gerhard; Koch, Karl H.; and Marrett, Rolf, 4,380,454, Cl. 44-1.00B.
Franken, Adrianus J. J.; Coolen, Franciscus M.; Khoe, Giok D.; Langerhorst, Jacob; and Smulders, Henricus W. W., to U.S. Philips Corporation. Detachable connector for optical fibres. 4,380,366, Cl. 350-96.210.
Franko-Filipasic, Borivoj R.; and Hobson, Philip B., to FMC Corporation. Process for preparation of 2,3-dihydro-2,2-dimethyl-7-hydroxybenzofuran. 4,380,654, Cl. 549-462.000.
Frantz, Gene A., to Texas Instruments Incorporated. Liquid crystal display device. 4,380,371, Cl. 350-336.000.
Franz, James H., Jr.; and Jones, Stanley W., to Westinghouse Electric Corp. Shunt field control apparatus and method. 4,380,724, Cl. 318-353.000.
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Frias, Robert, to Ingram Corporation. Pipe storage system. 4,380,297, Cl. 211-60.00S.
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Pischinger, Anton, 4,380,222, Cl. 123-365.000.
Frischmann, Peter G.: *See—*
Liebermann, Howard H.; Frischmann, Peter G.; and Rosenberry, George M., Jr., 4,380,572, Cl. 428-592.000.
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Kraatz, Udo; Jager, Gerhard; Buchel, Karl H.; and Frohberger, Paul-Ernst, 4,380,545, Cl. 424-269.000.
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Fromm, Peter, 4,380,255, Cl. 140-93.200.
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Takahashi, Kenji; and Miyahara, Junji, 4,380,702, Cl. 250-327.200.
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Miyao, Fumio; and Tsukioka, Kazumi, 4,380,777, Cl. 358-178.000.
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Hashizume, Shinji; and Fukumizu, Shinichi, 4,380,397, Cl. 366-77.000.
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Seragnoli, Enzo, 4,380,286, Cl. 198-605.000.
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Petaway, John B.; and Gabriel, Otis C., 4,380,269, Cl. 169-51.000.
Gabrielsen, Rolf S.; Graham, Patricia A.; and Klijanowicz, James E., to Eastman Kodak Company. Color-forming sulfonamidodiphenylamine dye precursor that produces phenazine dye. 4,380,666, Cl. 564-82.000.
Gallagher, Ronald B.; and Novits, Michael F., to Pennwalt Corporation. Room temperature crosslinking unsaturated polyester resins. 4,380,605, Cl. 525-14.000.
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Gallegos, Rafael C.; Gallegos, Antonio; Gallegos, Robert M.; Gallegos, Jess E., deceased; and Gallegos, Adeline, legal representative, 4,380,191, Cl. 99-404.000.
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Gane, Brian R.: *See—*
Barclay, John L.; and Gane, Brian R., 4,380,681, Cl. 568-902.000.
Gant, LeRoy A. Turn signal and hazard signal control circuit. 4,380,753, Cl. 340-66.000.
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Ambrus, Valeria; and Karsai, Henrik, 4,380,248, Cl. 137-428.000.
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Gatcomb, Gerald L.: *See—*
Carlson, Richard H.; and Gatcomb, Gerald L., 4,380,519, Cl. 264-26.000.
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Gray, Herbert W.; and Payne, Roger A., 4,380,252, Cl. 138-125.000.
Gau, Wolfgang: *See—*
Stadler, Peter; Koebernick, Wolfgang; Samaan, Samir; and Gau, Wolfgang, 4,380,625, Cl. 536-13.900.
Gebauer, Helmut; and Hafner, Walter, to Consortium fur Elektrochemische Industrie GmbH. 2,4-Dialkyl-2,6-heptadienal derivatives, a process for their preparation, and fragrant and flavoring products made therewith. 4,380,675, Cl. 568-448.000.
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Bouman, Anton J.; and Geertsema, Eise B., 4,380,714, Cl. 313-549.000.
General Electric: *See—*
Mark, Victor; Holub, Frederick F.; and Hedges, Charles V., 4,380,612, Cl. 525-439.000.
General Electric Company: *See—*
Eichelberger, Charles W.; and Wojnarowski, Robert J., 4,380,749, Cl. 338-215.000.
Imam, Imdad; and Bernd, Leslie H., 4,380,172, Cl. 73-659.000.
Kornblit, Morris J., 4,380,760, Cl. 340-628.000.
Lee, Minyoung; Szala, Lawrence E.; and Tuft, Roy E., 4,380,471, Cl. 419-11.000.
Watchko, George R., 4,380,596, Cl. 524-86.000.
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Blanchard, Houston F.; and Tuchscherer, Lawrence D., 4,380,692, Cl. 200-61.45R.
Craig, Gale M., 4,380,789, Cl. 362-65.000.
Crawford, Daniel A.; and Levijoki, Wayne A., 4,380,418, Cl. 417-87.000.
D'Aniello, Michael J., Jr., 4,380,510, Cl. 252-466.0PT.
Hoffman, Robert P.; and Chandler, Lavern E., 4,380,359, Cl. 339-17.00F.
Kearney, Mark B., 4,380,728, Cl. 323-281.000.
Ludecke, Otto A., 4,380,149, Cl. 60-274.000.
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Trafford, Larry F., 4,380,358, Cl. 339-17.00D.
Georlette, Pierre; and Bouteille, Rene, to Solvay & Cie. Process for the manufacture of articles from composition comprising modified polyolefines and cellulosic fibres. 4,380,522, Cl. 264-175.000.
Gergo, Andree M. B.: *See—*
Wojtowicz, John A.; and Gergo, Andree M. B., 4,380,501, Cl. 252-186.240.
Gerin, Merlin: *See—*
Demeyer, Pierre; and Claudin, Paul, 4,380,785, Cl. 361-96.000.
Gessinger, Gernot; and Mercier, Olivier, to BBC Brown, Boveri & Company, Ltd. High-damping composite material. 4,380,574, Cl. 428-686.000.
Gestetner Manufacturing Limited: *See—*
Daintrey, Joseph W.; Rushton, John; and Willis, Michael, 4,380,383, Cl. 355-3.00R.
Gestrelius, Stina M.; and Kjaer, Jorgen H., to Novo Industri A/S. Method of deacidifying wine and composition therefor. 4,380,552, Cl. 426-52.000.
Giannetti, Vittorio. Electroacoustic transducer for hearing aids. 4,380,689, Cl. 179-114.00R.
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Reid, Robert R.; Winkler, Edward; and Girard, Stephen E., 4,380,209, Cl. 118-253.000.
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Gladky, Viktor T.: *See—*
Mazurin, Igor M.; Netupsky, Mikhail L.; Shevtsov, Alexandr V.; Gladky, Viktor T.; Dmitriev, Nikolai A.; Lyapin, Andrei G.; Polyakov, Alexandr V.; Myshev, Mikhail A.; and Panov, Vladimir V., 4,380,532, Cl. 423-469.000.
Glasgow, Lyle E., to United States of America, Energy. Solar receiver protection means and method for loss of coolant flow. 4,380,229, Cl. 126-418.000.
Glinka, John S.; and Zack, Larry E., to Qonaar Corporation. Electronic interlock for a cash collection receptacle. 4,380,316, Cl. 232-16.000.
Glombitza, Klaus: *See—*
Endres, Bernhard; and Glombitza, Klaus, 4,380,403, Cl. 401-213.000.
Godat, Jean; Parmenon, Daniel; Krzywdziak, Alain; and Boudin, Daniel, to Fonderie et Ateliers des Sablons. Mixer for homogenizing a mixture of products contained in a vessel. 4,380,399, Cl. 366-289.000.
Godfrey, Michael F.; and Lynam, David, to Marconi Company, Ltd., The. Radar systems. 4,380,765, Cl. 343-16.00M.
Goldstein, Kenneth; and Sharpe, Claude A., to Texas Instruments Incorporated. Controlled antenna tuner. 4,380,767, Cl. 343-745.000.
Goode, Frederick R.: *See—*
Caudill, Stanley D.; and Goode, Frederick R., 4,380,244, Cl. 137-355.160.
Goodman, Alvin M., to RCA Corporation. Self aligned aluminum polycrystalline silicon contact. 4,380,773, Cl. 357-23.000.
Gorsuch, Thomas J.: *See—*
Adler, Ralph P. I.; Gorsuch, Thomas J.; Murty, Yellapu V.; and Woronicki, Alexander R., 4,380,262, Cl. 164-423.000.
Goserud, Dean L. Portable seat. 4,380,208, Cl. 114-363.000.
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Goto, Keiichi: *See—*
Ito, Takeshi; Ishizuka, Shuzo; Goto, Keiichi; and Saito, Keiki, 4,380,284, Cl. 198-494.000.
Goto, Kohei: *See—*
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Gotoh, Junichi: *See—*
Hasuo, Masayoshi; Suga, Yoshinori; Kitada, Hisashi; Maruyama, Yasuo; and Gotoh, Junichi, 4,380,608, Cl. 525-247.000.

Gottstein, William J., to Bristol-Myers Company. 2β-Chloromethyl-2α-methylpenam-3α-carboxylic acid sulfone and salts and esters thereof. 4,380,512, Cl. 260-245.20R.

Gotze, Volkmar; and Schutt, Dieter, to International Business Machines Corp. Programmable logic array with self correction of faults. 4,380,811, Cl. 371-10.000.

Gould Inc.: *See—*
Stowe, David W., 4,380,394, Cl. 356-358.000.

GPD Inc.: *See—*
Segar, Richard B.; and Marascalco, Lewis C., 4,380,802, Cl. 364-900.000.

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Graham, Ellis R., to University of Missouri, The Curators of the. Method and apparatus for measuring moisture tension in leaves of growing plants. 4,380,169, Cl. 73-73.000.

Graham, Patricia A.: *See—*
Gabrielsen, Rolf S.; Graham, Patricia A.; and Klijanowicz, James E., 4,380,666, Cl. 564-82.000.

Granges Metallverken Aktiebolag: *See—*
Jonason, Karl G., 4,380,106, Cl. 29-157.30A.

Grant, Patrick T.: *See—*
Blair, Albert; and Grant, Patrick T., 4,380,213, Cl. 119-3.000.

Grassmann, Friedhelm: *See—*
Koerner, Gotz; Sanger, Gerd; Fink, Hans-Ferdi; and Grassmann, Friedhelm, 4,380,503, Cl. 252-314.000.

Gray, Herbert W.; and Payne, Roger A., to Gates Rubber Company, The. Wire reinforced hose and method. 4,380,252, Cl. 138-125.000.

Gray, Roger, to Rudd, Thomas H. Voltage regulator system for motorcycles and the like. 4,380,727, Cl. 322-28.000.

Green, Joseph: *See—*
Fretz, Edward R., Jr.; and Green, Joseph, 4,380,571, Cl. 428-415.000.

Greene, Janice L.; and Loza, Roman, to Standard Oil Company. Preparation of polyamide from dinitrile, diamine, water, and CO_2 catalyst. 4,380,623, Cl. 528-335.000.

Greenwood, David L. Self-cleaning adhesive dispensing apparatus. 4,380,308, Cl. 222-148.000.

Greynolds, Fred L.; Whiteside, Robert C.; and Durkee, Doyle D., to Leesona Corporation. Plastics trim press sheet feeding mechanisms. 4,380,183, Cl. 83-244.000.

Griffin, Neil C., to Reliance Electric Company. Compensated load cell. 4,380,175, Cl. 73-862.670.

Gross, Daniel, to Battelle Memorial Institute. Optical fiber, having on at least one of its frontal extremities a plano-convex microlens joined with its plane face to said frontal extremity. 4,380,365, Cl. 350-96.180.

Gschwend, Heinz W.: *See—*
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GTE Automatic Electric Laboratories, Inc.: *See—*
Stewart, James A., 4,380,687, Cl. 179-2.0BC.

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Adler, Ralph P. I.; Gorsuch, Thomas J.; Murty, Yellapu V.; and Woronicki, Alexander R., 4,380,262, Cl. 164-423.000.

GTE Products Corporation: *See—*
Coad, Brian C., 4,380,479, Cl. 148-11.50P.

Guerra, Rafael E.: *See—*
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Gunderson, Donald J.: *See—*
Arndt, William A.; Damrau, Wayne A.; and Gunderson, Donald J., 4,380,396, Cl. 356-432.000.

Gupta, Ramesh, to Exxon Research and Engineering Co. Hydroprocessing reactor with extended operating life. 4,380,529, Cl. 422-220.000.

Gurley, James R. Internal combustion engine. 4,380,220, Cl. 123-226.000.

Gut, Edwin; Arnold, Erwin; and Friedli, Hans, to Swiss Aluminium Ltd. Method of using a chisel for a crust breaking facility. 4,380,492, Cl. 204-67.000.

Gutnick, David L.; Rosenberg, Eugene; Belsky, Igal; and Zinaida, Zosim, to Petroleum Fermentations N.V. ψ-Emulsans. 4,380,504, Cl. 252-356.000.

Gventsadze, Tatyana I.: *See—*
Karabegov, Mikhail A.; Ovanesian, Aram G.; Mesropian, Eduard A.; Metreveli, Georgy T.; Karpeev, Anatoly A.; Khoshtaria, Boris K.; and Gventsadze, Tatyana I., 4,380,392, Cl. 356-243.000.

Habermehl, Diethard; Rohde, Wolfgang; Kucharzyk, Werner; and Siebert, Werner, to Bergwerksverband GmbH; and Didier Engineerin GmbH. Method of and apparatus for drying and preheating coking coal in a flight stream tube. 4,380,125, Cl. 34-10.000.

Hacoba Textilmaschinen GmbH & Co. KG: *See—*
Bous, Karl, 4,380,158, Cl. 68-205.00R.

Hafner, Walter: *See—*
Gebauer, Helmut; and Hafner, Walter, 4,380,675, Cl. 568-448.000.

Hagglund, Bengt G.: *See—*
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LaHaye, Paul G.; and Bjerklie, John W., 4,380,429, Cl. 431-115.000.

Hall, Gaddis G. Clevis thimble connector. 4,380,404, Cl. 403-79.000.

Hallcher, Richard C.: *See—*
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Hallford, Ben R., to Rockwell International Corporation. Symmetric microwave mixer with improved isolation. 4,380,831, Cl. 455-327.000.

Hamada, Minoru: *See—*
Matsuzaki, Kazuhiko; Hamada, Minoru; and Sakurai, Hisaya, 4,380,620, Cl. 528-232.000.

Hametner, Albert L.: *See—*
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Hammann, Ingeborg: *See—*
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Hamon-Sobelco, S.A.: *See—*
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Hang, Kenneth W.: *See—*
Prabhu, Ashok N.; and Hang, Kenneth W., 4,380,750, Cl. 338-308.000.

Hannon, William B. Nail clipping retainer. 4,380,120, Cl. 30-28.000.

Hanotier, Jacques D. V.; and Dauby, Jacques F., to Labofina, S.A. Process for the purification of terephthalic acid. 4,380,662, Cl. 562-486.000.

Hanser, Paul E., to HWH Corporation. Log splitter. 4,380,258, Cl. 144-193.00A.

Hansson, Erik G. Clasping device. 4,380,102, Cl. 24-248.0SA.

Hanyu, Susumu; and Koide, Akio, to Janome Sewing Machine Co. Ltd. Needle and feed cam arrangement for a zig zag sewing machine. 4,380,204, Cl. 112-158.00A.

Hardigg Industries, Inc.: *See—*
Hardigg, James S., 4,380,577, Cl. 429-175.000.

Hardigg, James S., to Hardigg Industries, Inc. Staggered teeth cover. 4,380,577, Cl. 429-175.000.

Harding, Geoffrey; and Wagner, Wolfgang, to U.S. Philips Corporation. Method for examining a body with penetrating radiation. 4,380,817, Cl. 378-87.000.

Harig, Robert G., to Darling Store Fixtures. Method of farming a mitered joint. 4,380,110, Cl. 29-525.000.

Harig, Robert G., to Darling Store Fixtures. Knock down store display fixture. 4,380,298, Cl. 211-189.000.

Harr, Robert G.; and Soli, Gaylord T., to America's Cup, Inc. Flotation vest. 4,380,441, Cl. 441-112.000.

Harries, David A.: *See—*
Ingram, Brian; Harries, David A.; and England, Michael J., 4,380,277, Cl. 188-329.000.

Harris Corporation: *See—*
Cohen, Paul B.; Young, William R.; and Edwards, W. Dale, 4,380,710, Cl. 307-475.000.
Wagner, Robert S., 4,380,738, Cl. 330-151.000.

Hart, Cornelis M., to U.S. Philips Corporation. I^2L With polysilicon diodes and interconnects. 4,380,708, Cl. 307-457.000.

Hart, Granville S.: *See—*
Brandewie, Joseph E.; and Hart, Granville S., 4,380,117, Cl. 29-742.000.

Hart, Patrick J., to Texas Instruments Incorporated. Frequency/phase locked loop circuit using digitally controlled oscillator. 4,380,742, Cl. 331-1.00A.

Hartle, Ronald J.: *See—*
Hollstein, Thomas E.; and Hartle, Ronald J., 4,380,320, Cl. 239-697.000.

Hashimoto, Shigeyoshi: *See—*
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Hashizume, Shinji; and Fukumizu, Shinichi, to Kobe Steel, Ltd. Duplex type continuous mixer. 4,380,397, Cl. 366-77.000.

Haslam, Alan A.; Isalski, Wieslaw H.; and Tomlinson, Terence R., to Petrocarbon Developments Ltd. Recovery of hydrogen from ammonia synthesis purge gas. 4,380,461, Cl. 62-11.000.

Hasler, Barbara: *See—*
Beinvogl, Willy; and Hasler, Barbara, 4,380,489, Cl. 156-643.000.

Hasuo, Masayoshi; Suga, Yoshinori; Kitada, Hisashi; Maruyama, Yasuo; and Gotoh, Junichi, to Mitsubishi Chemical Industries, Ltd. Process for producing propylene-ethylene block copolymer. 4,380,608, Cl. 525-247.000.

Haubner, Georg: *See—*
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Hauer, Kurt: *See—*
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Hawes, David: *See—*
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Hayami, Masaaki: *See—*
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Haynes, Robert: *See—*
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Hazeltine Corporation: *See—*
Romeo, Arthur L.; Bonelli, Robert T.; and Fishman, Harvey E., 4,380,716, Cl. 315-8.000.

Hedges, Charles V.: *See—*
Mark, Victor; Holub, Frederick F.; and Hedges, Charles V., 4,380,612, Cl. 525-439.000.

Hefner, Irving V. Antifreeze cover assembly for external faucets. 4,380,245, Cl. 137-375.000.

Hehl, Karl. Compact hydraulic drive for die closing unit of injection molding machine. 4,380,427, Cl. 425-590.000.
Heitmann, Wilhelm: *See—*
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Helle, Michel: *See—*
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Heller, William C., Jr.: *See—*
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Henkel Kommanditgesellschaft auf Aktien: *See—*
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Henri, Nithart: *See—*
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Henry, William J., to Milliken Research Corporation. Belt false twisting system. 4,380,144, Cl. 57-286.000.
Hercules Incorporated: *See—*
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Dumas, David H., 4,380,602, Cl. 524-598.000.
Hermann Hemscheidt Maschinenfabrik GmbH & Co.: *See—*
Bull, Hans; Ewich, Gerhard; Kuschke, Gunther; Maykemper, Alfred; and Welzel, Josef, 4,380,410, Cl. 405-299.000.
Higashiyama, Naotoshi; and Doi, Kazuyuki, to Nippon Electric Co., Ltd. Multi-channel signal processing circuit formed in a semiconductor integrated circuit. 4,380,823, Cl. 455-143.000.
Higgins, David E.: *See—*
Nield, Eric; Higgins, David E.; and Young, Mark W., 4,380,621, Cl. 528-287.000.
Higginson, Roy C.; and Whiteman, Paul L., to Morgan Trailer MFG. Co. Latch mechanism for walk ramps. 4,380,415, Cl. 414-537.000.
Hill, Eugene E.; Scrimshaw, Marvin S.; and Showalter, Edward W., to Canadian Patents & Development Limited. Thinned array transducer for sonar. 4,380,808, Cl. 367-153.000.
Hill, John; and Bannister, Royston W. Bobbins for electrical coils. 4,380,748, Cl. 335-151.000.
Hirata, Atsumi; Tajima, Osamu; Kaneda, Isami; Sugiyama, Hiroyuki; Saito, Takashi; and Mochizuki, Masafumi, to Victor Company of Japan, Ltd. Disc-shaped recording medium reproducing apparatus. 4,380,780, Cl. 360-97.000.
Hirata, Atsumi, to Victor Company of Japan, Ltd. Disc-shaped recording medium reproducing apparatus. 4,380,781, Cl. 360-97.000.
Hirato, Akira: *See—*
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Hirose, Fumio: *See—*
Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, 4,380,536, Cl. 424-180.000.
Hirose, Yasuyuki; Shimaoka, Motohiro; Saito, Shoichiro; and Kowaguchi, Toru, to Alps Electric Co., Ltd. Drive apparatus for flexible magnetic discs. 4,380,782, Cl. 360-99.000.
Hitachi, Ltd.: *See—*
Ibe, Hidefumi, 4,380,168, Cl. 73-40.50R.
Inoue, Takao, 4,380,824, Cl. 455-143.000.
Ishioka, Sachio; Shimomoto, Yasuharu; Imamura, Yoshinori; Ataka, Saburo; Tanaka, Yasuo; Matsubara, Hirokazu; Takasaki, Yukio; and Maruyama, Eiichi, 4,380,557, Cl. 427-38.000.
Kaku, Masaro; Sawaki, Yasumasa; and Ando, Kunio, 4,380,729, Cl. 323-285.000.
Kaneki, Tadashi; and Takeda, Kazuo, 4,380,405, Cl. 403-318.000.
Kuniyoshi, Shinji; Takanashi, Akihiro; and Kurosaki, Toshiei, 4,380,395, Cl. 356-401.000.
Hitzman, Donald O., to Phillips Petroleum Company. Fermentation apparatus. 4,380,584, Cl. 435-313.000.
Ho, Roland: *See—*
Wisnouskas, Joseph S.; and Ho, Roland, 4,380,531, Cl. 423-316.000.
Hobson, Philip B.: *See—*
Franko-Filipasic, Borivoj R.; and Hobson, Philip B., 4,380,654, Cl. 549-462.000.
Hoechst Aktiengesellschaft: *See—*
Roscher, Gunter; Schaum, Helmut; and Schmitz, Heinz, 4,380,663, Cl. 562-536.000.
Hoei Sangyo Kabushiki Kaisha: *See—*
Nishizawa, Masayuki, 4,380,791, Cl. 362-231.000.
Hofer, Peter H., to International Harvester Co. Abrasive liquid jet cutting. 4,380,138, Cl. 51-321.000.
Hoffacker, Franz: *See—*
Engelsmann, Dieter; Hoffacker, Franz; Kovacic, Guido; Lermann, Peter; Luhrig, Hermann; and Wagner, Karl, 4,380,382, Cl. 354-275.000.
Hoffman, Robert P.; and Chandler, Lavern E., to General Motors Corporation. Electrical connector for an instrument panel. 4,380,359, Cl. 339-17.00F.
Hoffman, William F. Trailer tow locking device. 4,380,160, Cl. 70-14.000.
Hoffmann-La Roche Inc.: *See—*
Dorn, Franz, 4,380,544, Cl. 424-263.000.
Suchy, Milos, 4,380,661, Cl. 560-62.000.
Hoglund, Nils. Grinding wheel dressing apparatus. 4,380,227, Cl. 125-11.0PT.
Holcomb, Gayle, to V-T Rhythms, Inc. Talking metronome. 4,380,185, Cl. 84-1.030.
Hollstein, Thomas E.; and Hartle, Ronald J., to Nordson Corporation. Electrostatic powder spray gun nozzle. 4,380,320, Cl. 239-697.000.
Holub, Frederick F.: *See—*
Mark, Victor; Holub, Frederick F.; and Hedges, Charles V., 4,380,612, Cl. 525-439.000.
Honaga, Susumu: *See—*
Kawabata, Minoru; Honaga, Susumu; and Takahashi, Kenji, 4,380,472, Cl. 419-9.000.
Honeywell Inc.: *See—*
Searle, John L., 4,380,400, Cl. 374-37.000.
Hopkins, John R.: *See—*
Waters, Kenneth H.; Hopkins, John R.; and Payton, Charles E., 4,380,806, Cl. 367-27.000.
Hori, Fumihisa; and Miyajima, Mikio, to Alps Electric Co., Ltd. Type setting device for printers. 4,380,195, Cl. 101-93.170.
Horsewell, Henry G., to British-American Tobacco Company Limited. Smoking articles. 4,380,241, Cl. 131-336.000.
Hosoda, Yoshikazu; Ishihara, Shigenobu; and Kobayashi, Shoichi, to Showa Denko K.K. Aqueous dispersion of water-soluble polymer composition. 4,380,600, Cl. 524-458.000.
Hospital For Sick Children, The: *See—*
Crawford, John S.; and Wainman, Roy, 4,380,239, Cl. 604-28.000.
Howe, Robert K.; and Lee, Len F., to Monsanto Company. 5-Aryl-4-isothiazolecarboxylic acids and derivatives. 4,380,465, Cl. 71-90.000.
Howell, Gary W., to Du Pont de Nemours, E. I., and Company. Method and apparatus for processing fluid materials. 4,380,257, Cl. 141-1.000.
Hoy, Harold D.: *See—*
MacLean, John P.; Cantwell, J. Edward; Brown, John D.; and Hoy, Harold D., 4,380,105, Cl. 29-157.00R.
Huebner, Charles F.; and Gschwend, Heinz W., to Ciba-Geigy Corporation. 1,5-Bis-(1,4-benzodioxin-2-yl)-3-azapentane-1,5-diols. 4,380,653, Cl. 549-366.000.
Humphreys, Neal B.: *See—*
Joy, Ira L.; and Humphreys, Neal B., 4,380,491, Cl. 159-4.00B.
HWH Corporation: *See—*
Hanser, Paul E., 4,380,258, Cl. 144-193.00A.
Hydrocarbon Research, Inc.: *See—*
Sirkar, Amalesh K., 4,380,678, Cl. 568-863.000.
Ibe, Hidefumi, to Hitachi, Ltd. Sodium leakage detection system and method of controlling the same. 4,380,168, Cl. 73-40.50R.
Ichikawa, Junju, to Kagawa & Co., Ltd. Greeting card with open work engraving thereon. 4,380,128, Cl. 40-158.00R.
Ikeda, Hiroharu; Goto, Kohei; and Shimozato, Yasuyuki, to Japan Synthetic Rubber Co., Ltd. Rubber composition having high modulus of elasticity and process for preparing same. 4,380,607, Cl. 525-232.000.
Ikeda, Toshimitsu: *See—*
Matsumoto, Shoji; Matsui, Toshikazu; Ikeda, Toshimitsu; Kozuka, Nobuhiko; Nishihama, Hitoshi; and Aizawa, Tatsuo, 4,380,579, Cl. 430-126.000.
Ikuzawa, Masanori: *See—*
Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, 4,380,536, Cl. 424-180.000.
Illinois Tool Works Inc.: *See—*
Dewey, George G., 4,380,413, Cl. 411-161.000.
Imam, Imdad; and Bernd, Leslie H., to General Electric Company. On-line rotor crack detection. 4,380,172, Cl. 73-659.000.
Imamura, Yoshinori: *See—*
Ishioka, Sachio; Shimomoto, Yasuharu; Imamura, Yoshinori; Ataka, Saburo; Tanaka, Yasuo; Matsubara, Hirokazu; Takasaki, Yukio; and Maruyama, Eiichi, 4,380,557, Cl. 427-38.000.
IMI Kynoch Limited: *See—*
Wortley, John P. A.; and Woolner, John, 4,380,493, Cl. 204-105.00M.
Imperial Chemical Industries Limited: *See—*
Nield, Eric; Higgins, David E.; and Young, Mark W., 4,380,621, Cl. 528-287.000.
Inami, Mamoru: *See—*
Tanaka, Yoshiaki; and Inami, Mamoru, 4,380,732, Cl. 324-77.00D.
Incosym, Inc.: *See—*
Craig, Robert J. G., 4,380,108, Cl. 29-434.000.
Industrial Manufacturers of Orosi: *See—*
Morris, Billy J., 4,380,294, Cl. 209-540.000.
Ingram, Brian; Harries, David A.; and England, Michael J., to Lucas Industries Limited. Automatic slack adjusters for vehicle shoe-drum brakes. 4,380,277, Cl. 188-329.000.
Ingram Corporation: *See—*
Frias, Robert, 4,380,297, Cl. 211-60.00S.
Innomed Corporation: *See—*
Saferstein, Al; and Spector, Gilbert, 4,380,790, Cl. 362-231.000.
Inoue, Takao, to Hitachi, Ltd. Receiving reproducing system. 4,380,824, Cl. 455-143.000.
Institut Cerac S.A.: *See—*
Morris, David G., 4,380,421, Cl. 425-78.000.
Institut Francais Du Petrole: *See—*
Bournonville, Jean-Paul; Snappe, Roger; Miquel, Jean; and Martino, Germain, 4,380,673, Cl. 568-361.000.
Institute Straunann: *See—*
Colucci, Bartholomew A.; and Comte, Pierre, 4,380,238, Cl. 128-346.000.
International Business Machines Corp.: *See—*
Fogell, Leonard L.; Levine, Samuel R.; and Weinberger, Arnold, 4,380,813, Cl. 371-52.000.
Gotze, Volkmar; and Schutt, Dieter, 4,380,811, Cl. 371-10.000.

International Computers Ltd.: *See—*
Desyllas, Peter L.; Radley, Barry G.; Rawsthorne, Alasdair; Eaton, John R.; and Murray, John E., 4,380,797, Cl. 364-200.000.
International Flavors & Fragrances Inc.: *See—*
Boden, Richard M., 4,380,500, Cl. 252-174.110.
Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., 4,380,658, Cl. 549-525.000.
Boden, Richard M., 4,380,674, Cl. 568-417.000.
International Harvester Co.: *See—*
Hofer, Peter H., 4,380,138, Cl. 51-321.000.
Lasken, Richard D., 4,380,278, Cl. 192-3.580.
International Shoe Machine Corporation: *See—*
Runions, Sinville, 4,380,524, Cl. 264-263.000.
Intichar, Lutz; Schnapper, Christoph; and Weghaupt, Erich, to Siemens Aktiengesellschaft. Arrangement for cooling a superconducting magnet winding. 4,380,712, Cl. 310-52.000.
Isalski, Wieslaw H.: *See—*
Haslam, Alan A.; Isalski, Wieslaw H.; and Tomlinson, Terence R., 4,380,461, Cl. 62-11.000.
Ishida, Yasuo, to Takeda Chemical Industries, Ltd. Hexahydroisoindole derivatives, and their production and use. 4,380,466, Cl. 71-96.000.
Ishihara Sangyo Kaisha Ltd.: *See—*
Nishiyama, Ryuzo; Fujikawa, Kanichi; Yokomichi, Isao; Shigehara, Itaru; and Miyaji, Mikio, 4,380,670, Cl. 564-407.000.
Ishihara, Shigenobu: *See—*
Hosoda, Yoshikazu; Ishihara, Shigenobu; and Kobayashi, Shoichi, 4,380,600, Cl. 524-458.000.
Ishii, Hiromichi; Matsuzawa, Hideo; Kobayashi, Masao; and Yamada, Kantaro, to Mitsubishi Rayon Company, Ltd. Process for producing unsaturated aldehydes, and unsaturated fatty acids. 4,380,664, Cl. 562-546.000.
Ishii, Tadashi, to Kobishi Electric Co., Ltd. Motor actuated bell. 4,380,758, Cl. 340-396.000.
Ishikawa, Shinzo: *See—*
Shono, Hiroaki; Noji, Toshio; and Ishikawa, Shinzo, 4,380,462, Cl. 65-1.000.
Ishikawajima-Harima Jukogyo Kabushiki Kaisha: *See—*
Kuwano, Hiroaki, 4,380,164, Cl. 72-21.000.
Ishioka, Sachio; Shimomoto, Yasuharu; Imamura, Yoshinori; Ataka, Saburo; Tanaka, Yasuo; Matsubara, Hirokazu; Takasaki, Yukio; and Maruyama, Eiichi, to Hitachi, Ltd. Method of production of image pickup device. 4,380,557, Cl. 427-38.000.
Ishizuka, Shuzo: *See—*
Ito, Takeshi; Ishizuka, Shuzo; Goto, Keiichi; and Saito, Keiki, 4,380,284, Cl. 198-494.000.
Israel Aircraft Industries, Ltd.: *See—*
Sherman, Moshe, 4,380,725, Cl. 320-35.000.
Italiano, Victor J., to NCR Corporation. Low ink indication for ink jet print head. 4,380,772, Cl. 346-140.00R.
Ito, Takeshi; Ishizuka, Shuzo; Goto, Keiichi; and Saito, Keiki, to Caterpillar Mitsubishi Ltd. Chip conveyer. 4,380,284, Cl. 198-494.000.
ITW Fastex Italia S.p.A.: *See—*
Bassi, Alberto, 4,380,161, Cl. 70-168.000.
Ivanov, Evgeny A.: *See—*
Shevakin, Jury F.; Shpichinetsky, Efim S.; Fedorenko, Valentina P.; Efremov, Boris N.; Klevchenkova, Maria N.; Andrjuschenko, Ivan A.; Krasnoselsky, Iosif A.; Anikeev, Evgeny F.; Ivanov, Evgeny A.; Khomyachkov, Anatoly P.; Shvarts, Naum A.; Kozhevnikova, Ljudmila V.; Romanova, Roza M.; and Zhivotchenko, Alexandr D., 4,380,528, Cl. 420-505.000.
Iwasaki Tsushinki Kabushiki Kaisha: *See—*
Matsufuji, Teruo; Hirato, Akira; and Kawada, Yoshihiro, 4,380,690, Cl. 179-170.0NC.
J. M. Voith GmbH: *See—*
Fork, Werner, 4,380,417, Cl. 416-108.000.
J. S. Staedtler K.G.: *See—*
Endres, Bernhard; and Glombitza, Klaus, 4,380,403, Cl. 401-213.000.
Jagenberg Werke: *See—*
Zodrow, Rudolf, 4,380,487, Cl. 156-568.000.
Jager, Gerhard: *See—*
Kraatz, Udo; Jager, Gerhard; Buchel, Karl H.; and Frohberger, Paul-Ernst, 4,380,545, Cl. 424-269.000.
Jagger, Peter C., to Little People Limited. Cutlery improvements for aiding effective and correct use thereof. 4,380,122, Cl. 30-343.000.
Jakobsen, Kjell M.; and Nilsson, Claes T., to PLM Aktiebolag. Process for the production of a blank for subsequent shaping by blow-molding. 4,380,525, Cl. 264-521.000.
Jakubowski, Karl-Heinz: *See—*
Abraham, Uwe; Jakubowski, Karl-Heinz; and Koster, Wilhelm, 4,380,274, Cl. 180-308.000.
James River Corporation of Virginia: *See—*
VanderLugt, Thomas, Jr., 4,380,447, Cl. 493-102.000.
Janome Sewing Machine Co. Ltd.: *See—*
Hanyu, Susumu; and Koide, Akio, 4,380,204, Cl. 112-158.00A.
Japan Synthetic Rubber Co., Ltd.: *See—*
Ikeda, Hiroharu; Goto, Kohei; and Shimozato, Yasuyuki, 4,380,607, Cl. 525-232.000.
Jefferson, John R.; and Skinner, Robert T. J., to Lucas Industries Limited. Liquid fuel injection pumping apparatus. 4,380,223, Cl. 123-383.000.
Jobsis, Frans F.; Keizer, Johannes H.; and Overaker, Ronald F., to Duke University, Inc. Apparatus for monitoring metabolism in body organs. 4,380,240, Cl. 128-633.000.
Joby, Michael J.: *See—*
Burrage, Robert G.; and Joby, Michael J., 4,380,148, Cl. 60-39.281.
Johnson & Johnson/Mona Industries, Inc.: *See—*
Lindemann, Martin K. O.; Mayhew, Raymond L.; O'Lenick, Anthony J., Jr.; and Verdicchio, Robert J., 4,380,637, Cl. 548-112.000.
Johnson, Michael R., to Pfizer. 9-Hydroxyoctahydrobenzo[c]quinolines and their pharmaceutical compositions and method of use. 4,380,542, Cl. 424-248.550.
Jonasson, Karl G., to Granges Metallverken Aktiebolag. Assembly apparatus. 4,380,106, Cl. 29-157.30A.
Jones, Andrew, Jr. Game device. 4,380,339, Cl. 273-384.000.
Jones, Stanley W.: *See—*
Franz, James H., Jr.; and Jones, Stanley W., 4,380,724, Cl. 318-353.000.
Joubert, Antoine; Joubert, Thierry; Bichard, Bernard; and Joubert, Jean, to Joubert S.A. Tie hook, particularly rubber spring hook. 4,380,101, Cl. 24-237.000.
Joubert, Jean: *See—*
Joubert, Antoine; Joubert, Thierry; Bichard, Bernard; and Joubert, Jean, 4,380,101, Cl. 24-237.000.
Joubert S.A.: *See—*
Joubert, Antoine; Joubert, Thierry; Bichard, Bernard; and Joubert, Jean, 4,380,101, Cl. 24-237.000.
Joubert, Thierry: *See—*
Joubert, Antoine; Joubert, Thierry; Bichard, Bernard; and Joubert, Jean, 4,380,101, Cl. 24-237.000.
Joy, Ira L.; and Humphreys, Neal B., to Combustion Engineering, Inc. Spray nozzle assembly for spray dryer. 4,380,491, Cl. 159-4.00B.
Joy Manufacturing Company: *See—*
Bodimer, Theodore B.; David, Joseph S.; and Calder, Alexander W., 4,380,288, Cl. 198-820.000.
Juenemann, Werner: *See—*
Loeffler, Hermann; Juenemann, Werner; and Lamm, Gunther, 4,380,452, Cl. 8-532.000.
Jukic, Vjekoslav: *See—*
Everett, Dennis; and Jukic, Vjekoslav, 4,380,819, Cl. 378-114.000.
Jung, Johann: *See—*
Sauter, Hubert; Ammermann, Eberhard; Rentzea, Costin; Zeeh, Bernd; Jung, Johann; and Pommer, Ernst-Heinrich, 4,380,546, Cl. 424-269.000.
Kabushiki Kaisha Daini Seikosha: *See—*
Shimbo, Masafumi, 4,380,481, Cl. 148-187.000.
Taguchi, Masaaki, 4,380,372, Cl. 350-346.000.
Kabushiki Kaisha Fujimi Hoseisho: *See—*
Nagane, Masatoshi, 4,380,205, Cl. 112-304.000.
Kabushiki Kaisha Suwa Seikosha: *See—*
Maruyama, Mitsuaki, 4,380,770, Cl. 346-140.00R.
Kaestner, Raymond W.: *See—*
Minkoff, Michael D.; and Kaestner, Raymond W., 4,380,334, Cl. 273-1.00E.
Kagawa & Co., Ltd.: *See—*
Ichikawa, Junju, 4,380,128, Cl. 40-158.00R.
Kahkipuro, Matti, to Elevator GmbH. Apparatus for interfacing weighing data with a lift control system. 4,380,275, Cl. 187-29.00R.
Kaji, Ryoji: *See—*
Kawatani, Kimio; Tsujimoto, Shigenori; and Kaji, Ryoji, 4,380,475, Cl. 106-238.000.
Kaku, Masaro; Sawaki, Yasumasa; and Ando, Kunio, to Hitachi, Ltd. Switching regulator. 4,380,729, Cl. 323-285.000.
Kalle, Niederlassung der Hoechst AG: *See—*
Moraw, Roland; and Schadlich, Gunther, 4,380,388, Cl. 355-15.000.
Kallen, George H., to Union Carbide Corporation. Image blanking circuit for line follower. 4,380,700, Cl. 250-202.000.
Kamen, Dean, to Baxter Travenol Laboratories, Inc. Infusion needle attachment. 4,380,234, Cl. 604-180.000.
Kamioka, Seiichi; Manabe, Masahiko; and Sakai, Rokuro. Apparatus for separating the filament bundle of fibrous material. 4,380,104, Cl. 28-282.000.
Kammann, Karl P., Jr.; Den Herder, Marvin J.; and Wagner, Terrence L., to Ferro Corporation. Sulfurized, transesterified oil additives and their use in a lubricating oil and a fuel. 4,380,498, Cl. 252-48.600.
Kammann, Karl P., Jr.; and Den Herder, Marvin J., to Ferro Corporation. Sulfurized fatty oil additives and their use in a lubricating oil and a fuel. 4,380,499, Cl. 252-48.600.
Kanamori, Takeshi: *See—*
Kimura, Yukichi; and Kanamori, Takeshi, 4,380,506, Cl. 252-398.000.
Kanamori, Terutoshi: *See—*
Mitachi, Seiko; Shibata, Shuichi; Kanamori, Terutoshi; Manabe, Toyotaka; and Yasu, Mitsuho, 4,380,588, Cl. 501-37.000.
Kandler, William C., to Tecumseh Products Company. Economical engine construction. 4,380,216, Cl. 123-90.650.
Kaneaki, Tetsuhiko; Murase, Kazuhiko; and Shigeta, Junnosuke, to Matsushita Electrical Industrial Co., Ltd. Electronic musical instrument. 4,380,184, Cl. 84-1.010.
Kaneda, Isami: *See—*
Hirata, Atsumi; Tajima, Osamu; Kaneda, Isami; Sugiyama, Hiroyuki; Saito, Takashi; and Mochizuki, Masafumi, 4,380,780, Cl. 360-97.000.
Kaneki, Tadashi; and Takeda, Kazuo, to Hitachi, Ltd. Head flange mounting device for turbo-machine. 4,380,405, Cl. 403-318.000.
Kaneko, Dentaro: *See—*
Kohama, Hiroyuki; Tamiya, Masaru; Mizukami, Sunichi; Kaneko, Dentaro; and Kimura, Yoshio, 4,380,328, Cl. 266-177.000.
Kaneko, Shuichiro: *See—*
Ozaki, Yoshihiro; Kaneko, Shuichiro; Kuniyoshi, Masayuki; Kondo, Shoji; and Omata, Yasukuni, 4,380,385, Cl. 355-3.0TR.

Kania, Charles M.: *See—*
Welsh, David A.; Dowbenko, Rostyslaw; Das, Suryya K.; Kania, Charles M.; and Christenson, Roger M., 4,380,601, Cl. 524-555.000.
Kantorowicz, Gerard, to Thomson - CSF. Stabilized oscillator for microwaves with frequency conversion and its solid state construction. 4,380,744, Cl. 331-107.00R.
Kaplan, Leonard A., to RCA Corporation. Current amplifier. 4,380,740, Cl. 330-288.000.
Karabegov, Mikhail A.; Ovanesian, Aram G.; Mesropian, Eduard A.; Metreveli, Georgy T.; Karpeev, Anatoly A.; Khoshtaria, Boris K.; and Gventsadze, Tatyana I. Method and apparatus for calibration of instruments serving to count and to determine the size of particles suspended in dispersion medium. 4,380,392, Cl. 356-243.000.
Karklin, Roman Y.; Rumba, Alma A.; and Azanda, Via K. Method of preparing seeding material for production of citric acid. 4,380,583, Cl. 435-242.000.
Karpeev, Anatoly A.: *See—*
Karabegov, Mikhail A.; Ovanesian, Aram G.; Mesropian, Eduard A.; Metreveli, Georgy T.; Karpeev, Anatoly A.; Khoshtaria, Boris K.; and Gventsadze, Tatyana I., 4,380,392, Cl. 356-243.000.
Karpisek, Ladislav S. Assembly kit for a holder for growth supporting medium. 4,380,136, Cl. 47-83.000.
Karsai, Henrik: *See—*
Ambrus, Valeria; and Karsai, Henrik, 4,380,248, Cl. 137-428.000.
Kass, John J.: *See—*
Behlmer, Wilbur D.; and Kass, John J., 4,380,249, Cl. 137-596.200.
Kato Hatsujo Kaisha., Ltd.: *See—*
Nishida, Haruki; and Shinozaki, Nobuya, 4,380,096, Cl. 24-20.00R.
Kato, Jyoji: *See—*
Yoneda, Naoto; Kato, Jyoji; and Kinashi, Keizo, 4,380,644, Cl. 548-321.000.
Kato, Yoshiaki; Fushida, Akira; Ueda, Yasuo; Tohi, Yasusuke; and Aizawa, Tatsuo, to Mita Industrial Company Limited. Plate for lithography or offset printing. 4,380,196, Cl. 101-453.000.
Kaufman, John W.: *See—*
Driver, Donald E.; and Kaufman, John W., 4,380,118, Cl. 29-747.000.
Kawabata, Minoru; Honaga, Susumu; and Takahashi, Kenji, to Toyoda Koki Kabushiki Kaisha. Method for producing pressure plates used in hydraulic pumps. 4,380,472, Cl. 419-9.000.
Kawada, Yoshihiro: *See—*
Matsufuji, Teruo; Hirato, Akira; and Kawada, Yoshihiro, 4,380,690, Cl. 179-170.0NC.
Kawasaki, Teruo: *See—*
Yano, Hiroshi; Kawasaki, Teruo; Nomura, Hiroyuki; and Takeuchi, Mikio, 4,380,733, Cl. 324-166.000.
Kawata, Hiroitsu: *See—*
Fukui, Muneo; Konno, Yutaka; Kubota, Yukio; Aruga, Masayoshi; and Kawata, Hiroitsu, 4,380,534, Cl. 424-38.000.
Kawatani, Kimio; Tsujimoto, Shigenori; and Kaji, Ryoji, to Arakawa Kagaku Kogyo Kabushiki Kaisha. Process for preparing aqueous dispersion of rosin-base materials. 4,380,475, Cl. 106-238.000.
Kaye, Saul, to Ben Venue Laboratories, Inc. Sterilizer with inflatable article holder. 4,380,530, Cl. 422-300.000.
Kazlaukas, Gasparas, to United States of America, Navy. Internal tube welding apparatus. 4,380,697, Cl. 219-136.000.
Kearney, Mark B., to General Motors Corporation. Circuit for generating a temperature stabilized output signal. 4,380,728, Cl. 323-281.000.
Kearney & Trecker Corporation: *See—*
Ostby, Lyle D., 4,380,796, Cl. 364-171.000.
Keifer, Terry A., to Check Mate Systems, Inc. Product monitoring device. 4,380,097, Cl. 24-160.000.
Keizer, Johannes H.: *See—*
Jobsis, Frans F.; Keizer, Johannes H.; and Overaker, Ronald F., 4,380,240, Cl. 128-633.000.
Kelly, Arnold J., to Exxon Research and Engineering Co. Electrostatic atomizing device. 4,380,786, Cl. 361-228.000.
Kelsey-Hayes Co.: *See—*
Miller, Roger L., 4,380,718, Cl. 315-93.000.
Sweet, Roger; and Tribe, Leonard T., 4,380,276, Cl. 188-79.50K.
KenoGard A.B.: *See—*
Sundman, Carl-Erik; and Hagglund, Bengt G., 4,380,561, Cl. 427-421.000.
Kessler, Erich: *See—*
Siggel, Erhard; Wick, Gerhard; Linhart, Heinz; and Kessler, Erich, 4,380,594, Cl. 521-182.000.
Kettenes, Dirk K.: *See—*
van den Bosch, Steven; Kettenes, Dirk K.; Bart de Roos, Kris; Sipma, Gerben; and Stoffelsma, Jan, 4,380,655, Cl. 549-472.000.
Kettering, Timothy J.: *See—*
Minchak, Robert J.; Kettering, Timothy J.; and Kroenke, William J., 4,380,617, Cl. 526-161.000.
Khan, Ausat A.; and Morgan, Richard A., to Du Pont de Nemours, E. I., and Company. Batch polymerization process. 4,380,618, Cl. 526-206.000.
Khan, Riaz A.: *See—*
Mufti, Khizar S.; and Khan, Riaz A., 4,380,476, Cl. 127-46.300.
Khoe, Giok D.: *See—*
Franken, Adrianus J. J.; Coolen, Franciscus M.; Khoe, Giok D.; Langerhorst, Jacob; and Smulders, Henricus W. W., 4,380,366, Cl. 350-96.210.
Khomyachkov, Anatoly P.: *See—*
Shevakin, Jury F.; Shpichinetsky, Efim S.; Fedorenko, Valentina P.; Efremov, Boris N.; Klevchenkova, Maria N.; Andrjuschenko, Ivan A.; Krasnoselsky, Iosif A.; Anikeev, Evgeny F.; Ivanov, Evgeny A.; Khomyachkov, Anatoly P.; Shvarts, Naum A.; Kozhevnikova, Ljudmila V.; Romanova, Roza M.; and Zhivotchenko, Alexandr D., 4,380,528, Cl. 420-505.000.
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Karabegov, Mikhail A.; Ovanesian, Aram G.; Mesropian, Eduard A.; Metreveli, Georgy T.; Karpeev, Anatoly A.; Khoshtaria, Boris K.; and Gventsadze, Tatyana I., 4,380,392, Cl. 356-243.000.
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Kimberly-Clark Corporation: *See—*
Reich, Jack W., 4,380,450, Cl. 604-386.000.
Kimura, Yoshio: *See—*
Kohama, Hiroyuki; Tamiya, Masaru; Mizukami, Sunichi; Kaneko, Dentaro; and Kimura, Yoshio, 4,380,328, Cl. 266-177.000.
Kimura, Yukichi; and Kanamori, Takeshi, to Lion Corporation. Process for producing preservatives. 4,380,506, Cl. 252-398.000.
Kinashi, Keizo: *See—*
Yoneda, Naoto; Kato, Jyoji; and Kinashi, Keizo, 4,380,644, Cl. 548-321.000.
Kinder, Horton C. Heat recycling apparatus. 4,380,126, Cl. 34-86.000.
King, Peter F., to Occidental Chemical Corporation. Process for treatment of black plate containers. 4,380,560, Cl. 427-239.000.
Kingsley, William, to Xerox Corporation. Document transport for raster scanners. 4,380,389, Cl. 355-50.000.
Kipp, Manfred, to Dental Keramik Sande GmbH. Support for a removable dental prosthesis. 4,380,436, Cl. 433-182.000.
Kirchoff, George F.: *See—*
Davis, Leland E.; Dahle, David P.; Schneiter, Fred E.; and Kirchoff, George F., 4,380,346, Cl. 280-736.000.
Kiscaden, Roy W.: *See—*
Yannone, Robert A.; and Kiscaden, Roy W., 4,380,146, Cl. 60-39.141.
Kitada, Hisashi: *See—*
Hasuo, Masayoshi; Suga, Yoshinori; Kitada, Hisashi; Maruyama, Yasuo; and Gotoh, Junichi, 4,380,608, Cl. 525-247.000.
Kitamura, Sadafumi; and Taniguchi, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Method for recording multiplexed signals on metal evaporated tape. 4,380,779, Cl. 358-330.000.
Kjaer, Jorgen H.: *See—*
Gestrelius, Stina M.; and Kjaer, Jorgen H., 4,380,552, Cl. 426-52.000.
Klatt, Alfred: *See—*
Reinecke, Erich; and Klatt, Alfred, 4,380,177, Cl. 74-475.000.
Klaus, Arthur; and Tacke, Horst, to Signode Corporation. Air-powered driving tool, having a pilot piston and cylinder. 4,380,313, Cl. 227-130.000.
Kleinlogel, Horst; and Theohar, Carl, to Sandoz Ltd. Guanfacine in treating opiate addiction. 4,380,550, Cl. 424-324.000.
Klemm, Robert W.: *See—*
Galloup, Clifford L.; Bula, Roger M.; Klemm, Robert W.; and Westerburg, Ralph E., Jr., 4,380,111, Cl. 29-564.400.
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Klijanowicz, James E.: *See—*
Gabrielsen, Rolf S.; Graham, Patricia A.; and Klijanowicz, James E., 4,380,666, Cl. 564-82.000.
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Knoll International, Inc.: *See—*
Diffrient, Niels, 4,380,352, Cl. 297-61.000.
Knopf, Karl Horst: *See—*
Knopf, Klara, 4,380,306, Cl. 222-89.000.
Knopf, Klara, to Knopf, Karl Horst. Small beer container. 4,380,306, Cl. 222-89.000.
Kobayashi, Hiroshi: *See—*
Takebe, Hideharu; and Kobayashi, Hiroshi, 4,380,825, Cl. 455-164.000.
Kobayashi, Kazuhiko: *See—*
Chiba, Kazumasa; Kobayashi, Kazuhiko; and Muraki, Toshio, 4,380,622, Cl. 528-288.000.
Kobayashi, Masao: *See—*
Ishii, Hiromichi; Matsuzawa, Hideo; Kobayashi, Masao; and Yamada, Kantaro, 4,380,664, Cl. 562-546.000.
Kobayashi, Shoichi: *See—*
Hosoda, Yoshikazu; Ishihara, Shigenobu; and Kobayashi, Shoichi, 4,380,600, Cl. 524-458.000.
Kobayashi, Tadashi: *See—*
Yamaguchi, Akihiro; Kobayashi, Tadashi; Yamaguchi, Keizaburo; and Murakami, Hisamichi, 4,380,671, Cl. 568-48.000.
Kobe Steel, Ltd.: *See—*
Hashizume, Shinji; and Fukumizu, Shinichi, 4,380,397, Cl. 366-77.000.
Kohama, Hiroyuki; Tamiya, Masaru; Mizukami, Sunichi; Kaneko, Dentaro; and Kimura, Yoshio, 4,380,328, Cl. 266-177.000.
Kobishi Electric Co., Ltd.: *See—*
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Koch, Karl H.: *See—*
Stadelhofer, Jurgen; Franck, Heinz-Gerhard; Koch, Karl H.; and Marrett, Rolf, 4,380,454, Cl. 44-1.00B.
Koch, Rudolf: *See—*
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Koch, Tad H.; and Swanson, Barry J., to University Patents, Inc. 2-Aminopyrrolin 5-ones and aminocyclopropyl isocyanates therefrom. 4,380,647, Cl. 548-519.000.
Kodama, Teruo: *See—*
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Koebernick, Wolfgang: *See—*
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Koenig & Bauer AG: *See—*
Michalik, Horst B., 4,380,449, Cl. 493-424.000.
Koenigs, Stephen L.: *See—*
Wasmer, Anthony E.; and Koenigs, Stephen L., 4,380,217, Cl. 123-146.50A.
Koerner, Gotz; Sanger, Gerd; Fink, Hans-Ferdi; and Grassmann, Friedhelm, to Th. Goldschmidt AG. Process for preparing oil-in-water emulsion. 4,380,503, Cl. 252-314.000.
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Kohno, Yoshiaki: *See—*
Mandai, Haruhumi; Nishimura, Kunitaro; Kohno, Yoshiaki; and Yamaguchi, Masami, 4,380,559, Cl. 427-80.000.
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Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,380,668, Cl. 564-391.000.
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Umezawa, Hamao; Okami, Yoshiro; and Kondo, Shinichi, 4,380,581, Cl. 435-80.000.
Kondo, Shoji: *See—*
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Konishiroku Photo Industry Co., Ltd.: *See—*
Yajima, Tatsuo, 4,380,387, Cl. 355-3.00R.
Yasuda, Kazuo; Tamura, Akihiko; and Nakamura, Yoshimitsu, 4,380,386, Cl. 355-3.00R.
Konno, Yutaka: *See—*
Fukui, Muneo; Konno, Yutaka; Kubota, Yukio; Aruga, Masayoshi; and Kawata, Hiroitsu, 4,380,534, Cl. 424-38.000.
Koocher, Martin, to Arthur D. Little, Inc. Film badge for determining carbonyl compounds. 4,380,587, Cl. 436-128.000.
Kornblit, Morris J., to General Electric Company. Smoke detector with delayed alarm after change to stand-by power. 4,380,760, Cl. 340-628.000.
Korski, Victor E., to United States of America, Air Force. Aerial refuel floodlight. 4,380,788, Cl. 362-62.000.
Korstrask Mekaniska, G. Naslund: *See—*
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Kortmann, Wilfried: *See—*
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Kovacic, Guido: *See—*
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Kowaguchi, Toru: *See—*
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Koyama, Hiroyasu: *See—*
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Kozhevnikova, Ljudmila V.: *See—*
Shevakin, Jury F.; Shpichinetsky, Efim S.; Fedorenko, Valentina P.; Efremov, Boris N.; Klevchenkova, Maria N.; Andrjuschenko, Ivan A.; Krasnoselsky, Iosif A.; Anikeev, Evgeny F.; Ivanov, Evgeny A.; Khomyachkov, Anatoly P.; Shvarts, Naum A.; Kozhevnikova, Ljudmila V.; Romanova, Roza M.; and Zhivotchenko, Alexandr D., 4,380,528, Cl. 420-505.000.
Kozuka, Nobuhiko: *See—*
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Kraatz, Udo; Jager, Gerhard; Buchel, Karl H.; and Frohberger, Paul-Ernst, to Bayer Aktiengesellschaft. Combating fungi with triazolylbenzyloxy-ketones and-carbinols. 4,380,545, Cl. 424-269.000.
Kraftwerk Union Aktiengesellschaft: *See—*
Weghaupt, Erich, 4,380,356, Cl. 384-133.000.
Krankkala, Paul L., to Champion International Corporation. Color preservation of wax-coated paperboard. 4,380,565, Cl. 428-182.000.
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Shevakin, Jury F.; Shpichinetsky, Efim S.; Fedorenko, Valentina P.; Efremov, Boris N.; Klevchenkova, Maria N.; Andrjuschenko, Ivan A.; Krasnoselsky, Iosif A.; Anikeev, Evgeny F.; Ivanov, Evgeny A.; Khomyachkov, Anatoly P.; Shvarts, Naum A.; Kozhevnikova, Ljudmila V.; Romanova, Roza M.; and Zhivotchenko, Alexandr D., 4,380,528, Cl. 420-505.000.
Kraus, Thaddaus, to Balzers Aktiengesellschaft. Arrangement for uniformly coating surfaces of revolution by vapor deposition in a high vacuum. 4,380,212, Cl. 118-720.000.
Kreitenberg, Arthur. Neck venous and arterial examination teaching instrument. 4,380,439, Cl. 434-268.000.
Krjuk, Timur P.: *See—*
Abduganiev, Abdurakhim; Tikhonov, Valentin N.; Shlykov, Gennady N.; Zhestkov, Vitaly I.; Krjuk, Timur P.; Mukhin, Viktor M.; and Tikhonov, Jury N., 4,380,143, Cl. 57-89.000.
Kroenke, William J.: *See—*
Minchak, Robert J.; Kettering, Timothy J.; and Kroenke, William J., 4,380,617, Cl. 526-161.000.
Krupa, Andrew S.: *See—*
Velenyi, Louis J.; and Krupa, Andrew S., 4,380,672, Cl. 568-310.000.
Krzywdziak, Alain: *See—*
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Kubo, Seitoku; Kuramochi, Koujiro; and Kyushima, Tatsuo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Engagement device in automatic transmission. 4,380,179, Cl. 74-762.000.
Kubota, Reiko: *See—*
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,380,668, Cl. 564-391.000.
Kubota, Yukio: *See—*
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Kucharzyk, Werner: *See—*
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Kuhlmann, Gerhard; Wolf, Erwin; and Wahl, Gunter, to Robert Bosch GmbH. Switching device. 4,380,693, Cl. 200-330.000.
Kuniyoshi, Masayuki: *See—*
Ozaki, Yoshihiro; Kaneko, Shuichiro; Kuniyoshi, Masayuki; Kondo, Shoji; and Omata, Yasukuni, 4,380,385, Cl. 355-3.0TR.
Kuniyoshi, Shinji; Takanashi, Akihiro; and Kurosaki, Toshiei, to Hitachi, Ltd. Reduction projection aligner system. 4,380,395, Cl. 356-401.000.
Kuramochi, Koujiro: *See—*
Kubo, Seitoku; Kuramochi, Koujiro; and Kyushima, Tatsuo, 4,380,179, Cl. 74-762.000.
Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
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Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, 4,380,536, Cl. 424-180.000.
Kurek, Paul R., to UOP Inc. Preparation of 2,6-di-tert-butyl-4-alkylphenols. 4,380,677, Cl. 568-788.000.
Kurosaki, Toshiei: *See—*
Kuniyoshi, Shinji; Takanashi, Akihiro; and Kurosaki, Toshiei, 4,380,395, Cl. 356-401.000.
Kuschke, Gunther: *See—*
Bull, Hans; Ewich, Gerhard; Kuschke, Gunther; Maykemper, Alfred; and Welzel, Josef, 4,380,410, Cl. 405-299.000.
Kuwano, Hiroaki, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha. Winding machine. 4,380,164, Cl. 72-21.000.
Kyushima, Tatsuo: *See—*
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L.M.T. Radio Professionelle: *See—*
Marchand, Maurice; and Petijean, Christian, 4,380,830, Cl. 455-327.000.
Labelle, Henri M. R. Folding closure with a sweeper. 4,380,260, Cl. 160-235.000.
Labofina, S.A.: *See—*
Hanotier, Jacques D. V.; and Dauby, Jacques F., 4,380,662, Cl. 562-406.000.
Lacy, Jesse H. Golf game. 4,380,338, Cl. 273-245.000.
LaHaye, Paul G.; and Bjerklie, John W., to Hague International. Recirculating burner. 4,380,429, Cl. 431-115.000.
Lake Eyelet Manufacturing Company, Inc.: *See—*
Andrews, Alfred G.; and Sorensen, Charles L., 4,380,402, Cl. 401-74.000.
Lamm, Gunther: *See—*
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Lamson & Sessions Co., The: *See—*
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Landrigan, Richard B.: *See—*
Blocher, John M., Jr.; Veigel, Neil D.; and Landrigan, Richard B., 4,380,556, Cl. 427-6.000.
Landrus, Edward L., to Minnesota Mining and Manufacturing Company. Stapling tool. 4,380,312, Cl. 227-116.000.
Lang, William H.: *See—*
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Langerhorst, Jacob: *See—*
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Langston, Joseph, Jr.; and Murray, Robert J., to Federal Paper Board Co., Inc. Box type carton with hinged lid and one piece reinforced insert. 4,380,314, Cl. 229-33.000.

LaRue, Albert D.; and Wolf, John J., to Babcock & Wilcox Company, The. Mixer for dual register burner. 4,380,202, Cl. 110-263.000.
Lasken, Richard D., to International Harvester Co. Multiple clutch control system employing clutch status monitor. 4,380,278, Cl. 192-3.580.
Lawrence, Richard: *See—*
Lovell, Walter; and Lawrence, Richard, 4,380,343, Cl. 280-242.0WC.
Lawson, Alfred C., to Sybron Corporation. Surgical lamp characterized by having an improved reflector. 4,380,794, Cl. 362-296.000.
Lazan, Frank, Jr. Fish line hook setting attachment. 4,380,131, Cl. 43-15.000.
Lazzari, Jean-Pierre: *See—*
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Leatherman, Alfred F.: *See—*
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LeBegue, Maurice K., to National Mine Service Company. Mining machine loading bin mounted on boom structure and method. 4,380,354, Cl. 299-18.000.
Leconte, Gilles: *See—*
Allard, Pierre-Yves; and Leconte, Gilles, 4,380,799, Cl. 364-426.000.
Lee, Fred C.; and Carter, Roy A., to United States of America, Energy. Base drive circuit for a four-terminal power Darlington. 4,380,795, Cl. 363-131.000.
Lee, Len F.: *See—*
Howe, Robert K.; and Lee, Len F., 4,380,465, Cl. 71-90.000.
Lee, Minyoung; Szala, Lawrence E.; and Tuft, Roy E., to General Electric Company. Polycrystalline diamond and cemented carbide substrate and synthesizing process therefor. 4,380,471, Cl. 419-11.000.
Leesona Corporation: *See—*
Bonasch, James H.; and Bouchard, William J., Jr., 4,380,254, Cl. 139-435.000.
Greynolds, Fred L.; Whiteside, Robert C.; and Durkee, Doyle D., 4,380,183, Cl. 83-244.000.
Leis, Michael D.; and Rose, Robert C., to Digital Equipment Corporation. Digital velocity servo. 4,380,723, Cl. 318-314.000.
Leitert, Frederick C.; and Vinson, Carl G., Jr., to Diamond Shamrock Corporation. Balanced chlorination process. 4,380,682, Cl. 570-219.000.
Le Marchant, Pierre: *See—*
Monnier, Michel J.; Monneraye, Marc A.; Foucher, Claude; and Le Marchant, Pierre, 4,380,699, Cl. 235-492.000.
Leppink, Herman F.: *See—*
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Lermann, Peter: *See—*
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Levijoki, Wayne A.: *See—*
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Levine, Samuel R.: *See—*
Fogell, Leonard L.; Levine, Samuel R.; and Weinberger, Arnold, 4,380,813, Cl. 371-52.000.
Licentia Patent-Verwaltungs-G.m.b.H.: *See—*
Eckhardt, Gert, 4,380,821, Cl. 455-33.000.
Lichtinghagen, Klaus, to Glacier GmbH-DEVA Werke. Apparatus for the continuous extrusion of electrically conductive granulated materials, preferably powder metallurgy materials. 4,380,473, Cl. 419-41.000.
Lictenwalter, Robert H.: *See—*
Brookhyser, Byron B.; Lictenwalter, Robert H.; McGee, Arthur L.; and Pierson, Darrell E., 4,380,259, Cl. 144-357.000.
Liebermann, Howard H.; Frischmann, Peter G.; and Rosenberry, George M., Jr., to United States of America, Energy. Helical metallic ribbon for continuous edge winding applications. 4,380,572, Cl. 428-592.000.
Limtel, Ltd.: *See—*
Vuissoz, Constant, deceased; Mosoni-Vuissoz, Cesarine, heir; and Voide-Vuissoz, Suzanne, heir, 4,380,430, Cl. 431-347.000.
Lind, David J.; and Richards, Joyce, to Rolls-Royce Limited. Method of manufacturing a composite material. 4,380,523, Cl. 264-257.000.
Lindemann, Martin K. O.; Mayhew, Raymond L.; O'Lenick, Anthony J., Jr.; and Verdicchio, Robert J., to Johnson & Johnson/Mona Industries, Inc. Imidazoline phosphobetaines. 4,380,637, Cl. 548-112.000.
Lindstrum, Alan L.: *See—*
Barlow, Michael L.; and Lindstrum, Alan L., 4,380,745, Cl. 331-176.000.
Linhart, Heinz: *See—*
Siggel, Erhard; Wick, Gerhard; Linhart, Heinz; and Kessler, Erich, 4,380,594, Cl. 521-182.000.
Lion Corporation: *See—*
Kimura, Yukichi; and Kanamori, Takeshi, 4,380,506, Cl. 252-398.000.
Little People Limited: *See—*
Jagger, Peter C., 4,380,122, Cl. 30-343.000.
Little, Roger G., to Spire Corporation. Front surface metallization and encapsulation of solar cells. 4,380,112, Cl. 29-572.000.
Litton Systems, Inc.: *See—*
Wilson, Albert, 4,380,494, Cl. 209-319.000.
Lively, Olin A. Control circuitry for water level control of pools. 4,380,091, Cl. 4-508.000.
Lockwood, George C.; and Trudel, Murray L., to NCR Corporation. Earom cell matrix and logic arrays with common memory gate. 4,380,804, Cl. 365-184.000.
Loctite Corporation: *See—*
Nativi, Larry A., 4,380,613, Cl. 525-440.000.
Loeffler, Hermann; Juenemann, Werner; and Lamm, Gunther, to BASF Aktiengesellschaft. Dyeing and printing of cellulose-containing textile material. 4,380,452, Cl. 8-532.000.
Loew, Peter: *See—*
Stingelin, Willy; and Loew, Peter, 4,380,627, Cl. 542-423.000.
Loken, Tor; and Bryhn, Odd R., to Chevron Research Company. Stabilizing clay soil with dry hydroxy-aluminum. 4,380,408, Cl. 405-263.000.
Longini, Richard L., to Energy Controls, Inc. Apparatus and method for detecting a fraction of a gas. 4,380,167, Cl. 73-24.000.
Lorry, Cosmas: *See—*
Fortsch, Johann; Lorry, Cosmas; and Schweiger, Gustav, 4,380,486, Cl. 156-359.000.
Louisiana State University: *See—*
Callihan, Clayton D., 4,380,458, Cl. 55-33.000.
Lovell, Walter; and Lawrence, Richard. Folding scissor frame wheel chair. 4,380,343, Cl. 280-242.0WC.
Loza, Roman: *See—*
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Lucas Industries Limited: *See—*
Burrage, Robert G.; and Joby, Michael J., 4,380,148, Cl. 60-39.281.
Ingram, Brian; Harries, David A.; and England, Michael J., 4,380,277, Cl. 188-329.000.
Jefferson, John R.; and Skinner, Robert T. J., 4,380,223, Cl. 123-383.000.
Munro, Malcolm W., 4,380,218, Cl. 123-179.00H.
Lucius, John E.: *See—*
Asick, John C.; Berry, Donald A.; and Lucius, John E., 4,380,361, Cl. 339-91.00R.
Ludecke, Otto A., to General Motors Corporation. Method and means for diesel exhaust particulate emission control. 4,380,149, Cl. 60-274.000.
Ludwig, David, to Allan Air Products, Inc. Tool device. 4,380,270, Cl. 173-163.000.
Luebke, Randall A. Shipping and storage container. 4,380,290, Cl. 206-315.00R.
Luhrig, Hermann: *See—*
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Lux, Hans: *See—*
Dick, Heinz; and Lux, Hans, 4,380,099, Cl. 24-211.00P.
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Mazurin, Igor M.; Netupsky, Mikhail L.; Shevtsov, Alexandr V.; Gladky, Viktor T.; Dmitriev, Nikolai A.; Lyapin, Andrei G.; Polyakov, Alexandr V.; Myshev, Mikhail A.; and Panov, Vladimir V., 4,380,532, Cl. 423-469.000.
Lynam, David: *See—*
Godfrey, Michael F.; and Lynam, David, 4,380,765, Cl. 343-16.00M.
Lyons, William C.; and Scurlock, Scot L., to Drilling Development, Inc. Survey tool string. 4,380,264, Cl. 166-169.000.
M.A.N.-ROLAND Druckmaschinen Aktiengesellschaft: *See—*
Fischer, Hermann, 4,380,331, Cl. 271-11.000.
Machlett Laboratories, Incorporated, The: *See—*
Cutter, James W., 4,380,820, Cl. 378-153.000.
Mack, Mark P.: *See—*
Fenton, Jeff T.; and Mack, Mark P., 4,380,610, Cl. 525-400.000.
MacLean, John P.; Cantwell, J. Edward; Brown, John D.; and Hoy, Harold D., to Texaco Inc. Method for shaping, forming and assembling a highly efficient cyclone separator. 4,380,105, Cl. 29-157.00R.
Maffet, Vere, to UOP Inc. Mechanical dewatering process utilizing a nonuniform screw conveyor. 4,380,496, Cl. 210-780.000.
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Maher, Donald R. Method of treating spray paint collection water in paint spray booths and composition therefor. 4,380,495, Cl. 210-728.000.
Malwah, Manohar L., to Signetics Corporation. Process for fabricating a high capacity memory cell. 4,380,113, Cl. 29-577.00C.
Manabe, Masahiko: *See—*
Kamioka, Seiichi; Manabe, Masahiko; and Sakai, Rokuro, 4,380,104, Cl. 28-282.000.
Manabe, Toyotaka: *See—*
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Andress, Dennis I., 4,380,107, Cl. 29-252.000.
Mannuzza, Frank J.; and Montalto, Joseph G., to Miles Laboratories, Inc. Purification of bovine thrombin. 4,380,511, Cl. 260-112.00B.
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Segar, Richard B.; and Marascalco, Lewis C., 4,380,802, Cl. 364-900.000.

Marcatili, Enrique A. J., to Bell Telephone Laboratories, Incorporated. Velocity mismatched gate. 4,380,364, Cl. 350-96.140.
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Carlson, Roy C., Jr.; and March, Edward J., 4,380,431, Cl. 432-29.000.
Marchand, Maurice; and Petijean, Christian, to L.M.T. Radio Professionelle. Microwave up-converter. 4,380,830, Cl. 455-327.000.
Marconi Company, Ltd., The: *See—*
Godfrey, Michael F.; and Lynam, David, 4,380,765, Cl. 343-16.00M.
Mark, Victor; Holub, Frederick F.; and Hedges, Charles V., to General Electric. High heat distortion resistant segment ester polycarbonates. 4,380,612, Cl. 525-439.000.
Markson Manufacturing Company: *See—*
Doren, Mark N., 4,380,192, Cl. 99-441.000.
Marrett, Rolf: *See—*
Stadelhofer, Jurgen; Franck, Heinz-Gerhard; Koch, Karl H.; and Marrett, Rolf, 4,380,454, Cl. 44-1.00B.
Martin, Keith R., to Uniflo Resources, Inc. Petroleum and gas well enhancement agent. 4,380,268, Cl. 166-304.000.
Martin, Paul H.: *See—*
Mountz, Elton E.; and Martin, Paul H., 4,380,300, Cl. 220-1.500.
Martino, Germain: *See—*
Bournonville, Jean-Paul; Snappe, Roger; Miquel, Jean; and Martino, Germain, 4,380,673, Cl. 568-361.000.
Maruyama, Eiichi: *See—*
Ishioka, Sachio; Shimomoto, Yasuharu; Imamura, Yoshinori; Ataka, Saburo; Tanaka, Yasuo; Matsubara, Hirokazu; Takasaki, Yukio; and Maruyama, Eiichi, 4,380,557, Cl. 427-38.000.
Maruyama, Mitsuaki, to Epson Corporation; and Kabushiki Kaisha Suwa Seikosha. Ink jet printer. 4,380,770, Cl. 346-140.00R.
Maruyama, Yasuo: *See—*
Hasuo, Masayoshi; Suga, Yoshinori; Kitada, Hisashi; Maruyama, Yasuo; and Gotoh, Junichi, 4,380,608, Cl. 525-247.000.
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Wildman, John R.; and Morrison, Howard J., 4,380,135, Cl. 46-219.000.
Marzorati, Ermanno A.; and Mathis, Murrel A. Belt tightening tool. 4,380,326, Cl. 254-131.000.
Masai, Hiroto, to Aisin Seiki Kabushiki Kaisha. Viscous fluid coupling device. 4,380,279, Cl. 192-58.00B.
Masaki, Ichiro, to Unimation, Inc. Method and apparatus for manipulator welding apparatus with vision correction for workpiece sensing. 4,380,696, Cl. 219-124.340.
Masclet, Jean; and Turiot, Andre, to Messier-Hispano-Bugatti. Main undercarriage train for an aircraft. 4,380,323, Cl. 244-102.00R.
Massachusetts General Hospital: *See—*
Newbower, Ronald S., 4,380,237, Cl. 128-693.000.
Masuda, Shuji; and Ueno, Keisuke, to Chugai Boyeki Co., Ltd. Flame retardant heat insulating composition and method for preparing the same. 4,380,568, Cl. 428-276.000.
Materne, Carsten, to Bayer Aktiengesellschaft. Dihydropyridine compounds which are substituted in the 4-position by imidazolyl or thiazolyl and their medicinal use. 4,380,547, Cl. 424-270.000.
Matesa, Joseph M., to PPG Industries, Inc. Method of melting glass making ingredients. 4,380,463, Cl. 65-99.200.
Mathew, Chempolil T.; and Ulmer, Harry E., to Allied Corporation. Producing alkoxysilanes and alkoxy-oximinosilanes. 4,380,660, Cl. 556-422.000.
Mathis, Murrel A.: *See—*
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Matsubara, Hirokazu: *See—*
Ishioka, Sachio; Shimomoto, Yasuharu; Imamura, Yoshinori; Ataka, Saburo; Tanaka, Yasuo; Matsubara, Hirokazu; Takasaki, Yukio; and Maruyama, Eiichi, 4,380,557, Cl. 427-38.000.
Matsufuji, Teruo; Hirato, Akira; and Kawada, Yoshihiro, to Iwasaki Tsushinki Kabushiki Kaisha. Hybrid circuit. 4,380,690, Cl. 179-170.0NC.
Matsui, Toshikazu: *See—*
Matsumoto, Shoji; Matsui, Toshikazu; Ikeda, Toshimitsu; Kozuka, Nobuhiko; Nishihama, Hitoshi; and Aizawa, Tatsuo, 4,380,579, Cl. 430-126.000.
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Matsunaga, Kenichi: *See—*
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Matsushita Electric Industrial Co., Ltd.: *See—*
Kitamura, Sadafumi; and Taniguchi, Hiroshi, 4,380,779, Cl. 358-330.000.
Shinohara, Koichi, 4,380,211, Cl. 118-718.000.
Yamashita, Akio; and Hayami, Masaaki, 4,380,629, Cl. 542-455.000.
Matsushita Electrical Industrial Co., Ltd.: *See—*
Kaneaki, Tetsuhiko; Murase, Kazuhiko; and Shigeta, Junnosuke, 4,380,184, Cl. 84-1.010.
Matsuzaka, Hiroshi, to Yamaha Hatsudoki Kabushiki Kaisha. Carburetor. 4,380,516, Cl. 261-23.00A.
Matsuzaki, Kazuhiko; Hamada, Minoru; and Sakurai, Hisaya, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for preparing polyoxymethylenes. 4,380,620, Cl. 528-232.000.
Matsuzawa, Hideo: *See—*
Ishii, Hiromichi; Matsuzawa, Hideo; Kobayashi, Masao; and Yamada, Kantaro, 4,380,664, Cl. 562-546.000.
Mattel, Inc.: *See—*
Minkoff, Michael D.; and Kaestner, Raymond W., 4,380,334, Cl. 273-1.00E.
Matzner, Markus: *See—*
Robeson, Lloyd M.; and Matzner, Markus, 4,380,598, Cl. 524-163.000.
Maurer, Fritz; Schroder, Rolf; Hammann, Ingeborg; and Stendel, Wilhelm, to Bayer Aktiengesellschaft. Combating arthropods with O-alkyl-O-(2-cyclopropyl-6-substituted-methyl-pyrimidin-4-yl)-(thiono)(thiol) phosphoric (phosphonic) acid esters and ester-amides. 4,380,538, Cl. 424-200.000.
Maurer, Michel: *See—*
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Mayhew, Raymond L.: *See—*
Lindemann, Martin K. O.; Mayhew, Raymond L.; O'Lenick, Anthony J., Jr.; and Verdicchio, Robert J., 4,380,637, Cl. 548-112.000.
Maykemper, Alfred: *See—*
Bull, Hans; Ewich, Gerhard; Kuschke, Gunther; Maykemper, Alfred; and Welzel, Josef, 4,380,410, Cl. 405-299.000.
Mazgy, James D., to RCA Corporation. Photocurrent compensation for electronic circuitry exposed to ionizing radiation. 4,380,741, Cl. 330-308.000.
Mazurin, Igor M.; Netupsky, Mikhail L.; Shevtsov, Alexandr V.; Gladky, Viktor T.; Dmitriev, Nikolai A.; Lyapin, Andrei G.; Polyakov, Alexandr V.; Myshev, Mikhail A.; and Panov, Vladimir V. Process for fine purification of sulphur hexafluoride from impurities. 4,380,532, Cl. 423-469.000.
McCulloch, Charles W.: *See—*
Culbertson, Samuel W.; McCulloch, Charles W.; and Williams, Keith G., 4,380,321, Cl. 239-700.000.
McEvoy, Herbert J., Jr.: *See—*
Ahern, John; Farmer, Wayne; Hawes, David; and McEvoy, Herbert J., Jr., 4,380,379, Cl. 351-106.000.
McGee, Arthur L.: *See—*
Brookhyser, Byron B.; Lictenwalter, Robert H.; McGee, Arthur L.; and Pierson, Darrell E., 4,380,259, Cl. 144-357.000.
McGrath, John E.; and Wilson, Earl. Balloon clip. 4,380,103, Cl. 24-255.0SL.
McMackins, Dudley E.: *See—*
Coleman, James P.; Hallcher, Richard C.; and McMackins, Dudley E., 4,380,650, Cl. 549-326.000.
Mead, Howard B.; and Williams, Graham L., to Shell Research Limited. Heat-insulated hose for liquefied gases. 4,380,253, Cl. 138-149.000.
Mechanical Technology Incorporated: *See—*
Folsom, Lawrence R.; Dineen, John J.; Vitale, Nicholas G.; and Balas, Charles B., Jr., 4,380,152, Cl. 60-520.000.
Meier, Werner: *See—*
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Menager, Jean, to Societe Internationale de Mecanique Industrielle S.A. Centrifugal pumps. 4,380,416, Cl. 415-170.00A.
Mendelson, Walton L. Liquid fuel-fired water heating tank. 4,380,215, Cl. 122-13.00R.
Mercier, Olivier: *See—*
Gessinger, Gernot; and Mercier, Olivier, 4,380,574, Cl. 428-686.000.
Merck & Co., Inc.: *See—*
Witzel, Bruce E.; Finke, Paul E.; and Allison, Debra L., 4,380,645, Cl. 548-430.000.
Merz, Johann, to Zahnradfabrik Friedrichshafen AG. Oil reservoir particularly for hydraulic steering system. 4,380,272, Cl. 180-132.000.
Mesropian, Eduard A.: *See—*
Karabegov, Mikhail A.; Ovanesian, Aram G.; Mesropian, Eduard A.; Metreveli, Georgy T.; Karpeev, Anatoly A.; Khoshtaria, Boris K.; and Gventsadze, Tatyana I., 4,380,392, Cl. 356-243.000.
Messier-Hispano-Bugatti: *See—*
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Karabegov, Mikhail A.; Ovanesian, Aram G.; Mesropian, Eduard A.; Metreveli, Georgy T.; Karpeev, Anatoly A.; Khoshtaria, Boris K.; and Gventsadze, Tatyana I., 4,380,392, Cl. 356-243.000.
Meyers, Bernard L.: *See—*
Udovich, Carl A.; and Meyers, Bernard L., 4,380,648, Cl. 549-259.000.
Michalik, Horst B., to Koenig & Bauer AG. Variable size folder cylinder. 4,380,449, Cl. 493-424.000.
Michalik, John. Leather splitting machine. 4,380,159, Cl. 69-12.000.
Mikhail, Ezzat A., to Minnesota Mining and Manufacturing Company. N,N-Diacylaminoperfluoroalkanesulfonanilides and derivatives thereof. 4,380,464, Cl. 71-88.000.
Miles Laboratories, Inc.: *See—*
Boguslaski, Robert C.; Carrico, Robert J.; and Christner, James E., 4,380,580, Cl. 435-7.000.
Magers, Thomas A.; and Tabb, David L., 4,380,585, Cl. 436-66.000.
Mannuzza, Frank J.; and Montalto, Joseph G., 4,380,511, Cl. 260-112.00B.
Schmidt, Thomas R., 4,380,553, Cl. 426-250.000.
Miller, Roger L., to Kelsey-Hayes Co. Trailer marker light substitution circuit. 4,380,718, Cl. 315-93.000.
Miller, Thomas C. Buoyancy generator device and methods of making and using the same. 4,380,151, Cl. 60-496.000.
Milliken Research Corporation: *See—*
Henry, William J., 4,380,144, Cl. 57-286.000.

Walker, Jesse P.; and Robertson, William H., 4,380,095, Cl. 19-80.00R.
Minchak, Robert J.; Kettering, Timothy J.; and Kroenke, William J., to B. F. Goodrich Company, The. Preparation of polymers from cyclo-olefins. 4,380,617, Cl. 526-161.000.
Ministry of International Trade and Industry: *See—*
Nakamura, Osamu; Ogino, Isao; and Kodama, Teruo, 4,380,575, Cl. 429-13.000.
Minkoff, Michael D.; and Kaestner, Raymond W., to Mattel, Inc. Electronic card game simulator. 4,380,334, Cl. 273-1.00E.
Minnesota Mining and Manufacturing Company: *See—*
Landrus, Edward L., 4,380,312, Cl. 227-116.000.
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Vanderwerf, Dennis F., 4,380,374, Cl. 350-423.000.
Minolta Camera Kabushiki Kaisha: *See—*
Ozaki, Yoshihiro; Kaneko, Shuichiro; Kuniyoshi, Masayuki; Kondo, Shoji; and Omata, Yasukuni, 4,380,385, Cl. 355-3.0TR.
Minoura, Kazuo: *See—*
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Miquel, Jean: *See—*
Bournonville, Jean-Paul; Snappe, Roger; Miquel, Jean; and Martino, Germain, 4,380,673, Cl. 568-361.000.
Miranda, Lawrence T.: *See—*
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Mirrycle Corporation: *See—*
Schacht, Barry M., 4,380,369, Cl. 350-307.000.
Mita Industrial Company Limited: *See—*
Kato, Yoshiaki; Fushida, Akira; Ueda, Yasuo; Tohi, Yasusuke; and Aizawa, Tatsuo, 4,380,196, Cl. 101-453.000.
Mitachi, Seiko; Shibata, Shuichi; Kanamori, Terutoshi; Manabe, Toyotaka; and Yasu, Mitsuho, to Nippon Telegraph & Telephone Public Corporation. Glass for infrared ray-transmitting optical fibers and optical fibers formed from said glass. 4,380,588, Cl. 501-37.000.
Mitchell, Ronald. Anchoring apparatus. 4,380,139, Cl. 52-162.000.
Mitel Corporation: *See—*
Worsman, Adrian D., 4,380,756, Cl. 340-347.0AD.
Mitsubishi Chemical Industries, Ltd.: *See—*
Hasuo, Masayoshi; Suga, Yoshinori; Kitada, Hisashi; Maruyama, Yasuo; and Gotoh, Junichi, 4,380,608, Cl. 525-247.000.
Mitsubishi Denki Kabushiki Kaisha: *See—*
Takebe, Hideharu; and Kobayashi, Hiroshi, 4,380,825, Cl. 455-164.000.
Mitsubishi Rayon Company, Ltd.: *See—*
Ishii, Hiromichi; Matsuzawa, Hideo; Kobayashi, Masao; and Yamada, Kantaro, 4,380,664, Cl. 562-546.000.
Mitsui Petrochemical Industries, Ltd.: *See—*
Shigemoto, Hiromi, 4,380,567, Cl. 428-213.000.
Mitsui Toatsu Chemicals, Incorporated: *See—*
Yamaguchi, Akihiro; Kobayashi, Tadashi; Yamaguchi, Keizaburo; and Murakami, Hisamichi, 4,380,671, Cl. 568-48.000.
Mittelhauser, Bernhard. Outside rear view mirror for motor vehicles. 4,380,370, Cl. 350-307.000.
Miyahara, Junji: *See—*
Takahashi, Kenji; and Miyahara, Junji, 4,380,702, Cl. 250-327.200.
Miyaji, Mikio: *See—*
Nishiyama, Ryuzo; Fujikawa, Kanichi; Yokomichi, Isao; Shigehara, Itaru; and Miyaji, Mikio, 4,380,670, Cl. 564-407.000.
Miyajima, Mikio: *See—*
Hori, Fumihisa; and Miyajima, Mikio, 4,380,195, Cl. 101-93.170.
Miyao, Fumio; and Tsukioka, Kazumi, to Fuji Xerox Co., Ltd. Keyed AGC circuit for video data transmitting device. 4,380,777, Cl. 358-178.000.
Mizukami, Sunichi: *See—*
Kohama, Hiroyuki; Tamiya, Masaru; Mizukami, Sunichi; Kaneko, Dentaro; and Kimura, Yoshio, 4,380,328, Cl. 266-177.000.
Mobil Oil Corporation: *See—*
Chang, Clarence D.; and Lang, William H., 4,380,669, Cl. 564-402.000.
Chu, Chin-Chiun, 4,380,685, Cl. 585-466.000.
Mochizuki, Masafumi: *See—*
Hirata, Atsumi; Tajima, Osamu; Kaneda, Isami; Sugiyama, Hiroyuki; Saito, Takashi; and Mochizuki, Masafumi, 4,380,780, Cl. 360-97.000.
Mogami, Satoshi, to Nippon Kogaku K. K. Wide angle zoom lens of two-group construction. 4,380,375, Cl. 350-426.000.
Mohaupt, Henry H. Method of treating a hydrocarbon producing well. 4,380,265, Cl. 166-250.000.
Moisson, Marc F. L., to N.V. Raychem S.A. Cable sleeve liner. 4,380,686, Cl. 174-84.00R.
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Monnier, Michel J.; Monneraye, Marc A.; Foucher, Claude; and Le Marchant, Pierre, 4,380,699, Cl. 235-492.000.
Monnier, Michel J.; Monneraye, Marc A.; Foucher, Claude; and Le Marchant, Pierre, to U.S. Philips Corporation. Portable, identifying element constructed as a lamination of sheets. 4,380,699, Cl. 235-492.000.
Monroe, Roger F., to Dow Chemical Company, The. Stabilized insecticide formulations. 4,380,537, Cl. 424-200.000.
Monsanto Company: *See—*
Agrawal, Purushottam D., 4,380,526, Cl. 264-537.000.
Coleman, James P.; Hallcher, Richard C.; and McMackins, Dudley E., 4,380,650, Cl. 549-326.000.
Coran, Aubert Y.; and Patel, Raman, 4,380,606, Cl. 525-196.000.
Howe, Robert K.; and Lee, Len F., 4,380,465, Cl. 71-90.000.
Morita, Eiichi, 4,380,609, Cl. 525-348.000.
Otstot, Roger S.; and Runkle, Charles J., 4,380,460, Cl. 55-158.000.
Montalto, Joseph G.: *See—*
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Montedison S.p.A.: *See—*
Noristi, Luciano; and Baruzzi, Giovanni, 4,380,507, Cl. 252-429.00B.
Moon, Frederick H., to Zenith Radio Corporation. Oscillator for television tuner. 4,380,827, Cl. 455-179.000.
Moon, Frederick H., to Zenith Radio Corporation. UHF MOSFET Mixer. 4,380,828, Cl. 455-319.000.
Moraw, Roland; and Schadlich, Gunther, to Kalle, Niederlassung der Hoechst AG. Cyclic electrophotographic copying process. 4,380,388, Cl. 355-15.000.
Moreno, Carlos M.; Bridges, Robert D.; and Uzee, Andre J., to Dow Chemical Company, The. Method to produce a polytetra-fluoroethylene diaphragm. 4,380,521, Cl. 264-49.000.
Morgan, Annis R., Jr.: *See—*
Bachmann, G. Merle; Davis, Charles L.; and Morgan, Annis R., Jr., 4,380,130, Cl. 40-584.000.
Morgan, Clyde R. Bicycle handlebar grip. 4,380,093, Cl. 16-110.00R.
Morgan, Richard A.: *See—*
Khan, Ausat A.; and Morgan, Richard A., 4,380,618, Cl. 526-206.000.
Morgan Trailer MFG. Co.: *See—*
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Mountz, Elton E.; and Martin, Paul H., 4,380,300, Cl. 220-1.500.
Morimoto, Akira: *See—*
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Morimoto, Jiro: *See—*
Nagata, Hiroshi; Sano, Kazuo; Morimoto, Jiro; and Shiho, Makoto, 4,380,393, Cl. 356-328.000.
Morin, Robert A. Wire link-forming and linking device. 4,380,145, Cl. 59-27.000.
Morita, Eiichi, to Monsanto Company. Prevulcanization inhibitors of thio-triazine-amines for rubber. 4,380,609, Cl. 525-348.000.
Morris, Billy J., to Industrial Manufacturers of Orosi. Apparatus for assorting articles according to size. 4,380,294, Cl. 209-540.000.
Morris, David G., to Institut Cerac S.A. Die for compaction of powder. 4,380,421, Cl. 425-78.000.
Morrison, Howard J.: *See—*
Wildman, John R.; and Morrison, Howard J., 4,380,135, Cl. 46-219.000.
Morton, Henry H., Jr. Electrical power regulating apparatus and method. 4,380,730, Cl. 323-300.000.
Morton, Paul H. Energy collection and storage system. 4,380,419, Cl. 417-334.000.
Mosoni-Vuissoz, Cesarine, heir: *See—*
Vuissoz, Constant, deceased; Mosoni-Vuissoz, Cesarine, heir; and Voide-Vuissoz, Suzanne, heir, 4,380,430, Cl. 431-347.000.
Mostek Corporation: *See—*
Proebsting, Robert J., 4,380,805, Cl. 365-201.000.
Motomura, Noriyuki; and Tsuboi, Hiroyuki, to Toshiba Kikai Kabushiki Kaisha. Apparatus for measuring injection speed in injection molding machines. 4,380,801, Cl. 364-565.000.
Motorola, Inc.: *See—*
Au, Kenneth K., 4,380,709, Cl. 307-473.000.
Broton, Robert M., 4,380,822, Cl. 455-80.000.
Crisp, Richard D., 4,380,707, Cl. 307-443.000.
Pfaff, William, 4,380,736, Cl. 328-73.000.
Shannon, Paul D.; and Bruce, William C., Jr., 4,380,798, Cl. 364-200.000.
Wrathall, Robert S., 4,380,706, Cl. 307-297.000.
Mountz, Elton E.; and Martin, Paul H., to Morgan Trailer Mfg. Co. Air cargo container. 4,380,300, Cl. 220-1.500.
Mouzin, Gilbert; Cousse, Henri; and Stenger, Antoine, to Pierre Fabre S.A. 2'-(Orthochlorobenzoyl)-4'-chloroglycylanilides, compositions thereof, and use as medicaments. 4,380,667, Cl. 564-195.000.
Moynihan, Daniel J.: *See—*
Campbell, John A. L.; Moynihan, Daniel J.; Roper, William D.; and Willis, Earl C., 4,380,353, Cl. 299-12.000.
Mudhar, Manohar: *See—*
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Mufti, Khizar S.; and Khan, Riaz A., to Talres Development (N.A.) N.V. Process for the preparation of 4,1',6'-trichloro-4,1',6'-trideoxygalactosucrose (TGS). 4,380,476, Cl. 127-46.300.
Mukai, Hideo: *See—*
Ueno, Tsuyoshi; and Mukai, Hideo, 4,380,384, Cl. 355-3.0CH.
Mukhin, Viktor M.: *See—*
Abduganiev, Abdurakhim; Tikhonov, Valentin N.; Shlykov, Gennady N.; Zhestkov, Vitaly I.; Krjuk, Timur P.; Mukhin, Viktor M.; and Tikhonov, Jury N., 4,380,143, Cl. 57-89.000.
Muller, Hanns P.; Sommerfeld, Claus-Dieter; and Becker, Gernot, to Bayer Aktiengesellschaft. Process for the production of polyether polyols. 4,380,502, Cl. 252-182.000.
Munro, Malcolm W., to Lucas Industries Limited. Starting aid for internal combustion engines. 4,380,218, Cl. 123-179.00H.
Murakami, Hisamichi: *See—*
Yamaguchi, Akihiro; Kobayashi, Tadashi; Yamaguchi, Keizaburo; and Murakami, Hisamichi, 4,380,671, Cl. 568-48.000.

Muraki, Toshio: *See—*
Chiba, Kazumasa; Kobayashi, Kazuhiko; and Muraki, Toshio, 4,380,622, Cl. 528-288.000.
Murase, Kazuhiko: *See—*
Kaneaki, Tetsuhiko; Murase, Kazuhiko; and Shigeta, Junnosuke, 4,380,184, Cl. 84-1.010.
Murata Manufacturing Co., Ltd.: *See—*
Mandai, Haruhumi; Nishimura, Kunitaro; Kohno, Yoshiaki; and Yamaguchi, Masami, 4,380,559, Cl. 427-80.000.
Murchison, Craig B.; and Murdick, Dewey A., to Dow Chemical Company, The. Novel Fischer-Tropsch catalysts. 4,380,589, Cl. 518-714.000.
Murdick, Dewey A.: *See—*
Murchison, Craig B.; and Murdick, Dewey A., 4,380,589, Cl. 518-714.000.
Murray, Geneva A.: *See—*
Murray, James F.; and Murray, Geneva A., 4,380,296, Cl. 209-704.000.
Murray, James F.; and Murray, Geneva A. Yarn holder and method of separating yarn by color. 4,380,296, Cl. 209-704.000.
Murray, John E.: *See—*
Desyllas, Peter L.; Radley, Barry G.; Rawsthorne, Alasdair; Eaton, John R.; and Murray, John E., 4,380,797, Cl. 364-200.000.
Murray, Robert J.: *See—*
Langston, Joseph, Jr.; and Murray, Robert J., 4,380,314, Cl. 229-33.000.
Murty, Yellapu V.: *See—*
Adler, Ralph P. I.; Gorsuch, Thomas J.; Murty, Yellapu V.; and Woronicki, Alexander R., 4,380,262, Cl. 164-423.000.
Myshev, Mikhail A.: *See—*
Mazurin, Igor M.; Netupsky, Mikhail L.; Shevtsov, Alexandr V.; Gladky, Viktor T.; Dmitriev, Nikolai A.; Lyapin, Andrei G.; Polyakov, Alexandr V.; Myshev, Mikhail A.; and Panov, Vladimir V., 4,380,532, Cl. 423-469.000.
Nagane, Masatoshi, to Kabushiki Kaisha Fujimi Hoseisho. Guidance apparatus for a sewing machine. 4,380,205, Cl. 112-304.000.
Nagata, Hiroshi; Sano, Kazuo; Morimoto, Jiro; and Shiho, Makoto, to Nippon Kogaku K.K. Grazing incidence spectrometer. 4,380,393, Cl. 356-328.000.
Nagata, Koichi; and Umetsu, Shinjiro, to Nippon Electric Co., Ltd. Portable radio communication device having signal processing circuit with presetting function. 4,380,832, Cl. 455-343.000.
Naimer, Gundolf; and Hauer, Kurt, to Payer-Lux Elektroprodukte Gesellschaft m.b.H. Electric shaver. 4,380,121, Cl. 30-42.000.
Nakamura, Osamu; Ogino, Isao; and Kodama, Teruo, to Agency of Industrial Science and Technology; and Ministry of International Trade and Industry. Method for conversion of chemical energy to electric energy. 4,380,575, Cl. 429-13.000.
Nakamura, Yoshimitsu: *See—*
Yasuda, Kazuo; Tamura, Akihiko; and Nakamura, Yoshimitsu, 4,380,386, Cl. 355-3.00R.
Naslund, Gustav, to Korstrask Mekaniska, G. Naslund. Method and device for bending section-sheet, plate, strip and like material. 4,380,573, Cl. 428-595.000.
National Mine Service Company: *See—*
LeBegue, Maurice K., 4,380,354, Cl. 299-18.000.
National Research Development Corporation: *See—*
Blair, Albert; and Grant, Patrick T., 4,380,213, Cl. 119-3.000.
Saunders, David H., 4,380,477, Cl. 134-7.000.
Nativi, Larry A., to Loctite Corporation. Gasketing and sealing composition. 4,380,613, Cl. 525-440.000.
NCR Corporation: *See—*
Italiano, Victor J., 4,380,772, Cl. 346-140.00R.
Lockwood, George C.; and Trudel, Murray L., 4,380,804, Cl. 365-184.000.
NECCHI S.p.A.: *See—*
Bianchi, Nereo, 4,380,203, Cl. 112-158.00E.
Nelson, Jerome W., to Crutcher Resources Corporation. Method for controlling torch position and travel in automatic welding. 4,380,695, Cl. 219-125.120.
Netting, David I., to Atlantic Richfield Company. Method for reducing the amount of coal dust in the environment surrounding coal mining. 4,380,459, Cl. 55-87.000.
Netupsky, Mikhail L.: *See—*
Mazurin, Igor M.; Netupsky, Mikhail L.; Shevtsov, Alexandr V.; Gladky, Viktor T.; Dmitriev, Nikolai A.; Lyapin, Andrei G.; Polyakov, Alexandr V.; Myshev, Mikhail A.; and Panov, Vladimir V., 4,380,532, Cl. 423-469.000.
Neuhaus, Karl-Friedrich; Perrey, Hermann; Fuhr, Karl; Freier, Hans-Joachim; and Bendszus, Otto, to Bayer Aktiengesellschaft. Radiation-hardenable acrylic acid esters containing urethane groups and their use. 4,380,604, Cl. 524-873.000.
Newbower, Ronald S., to Massachusetts General Hospital. Apparatus for making cardiac output conductivity measurements. 4,380,237, Cl. 128-693.000.
Nicholls, Robin P., to Raytheon Company. Apparatus for recycling complete cycles of a stored periodic signal. 4,380,816, Cl. 375-94.000.
Nichols, Richard K., to Barber-Colman Company. Heat-retarding air distribution unit. 4,380,188, Cl. 98-40.00D.
Nield, Eric; Higgins, David E.; and Young, Mark W., to Imperial Chemical Industries Limited. Fast crystallizing polyester compositions. 4,380,621, Cl. 528-287.000.
Niles Parts Co., Ltd.: *See—*
Simizu, Akio, 4,380,754, Cl. 340-73.000.
Nilsson, Claes T.: *See—*
Jakobsen, Kjell M.; and Nilsson, Claes T., 4,380,525, Cl. 264-521.000.
Nippon Electric Co., Ltd.: *See—*
Higashiyama, Naotoshi; and Doi, Kazuyuki, 4,380,823, Cl. 455-143.000.
Nagata, Koichi; and Umetsu, Shinjiro, 4,380,832, Cl. 455-343.000.
Shinmyo, Saburo, 4,380,814, Cl. 375-40.000.
Yanagisawa, Masahiro, 4,380,558, Cl. 427-53.100.
Nippon Kogaku K. K.: *See—*
Mogami, Satoshi, 4,380,375, Cl. 350-426.000.
Nippon Kogaku K.K.: *See—*
Nagata, Hiroshi; Sano, Kazuo; Morimoto, Jiro; and Shiho, Makoto, 4,380,393, Cl. 356-328.000.
Nippon Telegraph & Telephone Public Corporation: *See—*
Mitachi, Seiko; Shibata, Shuichi; Kanamori, Terutoshi; Manabe, Toyotaka; and Yasu, Mitsuho, 4,380,588, Cl. 501-37.000.
Nippondenso Co., Ltd.: *See—*
Suzuki, Haruo; and Hashimoto, Shigeyoshi, 4,380,261, Cl. 164-120.000.
Nishida, Haruki; and Shinozaki, Nobuya, to Nissan Motor Co., Ltd.; and Kato Hatsujo Kaisha., Ltd. Hose clamp. 4,380,096, Cl. 24-20.00R.
Nishihama, Hitoshi: *See—*
Matsumoto, Shoji; Matsui, Toshikazu; Ikeda, Toshimitsu; Kozuka, Nobuhiko; Nishihama, Hitoshi; and Aizawa, Tatsuo, 4,380,579, Cl. 430-126.000.
Nishimura, Kunitaro: *See—*
Mandai, Haruhumi; Nishimura, Kunitaro; Kohno, Yoshiaki; and Yamaguchi, Masami, 4,380,559, Cl. 427-80.000.
Nishiyama, Ryuzo; Fujikawa, Kanichi; Yokomichi, Isao; Shigehara, Itaru; and Miyaji, Mikio, to Ishihara Sangyo Kaisha Ltd. Process for producing 1,3,5-triaminobenzene. 4,380,670, Cl. 564-407.000.
Nishizawa, Masayuki, to Hoei Sangyo Kabushiki Kaisha. Electrically controlled additive lamp housing for optical printing. 4,380,791, Cl. 362-231.000.
Nissan Motor Co., Ltd.: *See—*
Nishida, Haruki; and Shinozaki, Nobuya, 4,380,096, Cl. 24-20.00R.
Yano, Hiroshi; Kawasaki, Teruo; Nomura, Hiroyuki; and Takeuchi, Mikio, 4,380,733, Cl. 324-166.000.
Nisshin Flour Milling Co., Ltd.: *See—*
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,380,668, Cl. 564-391.000.
Nitto Boseki Co., Ltd.: *See—*
Shono, Hiroaki; Noji, Toshio; and Ishikawa, Shinzo, 4,380,462, Cl. 65-1.000.
Noji, Toshio: *See—*
Shono, Hiroaki; Noji, Toshio; and Ishikawa, Shinzo, 4,380,462, Cl. 65-1.000.
Nolt, Edwin B., to Sperry Corporation. Anchoring apparatus. 4,380,207, Cl. 114-298.000.
Nomiyama, Neal T.: *See—*
Buser, Rudolph G.; Rohde, Robert S.; and Nomiyama, Neal T., 4,380,391, Cl. 356-5.000.
Nomura, Hiroyuki: *See—*
Yano, Hiroshi; Kawasaki, Teruo; Nomura, Hiroyuki; and Takeuchi, Mikio, 4,380,733, Cl. 324-166.000.
Nordson Corporation: *See—*
Hollstein, Thomas E.; and Hartle, Ronald J., 4,380,320, Cl. 239-697.000.
Noristi, Luciano; and Baruzzi, Giovanni, to Montedison S.p.A. Catalysts for polymerizing ethylene. 4,380,507, Cl. 252-429.00B.
Normann, Richard W.; and Fairbairn, LeRoy W., to Bendix Corporation, The. Method of making an electrical connector assembly. 4,380,119, Cl. 29-884.000.
Norton, William W., to Baxter Travenol Laboratories, Inc. Fluid pump. 4,380,236, Cl. 604-151.000.
Novits, Michael F.: *See—*
Gallagher, Ronald B.; and Novits, Michael F., 4,380,605, Cl. 525-14.000.
Novo Industri A/S: *See—*
Gestrelius, Stina M.; and Kjaer, Jorgen H., 4,380,552, Cl. 426-52.000.
Nunno, Louis E. M. Footing jig for positioning fasteners. 4,380,329, Cl. 269-41.000.
N.V. Raychem S.A.: *See—*
Moisson, Marc F. L., 4,380,686, Cl. 174-84.00R.
O'Brien, Gerald E.: *See—*
Smith, David L.; and O'Brien, Gerald E., 4,380,776, Cl. 358-102.000.
Occidental Chemical Corporation: *See—*
King, Peter F., 4,380,560, Cl. 427-239.000.
Wisnouskas, Joseph S.; and Ho, Roland, 4,380,531, Cl. 423-316.000.
Ochiai, Michihiko; and Morimoto, Akira, to Takeda Chemical Industries, Ltd. Cephalosporin derivatives. 4,380,541, Cl. 424-246.000.
Ogino, Isao: *See—*
Nakamura, Osamu; Ogino, Isao; and Kodama, Teruo, 4,380,575, Cl. 429-13.000.
Ohhara, Minoru: *See—*
Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, 4,380,536, Cl. 424-180.000.
Ohmata, Ken; Aoki, Hideya; and Tamura, Naoyuki. Projection screen. 4,380,368, Cl. 350-117.000.

Ohmura, Yoshio: *See—*
Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, 4,380,536, Cl. 424-180.000.
Okami, Yoshiro: *See—*
Umezawa, Hamao; Okami, Yoshiro; and Kondo, Shinichi, 4,380,581, Cl. 435-80.000.
Okamoto, Ikuko, to Yugen Kaisha Batora Konsaruteingu. Automated study voice record/reproduction system. 4,380,438, Cl. 434-157.000.
O'Lenick, Anthony J., Jr.: *See—*
Lindemann, Martin K. O.; Mayhew, Raymond L.; O'Lenick, Anthony J., Jr.; and Verdicchio, Robert J., 4,380,637, Cl. 548-112.000.
Olin Corporation: *See—*
Wojtowicz, John A.; and Gergo, Andree M. B., 4,380,501, Cl. 252-186.240.
Wojtowicz, John A., 4,380,533, Cl. 423-473.000.
Oltendorf, Norman E., to Bodine Electric Company. Accommodation circuit for a step motor. 4,380,722, Cl 318-696.000.
Olympus Optical Co., Ltd.: *See—*
Sato, Masanobu, 4,380,691, Cl. 200-51.00R.
Omata, Yasukuni: *See—*
Ozaki, Yoshihiro; Kaneko, Shuichiro; Kuniyoshi, Masayuki; Kondo, Shoji; and Omata, Yasukuni, 4,380,385, Cl. 355-3.0TR.
O'Neill, Raymond J. Crib block for erecting bin walls. 4,380,409, Cl. 405-273.000.
Orlando, Michael D.; and Riley, Jean M., to United States of America, Army. Preparation of dry variola virus. 4,380,582, Cl. 435-239.000.
Orlowski, Jan A.; and Butler, David V., to Scientific Pharmaceuticals; and Sankin Industries, Ltd. Method for adhering structures to teeth. 4,380,432, Cl. 433-9.000.
Ostby, Lyle D., to Kearney & Trecker Corporation. Portable control box for computer numerically controlled machine tools. 4,380,796, Cl. 364-171.000.
Otstot, Roger S.; and Runkle, Charles J., to Monsanto Company. Gas separation apparatus. 4,380,460, Cl. 55-158.000.
Otto, Gerhard: *See—*
Bredow, Walter; and Otto, Gerhard, 4,380,182, Cl. 83-140.000.
Ovanesian, Aram G.: *See—*
Karabegov, Mikhail A.; Ovanesian, Aram G.; Mesropian, Eduard A.; Metreveli, Georgy T.; Karpeev, Anatoly A.; Khoshtaria, Boris K.; and Gventsadze, Tatyana I., 4,380,392, Cl. 356-243.000.
Overaker, Ronald F.: *See—*
Jobsis, Frans F.; Keizer, Johannes H.; and Overaker, Ronald F., 4,380,240, Cl. 128-633.000.
Ozaki, Yoshihiro; Kaneko, Shuichiro; Kuniyoshi, Masayuki; Kondo, Shoji; and Omata, Yasukuni, to Minolta Camera Kabushiki Kaisha. Method of transferring toner powder image by pressure and apparatus therefor. 4,380,385, Cl. 355-3.0TR.
Ozawa, Toshiaki: *See—*
Sado, Ichiro; and Ozawa, Toshiaki, 4,380,726, Cl. 320-48.000.
P.F.W. Beheer B.V.: *See—*
van den Bosch, Steven; Kettenes, Dirk K.; Bart de Roos, Kris; Sipma, Gerben; and Stoffelsma, Jan, 4,380,655, Cl. 549-472.000.
Paddock, Stephen W.; and Tershak, Andrew T., to Whirlpool Corporation. Temperature sensing circuit with high noise immunity. 4,380,155, Cl. 62-229.000.
Palmer, Thomas W. Gas operated valve actuator. 4,380,325, Cl. 251-14.000.
Palombo, Gaston; and Fortescue, Stephen M., to Dataproducts Corporation. Magnetic printer and printhead. 4,380,768, Cl. 346-74.500.
Panov, Vladimir V.: *See—*
Mazurin, Igor M.; Netupsky, Mikhail L.; Shevtsov, Alexandr V.; Gladky, Viktor T.; Dmitriev, Nikolai A.; Lyapin, Andrei G.; Polyakov, Alexandr V.; Myshev, Mikhail A.; and Panov, Vladimir V., 4,380,532, Cl. 423-469.000.
Pap nee Imrenyi, Gabriella: *See—*
Szejtli, Jozsef; Budai, Zsuzsanna; Tetenyi nee Erdosi, Magda; and Pap nee Imrenyi, Gabriella, 4,380,626, Cl. 536-103.000.
Parmenon, Daniel: *See—*
Godat, Jean; Parmenon, Daniel; Krzywdziak, Alain; and Boudin, Daniel, 4,380,399, Cl. 366-289.000.
Parmer, Kenneth R.; and Stape, William J., to AMP Incorporated. Cartridge, holder and connector system. 4,380,360, Cl. 339-17.0CF.
Patel, Raman: *See—*
Coran, Aubert Y.; and Patel, Raman, 4,380,606, Cl. 525-196.000.
Patzelt, Helmut: *See—*
Waldschutz, Heinz; Rauner, Franz; and Patzelt, Helmut, 4,380,341, Cl. 277-56.000.
Pauperas, Victor: *See—*
Casale, Thomas M.; Schmitz, Frederick J., Jr.; and Pauperas, Victor, 4,380,246, Cl. 137-375.000.
Pavlik, Dennis: *See—*
Swensrud, Roger L.; Pavlik, Dennis; and DeLuca, John J., 4,380,362, Cl. 339-112.00L.
Payer-Lux Elektroprodukte Gesellschaft m.b.H.: *See—*
Naimer, Gundolf; and Hauer, Kurt, 4,380,121, Cl. 30-42.000.
Payne, Roger A.: *See—*
Gray, Herbert W.; and Payne, Roger A., 4,380,252, Cl. 138-125.000.
Payton, Charles E.: *See—*
Waters, Kenneth H.; Hopkins, John R.; and Payton, Charles E., 4,380,806, Cl. 367-27.000.
Peabody Coal Company: *See—*
Campbell, John A. L.; Moynihan, Daniel J.; Roper, William D.; and Willis, Earl C., 4,380,353, Cl. 299-12.000.
Peart, Leland L.; and Farrar, John, to United States of America, Air Force. Corrosion monitoring system. 4,380,763, Cl. 340-870.160.
Pennwalt Corporation: *See—*
Gallagher, Ronald B.; and Novits, Michael F., 4,380,605, Cl. 525-14.000.
Perrey, Hermann: *See—*
Neuhaus, Karl-Friedrich; Perrey, Hermann; Fuhr, Karl; Freier, Hans-Joachim; and Bendszus, Otto, 4,380,604, Cl. 524-873.000.
Perry, Richard E.: *See—*
Tooke-Kirby, David H.; Perry, Richard E.; and Arbuckle, Kenneth H., 4,380,599, Cl. 525-370.000.
Petaway, John B.; and Gabriel, Otis C. Quick release fire hose cabinet. 4,380,269, Cl. 169-51.000.
Peterpaul, Joseph, to Thomas & Betts Corporation. Cable slitting and spreading tool. 4,380,256, Cl. 140-106.000.
Peters, Mary K., to Eli Lilly and Company. Synthesis of acylated benzothiophenes. 4,380,635, Cl. 546-202.000.
Peterson Manufacturing Co.: *See—*
Potts, Virgil W., 4,380,793, Cl. 362-267.000.
Petijean, Christian: *See—*
Marchand, Maurice; and Petijean, Christian, 4,380,830, Cl. 455-327.000.
Petrocarbon Developments Ltd.: *See—*
Haslam, Alan A.; Isalski, Wieslaw H.; and Tomlinson, Terence R., 4,380,461, Cl. 62-11.000.
Petroleum Fermentations N.V.: *See—*
Gutnick, David L.; Rosenberg, Eugene; Belsky, Igal; and Zinaida, Zosim, 4,380,504, Cl. 252-356.000.
Pfaff, William, to Motorola, Inc. Peripheral interface adapter circuit for counter synchronization. 4,380,736, Cl. 328-73.000.
Pfeiler, Manfred, to Siemens Aktiengesellschaft. X-Ray diagnostic system comprising a radiography unit with an X-ray tube which emits a fan-shaped radiation beam. 4,380,818, Cl. 378-099.000.
Pfizer: *See—*
Johnson, Michael R., 4,380,542, Cl. 424-248.550.
Phillips Petroleum Company: *See—*
Hitzman, Donald O., 4,380,584, Cl. 435-313.000.
Ryan, Lawrence A., 4,380,317, Cl. 236-15.0BF.
Solomon, Paul W., 4,380,659, Cl. 549-532.000.
Phy, William S., to Fairchild Camera & Instrument Corp. Radiation protection for integrated circuits utilizing tape automated bonding. 4,380,566, Cl. 428-192.000.
Picker Corporation: *See—*
Everett, Dennis; and Jukic, Vjekoslav, 4,380,819, Cl. 378-114.000.
Pickering, Alan H., to English Electric Valve Company Limited. Magnetrons. 4,380,717, Cl. 315-39.510.
Pierre Fabre S.A.: *See—*
Mouzin, Gilbert; Cousse, Henri; and Stenger, Antoine, 4,380,667, Cl. 564-195.000.
Pierson, Darrell E.: *See—*
Brookhyser, Byron B.; Lictenwalter, Robert H.; McGee, Arthur L.; and Pierson, Darrell E., 4,380,259, Cl. 144-357.000.
Pike, Keith E.: *See—*
Skoch, Leroy V.; and Pike, Keith E., 4,380,424, Cl. 425-331.000.
Pilgrim Engineering Developments Limited: *See—*
Bunyan, Thomas W., 4,380,181, Cl. 81-57.380.
Pischinger, Anton, to Friedmann & Maier Aktiengesellschaft. Fuel injection pump for internal combustion engines. 4,380,222, Cl. 123-365.000.
Pitney Bowes Inc.: *See—*
Auerbach, David R., 4,380,210, Cl. 118-253.000.
Reid, Robert R.; Winkler, Edward; and Girard, Stephen E., 4,380,209, Cl. 118-253.000.
Platz, Rolf: *See—*
Rieber, Norbert; Platz, Rolf; and Fuchs, Werner, 4,380,642, Cl. 548-255.000.
PLM Aktiebolag: *See—*
Jakobsen, Kjell M.; and Nilsson, Claes T., 4,380,525, Cl. 264-521.000.
Plundrich, Winfried: *See—*
Dotzer, Richard; and Plundrich, Winfried, 4,380,170, Cl. 73-147.000.
Pohl, Lothar: *See—*
Sorensen, Norman L.; and Pohl, Lothar, 4,380,351, Cl. 296-217.000.
Polaroid Corporation: *See—*
Reynard, John M., 4,380,807, Cl. 367-97.000.
Polyakov, Alexandr V.: *See—*
Mazurin, Igor M.; Netupsky, Mikhail L.; Shevtsov, Alexandr V.; Gladky, Viktor T.; Dmitriev, Nikolai A.; Lyapin, Andrei G.; Polyakov, Alexandr V.; Myshev, Mikhail A.; and Panov, Vladimir V., 4,380,532, Cl. 423-469.000.
Pomante, Louis N., to Solid State Scientific, Inc. Method of making a semiconductor device with a seal. 4,380,115, Cl. 29-588.000.
Pommer, Ernst-Heinrich: *See—*
Sauter, Hubert; Ammermann, Eberhard; Rentzea, Costin; Zeeh, Bernd; Jung, Johann; and Pommer, Ernst-Heinrich, 4,380,546, Cl. 424-269.000.
Post, Willem P., to Thomassen & Drijver-Verblifa N.V. Squeezer flanger. 4,380,165, Cl. 72-355.000.
Postma, Gosse J., to U.S. Philips Corporation. Color television display tube with resistor for interference radiation reduction. 4,380,715, Cl. 315-3.000.
Potts, Virgil W., to Peterson Manufacturing Co. Submersible vehicular lamp assembly. 4,380,793, Cl. 362-267.000.
Poyser, Robert H.; and Turner, David H., to Beecham Group Limited. Tablets. 4,380,540, Cl. 424-233.000.

PPG Industries, Inc.: *See*—
Matesa, Joseph M., 4,380,463, Cl. 65-99.200.
Welsh, David A.; Dowbenko, Rostyslaw; Das, Suryya K.; Kania, Charles M.; and Christenson, Roger M., 4,380,601, Cl. 524-555.000.
Prabhu, Ashok N.; and Hang, Kenneth W., to RCA Corporation. Indium oxide resistor inks. 4,380,750, Cl. 338-308.000.
Pratt, Charles D. Bird house and method of making same. 4,380,336, Cl. 273-157.00R.
Pray, Winston C., to Flexible Steel Lacing Company. Method for applying belt fasteners to a belt. 4,380,109, Cl. 29-466.000.
Precision Plastic Products Corporation: *See*—
Alejandro Llera, Santos A. A., 4,380,299, Cl. 215-252.000.
Preux, Marie Vuissoz-de, heir: *See*—
Vuissoz, Constant, deceased; Mosoni-Vuissoz, Cesarine, heir; and Voide-Vuissoz, Suzanne, heir, 4,380,430, Cl. 431-347.000.
Prevot, Maurice: *See*—
Delfino, Jean-Jacques; and Prevot, Maurice, 4,380,480, Cl. 148-12.400.
Proebsting, Robert J., to Mostek Corporation. Tape burn-in circuit. 4,380,805, Cl. 365-201.000.
Qonaar Corporation: *See*—
Glinka, John S.; and Zack, Larry E., 4,380,316, Cl. 232-16.000.
Quirin, Michel: *See*—
Wattron, Albert; and Quirin, Michel, 4,380,142, Cl. 56-370.000.
R. Howard Strasbaugh, Inc.: *See*—
Walsh, Thomas A., 4,380,412, Cl. 409-314.000.
Radley, Barry G.: *See*—
Desyllas, Peter L.; Radley, Barry G.; Rawsthorne, Alasdair; Eaton, John R.; and Murray, John E., 4,380,797, Cl. 364-200.000.
Raeder, Arthur; and Raeder, Celia R. Permanent one visit bonded bridge no drilling, and kit therefor. 4,380,435, Cl. 433-180.000.
Raeder, Celia R.: *See*—
Raeder, Arthur; and Raeder, Celia R., 4,380,435, Cl. 433-180.000.
Ralston Purina Company: *See*—
Skoch, Leroy V.; and Pike, Keith E., 4,380,424, Cl. 425-331.000.
Ramos, Pedro A. Hip prosthesis. 4,380,090, Cl. 3-1.912.
Rasberger, Michael; and Evans, Samuel, to Ciba-Geigy Corporation. N-Substituted 6-amino-dibenz[c,e][1,2]oxaphosphorines. 4,380,515, Cl. 260-936.000.
Rasberger, Michael, to Ciba-Geigy Corporation. Process for the production of 2,2'-dihydroxy-biphenyls. 4,380,676, Cl. 568-730.000.
Rathborne, Brian A.; and Ryan, Bruce R., to BOC Limited. Separation of air. 4,380,457, Cl. 55-33.000.
Rauner, Franz: *See*—
Waldschutz, Heinz; Rauner, Franz; and Patzelt, Helmut, 4,380,341, Cl. 277-56.000.
Rawsthorne, Alasdair: *See*—
Desyllas, Peter L.; Radley, Barry G.; Rawsthorne, Alasdair; Eaton, John R.; and Murray, John E., 4,380,797, Cl. 364-200.000.
Raytheon Company: *See*—
Nicholls, Robin P., 4,380,816, Cl. 375-94.000.
RCA Corporation: *See*—
Goodman, Alvin M., 4,380,773, Cl. 357-23.000.
Kaplan, Leonard A., 4,380,740, Cl. 330-288.000.
Mazgy, James D., 4,380,741, Cl. 330-308.000.
Prabhu, Ashok N.; and Hang, Kenneth W., 4,380,750, Cl. 338-308.000.
Reder, Kenneth J. Tamper-resistant lock. 4,380,163, Cl. 70-364.00A.
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Allard, Pierre-Yves; and Leconte, Gilles, 4,380,799, Cl. 364-426.000.
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Reichelderfer, Richard F.; Vogel, Diane C.; and Tang, Marian C., to Branson International Plasma Corporation. Process and gas mixture for etching aluminum. 4,380,488, Cl. 156-643.000.
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Reninger, James D. Candlelamp-table. 4,380,200, Cl. 108-23.000.
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Sauter, Hubert; Ammermann, Eberhard; Rentzea, Costin; Zeeh, Bernd; Jung, Johann; and Pommer, Ernst-Heinrich, 4,380,546, Cl. 424-269.000.
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Dickson, J. Douglas; Sweeney, J. David; and Coleman, Ronald K., 4,380,446, Cl. 493-11.000.
Rexroth GmbH: *See*—
Wusthof, Peter; and Schneider, Johann, 4,380,420, Cl. 418-61.00B.
Reynard, John M., to Polaroid Corporation. Echo recognition system. 4,380,807, Cl. 367-97.000.
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Stern, Richard M., 4,380,543, Cl. 424-258.000.
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Orlando, Michael D.; and Riley, Jean M., 4,380,582, Cl. 435-239.000.
Rinneburger, Klaus: *See*—
Adamek, Manfred; and Rinneburger, Klaus, 4,380,783, Cl. 360-99.000.
Robert Bosch GmbH: *See*—
Eheim, Franz, 4,380,221, Cl. 123-343.000.
Kuhlmann, Gerhard; Wolf, Erwin; and Wahl, Gunter, 4,380,693, Cl. 200-330.000.
Wesemeyer, Jurgen; Haubner, Georg; and Meier, Werner, 4,380,225, Cl. 123-613.000.
Roberts, Elliott D. Dehydrator apparatus with unidirectional air flow control means. 4,380,127, Cl. 34-197.000.
Roberts, John T., to UOP Inc. Amines of alkoxydiphenyl esthers as antioxidants and lubricating oils and greases containing same. 4,380,497, Cl. 252-47.500.
Robertshaw Controls Company: *See*—
Weaver, Marvin P., 4,380,251, Cl. 137-877.000.
Robertson, William H.: *See*—
Walker, Jesse P.; and Robertson, William H., 4,380,095, Cl. 19-80.00R.
Robeson, Lloyd M.; and Matzner, Markus, to Union Carbide Corporation. Flame retardant polyarylate compositions. 4,380,598, Cl. 524-163.000.
Rocha, Frank; and Spector, George. Foot exerciser. 4,380,231, Cl. 128-57.000.
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Clendening, Steven J., 4,380,815, Cl. 375-80.000.
Cunningham, Vernon R., 4,380,711, Cl. 307-491.000.
Fjeldsted, Thomas P., 4,380,363, Cl. 350-1.300.
Hallford, Ben R., 4,380,831, Cl. 455-327.000.
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Rogers, Colin Ward: *See*—
Smith, Joseph, 4,380,124, Cl. 33-433.000.
Rohde, Robert S.: *See*—
Buser, Rudolph G.; Rohde, Robert S.; and Nomiyama, Neal T., 4,380,391, Cl. 356-5.000.
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Chong, Berni P., 4,380,590, Cl. 521-33.000.
Rolls-Royce Limited: *See*—
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Romanova, Roza M.: *See*—
Shevakin, Jury F.; Shpichinetsky, Efim S.; Fedorenko, Valentina P.; Efremov, Boris N.; Klevchenkova, Maria N.; Andrjuschenko, Ivan A.; Krasnoselsky, Iosif A.; Anikeev, Evgeny F.; Ivanov, Evgeny A.; Khomyachkov, Anatoly P.; Shvarts, Naum A.; Kozhevnikova, Ljudmila V.; Romanova, Roza M.; and Zhivotchenko, Alexandr D., 4,380,528, Cl. 420-505.000.
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Butts, Orville R., 4,380,698, Cl. 219-492.000.
Roper, William D.: *See*—
Campbell, John A. L.; Moynihan, Daniel J.; Roper, William D.; and Willis, Earl C., 4,380,353, Cl. 299-12.000.
Roscher, Gunter; Schaum, Helmut; and Schmitz, Heinz, to Hoechst Aktiengesellschaft. Process for the preparation of practically formic acid-free acetic acid. 4,380,663, Cl. 562-536.000.
Rose, Robert C.: *See*—
Leis, Michael D.; and Rose, Robert C., 4,380,723, Cl. 318-314.000.
Rosenberg, Eugene: *See*—
Gutnick, David L.; Rosenberg, Eugene; Belsky, Igal; and Zinaida, Zosim, 4,380,504, Cl. 252-356.000.
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Liebermann, Howard H.; Frischmann, Peter G.; and Rosenberry, George M., Jr., 4,380,572, Cl. 428-592.000.
Rosler, Helmut, to Siemens Aktiengesellschaft. Digital semiconductor circuit. 4,380,705, Cl. 307-247.00R.

Roto-Finish Company, Inc.: *See—*
Balz, Gunther W., 4,380,137, Cl. 51-163.100.
Rozzi, Mario, to Detroit Radiant Products Company. Safety tip-over device for portable gas-fired infrared radiant heater. 4,380,428, Cl. 431-88.000.
Ruckel, Erwin R.; and Epstein, Martin, to Arizona Chemical Company. Inert rosin esters and process for preparing the same. 4,380,513, Cl. 260-104.000.
Rudd, Thomas H.: *See—*
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Runions, Sinville, to International Shoe Machine Corporation. Cement applying machine and method. 4,380,524, Cl. 264-263.000.
Runkle, Charles J.: *See—*
Otstot, Roger S.; and Runkle, Charles J., 4,380,460, Cl. 55-158.000.
Rushton, John: *See—*
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Rutgerswerke Aktiengesellschaft: *See—*
Stadelhofer, Jurgen; Franck, Heinz-Gerhard; Koch, Karl H.; and Marrett, Rolf, 4,380,454, Cl. 44-1.00B.
Ryan, Bruce R.: *See—*
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Ryan, Lawrence A., to Phillips Petroleum Company. Furnace control. 4,380,317, Cl. 236-15.0BF.
Sable, Donald E. Well tool. 4,380,347, Cl. 285-45.000.
Sado, Ichiro; and Ozawa, Toshiaki, to Canon Kabushiki Kaisha. Battery service life indicator. 4,380,726, Cl. 320-48.000.
Saferstein, Al; and Spector, Gilbert, to Innomed Corporation. Multi-function light device. 4,380,790, Cl. 362-231.000.
Saito, Keiki: *See—*
Ito, Takeshi; Ishizuka, Shuzo; Goto, Keiichi; and Saito, Keiki, 4,380,284, Cl. 198-494.000.
Saito, Shoichiro: *See—*
Hirose, Yasuyuki; Shimaoka, Motohiro; Saito, Shoichiro; and Kowaguchi, Toru, 4,380,782, Cl. 360-99.000.
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Saltzman, Robert S., to Du Pont de Nemours, E. I., and Company. Method and apparatus for photometrically monitoring low level concentration of hydrogen sulfide in alkanol amine. 4,380,586, Cl. 436-121.000.
Samaan, Samir: *See—*
Stadler, Peter; Koebernick, Wolfgang; Samaan, Samir; and Gau, Wolfgang, 4,380,625, Cl. 536-13.900.
Sandell, Lionel S., to Du Pont de Nemours, E. I., and Company. Stabilization of water-bearing explosives having a thickened continuous aqueous phase. 4,380,482, Cl. 149-21.000.
Sanders, David E., to E-Systems, Inc. Fast AGC slew circuit. 4,380,737, Cl. 330-134.000.
Sandner, Michael R.: *See—*
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Sandoz Ltd.: *See—*
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Sanger, Gerd: *See—*
Koerner, Gotz; Sanger, Gerd; Fink, Hans-Ferdi; and Grassmann, Friedhelm, 4,380,503, Cl. 252-314.000.
Sankin Industries, Ltd.: *See—*
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Sano, Kazuo: *See—*
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Sarantakis, Dimitrios; and Dvonch, William, to American Home Products Corporation. Enkephalin degrading enzyme inhibitors. 4,380,535, Cl. 424-177.000.
Sato, Masanobu, to Olympus Optical Co., Ltd. Main switch for tape recorder. 4,380,691, Cl. 200-51.00R.
Sato, Tadashi, to Clarion Co., Ltd. Automatic power supply system. 4,380,809, Cl. 369-6.000.
Sato, Yasuhisa; and Tsuji, Sadahiko, to Canon Kabushiki Kaisha. Compact zoom lens. 4,380,377, Cl. 350-427.000.
Sauerbrunn, Robert D., to Du Pont de Nemours, E. I., and Company. Diamine recovery process. 4,380,615, Cl. 526-65.000.
Saunders Archery Company: *See—*
Saunders, Charles A., 4,380,226, Cl. 124-41.00A.
Saunders, Charles A., to Saunders Archery Company. Winged arrow rest. 4,380,226, Cl. 124-41.00A.
Saunders, David H., to National Research Development Corporation. Cleaning pipes using mixtures of liquid and abrasive particles. 4,380,477, Cl. 134-7.000.
Sauter, Hubert; Ammermann, Eberhard; Rentzea, Costin; Zeeh, Bernd; Jung, Johann; and Pommer, Ernst-Heinrich, to BASF Aktiengesellschaft. Azole compounds, their preparation, their use for crop treatment, and agents for this purpose. 4,380,546, Cl. 424-269.000.
Sawaki, Yasumasa: *See—*
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Schacht, Barry M., to Mirrycle Corporation. Adjustable support system for cycle mirror. 4,380,369, Cl. 350-307.000.
Schadlich, Gunther: *See—*
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Scherrer, Joseph H.: *See—*
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Schmidt, Thomas R., to Miles Laboratories, Inc. Method of imparting a reddish color to seasoning salts. 4,380,553, Cl. 426-250.000.
Schmitt, Frederick L.: *See—*
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Schmitt, Reinhold, to Siemens Aktiengesellschaft. Method and device for the regulation of a magnetic deflection system. 4,380,703, Cl. 250-396.0ML.
Schmitz, Frederick J., Jr.: *See—*
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Schneiter, Fred E.: *See—*
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Schneiter, John W.; Reiss, Ronald J.; and Enskat, Albert G., to Container Technologies, Inc. Flexible container with displaceable fitting and probe coupler apparatus. 4,380,310, Cl. 222-501.000.
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Schuster, Samuel J. Method of making breathable receptacles. 4,380,485, Cl. 156-254.000.
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Schwarz, Eckhard C. A. Apparatus and process for melt-blowing a fiberforming thermoplastic polymer and product produced thereby. 4,380,570, Cl. 428-296.000.
Schweiger, Gustav: *See—*
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Schweizerische Eidgenossenschaft, represented by Eidg. Munitionsfabrik Thun der Gruppe fur Rustungsdienste: *See—*
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Sea Savory Inc.: *See—*
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Searle, John L., to Honeywell Inc. Combustible gas analyzer. 4,380,400, Cl. 374-37.000.
Segar, Richard B.; and Marascalco, Lewis C., to GPD Inc. Electronic calorie counter. 4,380,802, Cl. 364-900.000.
Seragnoli, Enzo, to G. D. Societa' per Azioni. Conveyor system for bar-shaped articles, particularly cigarettes. 4,380,286, Cl. 198-605.000.
Serres, Carl, Jr., to Standard Oil Company (Indiana). Polymeric monohydroxybenzenoid hydroquinoid antioxidants. 4,380,554, Cl. 426-545.000.
Seton Company: *See—*
Cioca, Gheorghe; and Fertell, Paul A., 4,380,474, Cl. 106-155.000.
Seybold, Guenther, to BASF Aktiengesellschaft. Preparation of optical brighteners. 4,380,514, Cl. 260-465.00H.
Shannon, John K. Battery terminal connector and method. 4,380,291, Cl. 206-343.000.
Shannon, Paul D.; and Bruce, William C., Jr., to Motorola, Inc. Semaphore register including ownership bits. 4,380,798, Cl. 364-200.000.
Sharpe, Claude A.: *See—*
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Shaw, Robert E., to Spenco Medical Corporation. Lightweight preformed stable gel structures and method of forming. 4,380,569, Cl. 428-283.000.
Shell Oil Company: *See—*
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Shell Research Limited: *See—*
Mead, Howard B.; and Williams, Graham L., 4,380,253, Cl. 138-149.000.
Sherman, Moshe, to Israel Aircraft Industries, Ltd. Generator-battery DC power supply system. 4,380,725, Cl. 320-35.000.
Shevakin, Jury F.; Shpichinetsky, Efim S.; Fedorenko, Valentina P.; Efremov, Boris N.; Klevchenkova, Maria N.; Andrjuschenko, Ivan A.; Krasnoselsky, Iosif A.; Anikeev, Evgeny F.; Ivanov, Evgeny A.; Khomyachkov, Anatoly P.; Shvarts, Naum A.; Kozhevnikova, Ljudmila V.; Romanova, Roza M.; and Zhivotchenko, Alexandr D. Silver-based alloy. 4,380,528, Cl. 420-505.000.
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Shigut, Leo J., to Sokolski, Edward A., a part interest. Liquid spray nozzle. 4,380,319, Cl. 239-540.000.
Shiho, Makoto: *See—*
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Shimano Industrial Company Limited: *See—*
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Shimaoka, Motohiro: *See—*
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Ishioka, Sachio; Shimomoto, Yasuharu; Imamura, Yoshinori; Ataka, Saburo; Tanaka, Yasuo; Matsubara, Hirokazu; Takasaki, Yukio; and Maruyama, Eiichi, 4,380,557, Cl. 427-38.000.
Shimozato, Yasuyuki: *See—*
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Shinmyo, Saburo, to Nippon Electric Co., Ltd. Baseband data switching apparatus for digital communications system. 4,380,814, Cl. 375-40.000.
Shinohara, Koichi, to Matsushita Electric Industrial Co., Ltd. Vacuum evaporation system for deposition of thin films. 4,380,211, Cl. 118-718.000.
Shinozaki, Nobuya: *See—*
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Shlykov, Gennady N.: *See—*
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Shono, Hiroaki; Noji, Toshio; and Ishikawa, Shinzo, to Nitto Boseki Co., Ltd. Glass fiber apparatus and method. 4,380,462, Cl. 65-1.000.
Show-Pak, Incorporated: *See—*
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Showa Denko K.K.: *See—*
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Showalter, Edward W.: *See—*
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Dotzer, Richard; and Plundrich, Winfried, 4,380,170, Cl. 73-147.000.
Endlicher, Frank; and Koch, Rudolf, 4,380,755, Cl. 382-68.000.
Intichar, Lutz; Schnapper, Christoph; and Weghaupt, Erich, 4,380,712, Cl. 310-52.000.
Pfeiler, Manfred, 4,380,818, Cl. 378-099.000.
Rosler, Helmut, 4,380,705, Cl. 307-247.00R.
Schmitt, Reinhold, 4,380,703, Cl. 250-396.0ML.
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Siggel, Erhard; Wick, Gerhard; Linhart, Heinz; and Kessler, Erich, to Akzona Incorporated. Filaments and fibers having discontinuous cavities. 4,380,594, Cl. 521-182.000.
Signetics Corporation: *See—*
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Signode Corporation: *See—*
Klaus, Arthur; and Tacke, Horst, 4,380,313, Cl. 227-130.000.
Simizu, Akio, to Niles Parts Co., Ltd. Electric indicator utilizing an oscillation source of a crystal clock for automobiles. 4,380,754, Cl. 340-73.000.
Simo, Miroslav A. Bleeder attachment for arrows. 4,380,340, Cl. 273-416.000.
Simokat, Frank L., to TII Industries Inc. Telephone ringing range extender. 4,380,688, Cl. 179-84.00R.
Sims, Steve A.: *See—*
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Jefferson, John R.; and Skinner, Robert T. J., 4,380,223, Cl. 123-383.000.
Skoch, Leroy V.; and Pike, Keith E., to Ralston Purina Company. Pellet die. 4,380,424, Cl. 425-331.000.
Slaugh, Lynn H., to Shell Oil Company. Conversion of alkanols to ethers. 4,380,657, Cl. 549-509.000.
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Smith, Harry D., Jr.; and Schultz, Ward E., to Texaco Inc. Nuclear well logging with neutron source and separate spaced radiation detectors to determine silicon/oxygen ratio. 4,380,701, Cl. 250-266.000.
Smith, Hoyt L.; Frederick, Cecil S., deceased; and by Frederick, Wallace, administrator, to Cutters Exchange, Inc. Catcherless cloth spreading machine. 4,380,330, Cl. 270-31.000.
Smith, Joseph, to Rogers, Colin Ward, a part interest. Drawing board. 4,380,124, Cl. 33-433.000.
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Baker, Donald R.; Barr, Thomas R.; and Smith, Paul C., Jr., 4,380,271, Cl. 175-391.000.
Smith, Terry J., to AMP Incorporated. Method and apparatus for measuring normal contact forces in electrical connector. 4,380,171, Cl. 73-161.000.
Smock, William L. Oscillating-accumulating conveyor system. 4,380,287, Cl. 198-648.000.
Smulders, Henricus W. W.: *See—*
Franken, Adrianus J. J.; Coolen, Franciscus M.; Khoe, Giok D.; Langerhorst, Jacob; and Smulders, Henricus W. W., 4,380,366, Cl. 350-96.210.
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Bournonville, Jean-Paul; Snappe, Roger; Miquel, Jean; and Martino, Germain, 4,380,673, Cl. 568-361.000.
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Menager, Jean, 4,380,416, Cl. 415-170.00A.
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Vicard, Jean-Francois, 4,380,189, Cl. 98-58.000.
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Shigut, Leo J., 4,380,319, Cl. 239-540.000.
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Pomante, Louis N., 4,380,115, Cl. 29-588.000.
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Muller, Hanns P.; Sommerfeld, Claus-Dieter; and Becker, Gernot, 4,380,502, Cl. 252-182.000.
Sorensen, Charles L.: *See—*
Andrews, Alfred G.; and Sorensen, Charles L., 4,380,402, Cl. 401-74.000.
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Bennett, William G.; and Spease, Arthur L., 4,380,178, Cl. 74-501.00P.
Spector, George: *See*—
Rocha, Frank; and Spector, George, 4,380,231, Cl. 128-57.000.
Spector, Gilbert: *See*—
Saferstein, Al; and Spector, Gilbert, 4,380,790, Cl. 362-231.000.
Spenco Medical Corporation: *See*—
Shaw, Robert E., 4,380,569, Cl. 428-283.000.
Sperry Corporation: *See*—
Nolt, Edwin B., 4,380,207, Cl. 114-298.000.
Spire Corporation: *See*—
Little, Roger G., 4,380,112, Cl. 29-572.000.
Sprague, Robert A., to Xerox Corporation. Conformable proximity coupled electro-optic devices. 4,380,373, Cl. 350-356.000.
Stadelhofer, Jurgen; Franck, Heinz-Gerhard; Koch, Karl H.; and Marrett, Rolf, to Rutgerswerke Aktiengesellschaft. Coking quality of coals with insufficient coking properties. 4,380,454, Cl. 44-1.00B.
Stadler, Peter; Koebernick, Wolfgang; Samaan, Samir; and Gau, Wolfgang, to Bayer Aktiengesellschaft. Process for the preparation of purified aminoglycoside antibiotics. 4,380,625, Cl. 536-13.900.
Staeng Ltd.: *See*—
Bray, John, 4,380,349, Cl. 285-417.000.
Standard Oil Company, The: *See*—
Dolhyj, Serge R.; and Velenyi, Louis J., 4,380,683, Cl. 585-268.000.
Greene, Janice L.; and Loza, Roman, 4,380,623, Cl. 528-335.000.
Velenyi, Louis J.; and Krupa, Andrew S., 4,380,672, Cl. 568-310.000.
Standard Oil Company (Indiana): *See*—
Serres, Carl, Jr., 4,380,554, Cl. 426-545.000.
Udovich, Carl A.; and Meyers, Bernard L., 4,380,648, Cl. 549-259.000.
Stape, William J.: *See*—
Parmer, Kenneth R.; and Stape, William J., 4,380,360, Cl. 339-17.0CF.
Stauffer Chemical Company: *See*—
Felix, Raymond A., 4,380,468, Cl. 71-100.000.
Wong, Rayman Y., 4,380,467, Cl. 71-100.000.
Steffen, Klaus-Dieter, to Dynamit Nobel Aktiengesellschaft. Method of preparing quinolines, naphthyridines and other nitrogen bi-heterocyclic compounds. 4,380,632, Cl. 544-279.000.
Steidinger, Donald J., to Wallace Computer Services, Inc. Mailer. 4,380,315, Cl. 229-69.000.
Steinberger, Helmut; Kortmann, Wilfried; and Tuschen, Jurgen, to Bayer Aktiengesellschaft. Continuous dyeing and simultaneous finishing of textile materials using defoaming agent of polyoxyalkylene polysiloxane copolymer and hydrophobic silica. 4,380,451, Cl. 8-477.000.
Stendel, Wilhelm: *See*—
Maurer, Fritz; Schroder, Rolf; Hammann, Ingeborg; and Stendel, Wilhelm, 4,380,538, Cl. 424-200.000.
Stenger, Antoine: *See*—
Mouzin, Gilbert; Cousse, Henri; and Stenger, Antoine, 4,380,667, Cl. 564-195.000.
Stern, Richard M., to Riker Laboratories, Inc. Antimicrobial 8-cyano-6,7-dihydro-5-methyl-1-oxo-1H,5H-benzo[ij]quinolizine-2-carboxylic acids. 4,380,543, Cl. 424-258.000.
Stevenson, David M.; and Flanders, Gale L., to Varian Associates, Inc. Simplified double balanced frequency converter. 4,380,829, Cl. 455-327.000.
Stewart, James A., to GTE Automatic Electric Laboratories, Inc. Power supply control circuit for subscriber carrier telephone system. 4,380,687, Cl. 179-2.0BC.
Stillinger, Scott H., to Dart Industries Inc. Dispensing devices. 4,380,307, Cl. 222-142.900.
Stingelin, Willy; and Loew, Peter, to Ciba-Geigy Corporation. Cationic compounds. 4,380,627, Cl. 542-423.000.
Stoffelsma, Jan: *See*—
van den Bosch, Steven; Kettenes, Dirk K.; Bart de Roos, Kris; Sipma, Gerben; and Stoffelsma, Jan, 4,380,655, Cl. 549-472.000.
Stoll, Kurt. Choke unit. 4,380,250, Cl. 137-599.000.
Stone Container Corporation: *See*—
Davis, Dwight M., 4,380,332, Cl. 271-224.000.
Stone, Kenneth. Clamp for bounce-flash apparatus. 4,380,787, Cl. 362-16.000.
Stowe, David W., to Gould Inc. Fiber optic interferometer. 4,380,394, Cl. 356-358.000.
Strand, David E.: *See*—
Soderberg, Mark S.; Hametner, Albert L.; Leppink, Herman F.; and Strand, David E., 4,380,295, Cl. 209-558.000.
Studna, Ambrose A.: *See*—
Aspnes, David E.; and Studna, Ambrose A., 4,380,490, Cl. 156-662.000.
Suchy, Milos, to Hoffmann-La Roche Inc. 2-[4-(4-Substituted phenoxy)phenoxy]propanoic acids and esters. 4,380,661, Cl. 560-62.000.
Suda, Shigeyuki; and Tanaka, Kazuo, to Canon Kabushiki Kaisha. Zoom objective. 4,380,376, Cl. 350-427.000.
Suga, Yoshinori: *See*—
Hasuo, Masayoshi; Suga, Yoshinori; Kitada, Hisashi; Maruyama, Yasuo; and Gotoh, Junichi, 4,380,608, Cl. 525-247.000.
Sugiyama, Hiroyuki: *See*—
Hirata, Atsumi; Tajima, Osamu; Kaneda, Isami; Sugiyama, Hiroyuki; Saito, Takashi; and Mochizuki, Masafumi, 4,380,780, Cl. 360-97.000.
Sulkoski, Jerome; and Brugger, Richard D. Apparatus to alert a deaf person. 4,380,759, Cl. 340-407.000.
Sulzbacher, Horst, to Voest-Alpine Aktiengesellschaft. Process and apparatus for continuously reducing and melting metal oxides and/or pre-reduced metallic materials. 4,380,469, Cl. 75-38.000.
Sun, Shan C.; and Church, Larry L., to Westinghouse Electric Corp. Pulse modulator using capacitor charging and discharging circuits. 4,380,746, Cl. 332-9.00R.
Sundman, Carl-Erik; and Hagglund, Bengt G., to KenoGard A.B. Treatment of wood using branched-chain aliphatic carboxylic acids. 4,380,561, Cl. 427-421.000.
Sunkist Growers, Inc.: *See*—
Carter, Ned C.; and Cramer, Jerry W., 4,380,194, Cl. 101-35.000.
Suppa, Vito, to Thomson-CSF. Droppable airborne buoy. 4,380,440, Cl. 441-30.000.
Suzuki, Haruo; and Hashimoto, Shigeyoshi, to Nippondenso Co., Ltd. Die-casting method. 4,380,261, Cl. 164-120.000.
Suzuki, Toshio, to Toray Silicone Co., Ltd. Coating material for optical communication glass fibers. 4,380,367, Cl. 350-96.340.
Swanson, Barry J.: *See*—
Koch, Tad H.; and Swanson, Barry J., 4,380,647, Cl. 548-519.000.
Swartz, Frederick R., to Clamp-All Corp. Pipe clamping assembly. 4,380,348, Cl. 285-236.000.
Sweeney, J. David: *See*—
Dickson, J. Douglas; Sweeney, J. David; and Coleman, Ronald K., 4,380,446, Cl. 493-11.000.
Sweet, Roger; and Tribe, Leonard T., to Kelsey-Hayes Co. Slack adjuster for vehicle brakes. 4,380,276, Cl. 188-79.50K.
Swensrud, Roger L.; Pavlik, Dennis; and DeLuca, John J., to Westinghouse Electric Corp. Directly cooled bolted series connection of generator stator coils. 4,380,362, Cl. 339-112.00L.
Swiss Aluminium Ltd.: *See*—
Gut, Edwin; Arnold, Erwin; and Friedli, Hans, 4,380,492, Cl. 204-67.000.
Sybron Corporation: *See*—
Lawson, Alfred C., 4,380,794, Cl. 362-296.000.
Synthelabo: *See*—
Caillot, Luc, 4,380,233, Cl. 128-204.210.
Szala, Lawrence E.: *See*—
Lee, Minyoung; Szala, Lawrence E.; and Tuft, Roy E., 4,380,471, Cl. 419-11.000.
Szejtli, Jozsef; Budai, Zsuzsanna; Tetenyi nee Erdosi, Magda; and Pap nee Imrenyi, Gabriella, to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara R.T. Hormonal plant growth regulator. 4,380,626, Cl. 536-103.000.
Tabb, David L.: *See*—
Magers, Thomas A.; and Tabb, David L., 4,380,585, Cl. 436-66.000.
Tacke, Horst: *See*—
Klaus, Arthur; and Tacke, Horst, 4,380,313, Cl. 227-130.000.
Tadema, Jan C., to Wiener & Co. B.V. Device for preparing chocolate. 4,380,193, Cl. 99-452.000.
Taguchi, Masaaki, to Kabushiki Kaisha Daini Seikosha. Phase transition mode liquid crystal display device. 4,380,372, Cl. 350-346.000.
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, to Nisshin Flour Milling Co., Ltd. Decaprenylamine derivatives. 4,380,668, Cl. 564-391.000.
Tajima, Osamu: *See*—
Hirata, Atsumi; Tajima, Osamu; Kaneda, Isami; Sugiyama, Hiroyuki; Saito, Takashi; and Mochizuki, Masafumi, 4,380,780, Cl. 360-97.000.
Takada, Juichiro. Warning system for passive vehicle occupant restraint belts. 4,380,751, Cl. 340-52.00E.
Takahashi, Kenji; and Miyahara, Junji, to Fuji Photo Film Co., Ltd. Radiation image storage panel. 4,380,702, Cl. 250-327.200.
Takahashi, Kenji: *See*—
Kawabata, Minoru; Honaga, Susumu; and Takahashi, Kenji, 4,380,472, Cl. 419-9.000.
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Takahashi, Yuji, to Canon Kabushiki Kaisha. Developer supply device. 4,380,309, Cl. 222-450.000.
Takanashi, Akihiro: *See*—
Kuniyoshi, Shinji; Takanashi, Akihiro; and Kurosaki, Toshiei, 4,380,395, Cl. 356-401.000.
Takasaki, Yukio: *See*—
Ishioka, Sachio; Shimomoto, Yasuharu; Imamura, Yoshinori; Ataka, Saburo; Tanaka, Yasuo; Matsubara, Hirokazu; Takasaki, Yukio; and Maruyama, Eiichi, 4,380,557, Cl. 427-38.000.
Takatori, Yasushi, to Canon Kabushiki Kaisha. Ink jet recording process and an apparatus therefor. 4,380,771, Cl. 346-140.00R.
Takebe, Hideharu; and Kobayashi, Hiroshi, to Mitsubishi Denki Kabushiki Kaisha. Automatic sweep digital tuning circuit. 4,380,825, Cl. 455-164.000.
Takeda Chemical Industries, Ltd.: *See*—
Ishida, Yasuo, 4,380,466, Cl. 71-96.000.
Ochiai, Michihiko; and Morimoto, Akira, 4,380,541, Cl. 424-246.000.
Takeda, Kazuo: *See*—
Kaneki, Tadashi; and Takeda, Kazuo, 4,380,405, Cl. 403-318.000.
Takeuchi, Mikio: *See*—
Yano, Hiroshi; Kawasaki, Teruo; Nomura, Hiroyuki; and Takeuchi, Mikio, 4,380,733, Cl. 324-166.000.
Talres Development (N.A.) N.V.: *See*—
Mufti, Khizar S.; and Khan, Riaz A., 4,380,476, Cl. 127-46.300.
Taluba, Anthony P.; and Taluba, Paul A. Molded squeeze toy including whistle. 4,380,134, Cl. 46-117.000.

Udovich, Carl A.; and Meyers, Bernard L., to Standard Oil Company (Indiana). Oxidation of butane to maleic anhydride. 4,380,648, Cl. 549-259.000.
Ueda, Yasuo: See—
Kato, Yoshiaki; Fushida, Akira; Ueda, Yasuo; Tohi, Yasusuke; and Aizawa, Tatsuo, 4,380,196, Cl. 101-453.000.
Ueno, Keisuke: See—
Masuda, Shuji; and Ueno, Keisuke, 4,380,568, Cl. 428-276.000.
Ueno, Tsuyoshi; and Mukai, Hideo, to Tokyo Shibaura Denki Kabushiki Kaisha. Charging device for electronic copier. 4,380,384, Cl. 355-3.0CH.
Ulmer, Harry E.: See—
Mathew, Chempolil T.; and Ulmer, Harry E., 4,380,660, Cl. 556-422.000.
Umetsu, Shinjiro: See—
Nagata, Koichi; and Umetsu, Shinjiro, 4,380,832, Cl. 455-343.000.
Umezawa, Hamao; Okami, Yoshiro; and Kondo, Shinichi, to Zaidan Hojin Biseibutsu Kagaku Kenyku Kai. Istamycins and streptomyces culture for the production thereof. 4,380,581, Cl. 435-80.000.
Underhill, Michael J.; and Walters, Nigel J., to U.S. Philips Corporation. Frequency synthesizer of the phase lock loop type. 4,380,743, Cl. 331-1.00A.
Uniflo Resources, Inc.: See—
Martin, Keith R., 4,380,268, Cl. 166-304.000.
Unimation, Inc.: See—
Masaki, Ichiro, 4,380,696, Cl. 219-124.340.
Union Carbide Corporation: See—
Baskent, Feyyaz O.; and Sandner, Michael R., 4,380,591, Cl. 521-115.000.
Kallen, George H., 4,380,700, Cl. 250-202.000.
Robeson, Lloyd M.; and Matzner, Markus, 4,380,598, Cl. 524-163.000.
U.S. Industries, Inc.: See—
Williams, William R., 4,380,214, Cl. 119-51.0CF.
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Air Force: See—
Korski, Victor E., 4,380,788, Cl. 362-62.000.
Peart, Leland L.; and Farrar, John, 4,380,763, Cl. 340-870.160.
Reinhardt, Bruce A.; and Arnold, Fred E., 4,380,619, Cl. 526-259.000.
Army: See—
Buser, Rudolph G.; Rohde, Robert S.; and Nomiyama, Neal T., 4,380,391, Cl. 356-5.000.
Orlando, Michael D.; and Riley, Jean M., 4,380,582, Cl. 435-239.000.
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Blocher, John M., Jr.; Veigel, Neil D.; and Landrigan, Richard B., 4,380,556, Cl. 427-6.000.
Conner, William V., 4,380,470, Cl. 75-122.700.
Fox, Ronald L., 4,380,267, Cl. 166-303.000.
Glasgow, Lyle E., 4,380,229, Cl. 126-418.000.
Lee, Fred C.; and Carter, Roy A., 4,380,795, Cl. 363-131.000.
Liebermann, Howard H.; Frischmann, Peter G.; and Rosenberry, George M., Jr., 4,380,572, Cl. 428-592.000.
Navy: See—
Atkins, Ronald L., 4,380,634, Cl. 546-89.000.
Baitis, A. Erich; and Woolaver, Dennis A., 4,380,206, Cl. 114-122.000.
Barlow, Michael L.; and Lindstrum, Alan L., 4,380,745, Cl. 331-176.000.
Eaton, Jefferson O., 4,380,197, Cl. 102-228.000.
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U.S. Philips Corporation: See—
Adamek, Manfred; and Rinneburger, Klaus, 4,380,783, Cl. 360-99.000.
Bouman, Anton J.; and Geertsema, Eise B., 4,380,714, Cl. 313-549.000.
De Bijl, Adrianus M. J.; and Chermin, Hubertus M. J., 4,380,719, Cl. 315-101.000.
Franken, Adrianus J. J.; Coolen, Franciscus M.; Khoe, Giok D.; Langerhorst, Jacob; and Smulders, Henricus W. W., 4,380,366, Cl. 350-96.210.
Harding, Geoffrey; and Wagner, Wolfgang, 4,380,817, Cl. 378-87.000.
Hart, Cornelis M., 4,380,708, Cl. 307-457.000.
Monnier, Michel J.; Monneraye, Marc A.; Foucher, Claude; and Le Marchant, Pierre, 4,380,699, Cl. 235-492.000.
Postma, Gosse J., 4,380,715, Cl. 315-3.000.
Underhill, Michael J.; and Walters, Nigel J., 4,380,743, Cl. 331-1.00A.
Velo, Henri J., 4,380,739, Cl. 330-254.000.
University of Missouri, The Curators of the: See—
Graham, Ellis R., 4,380,169, Cl. 73-73.000.
University Patents, Inc.: See—
Koch, Tad H.; and Swanson, Barry J., 4,380,647, Cl. 548-519.000.
UOP Inc.: See—
Arena, Blaise J., 4,380,679, Cl. 568-863.000.
Arena, Blaise J., 4,380,680, Cl. 568-863.000.
Kurek, Paul R., 4,380,677, Cl. 568-788.000.
Maffet, Vere, 4,380,496, Cl. 210-780.000.
Roberts, John T., 4,380,497, Cl. 252-47.500.
Upjohn Company, The: See—
White, David R., 4,380,651, Cl. 549-361.000.
White, David R., 4,380,652, Cl. 549-361.000.
Ursillo, Henry G. Total energy heating unit. 4,380,153, Cl. 60-648.000.
Usugi, Kikuo, to Clarion Co., Ltd. Control system for channel selection. 4,380,826, Cl. 455-165.000.
Uzee, Andre J.: See—
Moreno, Carlos M.; Bridges, Robert D.; and Uzee, Andre J., 4,380,521, Cl. 264-49.000.
V-T Rhythms, Inc.: See—
Holcomb, Gayle, 4,380,185, Cl. 84-1.030.
Vallourec: See—
Delfino, Jean-Jacques; and Prevot, Maurice, 4,380,480, Cl. 148-12.400.
Vance, Fred L., Jr.; Guerra, Rafael E.; and Christenson, Christopher P., to Dow Chemical Company, The. Polymerization of olefins in the presence of chromium-containing catalysts. 4,380,616, Cl. 526-101.000.
Vancsa, Gyorgy I., to Westinghouse Electric Corp. Data acquisition system and analog to digital converter therefor. 4,380,757, Cl. 340-347.0CC.
van den Bosch, Steven; Kettenes, Dirk K.; Bart de Roos, Kris; Sipma, Gerben; and Stoffelsma, Jan, to P.F.W. Beheer B.V. Novel sulfur-containing flavoring agents. 4,380,655, Cl. 549-472.000.
VanderLugt, Thomas, Jr., to James River Corporation of Virginia. Method of closing an open end of a tube or tubular container. 4,380,447, Cl. 493-102.000.
Vanderwerf, Dennis F., to Minnesota Mining & Manufacturing Company. Variable focal length projection lens for use on overhead projectors. 4,380,374, Cl. 350-423.000.
Van Loveren, Augustinus G.: See—
Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., 4,380,658, Cl. 549-525.000.
van Maanen, Johannes D., to Tevopharm-Schiedam B.V. Device for pushing objects off a conveyor. 4,380,283, Cl. 198-456.000.
Van Roekel, John R.: See—
Ziegler, Michael L., II; Druke, Michael B.; Van Roekel, John R.; and Baxter, Ward, II, 4,380,812, Cl. 371-38.000.
Van Scott, Eugene J.; and Yu, Ruey J. Topical treatment of dry skin. 4,380,549, Cl. 424-317.000.
Van Siclen, Howard E., Jr., to Bendix Corporation, The. Ignition system for an internal combustion engine. 4,380,224, Cl. 123-602.000.
Varian Associates, Inc.: See—
Stevenson, David M.; and Flanders, Gale L., 4,380,829, Cl. 455-327.000.
Veigel, Neil D.: See—
Blocher, John M., Jr.; Veigel, Neil D.; and Landrigan, Richard B., 4,380,556, Cl. 427-6.000.
Velenyi, Louis J.; and Krupa, Andrew S., to Standard Oil Company, The. Conversion of 2-phenyl propanal to 2-indanone. 4,380,672, Cl. 568-310.000.
Velenyi, Louis J.: See—
Dolhyj, Serge R.; and Velenyi, Louis J., 4,380,683, Cl. 585-268.000.
Velo, Henri J., to U.S. Philips Corporation. Electronic differential controller. 4,380,739, Cl. 330-254.000.
Verdicchio, Robert J.: See—
Lindemann, Martin K. O.; Mayhew, Raymond L.; O'Lenick, Anthony J., Jr.; and Verdicchio, Robert J., 4,380,637, Cl. 548-112.000.
Vicard, Jean-Francois, to Societe Lab. Industrial chimneys with forced draught. 4,380,189, Cl. 98-58.000.
Victor Company of Japan, Ltd.: See—
Hirata, Atsumi; Tajima, Osamu; Kaneda, Isami; Sugiyama, Hiroyuki; Saito, Takashi; and Mochizuki, Masafumi, 4,380,780, Cl. 360-97.000.
Hirata, Atsumi, 4,380,781, Cl. 360-97.000.
Tanaka, Yoshiaki; and Inami, Mamoru, 4,380,732, Cl. 324-77.00D.
Vinson, Carl G., Jr.: See—
Leitert, Frederick C.; and Vinson, Carl G., Jr., 4,380,682, Cl. 570-219.000.
Vitale, Nicholas G.: See—
Folsom, Lawrence R.; Dineen, John J.; Vitale, Nicholas G.; and Balas, Charles B., Jr., 4,380,152, Cl. 60-520.000.
Voest-Alpine Aktiengesellschaft: See—
Sulzbacher, Horst, 4,380,469, Cl. 75-38.000.
Vogel, Diane C.: See—
Reichelderfer, Richard F.; Vogel, Diane C.; and Tang, Marian C., 4,380,488, Cl. 156-643.000.
Vogl, Otto: See—
Yoshida, Shohei; and Vogl, Otto, 4,380,643, Cl. 548-260.000.
Voide-Vuissoz, Suzanne, heir: See—
Vuissoz, Constant, deceased; Mosoni-Vuissoz, Cesarine, heir; and Voide-Vuissoz, Suzanne, heir, 4,380,430, Cl. 431-347.000.
von Treu AG: See—
Wittenhorst, Augustinus J. M., 4,380,505, Cl. 252-359.00R.
von Bonin, Wulf; and Zaby, Gottfried, to Bayer Aktiengesellschaft. Intumescent compositions. 4,380,593, Cl. 521-163.000.
Von Holdt, John W. Manually removable seal for buckets and cans. 4,380,305, Cl. 220-306.000.
Von Holdt, John W. Longitudinally expansible and contractible hydrostatic mold gate. 4,380,422, Cl. 425-146.000.
Vought Corporation: See—
Fling, George K., 4,380,342, Cl. 277-188.00A.
Vuissoz, Constant, deceased (by Preux, Marie Vuissoz-de, heir); by Mosoni-Vuissoz, Cesarine, heir; and by Voide-Vuissoz, Suzanne, heir, to Limtel, Ltd. Central heating apparatus. 4,380,430, Cl. 431-347.000.
W. C. Bradley Co.: See—
Douglas, Fred O., 4,380,247, Cl. 137-382.000.

W. C. Heraeus GmbH: *See—*
Bischoff, Albrecht, 4,380,775, Cl. 357-67.000.
WABCO Fahrzeugbremsen G.m.b.H.: *See—*
Reinecke, Erich; and Klatt, Alfred, 4,380,177, Cl. 74-475.000.
Wagner, Karl: *See—*
Engelsmann, Dieter; Hoffacker, Franz; Kovacic, Guido; Lermann, Peter; Luhrig, Hermann; and Wagner, Karl, 4,380,382, Cl. 354-275.000.
Wagner, Robert S., to Harris Corporation. RF Amplifier apparatus. 4,380,738, Cl. 330-151.000.
Wagner, Terrence L.: *See—*
Kammann, Karl P., Jr.; Den Herder, Marvin J.; and Wagner, Terrence L., 4,380,498, Cl. 252-48.600.
Wagner, Wolfgang: *See—*
Harding, Geoffrey; and Wagner, Wolfgang, 4,380,817, Cl. 378-87.000.
Wahl, Gunter: *See—*
Kuhlmann, Gerhard; Wolf, Erwin; and Wahl, Gunter, 4,380,693, Cl. 200-330.000.
Waiamea Company, Inc.: *See—*
Donan, David C., Jr., 4,380,407, Cl. 405-259.000.
Wainman, Roy: *See—*
Crawford, John S.; and Wainman, Roy, 4,380,239, Cl. 604-28.000.
Wakamori, Hideki: *See—*
Kidoh, Kunizoh; and Wakamori, Hideki, 4,380,614, Cl. 526-62.000.
Waldschutz, Heinz; Rauner, Franz; and Patzelt, Helmut, to Daimler-Benz A.G. Labyrinth seal for slip ring switch for steering wheels of motor vehicles. 4,380,341, Cl. 277-56.000.
Walker, Jesse P.; and Robertson, William H., to Milliken Research Corporation. Automatic fiber blender. 4,380,095, Cl. 19-80.00R.
Wallace Computer Services, Inc.: *See—*
Steidinger, Donald J., 4,380,315, Cl. 229-69.000.
Walsh, Michael M., to Eaton Corporation. Valve disabling mechanism. 4,380,219, Cl. 123-198.00F.
Walsh, Thomas A., to R. Howard Strasbaugh, Inc. Lap shaping machine with oscillatable point cutter and selectively rotatable or oscillatable lap. 4,380,412, Cl. 409-314.000.
Walter, Wolfgang, to Zahnradfabrik Friedrichshafen, AG. Spur rack hydrosteering. 4,380,273, Cl. 180-132.000.
Walters, John D. Cam operated friction clutch. 4,380,280, Cl. 192-78.000.
Walters, Nigel J.: *See—*
Underhill, Michael J.; and Walters, Nigel J., 4,380,743, Cl. 331-1.00A.
Wandel U. Goltermann GmbH & Co.: *See—*
Alker, Dietrich E., 4,380,731, Cl. 324-51.000.
Wang, Pen-Chung: *See—*
Renga, James M.; and Wang, Pen-Chung, 4,380,636, Cl. 546-326.000.
Warner-Lambert Company: *See—*
Fleming, Robert W., 4,380,548, Cl. 424-273.00R.
Wasmer, Anthony E.; and Koenigs, Stephen L., to Tecumseh Products Company. Breaker point system. 4,380,217, Cl. 123-146.50A.
Watabe, Michio: *See—*
Yoshida, Kazumasa; and Watabe, Michio, 4,380,576, Cl. 429-27.000.
Watchko, George R., to General Electric Company. Primer or solvent resistant protective coating. 4,380,596, Cl. 524-86.000.
Waters, Kenneth H.; Hopkins, John R.; and Payton, Charles E., to Conoco Inc. Method and apparatus for shear wave logging. 4,380,806, Cl. 367-27.000.
Wattron, Albert; and Quirin, Michel, to Belrecolt S.A. Agricultural machine for the tedding or conditioning of fodder. 4,380,142, Cl. 56-370.000.
Weaver, Marvin P., to Robertshaw Controls Company. Valve construction having multiple piston means and method of making the same. 4,380,251, Cl. 137-877.000.
Weaver, Max A.: *See—*
Coates, Clarence A., Jr.; and Weaver, Max A., 4,380,633, Cl. 544-316.000.
Webb, Monty F., to Teccor Electronics, Inc. Method of making a semiconductor switching device. 4,380,114, Cl. 29-588.000.
Wegemund, Bernd: *See—*
Erwied, Werner; and Wegemund, Bernd, 4,380,597, Cl. 524-109.000.
Weghaupt, Erich, to Kraftwerk Union Aktiengesellschaft. Generator rotor, especially turbo-generator rotor with superconducting field winding. 4,380,356, Cl. 384-133.000.
Weghaupt, Erich: *See—*
Intichar, Lutz; Schnapper, Christoph; and Weghaupt, Erich, 4,380,712, Cl. 310-52.000.
Weinberger, Arnold: *See—*
Fogell, Leonard L.; Levine, Samuel R.; and Weinberger, Arnold, 4,380,813, Cl. 371-52.000.
Weissman, Bernard. Detent device for a removable dental prosthesis. 4,380,434, Cl. 433-177.000.
Wellington, Scott L., to Shell Oil Company. Reservoir-tailored CO_2-aided oil recovery process. 4,380,266, Cl. 166-252.000.
Welsh, David A.; Dowbenko, Rostyslaw; Das, Suryya K.; Kania, Charles M.; and Christenson, Roger M., to PPG Industries, Inc. Thermosetting catonic acrylic latices and their use in coating compositions. 4,380,601, Cl. 524-555.000.
Welzel, Josef: *See—*
Bull, Hans; Ewich, Gerhard; Kuschke, Gunther; Maykemper, Alfred; and Welzel, Josef, 4,380,410, Cl. 405-299.000.
Wesemeyer, Jurgen; Haubner, Georg; and Meier, Werner, to Robert Bosch GmbH. Vehicle engine ignition system utilizing light guides for protection against interference. 4,380,225, Cl. 123-613.000.
Westerburg, Ralph E., Jr.: *See—*
Galloup, Clifford L.; Bula, Roger M.; Klemm, Robert W.; and Westerburg, Ralph E., Jr., 4,380,111, Cl. 29-564.400.
Western Electric Company, Inc.: *See—*
Allerton, George L., 4,380,734, Cl. 324-225.000.
Carlson, Roy C., Jr.; and March, Edward J., 4,380,431, Cl. 432-29.000.
Wydro, Richard A., Sr., 4,380,518, Cl. 264-13.000.
Westinghouse Electric Corp.: *See—*
Franz, James H., Jr.; and Jones, Stanley W., 4,380,724, Cl. 318-353.000.
Sun, Shan C.; and Church, Larry L., 4,380,746, Cl. 332-9.00R.
Swensrud, Roger L.; Pavlik, Dennis; and DeLuca, John J., 4,380,362, Cl. 339-112.00L.
Vancsa, Gyorgy I., 4,380,757, Cl. 340-347.0CC.
Yannone, Robert A.; and Kiscaden, Roy W., 4,380,146, Cl. 60-39.141.
Whirlpool Corporation: *See—*
Paddock, Stephen W.; and Tershak, Andrew T., 4,380,155, Cl. 62-229.000.
White, David R., to Upjohn Company, The. Process for preparing 6'-methylspectinomycin and analogs thereof. 4,380,651, Cl. 549-361.000.
White, David R., to Upjohn Company, The. Enamines of 6'-methylspectinomycin and process for preparing the same. 4,380,652, Cl. 549-361.000.
White, Eugene B., Jr., to White Machinery Corporation. Vehicle having improved coupling system and system for absorption of shock on coupling. 4,380,198, Cl. 105-26.00R.
White, Gordon E.: *See—*
Fowler, Allan E.; White, Gordon E.; and Sims, Steve A., 4,380,684, Cl. 585-328.000.
White Machinery Corporation: *See—*
White, Eugene B., Jr., 4,380,198, Cl. 105-26.00R.
Whiteman, Paul L.: *See—*
Higginson, Roy C.; and Whiteman, Paul L., 4,380,415, Cl. 414-537.000.
Whiteside, Robert C.: *See—*
Greynolds, Fred L.; Whiteside, Robert C.; and Durkee, Doyle D., 4,380,183, Cl. 83-244.000.
Wichinsky, Michael: *See—*
Chaudhry, Jagdish C.; and Chaudhry, Lorena F., 4,380,335, Cl. 273-121.00A.
Wick, Gerhard: *See—*
Siggel, Erhard; Wick, Gerhard; Linhart, Heinz; and Kessler, Erich, 4,380,594, Cl. 521-182.000.
Wicks, Edward A. Method and system for providing life-sustaining air to persons entrapped within a burning building. 4,380,187, Cl. 98-39.000.
Wiener & Co. B.V.: *See—*
Tadema, Jan C., 4,380,193, Cl. 99-452.000.
Wiesner, Karel; and Tsai, Thomas Y. R., to Advance Biofactures Corp. Novel isomers of bufalin and resibufogenin and their preparation. 4,380,624, Cl. 536-5.000.
Wilcox, Donald G.; and Zambrano, Nobile, to Show-Pak, Incorporated. Socket wrench display package. 4,380,293, Cl. 206-563.000.
Wilde, Eugen: *See—*
Gossler, Gerhard; and Wilde, Eugen, 4,380,116, Cl. 29-611.000.
Wildman, John R.; and Morrison, Howard J., to Marvin Glass & Associates. Four wheel drive toy. 4,380,135, Cl. 46-219.000.
Wiles, William J. Injection molding valve pin direct pneumatic actuator. 4,380,426, Cl. 425-566.000.
Wilkinson, John R., to Bendix Corporation, The. Digital roughness sensor. 4,380,800, Cl. 364-431.080.
Williams, Arden. Scalp massaging apparatus. 4,380,230, Cl. 128-49.000.
Williams, Graham L.: *See—*
Mead, Howard B.; and Williams, Graham L., 4,380,253, Cl. 138-149.000.
Williams, Keith G.: *See—*
Culbertson, Samuel W.; McCulloch, Charles W.; and Williams, Keith G., 4,380,321, Cl. 239-700.000.
Williams, William R., to U.S. Industries, Inc. Feed gate for poultry conveyor feeders and the like. 4,380,214, Cl. 119-51.0CF.
Willis, Earl C.: *See—*
Campbell, John A. L.; Moynihan, Daniel J.; Roper, William D.; and Willis, Earl C., 4,380,353, Cl. 299-12.000.
Willis, Michael: *See—*
Daintrey, Joseph W.; Rushton, John; and Willis, Michael, 4,380,383, Cl. 355-3.00R.
Wilson, Albert, to Litton Systems, Inc. Vibrating screen with self-supporting screen cloth. 4,380,494, Cl. 209-319.000.
Wilson, Earl: *See—*
McGrath, John E.; and Wilson, Earl, 4,380,103, Cl. 24-255.0SL.
Winkler, Edward: *See—*
Reid, Robert R.; Winkler, Edward; and Girard, Stephen E., 4,380,209, Cl. 118-253.000.
Wisco Corporation: *See—*
Sorensen, Norman L.; and Pohl, Lothar, 4,380,351, Cl. 296-217.000.
Wisda, Michael S. Electrical switch. 4,380,704, Cl. 307-116.000.
Wisnouskas, Joseph S.; and Ho, Roland, to Occidental Chemical Corporation. Process for preparing phosphorus acid from industrial waste materials. 4,380,531, Cl. 423-316.000.

Wittenhorst, Augustinus J. M., to von Treu AG. Apparatus for producing aerosol product. 4,380,505, Cl. 252-359.00R.
Wittmann, Heinz, to TMC Corporation. Ski brake. 4,380,345, Cl. 280-605.000.
Witzel, Bruce E.; Finke, Paul E.; and Allison, Debra L., to Merck & Co., Inc. Process for preparing Benzoxepino- or Benzthiapino[4,3-b]pyrrole-2-acetic acids. 4,380,645, Cl. 548-430.000.
Woesler, Ehrenfried, to Ford Motor Company. Support member for an exhaust pipe of a motor vehicle. 4,380,324, Cl. 248-610.000.
Wojnarowski, Robert J.: *See—*
Eichelberger, Charles W.; and Wojnarowski, Robert J., 4,380,749, Cl. 338-215.000.
Wojtowicz, John A.; and Gergo, Andree M. B., to Olin Corporation. Gas scavenger agents for containers of solid chloroisocyanurates. 4,380,501, Cl. 252-186.240.
Wojtowicz, John A., to Olin Corporation. Process for the production of dibasic magnesium hypochlorite. 4,380,533, Cl. 423-473.000.
Wolf, Erwin: *See—*
Kuhlmann, Gerhard; Wolf, Erwin; and Wahl, Gunter, 4,380,693, Cl. 200-330.000.
Wolf, John J.: *See—*
LaRue, Albert D.; and Wolf, John J., 4,380,202, Cl. 110-263.000.
Wombold, Harry A. E.: *See—*
Allen, David O.; and Wombold, Harry A. E., 4,380,303, Cl. 220-276.000.
Wong, Rayman Y., to Stauffer Chemical Company. Amine oxanilic acid salts as herbicide extenders. 4,380,467, Cl. 71-100.000.
Woolaver, Dennis A.: *See—*
Baitis, A. Erich; and Woolaver, Dennis A., 4,380,206, Cl. 114-122.000.
Woolfson, Joseph W. Magnetic lock. 4,380,162, Cl. 70-276.000.
Woolner, John: *See—*
Wortley, John P. A.; and Woolner, John, 4,380,493, Cl. 204-105.00M.
Woronicki, Alexander R.: *See—*
Adler, Ralph P. I.; Gorsuch, Thomas J.; Murty, Yellapu V.; and Woronicki, Alexander R., 4,380,262, Cl. 164-423.000.
Worsman, Adrian D., to Mitel Corporation. Charge redistribution circuit having a reduced area. 4,380,756, Cl. 340-347.0AD.
Wortley, John P. A.; and Woolner, John, to IMI Kynoch Limited. Anode. 4,380,493, Cl. 204-105.00M.
Wozniak, David A., to Dwyer Instruments, Inc. Roll-up type U-tube manometer. 4,380,173, Cl. 73-747.000.
Wrathall, Robert S., to Motorola, Inc. Voltage reference circuit. 4,380,706, Cl. 307-297.000.
Wright, Howard J.; and Scherrer, Joseph H., to Cook Paint and Varnish Company. Etherified methylol polyamide crosslinking agent, process for producing the same and resins crosslinked therewith. 4,380,611, Cl. 525-418.000.
Wright, William E., to Carrier Corporation. Heat exchanger tube support assembly. 4,380,263, Cl. 165-76.000.
Wrobel, Joseph J.: *See—*
Thomas, Harold T.; and Wrobel, Joseph J., 4,380,769, Cl. 346-135.100.
Wu, Pai-Chuan: *See—*
Cancio, Leopoldo V.; and Wu, Pai-Chuan, 4,380,564, Cl. 428-167.000.
Wusthof, Peter; and Schneider, Johann, to Rexroth GmbH. Internal gear machine with rotary valve disk. 4,380,420, Cl. 418-61.00B.
Wydro, Richard A., Sr., to Western Electric Company, Inc. Method of producing solder spheres. 4,380,518, Cl. 264-13.000.
Xerox Corporation: *See—*
Boggs, David R., 4,380,761, Cl. 340-825.500.
Kingsley, William, 4,380,389, Cl. 355-50.000.
Sprague, Robert A., 4,380,373, Cl. 350-356.000.
Yajima, Tatsuo, to Konishiroku Photo Industry Co., Ltd. Composite information recording apparatus. 4,380,387, Cl. 355-3.00R.
Yamada, Kantaro: *See—*
Ishii, Hiromichi; Matsuzawa, Hideo; Kobayashi, Masao; and Yamada, Kantaro, 4,380,664, Cl. 562-546.000.
Yamaguchi, Akihiro; Kobayashi, Tadashi; Yamaguchi, Keizaburo; and Murakami, Hisamichi, to Mitsui Toatsu Chemicals, Incorporated. Process for the preparation of 2,2'-bis(4-substituted phenol)sulfides. 4,380,671, Cl. 568-48.000.
Yamaguchi, Keizaburo: *See—*
Yamaguchi, Akihiro; Kobayashi, Tadashi; Yamaguchi, Keizaburo; and Murakami, Hisamichi, 4,380,671, Cl. 568-48.000.
Yamaguchi, Masami: *See—*
Mandai, Haruhumi; Nishimura, Kunitaro; Kohno, Yoshiaki; and Yamaguchi, Masami, 4,380,559, Cl. 427-80.000.
Yamaha Hatsudoki Kabushiki Kaisha: *See—*
Matsuzaka, Hiroshi, 4,380,516, Cl. 261-23.00A.
Yamanouchi Pharmaceutical Co., Ltd.: *See—*
Fukui, Muneo; Konno, Yutaka; Kubota, Yukio; Aruga, Masayoshi; and Kawata, Hiroitsu, 4,380,534, Cl. 424-38.000.
Yamashita, Akio; and Hayami, Masaaki, to Matsushita Electric Industrial Company, Limited. Styryl-like compounds showing a color-developing and bleaching behavior with improved stability and prolonged lifetime. 4,380,629, Cl. 542-455.000.
Yanagisawa, Masahiro, to Nippon Electric Co., Ltd. Process for manufacturing a protective polysilicate layer of a record member by a laser beam and a magnetic record member suitably manufactured thereby. 4,380,558, Cl. 427-53.100.
Yannone, Robert A.; and Kiscaden, Roy W., to Westinghouse Electric Corp. System and method for accelerating and sequencing industrial gas turbine apparatus and gas turbine electric power plants preferably with a digital computer control system. 4,380,146, Cl. 60-39.141.
Yano, Hiroshi; Kawasaki, Teruo; Nomura, Hiroyuki; and Takeuchi, Mikio, to Nissan Motor Company, Limited. Frequency and speed display device. 4,380,733, Cl. 324-166.000.
Yarborough, G. Wirth, Jr. Small weapons simulator. 4,380,437, Cl. 434-18.000.
Yasu, Mitsuho: *See—*
Mitachi, Seiko; Shibata, Shuichi; Kanamori, Terutoshi; Manabe, Toyotaka; and Yasu, Mitsuho, 4,380,588, Cl. 501-37.000.
Yasuda, Kazuo; Tamura, Akihiko; and Nakamura, Yoshimitsu, to Konishiroku Photo Industry Co., Ltd. Method for controlling prefatiguing illumination of a photosensitive member. 4,380,386, Cl. 355-3.00R.
Yeh, Chun T. Tape rewinding apparatus for video cassette. 4,380,322, Cl. 242-198.000.
Yoder, Nax N., to United States of America, Navy. High-performance bipolar microwave transistor. 4,380,774, Cl. 357-34.000.
Yokomichi, Isao: *See—*
Nishiyama, Ryuzo; Fujikawa, Kanichi; Yokomichi, Isao; Shigehara, Itaru; and Miyaji, Mikio, 4,380,670, Cl. 564-407.000.
Yoneda, Naoto; Kato, Jyoji; and Kinashi, Keizo, to Tanabe Siyaku Co., Ltd. 2-Oxoimidazolidine derivatives. 4,380,644, Cl. 548-321.000.
Yoshida, Kazumasa; and Watabe, Michio, to Toshiba Battery Co., Ltd. Air cell. 4,380,576, Cl. 429-27.000.
Yoshida Kogyo K. K.: *See—*
Fukuroi, Takeo, 4,380,098, Cl. 24-205.16R.
Yoshida, Shohei; and Vogl, Otto, to Asahi Glass Company, Ltd. Benzotriazole compound and homopolymer or copolymers thereof. 4,380,643, Cl. 548-260.000.
Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, to Kureha Kagaku Kogyo Kabushiki Kaisha. Pharmaceutical composition containing para-amino-benzoic acid-N-D-mannoside as an active ingredient. 4,380,536, Cl. 424-180.000.
Young, Mark W.: *See—*
Nield, Eric; Higgins, David E.; and Young, Mark W., 4,380,621, Cl. 528-287.000.
Young, William R.: *See—*
Cohen, Paul B.; Young, William R.; and Edwards, W. Dale, 4,380,710, Cl. 307-475.000.
Yu, Ruey J.: *See—*
Van Scott, Eugene J.; and Yu, Ruey J., 4,380,549, Cl. 424-317.000.
Yugen Kaisha Batora Konsaruteingu: *See—*
Okamoto, Ikuko, 4,380,438, Cl. 434-157.000.
Zaba, Tadeusz, to BBC Brown, Boveri & Co. Ltd. Steam power plant containing pressure-fired steam generator with fluidized bed firing. 4,380,147, Cl. 60-39.182.
Zaby, Gottfried: *See—*
von Bonin, Wulf; and Zaby, Gottfried, 4,380,593, Cl. 521-163.000.
Zack, Larry E.: *See—*
Glinka, John S.; and Zack, Larry E., 4,380,316, Cl. 232-16.000.
Zahnradfabrik Friedrichshafen AG: *See—*
Merz, Johann, 4,380,272, Cl. 180-132.000.
Walter, Wolfgang, 4,380,273, Cl. 180-132.000.
Zaidan Hojin Biseibutsu Kagaku Kenyku Kai: *See—*
Umezawa, Hamao; Okami, Yoshiro; and Kondo, Shinichi, 4,380,581, Cl. 435-80.000.
Zambrano, Nobile: *See—*
Wilcox, Donald G.; and Zambrano, Nobile, 4,380,293, Cl. 206-563.000.
Zander, Dennis R.: *See—*
Foote, James C.; and Zander, Dennis R., 4,380,180, Cl. 74-821.000.
Zeeh, Bernd: *See—*
Sauter, Hubert; Ammermann, Eberhard; Rentzea, Costin; Zeeh, Bernd; Jung, Johann; and Pommer, Ernst-Heinrich, 4,380,546, Cl. 424-269.000.
Zenith Radio Corporation: *See—*
Moon, Frederick H., 4,380,827, Cl. 455-179.000.
Moon, Frederick H., 4,380,828, Cl. 455-319.000.
Zhestkov, Vitaly I.: *See—*
Abduganiev, Abdurakhim; Tikhonov, Valentin N.; Shlykov, Gennady N.; Zhestkov, Vitaly I.; Krjuk, Timur P.; Mukhin, Viktor M.; and Tikhonov, Jury N., 4,380,143, Cl. 57-89.000.
Zhivotchenko, Alexandr D.: *See—*
Shevakin, Jury F.; Shpichinetsky, Efim S.; Fedorenko, Valentina P.; Efremov, Boris N.; Klevchenkova, Maria N.; Andrjuschenko, Ivan A.; Krasnoselsky, Iosif A.; Anikeev, Evgeny F.; Ivanov, Evgeny A.; Khomyachkov, Anatoly P.; Shvarts, Naum A.; Kozhevnikova, Ljudmila V.; Romanova, Roza M.; and Zhivotchenko, Alexandr D., 4,380,528, Cl. 420-505.000.
Ziegler, Michael L., II; Druke, Michael B.; Van Roekel, John R.; and Baxter, Ward, II, to Data General Corporation. Refresh and error detection and correction technique for a data processing system. 4,380,812, Cl. 371-38.000.
Zinaida, Zosim: *See—*
Gutnick, David L.; Rosenberg, Eugene; Belsky, Igal; and Zinaida, Zosim, 4,380,504, Cl. 252-356.000.
Zodrow, Rudolf, to Jagenberg Werke. Method and apparatus for changing the label magazine boxes of labeling machines. 4,380,487, Cl. 156-568.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 19TH DAY OF APRIL, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Acme Visible Records, Inc.: *See—*
Lapp, James F.; and McGrath, Thomas F., Re. 31,210, Cl. 226-119.000.
Allen, Robert J.: *See—*
Petrow, Henry G.; and Allen, Robert J., Re. 31,214, Cl. 524-411.000.
Anderson, Charles W. Agricultural implement with foldable tool supporting frame. Re. 31,209, Cl. 172-311.000.
Bethlehem Steel Corporation: *See—*
Brachman, Armand E., Re. 31,213, Cl. 428-462.000.
Brachman, Armand E., to Bethlehem Steel Corporation. Polyolefin composition having high impact resistance and high temperature flow resistance. Re. 31,213, Cl. 428-462.000.
Central Welding Supply Co., Inc.: *See—*
Hairgrove, Nelson, Sr., Re. 31,216, Cl. 219-132.000.
Hairgrove, Nelson, Sr., to Central Welding Supply Co., Inc. Controller for DC arc welding generators. Re. 31,216, Cl. 219-132.000.
Hollier, John C. L.: *See—*
Stranahan, John J.; and Hollier, John C. L., Re. 31,215, Cl. 431-4.000.
Lapp, James F.; and McGrath, Thomas F., to Acme Visible Records, Inc. Apparatus and method for feeding and collecting continuous web material. Re. 31,210, Cl. 226-119.000.
McGrath, Thomas F.: *See—*
Lapp, James F.; and McGrath, Thomas F., Re. 31,210, Cl. 226-119.000.
Monroe Auto Equipment Company: *See—*
Smith, Charles J., Re. 31,212, Cl. 280-668.000.
Petrow, Henry G.; and Allen, Robert J. Colloidal sol antimony pentaoxide flameproofing compositions. Re. 31,214, Cl. 524-411.000.
Smith, Charles J., to Monroe Auto Equipment Company. Vehicle suspension device. Re. 31,212, Cl. 280-668.000.
Stranahan, John J.; and Hollier, John C. L., to Texaco Inc. Smokeless gas flare with specific gravity gas analyzer for reduction of noise. Re. 31,215, Cl. 431-4.000.
Texaco Inc.: *See—*
Stranahan, John J.; and Hollier, John C. L., Re. 31,215, Cl. 431-4.000.
Whitehead, Edwin N. Magnetically coded identification card. Re. 31,211, Cl. 235-449.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Winicov, Murray W.; and Oberlander, Michael, to West Agro-Chemical, Inc., Germicidal iodine compositions with enhanced iodine stability. B1 4,271,149, Cl. 424—150.

West Agro-Chemical, Inc.: *See—*
Winicov, Murray W.; and Oberlander, Michael. B1 4,271,149, Cl. 424—150.

Rönbeck, Arne Ingbert, to AB Volvo. Handling apparatus. B1 3,902,606, Cl. 414—733.

AB Volvo: *See—*
Rönbeck, Arne Ingbert. B1 3,902,606, Cl. 414—733.
Gilano, Michael N.; Beaupre, Richard E.; and Lipson, Melvin A., to Dynachem Corporation. Polymerization composition and process having polymeric binding agents. B1 3,953,309, Cl. 204—159.16.
Dynachem Corporation: *See—*
Gilano, Michael N.; Beaupre, Richard E.; and Lipson, Melvin A. B1 3,953,309, Cl. 204—159.16.

LIST OF DESIGN PATENTEES

Adamson, Gerhard; and Rousseau, Walter F., to Union Carbide Corporation. Packaging container. 268,649, 4-19-83, Cl. D9-416.000.
Allgood, Charles H., II. Plaque with minnow. 268,654, 4-19-83, Cl. D11-134.000.
American Optical Corporation: *See—*
Tenny, Dale E., 268,683, Cl. D16-102.000.
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Bennett, Brian S., to Dunlop Limited. Tire for a vehicle wheel. 268,663, 4-19-83, Cl. D12-145.000.
Bennett, William G. Toy diving board. 268,690, 4-19-83, Cl. D21-109.000.
Bevilaqua, Ernest M.; McCroskery, Allan L.; and Knerr, Theodore N., to Otis Elevator Company. Control panel for elevator systems. 268,668, 4-19-83, Cl. D13-35.000.
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Bonforte, Anthony G. Trim blade for lawns and the like. 268,641, 4-19-83, Cl. D8-08.000.
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Chuboff, David P.; Greb, Francis J.; and Takeuchi, Tom, to Bausch & Lomb Incorporated. Pair of spectacles. 268,684, 4-19-83, Cl. D16-102.000.
Clayton, Jessie R. Combined aquarium and cover. 268,705, 4-19-83, Cl. D30-6.000.
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Fielder, Jean C., to Pace Incorporated. Combined power supply, tool holder and support therefor. 268,642, 4-19-83, Cl. D8-71.000.
Fontana, Dennis J. Mountable record display device. 268,634, 4-19-83, Cl. D6-114.000.
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Corliss, Clifford D., 5,041, Cl. 50.000.
Corliss, Clifford D., to Conard-Pyle Company, The. Juniper plant - corcorcor variety. 5,041, 4-19-83, Cl. 50.000.
Jackson & Perkins Company: *See*—
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537 4,380,526

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401 4,380,395
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289 4,380,399

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52 4,380,813

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549 4,380,555

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103 4,380,626

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		268,628
		268,629
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	10	268,631
	11	268,632
	49	268,633
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	130	268,635
	193	268,636
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	71	268,642
	337	268,643
	343	268,644
D9—	341	268,645
	347	268,646
	389	268,647
	416	268,648
		268,649
	450	268,650
D10—	57	268,651
D11—	102	268,652

	121	268,653
	134	268,654
	162	268,655
		268,656
		268,657
D12—	91	268,658
	92	268,659
	110	268,660
	129	268,661
	140	268,662
	145	268,663
	187	268,664
		268,665
D13—	23	268,666

		268,667
	35	268,668
	38	268,669
D14—	1	268,670
	11	268,671
	13	268,672
	34	268,673
	60	268,674
	68	268,675
	78	268,676
	103	268,677
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D16—	12	268,680

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	102	268,683
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D17—	20	268,685
D19—	64	268,686
	91	268,687
D21—	34	268,688
	48	268,689
	109	268,690
	148	268,692
	217	268,691
	244	268,693
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	4,380,617		4,380,171		4,380,734		4,380,091		4,380,707		4,380,216
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DESIGN PATENTS

06 :	268,626		268,697		268,631	26 :	268,639		268,653	40 :	268,645
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PLANT PATENTS

06 :	5,040	25 :	5,041								

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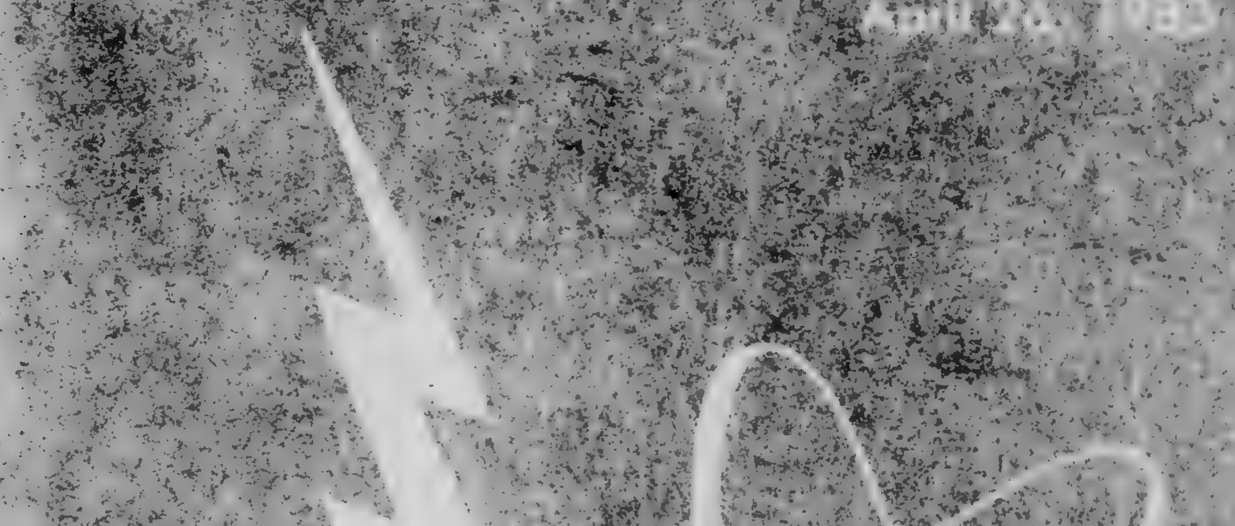
UNITED STATES PATENT AND TRADEMARK OFFICE

PATENTS

April 26, 1983



PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

OFFICIAL GAZETTE of the UNITED STATES PATENT AND TRADEMARK OFFICE

April 26, 1983 Volume 1029 Number 4

CONTENTS

The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENT SECTION), issued weekly.

THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly.

GENERAL INFORMATION concerning PATENTS.

GENERAL INFORMATION concerning TRADEMARKS.

PRINTED COPIES OF PATENTS are furnished by the Patent and Trademark Office at $1.00 each; PLANT PATENTS in color, $8.00 each; copies of TRADEMARKS at $1.00 each. Address orders to the Commissioner of Patents and Trademarks, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. Code P.T.O.

PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries see the notice appearing in the Official Gazette at 1017 O.G. 10 on Apr. 13, 1982. For use of the European Patent Office as a Searching Authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the domestic PCT fees have been increased as of Oct. 1, 1982 by a rule change to 37 CFR 1.445 that was published at 1021 O.G. 11 on Aug. 10, 1982. Also note that the international PCT fees have changed as of Jan. 1, 1983 and the Search Fee for the European Patent Office as Searching Authority changed as of Jan. 22, 1983. The notice regarding the change in international fees and the Search Fee for the European Patent Office appeared at 1025 O.G. 27, on 28 Dec. 1982. The current schedule of fees is as follows:

Transmittal fee	$ 125.00
Search fee	
U.S. Patent and Trademark Office as Searching Authority	
• No corresponding prior U.S. national application filed	500.00
• Corresponding prior U.S. national application filed	250.00
European Patent Office as Searching Authority	
• All cases	670.00
International Fees	
Basic Fees (first 30 pages)	265.00
Basic Supplemental Fee (for each page over 30)	5.00
Designation fee (for each national or regional office)	65.00

Dec. 3, 1982.

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,072,146, Re. S.N. 444,710, Filed Jan. 19, 1983, Cl. 128/674, VENOUS CATHETER DEVICE, Randolph M. Howes, Owner of Record: *Gerald W. Berg, Stevenson, Md.*, Attorney or Agent: Joseph R. Slotnik, Ex. Gp.: 335

4,164,408, Re. S.N. 469,565, Filed Feb. 23, 1983, Cl. 71/98, SALTS OF SUBSTITUTED PHENOXYBENZOIC ACIDS, COMPOSITIONS OF THE SAME AND HERBICIDAL USE THEREOF, Robert J. Theissen, Owner of Record: *Rhone-Poulenc Agrochemie, Lyo, France*, Attorney or Agent: Alfred P. Ewert, Ex. Gp.: 121

4,193,993, Re. S.N. 357,225, Filed Mar. 11, 1982, Cl. 424/141, COMPOSITION CONTAINING PRESERVATIVE METALS AND THEIR USE FOR THE PRESERVATION OF WOOD AND LIKE MATERIALS AND AS FUNGICIDES, Edward A. Hilditch, Owner of Record: *Cuprinol Ltd., Somerset, England*, Attorney or Agent: James F. Woods, Ex. Gp.: 125

4,213,189, Re. S.N. 398,719, Filed July 15, 1982, Cl. 364/900, REACTIVE COMPUTER SYSTEM ADAPTIVE TO A PLURALITY OF PROGRAM INPUTS, David J. Mueller, et al., Owner of Record: *Admiral Corp., Schaumburg, Ill.*, Attorney or Agent: Daniel R. McGlynn, et al., Ex. Gp.: 237

4,216,402, Re. S.N. 308,979, Filed Feb. 18, 1982, Cl. 310/320, SEALED PIEZOELECTRIC RESONATOR WITH INTEGRAL MOUNTING FRAME, Jean Engdahl, Owner of Record: *Societe Suisse pour l'Industrie Horlogere Management Services, S.A., Bienne, Switzerland*, Attorney or Agent: B. Franklin Griffith, Jr., et al., Ex. Gp.: 212

4,232,661, Re. S.N. 440,181, Filed Nov. 8, 1982, Cl. 128/33, BODY MASSAGE APPARATUS, Earl A. Christensen, Owner of Record: *Andrew Electronics Northern Calif., Inc., San Carlos, Calif.*, Attorney or Agent: C. Michael Zimmerman, et al., Ex. Gp.: 335

4,256,898, Re. S.N. 470,743, Filed Feb. 28, 1983, Cl. 548/240, A(SUBSTITUTED) AMINO-3-SUBSTITUTED-2-ISOXAZOLINE-5-ACETIC ACIDS (ESTERS), Robert C. Kelly, et al., Owner of Record: *Upjohn Co., Kalamazoo, Mich.*, Attorney or Agent: Sidney B. Williams, Ex. Gp.: 122

4,317,581, Re. S.N. 465,481, Filed Feb. 10, 1983, Cl. 280/644, BABY CARRIAGE, Kenzou Kassai, Owner of Record: *Kassai Kabushikikaisha, Osaka, Japan*, Attorney or Agent: W. G. Fasse, Ex. Gp.: 316

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,083,229, Reexam. No. 90/000,348, Requested: Mar. 23, 1983, Cl. 73/40.5A, METHOD AND APPARATUS FOR DETECTING AND LOCATING FLUID LEAKS, Allen R. Anway, Owner of Record: *Plaunt & Anderson Co., Inc., West Duluth, Minn.*, Attorney or Agent: Strauch, Nolan, et al., Ex. Gp.: 244, Requester: Stanley B. Green, et al., Washington, D.C.

4,305,296, Reexam. No. 90/000,350, Requested: Mar. 24, 1983, Cl. 73/626, ULTRASONIC IMAGING METHOD AND APPARATUS WITH ELECTRONIC BEAM FOCUSING AND SCANNING, Philip S. Green, et al., Owner of Record: *Requester*, Attorney or Agent: Victor R. Beckman, Ex. Gp.: 244, Requester: SRI International, Menlo Park, Calif.

Unlawful Removal of Labels

We have found a large number of security labels, torn from Search Room patent copies, in stack areas of the Public Search Room. We remind persons removing security labels or otherwise mutilating Search Room patent copies, or removing Search Room patent copies from the Search Room without authorization, that such acts are criminal offenses punishable by fine, imprisonment or both.

You should be aware that engaging in such acts violates the prohibition against "the willful destruction of or damage to property; the theft of property." 41 Code

of Federal Regulations §101-20.303. Violations are punishable by "a fine of not more than $50 or imprisonment of not more than 30 days, or both." 41 Code of Federal Regulations §101-20.315.

You should also be aware that engaging in such acts subjects you to punishment under the following criminal provision in Title 18 U.S. Code, §2071:

> (a) Whoever willfully and unlawfully conceals, removes, mutilates, obliterates, or destroys, or attempts to do so, or, with intent to do so takes and carries away any record, proceeding, map, book, paper, document or other thing * * * shall be fined not more than $2,000 or imprisoned not more than three years, or both.
>
> (b) Whoever, having custody of any such record, proceeding, map, book, document, paper, or other thing, willfully and unlawfully conceals, removes, mutilates, obliterates, falsifies, or destroys the same, shall be fined not more than $2,000 or imprisoned not more than three years, or both; and shall forfeit his office and be disqualified from holding any office under the United States.

UNLESS THE REMOVAL OF SECURITY LABELS FROM SEARCH ROOM PATENT COPIES CEASES, THE OFFICE WILL TAKE APPROPRIATE ACTION, SUCH AS EXERCISING ITS AUTHORITY UNDER 41 CODE OF FEDERAL REGULATIONS §101-20.301 TO INSPECT PACKAGES, BRIEFCASES AND OTHER CONTAINERS BROUGHT INTO, WHILE ON, OR BEING REMOVED FROM THE SEARCH ROOM.

Mar. 28, 1983.

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

Status of PTO Services

The following is an update of the status of PTO services as of Feb. 28, 1983:

Service Item	FY 1983 Performance Goal (Calendar Days)	Actual	Comment
Filing Receipts:			
Patents	22	32	
Trademarks	30	87	Reduced by 34 days in the past month.
Patent Copies:			
Window Coupons	5	81% within 5 days	Encountering problems with photocopying exhaust system.
Mail Coupons*	29	100% within 22 days	
Letter Orders*	34	100% within 22 days	
Certified Copies:			
Trademark Registrations	30	10	
Applications-As-Filed	20	92% within 10 days	
File-Wrapper/Contents	N/A	94% within 20 days	
Walk-up Certification	1	99% within 1 day	
Trademark Search Library:			
Filing Drawings	21	35	Reduced by 84 days in the past month.
Filing Reg. Certificates	3	9	Reduced by 1 day in the past month.
Assignments:			
Patents	25	32	Reduced by 4 days since last month.
Trademarks	25	19	Reduced by 18 days since last month.
Patent Official Gazette:			
In Bookstore	Issue Date	On Schedule	
Mailed	Issue Date	Avg. 1 day late	
Patent Grants Mailed	Issue Date	On schedule	
Patent Copies Available	Issue Date	99%	99% available by day after Issue Date.
Trademark Official Gazette:			
In Bookstore	Issue Date	On Schedule	
Mailed	Issue Date	Avg. 2 days late	
Trademark Regs. Mailed	Issue Date	1 day late	

*Goal now includes mail processing and delivery time.

IMPROVEMENTS TO SERVICES

- *Trademark Assignment Processing* — We have reduced the time to process trademark assignment documents from a high of 113 calendar days in Jan. to 19 calendar days. This is the lowest processing time for recording trademark assignments in the past decade.
- *Photocopy Services* — TS Infosystems, Inc., the contractor for providing photocopying maintenance services, replaced twenty-three copiers with new Pitney Bowes model 9600 copiers in the Patent and Trademark Search Rooms, the Board of Patent Interferences, and the Trademark Trial and Appeal Board. As a result, the quality of copies has improved significantly.
- *Record Room* — The Record Room extended its closing time from 5:00 p.m. to 8:00 p.m., coinciding with the closing of the Patent Public Search Room. This allows users of the Search Room to deposit file requests, return and pick up files, or obtain other Record services any time they are in the Search Room.

Apr. 1, 1983.

THERESA A. BRELSFORD,
Assistant Commissioner for Administration.

PATENT NOTICES

Certificates of Correction for the Week of Apr. 26, 1983

D. 267,344	4,344,950	4,362,950	4,370,243
4,214,733	4,345,315	4,362,985	4,370,406
4,215,192	4,346,675	4,363,040	4,370,423
4,225,522	4,347,855	4,363,310	4,370,437
4,243,844	4,348,033	4,363,595	4,370,723
4,252,878	4,348,138	4,363,775	4,370,877
4,253,513	4,348,709	4,363,833	4,371,111
4,269,921	4,350,327	4,363,949	4,371,921
4,273,966	4,351,473	4,364,396	4,371,950
4,304,073	4,351,896	4,364,532	4,372,027
4,307,101	4,352,727	4,364,581	4,372,386
4,316,737	4,353,744	4,364,612	4,372,503
4,317,347	4,354,118	4,365,129	4,372,581
4,324,584	4,354,289	4,365,532	4,372,795
4,324,605	4,355,130	4,365,840	4,372,871
4,328,863	4,355,207	4,365,915	4,373,138
4,331,555	4,356,534	4,365,925	4,373,237
4,332,345	4,356,684	4,366,123	4,373,458
4,332,850	4,356,810	4,366,126	4,373,792
4,337,785	4,357,263	4,366,209	4,374,000
4,338,339	4,357,538	4,366,313	4,374,021
4,338,428	4,357,604	4,366,552	4,374,154
4,339,264	4,358,964	4,366,866	4,374,274
4,339,493	4,359,061	4,367,125	4,374,452
4,339,584	4,359,096	4,367,437	4,374,626
4,340,581	4,361,520	4,367,886	4,374,752
4,341,340	4,361,556	4,368,482	4,374,864
4,343,811	4,361,993	4,368,727	4,375,110
4,344,676	4,362,074	4,368,770	4,375,609
4,344,796	4,362,152	4,368,816	4,376,303

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 571-2122
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Illinois	Chicago Public Library	(312) 269-2865
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, Ext. 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
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	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 749-4176
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
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PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF February 19, 1983

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director	1-16-81
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director	11-20-81
Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director	7-14-81
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director	1-20-82
Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director	11-12-81
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director	4-7-81
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director	3-12-81
Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director	11-24-80
Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director	1-07-81
Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director	8-25-80
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGN, GROUP 290—KENNETH L. CAGE, Director	1-13-81
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director	5-18-81
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director	5-18-81
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director	2-13-80
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director	11-17-80
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director	9-12-80
Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	

Expiration of patents: The patents within the range of numbers indicated below expire during February 1983, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents .... Numbers 3,231,896 to 3,237,200, inclusive

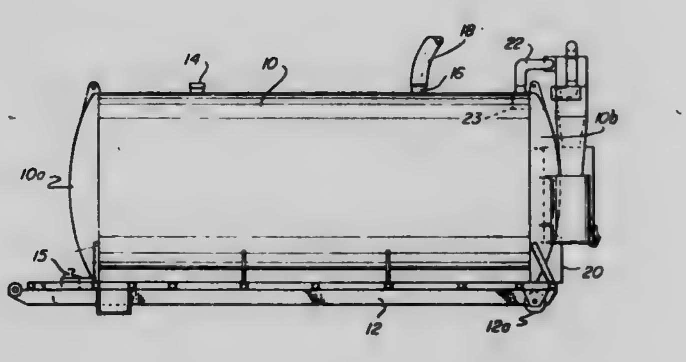
Plant Patents .... Numbers 2,591 to 2,605 inclusive

REEXAMINATIONS

APRIL 26, 1983

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,162,149 (77th)
GRAVEL AND DUST SEPARATOR AND CONTAINER FOR VACUUM CLEANING SYSTEMS
Clayton G. Mekelburg, Englewood, Colo., assignor to Rent-A-Vac International Ltd., Denver, Colo.
Reexamination Request No. 90/000,172, Mar. 1, 1982.
Reexamination Certificate for Patent No. 4,162,149, issued Jul. 24, 1979, Ser. No. 866,809, Jan. 3, 1978.
U.S. Cl. 55/315 **Int. Cl.**^{3} **B01D** *50/00, 45/12, 45/00;* **E01H** *1/08*



AS A RESULT OF EXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1–7 is confirmed.

1. A container and separator assembly for a vacuum cleaning system constructed and arranged for releasable connection to a separable airpump and drive and releasable connection to flexible vacuum tubes, comprising:

(a) an enclosed container constructed and arranged for handling by conventional trash handling means, and having a lower door for removal of content by tilting the container including airtight seal means for said lower door, and having inlet means for releasable connection to flexible vacuum tubes, and an outlet;

(b) at least two series connected cyclone separators for cleaning air passing out of said container outlet mounted on said container;

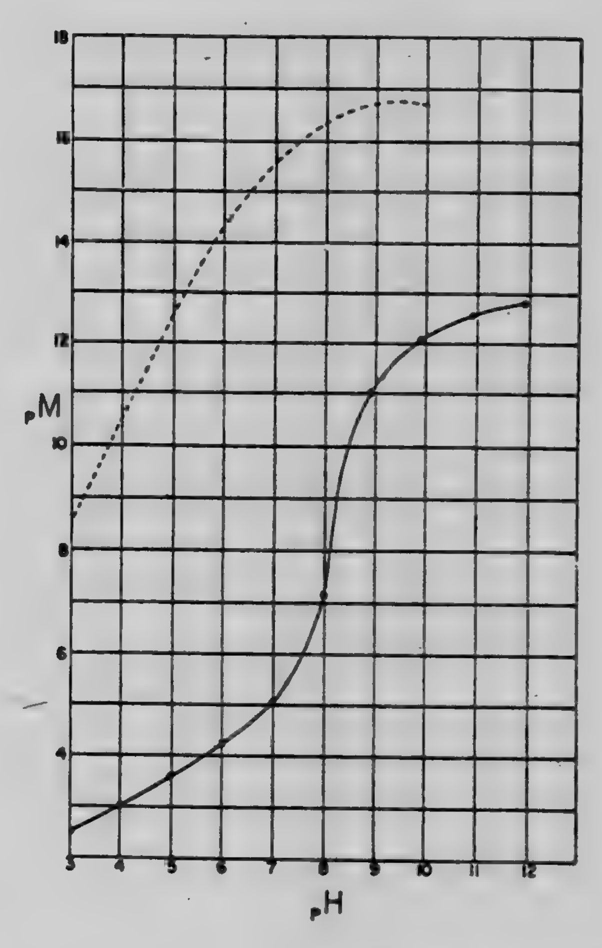
(c) passage means from said container outlet to the upstream one of said at least two series connected cyclone separators for passing air;

(d) storage means including separate containers for each of said at least two cyclone separators for accumulating solid matter removed by said at least two cyclone separators;

(e) means for emptying said storage means; and

(f) air outlet means from the downstream one of said at least two cyclone separators, and said air outlet means has means for releasable attachment to airpump means.

B1 4,129,509 (78th)
METALWORKING FLUID COMPOSITIONS AND METHODS OF STABILIZING SAME
Sudhir K. Shringarpurey, Cincinnati; Gerald L. Maurer, Fairfield, both of Ohio, assignor to National Research Laboratories, Cincinnati, Ohio.
Continuation-in-part of Ser. No. 597,756, Jul. 21, 1975, Pat. No. 4,055,655.
Reexamination Request No. 90/000,098, Nov. 2, 1981.
Reexamination Certificate for Patent No. 4,129,509, issued Dec. 12, 1978, Ser. No. 719,813, Sep. 1, 1976.
U.S. Cl. 252/49.5 **Int. Cl.**^{3}**C10M** *1/04*



AS A RESULT OF EXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1–24 is confirmed.

1. A stabilized metalworking fluid composition comprising:

an oil and water disperson,

an emulsifying agent selected from the group of anionic and nonionic agents, and mixtures thereof, which imparts an electronegativity to the oil phase of the dispersion and, as a stabilizer therefor in an effective stabilizing amount,

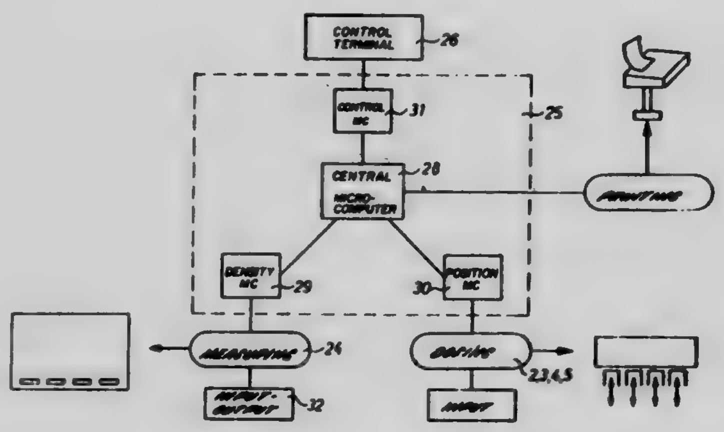
a multivalent metal ion bonded to said electronegative oil phase to impart stability to the dispersion.

B1 4,200,932 (79th)

MEANS FOR THE CONTROL AND REGULATION OF THE PRINTING PROCESS ON PRINTING PRESSES

Peter Schramm, Kahl am Main; Siegfried Schuhmann, Offenbach am Main; Edgar F. Schöneberger, Seligenstadt; Alfred Dorn; Bert Cappel, both of Mühlheim, all of Fed. Rep. of Germany, assignors to Roland Offsetmaschinenfabrik Faber & Schleichel AG., Fed. Rep. of Germany.

Reexamination Request No. 90/000,157, Feb. 11, 1982.
Reexamination Certificate for Patent No. 4,200,932, issued Apr. 29, 1980, Ser. No. 913,800, Jun. 8, 1978.
Claims priority, application Fed. Rep. of Germany, Jun. 25, 1977, 2,728,738.
U.S. Cl. 364/519 **Int. Cl.³ B41J** *33/00*



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1–4 is confirmed.

1. An ink feed control for a printing machine comprising:

means for closing the ink feed to a printing plate of the printing machine including a plurality of ink closing elements disposed generally laterally relative to the direction of movement of material being printed;

controlled adjustment means for individually adjusting the positions of the ink dosing elements and for producing current position values for the elements;

an ink density measuring device remote from the printing machine operable to scan a plurality of control fields on the printed material after a printing operation, the control fields being disposed generally laterally relative to the direction of movement of material being printed, to produce actual density values for the control fields;

comparator means for comparing the actual ink density values with desired ink density values;

first microcomputer means for controlling the scanning of the ink density measuring device and for collecting the actual density values from the ink density measuring device and coupling said actual values to the comparator means, the comparator means further including means for calculating position adjusting values for the ink dosing elements based upon current position values of the ink dosing elements and upon the comparisons of actual ink density values with desired ink density values; and

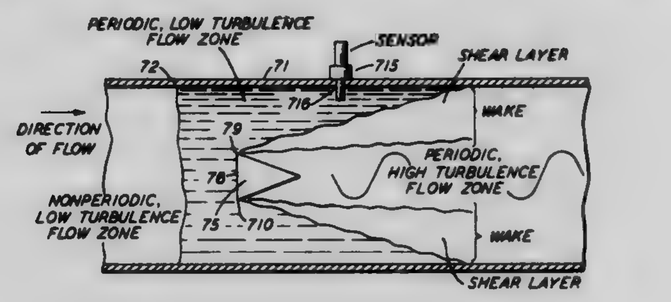
second microcomputer means receiving the position adjusting values from the comparator means, for controlling the adjustment means and for coupling the subsequent current position values of the ink dosing elements from the adjustment means to the comparator means, the comparator means further including means for relating the current position values with the position adjusting values to indicate nonconformities.

REISSUES

APRIL 26, 1983

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

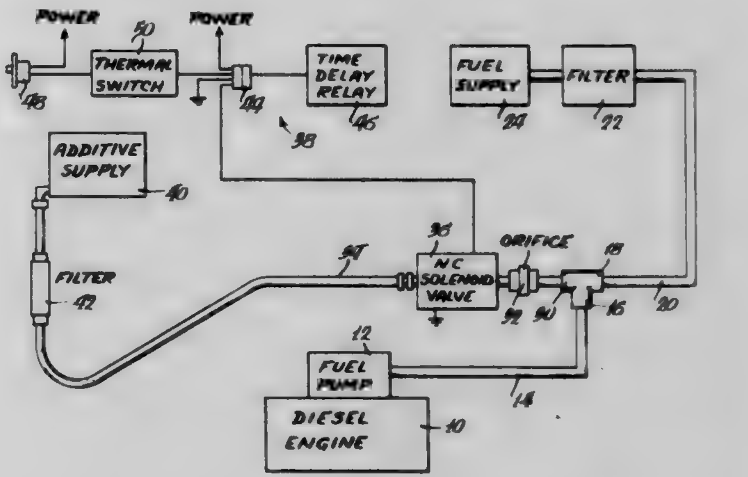
Re. 31,217
BLUFF BODY FLOWMETER
Alan E. Rodely, Atlanta, Ga., assignor to Neptune Eastech, Inc., Edison, N.J.
Original No. 3,572,117, dated Mar. 23, 1971, Ser. No. 732,238, May 27, 1968. Application for reissue Nov. 17, 1977, Ser. No. 852,581
Int. Cl.[3] G01F *1/32*
U.S. Cl. 73—861.22 **17 Claims**



1. In combination,
a conduit having means defining a hollow inner chamber containing a flowing fluid,
said chamber having a longitudinal axis *and an inner diameter dimension in a plane normal to said longitudinal axis,*
and a stationary bluff body positioned within said chamber *and spanning said inner diameter* transverse to said longitudinal axis thereof, said body having a first surface facing upstream in said flowing fluid and second surfaces extending from said first surface downstream in said flow through said chamber, said first surface having *a predetermined height dimension with respect to said inner diameter dimension of said chamber and* a prescribed *axial* dimension [with respect to dimensions] of said second surfaces, *the ratio of said height dimension to said diameter dimension being between the limits of 0.15 and 0.4 and the ratio of said axial dimension to said height dimension being between the limits of 1 and 2, said first surface having upper and lower edges each of which is contiguous to an individual corresponding one of said second surfaces to define a fixed line along which said fluid flow past said body separates,* and said first and second surfaces by interacting with said flowing fluid producing in said chamber an oscillating fluid flow free of intermittency and of a frequency corresponding to said flowrate.

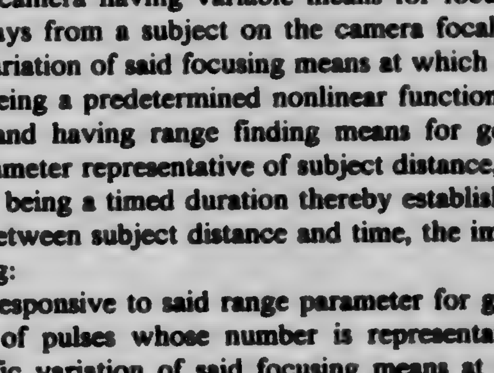
Re. 31,218
FUEL ADDITIVE INJECTION SYSTEM FOR DIESEL ENGINES
George E. Hicks; John W. Litherland, both of Peoria; Arlan G. Martin, Morton, and Lawrence Williams, Peoria Heights, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Original No. 4,161,160, dated Jul. 17, 1979, Ser. No. 847,530, Oct. 31, 1977. Application for reissue Jan. 21, 1980, Ser. No. 113,950
Int. Cl.[3] F02M *43/00*
U.S. Cl. 123—1 A **6 Claims**

5. A diesel fuel supply system for use with diesel engines comprising:
a fuel pump adapted to be connected to a diesel engine thereto to supply fuel thereto;
a first conduit connected to said fuel pump;
a tee connected to said first conduit;
a fuel tank;
a second conduit interconnecting said tee and said fuel tank;
a fuel additive tank;
a normally closed, solenoid operated valve;
a fluid metering orifice;



a third conduit connecting said additive tank, said valve and ~~said~~ orifice in series to said tee; and
an electrical control circuit for said valve.

Re. 31,219
AUTOMATIC FOCUSING CAMERA
Edwin K. Shenk, Westford, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Original No. 4,199,244, dated Apr. 22, 1980, Ser. No. 916,114, Jun. 16, 1978. Continuation of Ser. No. 729,289, Oct. 4, 1976, abandoned. Application for reissue Sep. 10, 1981, Ser. No. 300,994
Int. Cl.[3] G03B *3/00*
U.S. Cl. 354—195 **25 Claims**



1. In a camera having variable means for focusing image forming rays from a subject on the camera focal plane, the specific variation of said focusing means at which a subject is in focus being a predetermined nonlinear function of subject distance, and having range finding means for generating a range parameter representative of subject distance, said range parameter being a timed duration thereby establishing a relationship between subject distance and time, the improvement comprising:
means responsive to said range parameter for generating a train of pulses whose number is representative of the specific variation of said focusing means at which said subject will be in focus, said pulse generating means including a counter for accumulating said pulses of said pulse train and a pulse generator with a preprogrammed time-variable pulse repetition rate, said preprogrammed repetition rate of said pulse generator being such that the contents of said counter, at the end of said range pulse, is

representative of the specific variation of said focusing means at which said subject will be in focus; and

means for varying said focusing means in accordance with the total number of pulses in said train of pulses, said focus ranging means including means responsive to said end of said timed duration for varying said focusing means in accordance with the contents of said counter.

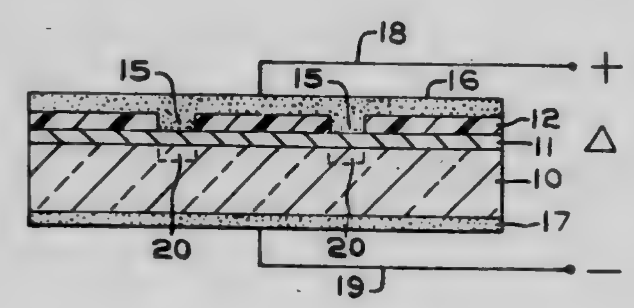
Re. 31,220
ELECTROMIGRATION METHOD FOR MAKING STAINED GLASS PHOTOMASKS

Fred M. Ernsberger, Fox Chapel Borough, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Original No. 4,155,735, dated May 22, 1979, Ser. No. 856,054, Nov. 30, 1977. Application for reissue May 18, 1981, Ser. No. 264,771

Int. Cl.^{3} C03C *15/00, 17/00*

U.S. Cl. 65—30.13 **44 Claims**



14. A method for making a stained glass photomask having improved resolution comprising:

applying onto a first surface of a glass substrate a layer of organic photoresist;

placing a master mask over the organic photoresist layer, exposing patterned areas of the photoresist to actinic radiation through the master mask, and photographically developing the exposed photoresist, thereby producing a pattern of apertures through the organic photoresist layer;

applying onto said apertured organic photoresist layer and into the apertures therein, a layer of a source of stain-producing cations;

applying an electrode layer onto the glass surface on the opposite side of the glass substrate from said first surface;

connecting said electrode layer to the cathode side of a source of electrical potential and said cation source layer to the anode side of a source of electrical potential and simultaneously heating the coated composite consisting essentially of the glass substrate, the source layer of stain-producing cations, the apertured organic photoresist layer, and the electrode layer to at least 100° C. while applying a direct current electric field between said cation source layer and the electrode layer, so that electric charge passes through the apertures in the organic photoresist and induces migration of stain-producing cations from the cation source layer into portions of the glass underlying said apertures, and passage of electric charge is blocked by the organic photoresist layer so that the areas of the glass underlying the organic photoresist remain substantially free from migrated stain-producing cations;

[removing said electrode layer, organic photoresist layer, and cation source layer from the glass substrate;] and

heating the glass, in the presence of a reducing agent so as to reduce and agglomerate the migrated stain-producing cations within the glass, thereby producing a stained pattern within the surface of the glass.

45. The method of claim 14 wherein, prior to the reducing and agglomerating step and subsequent to the cation migration step, the electrode layer, photoresist layer, and cation source layer are removed from the glass substrate.

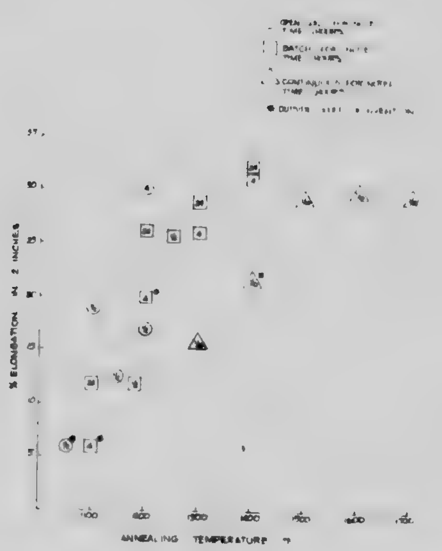
Re. 31,221
COLD ROLLED, DUCTILE, HIGH STRENGTH STEEL STRIP AND SHEET AND METHOD THEREFOR

James A. Elias, deceased, late of Middletown, Ohio (by June G. Elias, executrix); John R. Newby, and Marvin B. Pierson, both of Middletown, Ohio, assignors to Armco Inc., Middletown, Ohio

Original No. 3,963,531, dated Jun. 15, 1976, Ser. No. 554,158, Feb. 28, 1975. Application for reissue May 6, 1981, Ser. No. 260,906

Int. Cl.^{3} C22C *38/06, 38/12*

U.S. Cl. 148—31 **14 Claims**



1. Cold reduced and annealed low carbon steel strip and steel stock *in substantially unrecrystallized form after annealing* having a 0.2% yield strength of [45 to 65 ksi or of] at least 90 ksi, with an elongation in 2 inches of greater than 10% [for at least 90 ksi yield strength and greater than 25% for 45 to 65 ksi yield strength], consisting essentially of, by weight percent, from 0.02% to about 0.10% carbon, about 0.1% to about 0.9% manganese, 0.02% to about 0.18% columbium, residual phosphorus, sulfur, silicon, oxygen and nitrogen, about 0.01% to about 0.08% aluminum, and balance essentially iron except for incidental impurities, with the columbium being substantially completely combined.

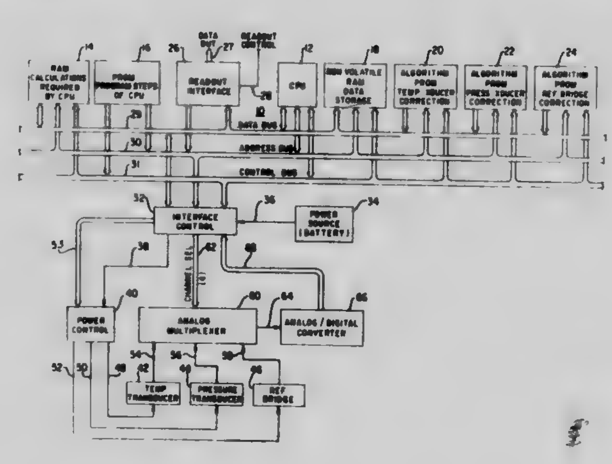
Re. 31,222
MICROPROCESSOR COMPUTERIZED PRESSURE/TEMPERATURE/TIME [DOWN-HOLE] RECORDER

Oliver W. McCracken, Pauls Valley, Okla., assignor to Otis Engineering Corporation, Dallas, Tex.

Original No. 4,161,782, dated Jul. 17, 1979, Ser. No. 863,678, Dec. 23, 1977. Application for reissue Jul. 16, 1981, Ser. No. 284,086

Int. Cl.^{3} E21B *47/06;* **G06F** *15/20*

U.S. Cl. 364—571 **35 Claims**



35. The method of storing data versus time from a self-contained tool comprising parameter sensing transducer means, a

power source, and an associated microprocessor computer; comprising the steps of:

(1) initiating via said microprocessor, an analog read-out sample of said transducer means,

(2) converting each said analog output sample to a digital format and storing same in a register of said microprocessor,

(3) determining the differential between each instant stored sample and the next preceding sample and storing those instant samples effecting a differential with absolute value exceeding a least count value in RAM storage means,

(4) storing a time tag associated with each sample stored in step (3),

(5) computing the data rate of change from said samples,

(6) adjusting the rate of taking said samples as a direct function of said data rate of change; and

(7) repeating steps (1) through (6), above.

Re. 31,223

TRACK SKIPPER FOR VIDEO DISC PLAYER

John C. Bleazey, Waretown, N.J., assignor to RCA Corporation, New York, N.Y.

Original No. 4,262,174, dated Apr. 14, 1981, Ser. No. 39,359, May 15, 1979. Application for reissue Jul. 27, 1981, Ser. No. 286,901

Claims priority, application United Kingdom, Nov. 16, 1978, 44739/78

Int. Cl.³ G11B *21/00*

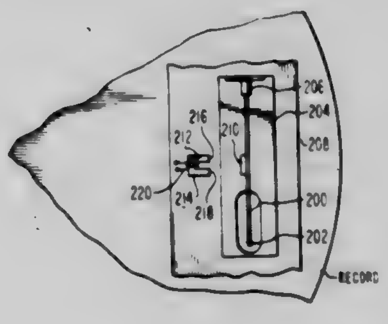
U.S. Cl. 369—221 **2 Claims**

1. In a system for recovering prerecorded information from a disc record having a spiral information track by a track-following stylus when stylus/record relative velocity is established; wherein normal operation of said system involves sensing of said prerecorded information along successive convolutions of said spiral track in a regular progression toward one extremity; an apparatus comprising:

(A) a carriage subject to translatory motion in correlation with radial motion of said track-following stylus during playback; said carriage having an opening in a bottom wall thereof;

(B) a stylus arm having a longitudinal axis, and carrying said track-following stylus at one end thereof;

(C) means for yieldably securing the end of said stylus arm remote from said one end to said carriage; said yieldable securing means permitting said track-following stylus to protrude through said opening when said stylus arm is lowered during playback;



(D) a permanent magnetic element secured to said stylus arm near said one end thereof and disposed above said stylus arm relative to said record during playback;

(E) an electromagnet for providing a controllable magnetic field of a desired polarity when energized;

(F) means for mounting said electromagnet to said carriage in the vicinity of said permanent magnetic element; and

(G) means for selectively energizing said electromagnet to cause a shift in the radial location of said track-following stylus in a substantially radial direction, said radial direction depending upon the polarity of said controllable magnetic field.

PLANT PATENTS

GRANTED APRIL 26, 1983

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

5,042
ROSE PLANT—MEIROBIDOR VARIETY
Marie L. Meilland, Antibes, France, assignor to The Conard-Pyle Company, West Grove, Pa.
Filed Nov. 3, 1981, Ser. No. 317,761
Claims priority, application Netherlands, Nov. 3, 1980, ROO 1041
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—15 **1 Claim**

1. A new and distinct variety of Hybrid Tea rose plant which is particularly suited for forcing in greenhouses, substantially as illustrated and described, characterized by an erect growth habit, the abundant formation of attractive long lasting and relatively non-fading yellow flowers in a rapid flower cycle, the ability of the cut buds to open consistently and uniformly, and above-average resistance to diseases which commonly afflict yellow-flowering roses.

5,043
CHRYSANTHEMUM NAMED TWILIGHT
Leonard H. Shoesmith, Westfield-Woking, England, assignor to Pan American Plant Company, Parrish, Fla.
Filed Oct. 22, 1981, Ser. No. 313,933
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct chrysanthemum cultivar, substantially as herein shown and described, characterized by its profuse production of distinct pink daisy-type flowers of medium size and good substance, and its adaptability for year round pot plant production.

PATENTS

GRANTED APR. 26, 1983

ERRATA

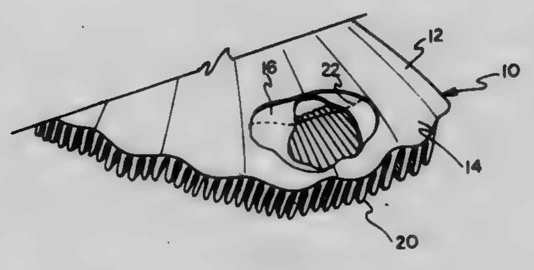
For CLASS	See PATENT NO.
604–152	4,381,005
604–265	4,381,008
494–010	4,381,072
384–114	4,381,126
384–151	4,381,127
384–154	4,381,128
419–024	4,381,197
376–105	4,381,280
376–172	4,381,281
376–292	4,381,282
376–327	4,381,283
376–364	4,381,284
382–064	4,381,494

PATENTS

GRANTED APRIL 26, 1983

GENERAL AND MECHANICAL

4,380,833
DOLL DRESS AND CRENELLE
Sherry Peters, R.R. 3, Box 425, Chesterton, Ind. 46304
Filed Aug. 31, 1981, Ser. No. 297,778
Int. Cl.³ A41D *1/22*
U.S. Cl. 2—105 **6 Claims**

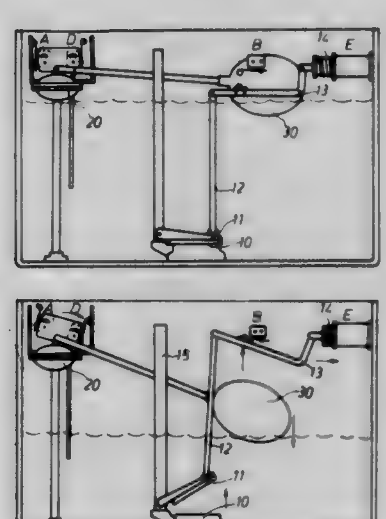


1. A doll dress comprising:
a full length skirt portion;
a strip gathered on a cord stitched along a longitudinal side of said strip, said strip being sewn on said skirt portion around the hem portion thereof,
said strip having a width of approximately ⅓ the length of said skirt;
said strip having a longitudinal length approximately 30 times the circumferential length of said skirt along the hem thereof, and gathered on said cord to equal the circumferential length of said skirt at the hem portion thereof.

4,380,834
POP-UP PLUNGER
Frederick E. Wentz, 647 North Street, Emmaus, Pa. 18049
Continuation-in-part of Ser. No. 163,345, Jan. 26, 1980, abandoned. This application Mar. 31, 1982, Ser. No. 364,195
Int. Cl.³ A47K *1/14;* **E03C** *1/26*
U.S. Cl. 4—287 **6 Claims**

1. A pop-up plunger for selectively closing a generally cylindrical waste drain pipe having a seat at one end and closure actuator means remote from said one end comprising:
a head portion including sealing means for engaging the seat of said waste drain pipe for closure thereof;
a support portion extending axially of said seat from one side of the head portion into the waste drain pipe and adapted for engagement with the closure actuator means to effect axial displacement of the plunger relative to the waste drain pipe for opening and closing the waste drain pipe, said shank portion having guide means projecting into close proximity to said waste drain pipe to guide said plunger for axial displacement therein, said guide means providing at least one drain passage past said plunger affording communication from said seat to a drain through said waste drain pipe; and
a hollow cylindrical foramenous rigid sleeve member mounted removably on said guide means to cover said drain passage adjacent the head portion and to fill the space between said guide means and the inner surface of said waste drain pipe adjacent said seat, the openings of said formanenous sleeve member affording flow of waste liquid therethrough but blocking the passage of discrete articles therethrough, said support portion further including annular shoulder means spaced from said head portion a distance corresponding to the axial length of said sleeve member for engaging and retaining the sleeve member captive between said head and said shoulder means against axial displacement, said support portion being separable from said head portion to afford said releasable mounting of said cylindrical sleeve member between said head portion and said annular shoulder means.

4,380,835
ELECTRIC FLUSH TANK
Li-Ho Yao, No. 6, Alley 65, Ta-teh Lane, Chung Ching Rd., Taichung, Taiwan
Filed Apr. 7, 1981, Ser. No. 251,961
Int. Cl.³ E03D *5/10*
U.S. Cl. 4—406 **8 Claims**



1. An electrically operated toilet flushing device comprising:
a flush tank, having a hole in its bottom;
a lid covering the hole in said tank;
a solenoid mounted within said tank;
a first lever pivotally mounted within said tank, one end of said first lever secured to said lid and the other end of said first lever attached to said solenoid;
a means for energizing said solenoid, said solenoid when achieving its energized state causing rotation of said lever;
a first switch means to maintain said solenoid in its energized state when said energizing means is released;
a second lever pivotally mounted within said tank;
a float mounted on one end of said second lever;
a water supply valve connected to a source of water and located in said tank, said valve being opened when said float is intermediate its lowermost and uppermost positions;

a second switch means for electrically de-energizing said solenoid when said float is in its lowermost position.

4,380,836

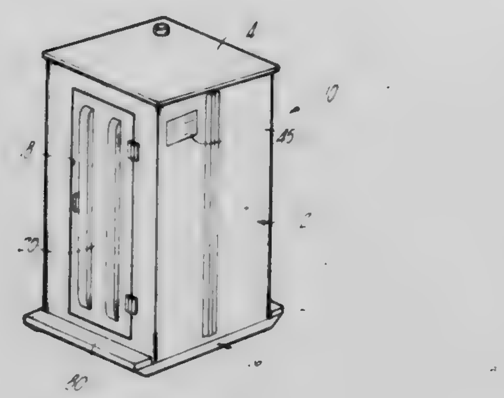
COLLAPSIBLE TOILET SHELTER

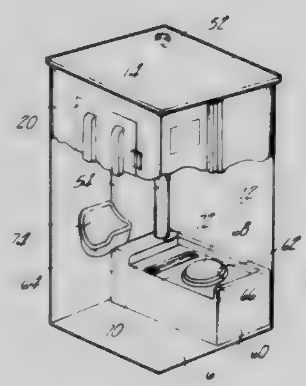
Earl J. Braxton, 46731 Shelby Rd., Utica, Mich. 48087

Filed Mar. 26, 1981, Ser. No. 247,699

Int. Cl.³ A47K *11/03, 11/02*

U.S. Cl. 4—460 **7 Claims**





1. A collapsible portable toilet shelter comprising:

a plurality of upstanding planar wall panels connected along adjacent vertical sides by continuous hinge members such that said wall panels may be adjustably positioned to form a foldably collapsible rectangular enclosure, said rectangular enclosure including a front wall, a back wall, and two side walls, said side walls each including a forward panel and a rearward panel, the forward panels connected to the rearward panels by continuous hinge members enabling the forward and rearward panels to be maintained in an opened position co-planar to each other, or in a collapsed position parallel to each other and parallel to said front wall and said back wall;

one of said wall panels having a door opening and a door adapted to be moveably disposed over said door opening;

a removeable roof panel adapted to be mounted on top marginal portions of the wall panels;

means disposed on the roof panel for retaining said top marginal portions of each wall panel in fixed relation to each other; and

a removeable base member adapted to retain bottom marginal portions of each wall panel in fixed relation to each other, said base member including:

a rectangular frame member disposed in a horizontal plane and having the same number of sides as the shelter,

a commode member mounted on said frame member in spaced relationship from the wall panel having said door opening, and

a floor extending across the top portion of said frame member not covered by said commode member, whereby said shelter may be erected for use as a portable toilet shelter or disassembled to a collapsed state for shipment.

4,380,837

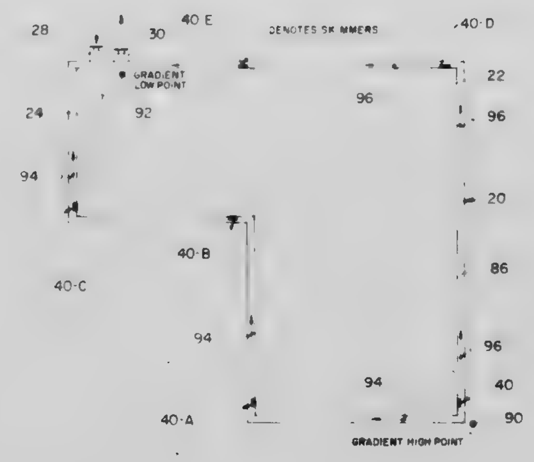
METHOD AND APPARATUS FOR CONTROLLING THE FLOW IN SWIMMING POOL GUTTERS

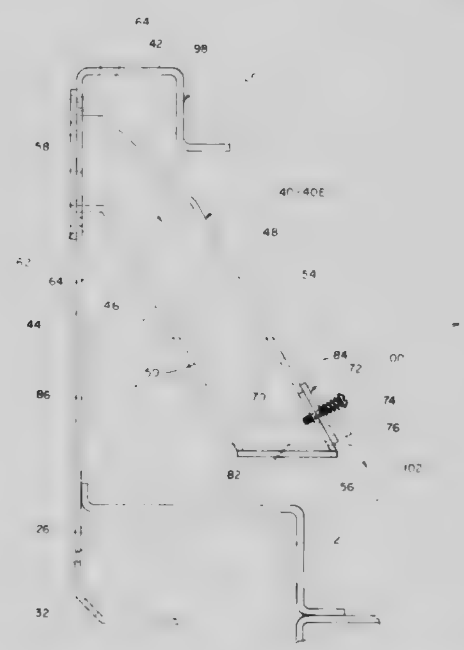
John F. Corna, Columbus, and Marcel H. Blais, Westerville, both of Ohio, assignors to Statewide Pools, Inc., Columbus, Ohio

Filed Apr. 1, 1981, Ser. No. 249,747

Int. Cl.³ E04H *3/16, 3/18*

U.S. Cl. 4—510 **4 Claims**





1. A gutter flow controller for a swimming pool of the type that includes a gutter extending around the perimeter of the pool and an inner gutter wall provided with wall openings at spaced intervals around said perimeter for delivering flows of water from the pool to the gutter, said gutter flow controller comprising, in combination, a controller frame extended through one of said wall openings and forming a control passage that extends downwardly from the wall opening to a control passage outlet in the lower regions of the gutter; and a hydrostatic gate moveably mounted on the controller frame in overlying relationship with said control passage outlet for controlling the flow through said outlet.

4,380,838

CONFORMABLE SUPPORT SYSTEM FOR FURNITURE

Milton Lutchansky, 47 Lake Shore Dr., Randolph, N.J. 07869

Filed Apr. 8, 1981, Ser. No. 252,179

Int. Cl.³ A61G *7/00*

U.S. Cl. 5—66 **9 Claims**

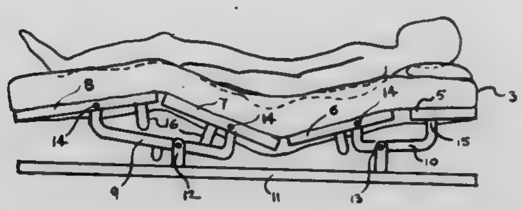
1. An article of furniture for supporting the human body in sitting and reclining positions with a preselected support force distribution which adapts itself to body contours comprising, in combination:

a rigid base;

a frame for supporting a mattress or the like divided longitu-

dinally into a plurality of segments, at least one of which is independent of other segments;

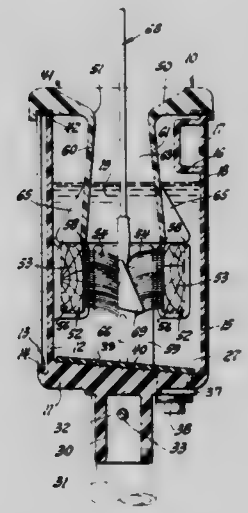
cross bracing members for intermediate segments of said frame;



a membrane resiliently stretched transversely of each of said segments; and

at least one balance lever intermediately pivoted to said base and endwise attached to adjacent segments of said frame on each long side thereof to support said segments.

4,380,839
GOLF IRON WASHER
Charles Caradonna, 260 Woodside Ct., Apt. 228, Rochester, Mich. 48063
Filed Jun. 29, 1981, Ser. No. 278,211
Int. Cl.³ A63B *57/00*
U.S. Cl. 15—104.92 **8 Claims**



1. A golf iron washer characterized in that it includes:

(a) a rectangular housing including a horizontal bottom end wall, a pair of integral front and rear vertical walls, and a pair of integral side vertical walls, and being open at the upper end thereof;

(b) mounting means on the outer lower face of the bottom wall for mounting the housing on a support means;

(c) cleaning member support means in said housing for releasably supporting a pair of rectangularly shaped cleaning members disposed on their sides, with their cleaning elements extended toward each other in opposing relationship, and with their longitudinal axes disposed lengthwise of the front and rear vertical walls;

(d) a cover member releasably mounted on the upper open end of said housing and having an opening formed therethrough for the passage therethrough of a golf iron;

(e) a predetermined level of cleaning fluid in said housing; and,

(f) said cover member being provided with inwardly extended integral front, rear and a pair of side guide walls which are integrally attached at their upper end to the cover member, and which have their lower ends in abutting engagement with the upper longitudinal sides of the cleaning members for releasably retaining them in said cleaning member support means, whereby when a golf iron is manually inserted head first through the opening in said cover member, the golf iron head is guided by the guide walls between said cleaning members, and continued manual reciprocating of the golf iron results in a washing of the golf iron head.

4,380,840
BOTTLE CLEANING DEVICE
Ivan L. Rieckenberg, Rte. 1, Box 148E, Steeleville, Ill. 62288
Filed Dec. 30, 1981, Ser. No. 335,725
Int. Cl.³ A47G *19/30*
U.S. Cl. 15—105 **10 Claims**

1. A bottle cleaning device, formed of durable, flexible, resilient molded resin material, comprising:

an elongated shaft;

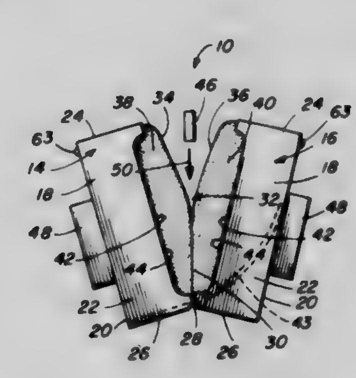
and a thin, relatively flat primary scraper blade mounted on one end of the shaft,

the blade extending transversely of the end of the shaft at an acute angle to the longitudinal axis of the shaft,

the scraper blade having an external peripheral configuration affording an elongated essentially linear edge effective for scraping flat interior side surfaces in a bottle, and further having a curved edge effective for scraping curved interior side surfaces and corners in a bottle,

the juncture between the blade and the shaft being located centrally of the blade.

4,380,841
OIL DIP STICK WIPER UNIT
Robert R. Thomas, Hartford, Kans., assignor to Hopkins Manufacturing Corporation, Emporia, Kans.
Filed Feb. 25, 1981, Ser. No. 237,862
Int. Cl.³ F01M *11/12*
U.S. Cl. 15—210 B **4 Claims**



1. An oil dip stick wiping device comprising:

means for wiping said dip stick, comprising:

a first wiping block having a first inside wiping face portion,

a second wiping block having a second inside wiping face

portion, in opposing relation to said first wiping face portion
means for hingedly connecting said first and said second wiping blocks whereby said first and second wiping blocks may be urged together after said dip stick has been inserted between so that said dip stick may be wiped by said first and second wiping face portions as said dip stick is drawn between them and
first and second outside gripping means on said first and second wiping blocks, respectively, for gripping said wiping means and urging said wiping blocks together and for inserting said wiping means into a means for storing said wiping means, and
means for storing said wiping means when said wiping means is not in use, comprising:
walls defining a receptacle with an open end for telescopingly insertably receiving said wiping means including
a wall extending from said open end defining a slot extending in the direction of insertion of said wiping means,
said first and second outside gripping means being operable by hand to prevent separation of said wiping blocks during removal from said means for storing said wiping means and to manipulate said wiping means free from hand contact with said first and second inside wiping face portions, at least one of said outside gripping means being engageable through said slot for removal of said wiping means.

4,380,842

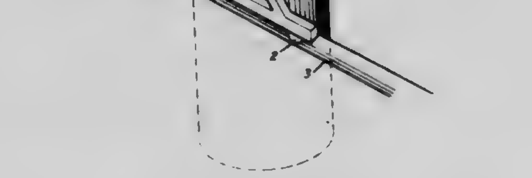
TOOL SUPPORT APPARATUS

John W. Thomas, McDonald, Pa., assignor to Shenango Incorporated, Pittsburgh, Pa.

Filed Jul. 23, 1981, Ser. No. 286,272

Int. Cl.^{3} B08B *1/00*

U.S. Cl. 15—304 **13 Claims**



1. Tool support apparatus comprising a frame, a vertical ram tube adapted to carry tools at its lower end, means supporting said ram tube on said frame, said means supporting said ram tube on said frame including a first means for moving said ram tube in a first linear direction, a second means for moving the lower end of said ram tube in a first arcuate direction, a third means for moving the lower end of said ram tube in a second arcuate direction, a fourth means for vertically moving said ram tube, whereby the lower end of said ram tube may be moved linearly, arcuately and vertically to position the lower end of said ram tube.

4,380,843

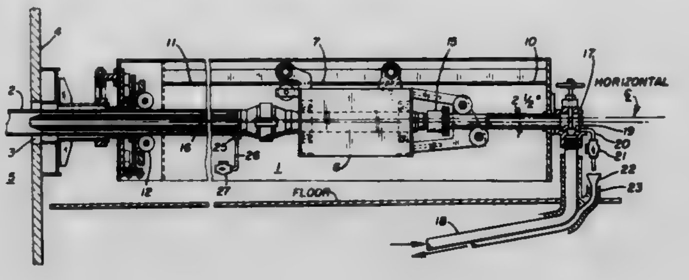
DROOP CORRECTION STRUCTURE AND CONDENSATE CONTROL IN SOOTBLOWERS

Robert P. Sullivan, Chattanooga, and Clyde L. Jacobs, Signal Mountain, both of Tenn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 8, 1980, Ser. No. 213,990

Int. Cl.^{3} F23J *3/00*

U.S. Cl. 15—316 R **6 Claims**



1. A long-stroke sootblower, including,
a track extending at a slope up to the entrance into a furnace space,
a carriage mounted to follow the track,
an outer casing mounted by one end to the carriage and extending to and through the furnace entrance,
a support for the casing at the entrance of the furnace which maintains the supported casing in alignment with the furnace opening,
a feed tube telescoped within the carriage end of the casing,
a seal between the feed tube and the casing,
a supply of steam for the feed tube,
a valve connecting the steam supply to the feed tube,
a check valve mounted at the steam valve through which condensate within the feed tube drains to a point external of the blower,
and a valve connected to the carriage end of the casing through which condensate within the casing drains to a point external of the blower.

4,380,844

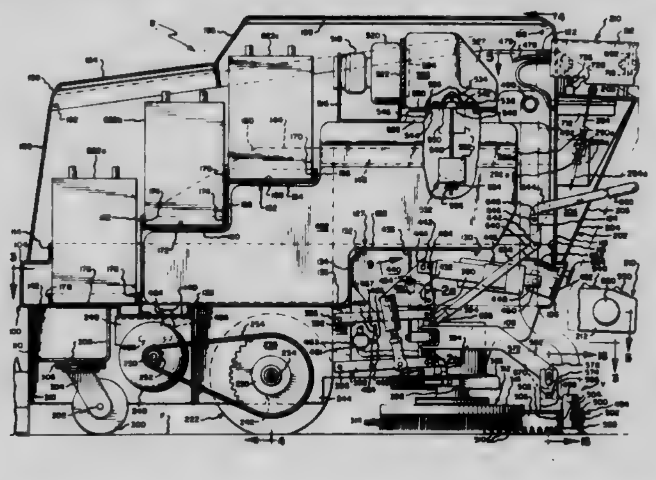
AUTOMATIC FLOOR CLEANING MACHINE

Steven A. Waldhauser, Lewiston, and Dennis J. Corneil, Youngstown, both of N.Y., assignors to Wetrok, Inc., Niagara Falls, N.Y.

Filed Sep. 12, 1980, Ser. No. 186,420

Int. Cl.^{3} A47L *11/30, 11/292*

U.S. Cl. 15—320 **40 Claims**



1. An automatic, self contained and self propelled walk behind floor cleaning machine comprising a unitary, power driven body means having mounted thereon
a propulsion means for supporting said body means and for dry tracking on the floor surface to be cleaned,
scrubber means for wetting and cleaning the surface, said scrubber means including vertically movable brush means

carried in cantilever fashion on said body means behind said propulsion means, and

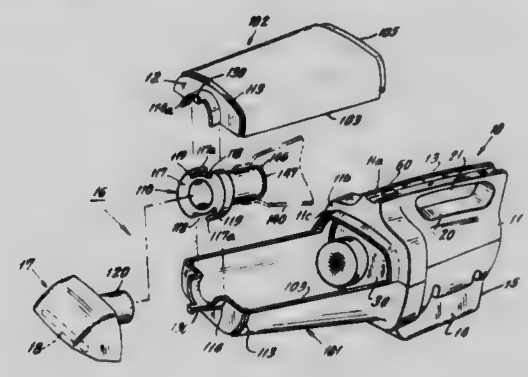
vacuum means for drying of the cleaned surface, said vacuum means including articulated squeegee means carried in cantilevered fashion on said body means behind said brush means for proper tracking, said squeegee means being capable of vertical movement independent of said brush means; and

control means operatively associated with said propulsion means, said scrubber means and said vacuum means for controlling actuation of said machine, said control means including controls located to the rear of the body means and engagable by a walk behind operator.

4,380,845
NOZZLE FOR HAND-HELD VACUUM

Jonathan O. Miller, Howarth, N.J.; Kerry E. Strouse, Mill Hall, and Richard M. Fegan, Montoursville, both of Pa., assignors to Shop-Vac Corporation, Williamsport, Pa.

Filed Mar. 20, 1981, Ser. No. 245,892
Int. Cl.^{3} **A47L** *5/24*
U.S. Cl. 15—344 **12 Claims**



1. A vacuum cleaner comprising:

a main housing;

a suction fan mounted in said housing for drawing air into said housing; an air exhaust passage from said housing communicating with said suction fan; a motor in said housing for driving said fan;

said housing having a forward end; a nozzle extending rigidly from said forward end of said housing; an air inlet port at the end of said nozzle remote from said housing; said nozzle including a pair of sections extending longitudinally of said nozzle and defining an air passage between them from said air inlet port to said suction fan; a first one of said nozzle sections being secured to said housing; the second of said nozzle sections being releasably secured to said housing and to said first section;

a filter member housed within said nozzle for filtering the air passing through said nozzle and trapping particulate matter in said air;

said second section of said nozzle being openable to make said filter member in said housing accessible for insertion, removal and replacement;

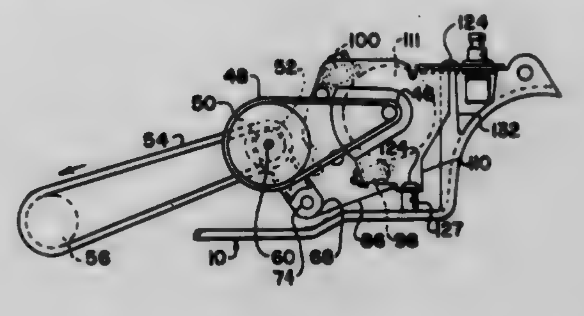
a sleeve member at the forward end of said nozzle away from said housing; said sleeve member extending into said air passage; said sleeve member securing said nozzle sections together and preventing release of said second housing section from said first housing section;

said inlet port further comprising an end nozzle including a sleeve projecting into said sleeve member for positioning said end nozzle; said end nozzle including a support and positioning portion thereof around the periphery thereof for being lodged against said main housing to position said end nozzle.

4,380,846
IDLER PULLEY BELT DRIVE ARRANGEMENT FOR SUCTION CLEANER

Edgar A. Maurer, Canton, Ohio, assignor to The Hoover Company, North Canton, Ohio

Filed Feb. 28, 1981, Ser. No. 238,546
Claims priority, application United Kingdom, Nov. 28, 1980, 8038291
Int. Cl.^{3} **A47L** *5/30*
U.S. Cl. 15—391 **8 Claims**



1. An overload arrangement for a cleaner bottom including;

(a) an elastomeric stretchable belt extending to a pivoted idler pulley structure,

(b) a relatively unstretchable belt extending to said idler pulley structure,

(c) one of said stretchable belt and said relatively unstretchable belt being trained over a driving motor shaft,

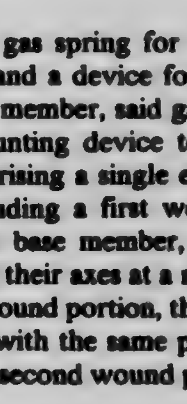
(d) the other of said stretchable belts and unstretchable belt being trained over said agitator whereby a stalled condition at said agitator causes said unstretchable belt to slip on said idler pulley structure to prevent a stall condition to said motor shaft, and

(e) a pivot for said pivoted idler pulley structure being resiliently mounted relative to said cleaner bottom.

4,380,847
DEVICE FOR MOUNTING GAS SPRING FOR OPENING AUTOMOBILE HATCH DOOR

Yasuari Tajima, Gyoda, Japan, assignor to Showa Manufacturing Co., Ltd., Tokyo, Japan

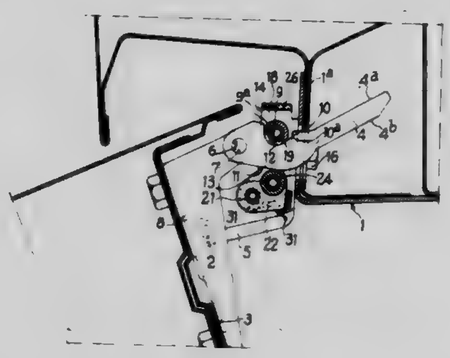
Filed Jan. 8, 1981, Ser. No. 223,308
Claims priority, application Japan, Jul. 3, 1980, 55-92938[U]
Int. Cl.^{3} **E05F** *5/08;* **F16D** *3/00*
U.S. Cl. 16—85 **5 Claims**



1. In combination a gas spring for opening and closing a door; a base member, and a device for mounting to said gas spring and to said base member, said gas spring having means for mounting said mounting device to said spring and said mounting device comprising a single elastic wire wound in a helical shape and including a first wound portion which is rotatably fitted to said base member, and second and third wound portions having their axes at a right angle with respect to the axis of the first wound portion, the first and third wound portions being wound with the same pitch as the diameter of said wire, whereas said second wound portion is wound with a

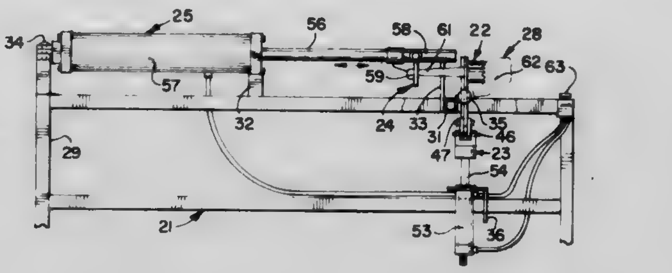
slightly larger pitch than the diameter of said wire thereby providing a flexible portion in said mounting device, and said third wound portion being mounted onto one end of said gas spring.

4,380,848
STOP DEVICE FOR A PIVOTAL DOOR, IN PARTICULAR FOR AN AUTOMOBILE VEHICLE DOOR
Paul Guionie, Larche, and Rene Roudier, Brive, both of France, assignors to Paumellerie Electrique, France
Continuation-in-part of Ser. No. 84,071, Oct. 12, 1979, abandoned. This application Mar. 17, 1981, Ser. No. 244,720
Claims priority, application France, Oct. 19, 1978, 78 29777; Mar. 17, 1980, 80 05870
Int. Cl.^{3} E05F *5/06*
U.S. Cl. 16—85 **18 Claims**



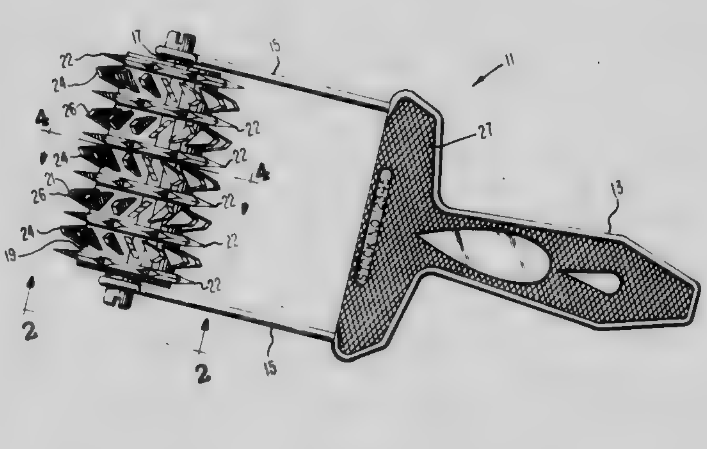
1. In a stop device for combination with two parts which consist of a door post and a door mounted on the post to pivot about a pivot axis, the device comprising an arm for mounting on one of said parts to pivot about an axis parallel to said pivot axis and having two opposed edges, a bracket member for fixing to the other of said parts and comprising two parallel branches, two rollers mounted between the parallel branches of the bracket member, one of the rollers being fixed in translation relative to the bracket member and the other roller being movable in translation relative to the bracket member, a rocker, a pin pivotally mounting the rocker between the branches of the bracket member, the movable roller being mounted on the rocker, elastically yieldable means for subjecting the rocker to an elastic torque which creates a pressure of contact between each of the two rollers and the opposed edges of the arm, the arm defining a stop recess for receiving and retaining the fixed roller in the open position of the door: the improvement wherein the branches of the bracket member are part of a U-section centre portion of the bracket member and two large wing portions extend symmetrically from each side of the centre portion in a direction perpendicular to the branches, said pin having two portions extending beyond the branches in the region of the wing portions, said elastically yieldable means comprising two helical windings which form a torsion spring and are respectively mounted on each of said two pin portions and have a first portion which bears against the corresponding wing portion which includes an abutment for said first portion, and a second portion which bears against the rocker, the U-section centre portion comprising a transverse portion which is located adjacent an edge of the wing portions and is substantially perpendicular to the wing portions so that the pivotal arm engaged between the two rollers can move while remaining spaced away from said transverse portion of the U-section centre portion.

4,380,849
APPARATUS FOR REMOVING MEAT FROM POULTRY DRUMSTICKS
Frank L. Adkison, West Liberty, and Jack L. Kress, Wilton, both of Iowa, assignors to Oscar Mayer Foods Corporation, Madison, Wis.
Filed Mar. 17, 1981, Ser. No. 244,735
Int. Cl.^{3} A22C *17/04*
U.S. Cl. 17—11 **20 Claims**



1. An apparatus for removing meat from a poultry drumstick, wherein the apparatus comprises:
support means;
a jaw assembly mounted onto the support means and having a pivoting, tong-like action;
jaw assembly operation means in operative interengagement with the jaw assembly for selectively closing the jaw assembly onto meat overlying a drumstick bone or opening the jaw assembly, said jaw assembly operation means includes a linkage member pivotally mounted to said jaw assembly;
said linkage member being pivotally mounted at one end thereof to said jaw assembly, said linkage member being pivotally mounted at its other end to a movable carriage assembly, said carriage assembly including means for moving the carriage assembly either toward or away from said jaw assembly, whereby movement of said movable carriage assembly toward said jaw assembly closes said jaw assembly and movement of said movable carriage assembly away from said jaw assembly opens said jaw assembly;
a grasping member for holding one end of the drumstick bone; and
means for selectively driving the grasping member either toward or away from the jaw assembly to remove the meat from the drumstick bone.

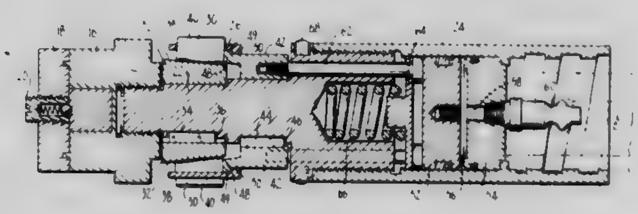
4,380,850
HAND OPERATED STEAK TENDERIZER AND CUBER
Edwin H. Coburn, 17141 Frankfort Rd., Brooksville, Fla. 33512
Filed May 4, 1981, Ser. No. 259,951
Int. Cl.^{3} A22C *9/00*
U.S. Cl. 17—29 **2 Claims**



1. A hand-operated meat tenderizer comprising a handle portion, a cylinder rotatably supported by said handle portion,

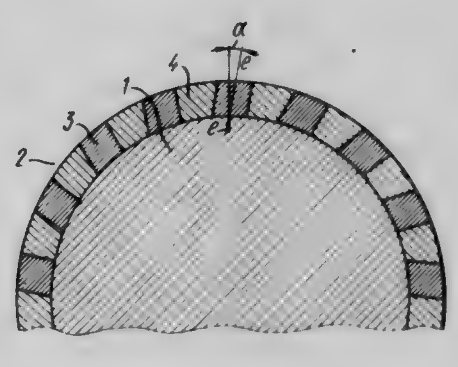
and a plurality of cutting blades disposed along the curved surface of said cylinder in predetermined and varying angular relationship to the axis of rotation thereof, whereby when said cylinder is pressably and rotatably passed over the planar surfaces of a cut of meat said surfaces are cuttably pierced in such manner as to effect tenderization of the meat, said cutting blades being truncated triangular in configuration and arranged along the curved surface of said cylinder in rows normally oriented relative to the axis of rotation thereof, said cutting blades within each row bearing a predetermined common angular relationship to said axis of rotation of said cylinder, said predetermined common angular relationship of said cutting blades within a given row differing from the predetermined angular relationship of the cutting blades within adjacent rows, said cutting blades within alternating rows being arranged in perpendicular relationship to said axis of rotation of said cylinder, and said cutting blades within the rows adjoining said alternating rows being acutely angled relative to said axis of rotation, with alternating rows of said adjoining rows having their cutting blades oppositely angled relative to the cutting blades of their alternately adjoining acutely angled rows.

4,380,851
ROLLER BURNISHING TOOL
Lawrence C. Dickinson, 2255 Eva Adams, Reno, Nev. 89504
Continuation-in-part of Ser. No. 183,664, Sep. 2, 1980. This application Nov. 7, 1980, Ser. No. 205,026
The portion of the term of this patent subsequent to Jan. 11, 2000, has been disclaimed.
Int. Cl.³ B24B *39/00, 39/02*
U.S. Cl. 29—90 R **11 Claims**



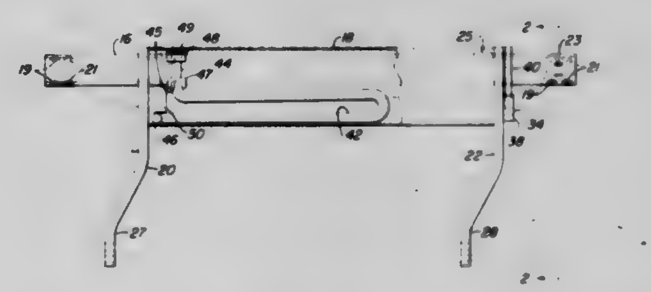
1. A roller burnishing tool for finishing the internal surface of a cylindrical hole by passing said tool through said hole, comprising:
- an elongate drive shaft having a central axis defining a forward and a rearward direction;
- a roller race having a central axis coincident with that of the shaft and a frustoconical outer surface tapering radially outward in the axially forward direction;
- a plurality of frustoconically tapered rollers each having a large end and a small end and being arranged about said outer surface with the small ends of said rollers facing forward so that the surface portion of each roller furthest from the central axis of the roller race is generally parallel to said central axis;
- a roller cage having a plurality of slots, said roller cage circumscribing and being spaced apart from the roller race so that said slots and said roller race together define a plurality of cavities for receiving individual rollers;
- a roller pusher having (1) a forward extension for directly engaging the rear surfaces of individual rollers when the pusher is moved forwardly relative to the roller race to push the rollers forward and cause the rollers to translate radially outward along the tapered surface of the roller race within the cavities defined by the roller cage, and (2) a lip for directly engaging the roller cage when the pusher is moved rearwardly relative to the roller race to draw the rollers rearward and allow the rollers to translate radially inward;
- means for biasing said roller pusher in said forward direction with a chosen force so that the force exerted upon said internal surface of said hole remains constant over a range of sizes of said hole; and
- means for retracting the roller pusher when the axial force is reduced to draw the roller cage rearwardly so that the rollers move radially inward and the tool can be withdrawn from the workpiece.

4,380,852
MILL ROLL
Leonid K. Leschinsky, Zhdanov, prospekt Lenina, 76"B", kv. 60; Sergei V. Gulakov, Zhdanov, ulitsa, M. Mazaya, 41, kv. 2; Xenofont X. Stepnov, Zhdanov, ulitsa Dalnevostochnaya, 50, kv. 4; Boris I. Nosovsky, Zhdanov, ulitsa Kuprina, 23"A", kv. 30; Valery G. Bendrik, Zhdanov, ulitsa Ilicha, 55, kv. 2; Boris E. Dubinsky, Zhdanov, ulitsa Krasnogvardeiskaya, 19, kv. 2; Dmitry I. Isirov, Zhdanov, prospekt Lenina, 74, kv. 51, and Viktor E. Zelensky, Zhdanov, bulvar Shevchenko, 93, kv. 7, all of Donetskaya oblast, U.S.S.R.
Filed Jan. 22, 1981, Ser. No. 227,395
Claims priority, application U.S.S.R., Jul. 17, 1978, 2643439
Int. Cl.³ B21B *27/00*
U.S. Cl. 29—121.2 **1 Claim**



1. A mill roll comprising a barrel and a working layer deposited on said barrel and having alternate portions of at least two materials of a different wear resistance each correspondingly along both the circumference and the generating line of said barrel, each portion of said working layer, on a developed surface of said barrel, being a figure symmetrical about both the circumference of said barrel and the generating line thereof, and extending along the circumference of said barrel for 0.001 to 0.1 of contact arc length and, in a plane of the roll cross-section, the angle between the axis of symmetry of each portion of said working layer and the radius of the same roll is from $+5°$ to $+75°$.

4,380,853
TOOL MOUNT ASSEMBLY METHOD
Nicholas Hamm, Vineland, Canada, assignor to Deere & Company, Moline, Ill.
Filed Jan. 19, 1981, Ser. No. 226,292
Int. Cl.³ B21H *7/00;* **B21K** *19/00*
U.S. Cl. 29—148.3 **3 Claims**



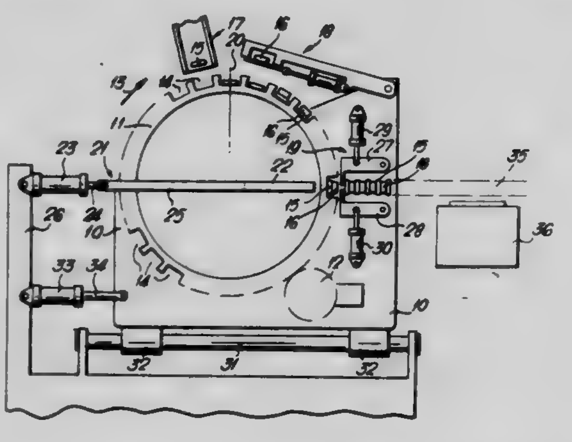
1. A method of making an agricultural implement assembly having a support and a tool mounting member pivotally suspended from the support and having an abutment member fixed thereto, the method comprising the steps of:
- coupling a resilient member between the support and the mounting member;
- pivoting the mounting member with respect to the support to

establish at least a predetermined preload in the resilient member; and

after the resilient member is preloaded, fixing a stop member to the support so that the stop member engages the abutment member, the stop and abutment members cooperating to limit downward pivoting of the mounting member relative to the support and to maintain at least the predetermined preload in the resilient member; and

after the resilient member is preloaded, forming attaching means on an end of the support for attaching the support to an adjacent support, the attaching means being oriented at a predetermined angular position with respect to the mounting member.

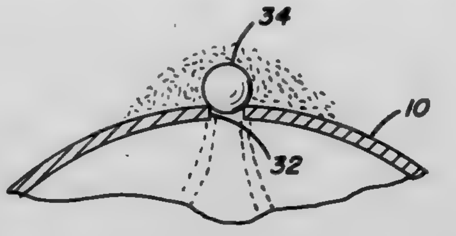
4,380,854
ASSEMBLY APPARATUS
Karl G. Jonason, Vasteras, Sweden, assignor to Gränges Metallverken Aktiebolag, Västeras, Sweden
Filed Oct. 30, 1980, Ser. No. 202,421
Claims priority, application Sweden, Nov. 2, 1979, 7909121
Int. Cl.^{3} B23P *15/26*
U.S. Cl. 29—157.3 A **10 Claims**

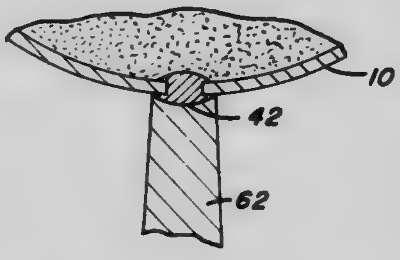


1. An apparatus for assembling a heat exchanger core comprising tubes and associated fin elements in thermal contact with the tubes, said apparatus comprising a first means for feeding the tubes to an assembly point and a second means for feeding the fin elements to said assembly point; a rotatable drum provided at its periphery with means defining a plurality of grooves which run in the direction of the axis of the drum and which are dimensioned to contain simultaneously one tube and one fin element, said grooves comprising said assembly point, an ejecting means for ejecting a tube and fin element from each groove and a transportation path for an assembly comprising the tubes and the fin elements coming from the ejecting means in an alternate relationship and means arranged adjacent the transportation path for interconnecting the adjacent tubes and fin elements, each groove of the drum during the rotation of the drum around its axis passing first the first and second means at which a tube and a fin element, respectively, are fed into the groove, and then the ejecting means at which the tube and the fin element are ejected together to follow said transportation path.

4,380,855
METHOD FOR FILLING HOLLOW SHELLS WITH GAS FOR USE AS LASER FUSION TARGETS
Harry W. Deckman, Fanwood; Gerald M. Halpern, Bridgewater, and John G. Dunsmuir, Madison, all of N.J., assignors to University of Rochester, Rochester, N.Y.
Filed Jan. 18, 1980, Ser. No. 113,146
Int. Cl.^{3} G21C *21/00*
U.S. Cl. 29—407 **16 Claims**

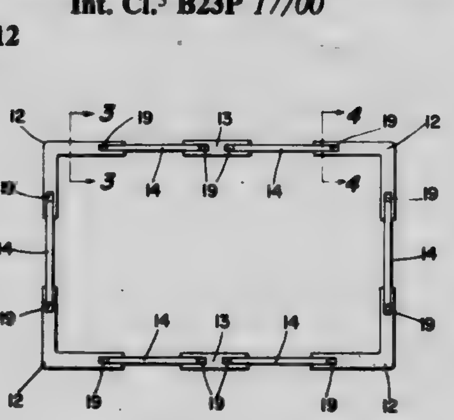
1. The method of filling a laser target having a hollow shell with gas which comprises the steps of drilling a hole through the wall of the shell, locating a plug having a melting temperature lower than that of the shell over the hole, placing the drilled shell with the plug in a vessel, introducing the gas into the shell through the hole while the plug is located on the shell over the hole, heating the vessel, thereby melting the plug to seal the hole to form a barrier against the escape of the gas from the shell thereby providing a gas-filled shell, removing





said gas-filled shell from said vessel, and mounting said shell upon a stalk with the top of the stalk and the melted plug in contact with each other to provide an assembly for use in a laser fusion target chamber.

4,380,856
SEGMENTED SEAL
Joseph E. Wallace, Calabasas, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio
Division of Ser. No. 124,391, Feb. 25, 1980, Pat. No. 4,293,135. This application May 20, 1981, Ser. No. 265,479
Int. Cl.^{3} B23P *17/00*
U.S. Cl. 29—412 **1 Claim**



1. A method of sealing comprising the steps of forming two elongated junction members each having two recesses with each recess having parallel laterally inwardly facing sealing surfaces spaced a predetermined distance apart, forming an elongated extension strip having parallel laterally outwardly facing sealing surfaces spaced a predetermined distance apart greater than said first predetermined distance and extending continuously and without interruption along the entire axial extent of said strip, severing said strip laterally into at least two pieces to form an extension member having identical opposite end portions defined by said sealing surfaces of said severed strip, inserting said identical opposite end portions into said recesses to sealingly connect said sealing surfaces of said extension member with said sealing surfaces of said recesses, and compressing and deforming said junction members and said extension member in a direction prependicular to the lateral and longitudinal axes of said members.

4,380,857

PROCESS FOR MANUFACTURING SHUTTER SCREEN BLADES

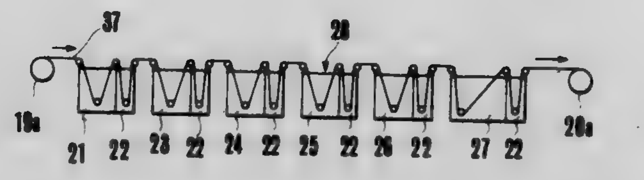
Michio Senuma, Tokyo, and Jun Shibuya, Chichibu, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo and Canon Denshi Kabushiki Kaisha, Saitama, both of, Japan

Filed Jul. 6, 1981, Ser. No. 280,933

Claims priority, application Japan, Jul. 7, 1980, 55-92892

Int. Cl.³ B23P *17/00;* B21J *11/00*

U.S. Cl. 29—417 **1 Claim**



1. A process for manufacturing shutter screen blades comprising the steps of:

providing a continuous longitudinal strip of plastic sheet material and feeding said sheet material in the longitudinal direction thereof;

performing a first punching operation on said sheet material in a press apparatus to form in said sheet material partially cutout portions with an outline in the form of shutter screen blades having a longer dimension and a shorter dimension, said cutout portions being formed with said longer dimension extending transversely to said longitudinal direction of said plastic strip and with parts of each outline retained connected with said strip material at points proximate both ends of said longer dimension;

coating said plastic strip including said cutout portions with a metal layer by passing said strip through a metal plating operation;

drying said metal coating by passing said sheet material through drying apparatus, said sheet material being held under a longitudinal tension during said drying step; and

performing a second punching operation to separate said shutter screen blades from said strip by severing said parts of said outlines which were retained connected with said strip material after said first punching operation thereby to separate said shutter screen blades from said strip.

4,380,858

METHOD OF MAKING A COMPOSITE PROFILE

Hans Gudbrandsen, Gjovik, Norway, assignor to A/S Raufoss Ammunisjonsfabrikker, Raufoss, Norway

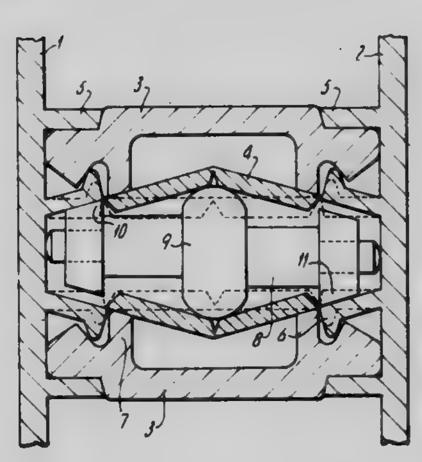
PCT No. PCT/NO80/00005, § 371 Date Nov. 16, 1980, § 102(e) Date Nov. 7, 1980, PCT Pub. No. WO80/01929, PCT Pub. Date Sep. 18, 1980

PCT Filed Mar. 12, 1980, Ser. No. 212,711

Claims priority, application Norway, Mar. 16, 1979, 790897

Int. Cl.³ B23P *11/00;* B21D *39/00*

U.S. Cl. 29—418 **4 Claims**



1. A method of making a composite profile by clamping at least two insulating bars so as to fixedly extend between two metal members, each of the metal members including a pair of inner flanges and a pair of outer flanges, the pairs of inner and outer flanges of one metal member at least initially extending toward the corresponding pairs of inner and outer flanges of the second metal member, and a separate deformable bridging element extending between the corresponding inner flanges of the two metal members so as to form an enclosed hollow space therebetween, the method comprising

(a) inserting two insulating bars between the two metal members so that the respective ends of each insulating bar will fit in the groove defined between the corresponding inner and outer flanges of each metal member,

(b) bending each of the inner flanges of each metal member toward the associated outer flanges of the metal member such that they will contact the end of the insulating bar therebetween and clamp it in position,

(c) at the same time deforming each of the deformable bridging elements away from the hollow space which it helps form and at least partially separating the deformable bridging elements from connection with the associated inner flanges, and

(d) removing the bridging elements from between the two metal members.

4,380,859

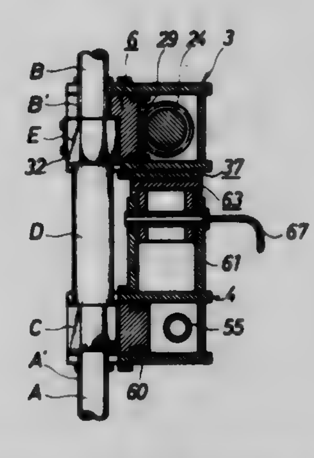
METHOD FOR TIGHTENING FASTENER ON AXIALLY CONNECTED ROD-LIKE MEMBERS

Akira Yamazaki, Kawanishi, Japan, assignor to Sumitomo Metal Industries, Ltd., Osaka, Japan

Division of Ser. No. 36,730, May 7, 1979, Pat. No. 4,261,231. This application Jan. 7, 1981, Ser. No. 223,058

Int. Cl.³ B23P *19/00*

U.S. Cl. 29—428 **1 Claim**



1. A method of tightening nuts on axially connected rod-like members utilizing a tightening apparatus of the type wherein a first spanner member to fit a nut to be rotated in a first direction is rotatably fixed relative to a main body member; a second spanner member to fit another nut to be rotated in a direction opposite to said first nut is rotatably mounted relative to said main body member; and, a driving apparatus rotates the second spanner member; the method comprising the steps of:

driving said driving apparatus to turn said second spanner member in said opposite direction relative to said main body utilizing a ratchet device, returning said driving apparatus to an original state;

repeating said driving and said returning operations;

returning said driving apparatus to an original operating position after the tightening operation has begun; and

further repeating said driving and returning operations of said driving apparatus until said nuts are tightened.

4,380,860

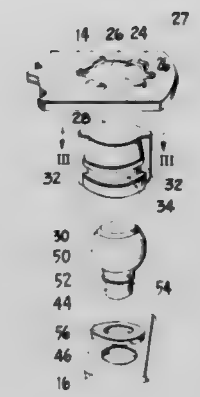
METHOD OF ASSEMBLING BEARING AND LEVER

William C. Riester, Williamsville, and Dionysios D. Papadatos, Kenmore, both of N.Y., assignors to Trico Products Corporation, Buffalo, N.Y.

Division of Ser. No. 30,113, Apr. 16, 1979, Pat. No. 4,266,883. This application Dec. 11, 1980, Ser. No. 215,279

Int. Cl.[3] B23P *11/02*

U.S. Cl. 29—453 **3 Claims**



1. A method of assembling a unitary, semi-rigid, yieldable bearing member having a circumferential external groove in secure interengagement with a flat linkage member of a thickness less than the width of said groove comprising the steps of forming an aperture in the linkage member, deforming the periphery of the aperture out of the original surface plane thereof but parallel to said plane while maintaining a constant aperture diameter to increase the effective thickness of the periphery of the aperture of the linkage member to approximate the width of the groove while the circumferential surface of the aperture remains facing radially into the aperture, inserting the resilient bearing member into the aperture; applying a force to the resilient bearing member in a direction through the aperture until the groove in the bearing member snap-fits into and engages the periphery of the aperture.

4,380,861

METHOD OF MAKING A SEMICONDUCTOR LASER BY LIQUID PHASE EPITAXIAL GROWTHS

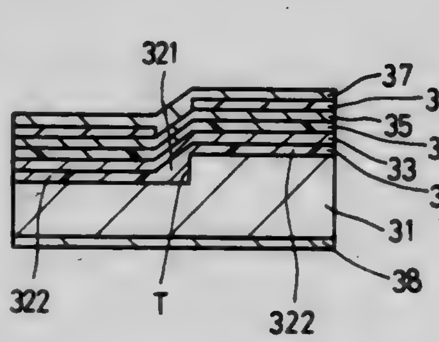
Takashi Sugino, Takatsuki, and Kunio Itoh, Uji, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Division of Ser. No. 40,182, May 18, 1979, Pat. No. 4,296,387. This application May 21, 1981, Ser. No. 266,134

Claims priority, application Japan, May 22, 1978, 53-61205; Jun. 7, 1978, 53-69362; Jun. 7, 1978, 53-69363; Jun. 7, 1978, 53-69364; Jun. 8, 1978, 53-69572; Dec. 18, 1978, 53-156621

Int. Cl.[3] H01L *21/208*

U.S. Cl. 29—569 L **4 Claims**



1. A method of making a semiconductor laser by liquid phase epitaxial growths comprising the steps of

forming a terrace part with a specified step on a principal face of a semiconductor substrate,

growing a first clad layer on said semiconductor substrate in a manner to have a thick part of the foot of said specified step,

growing an active layer having an oblique part disposed on the part of the foot of said step, in a manner to have a pair of parallel bent parts between said oblique part and upper and lower horizontal parts,

growing a second clad layer having the opposite conductivity type to that of said first clad layer on said active layer,

growing an electrode contacting layer,

forming a current limiting layer having an opening for limiting injection current to the region of said oblique part, and

diffusing an impurity for ohmic contact into the exposed surface of said electrode contacting layer through said opening at most as far as the bottom of said second clad layer.

4,380,862

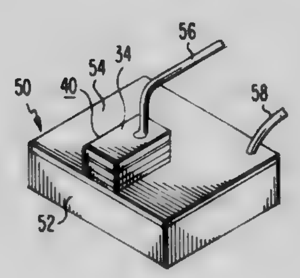
METHOD FOR SUPPLYING A LOW RESISTIVITY ELECTRICAL CONTACT TO A SEMICONDUCTOR LASER DEVICE

Paul Nyul, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 16, 1981, Ser. No. 322,007

Int. Cl.[3] H01L *21/28, 21/302, 21/58;* **H01S** *3/19*

U.S. Cl. 29—569 L **7 Claims**



1. In a method of fabricating a semiconductor laser comprising the steps of forming a wafer of semiconductor material having regions of opposite conductivity type therein with a p-n junction therebetween; metallizing a pair of surfaces of the wafer, each surface adjacent to a region of a different conductivity type; cleaving the wafer to form a strip of semiconductor material having a pair of opposed cleavage faces perpendicular to said metallized surfaces; separating the strip in a direction perpendicular to said cleavage faces to form a laser chip of the semiconductor material; bonding a first metallized surface of the chip to an electrically conducting surface of a support; and contacting an electrically conducting lead to a second metallized surface of said chip;

the improvement comprising the steps of bonding an electrically conducting sheet to the second metallized surface of said strip prior to the separating step and contacting the electrically conducting lead to the electrically conducting sheet.

4,380,863

METHOD OF MAKING DOUBLE LEVEL POLYSILICON SERIES TRANSISTOR DEVICES

G. R. Mohan Rao, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

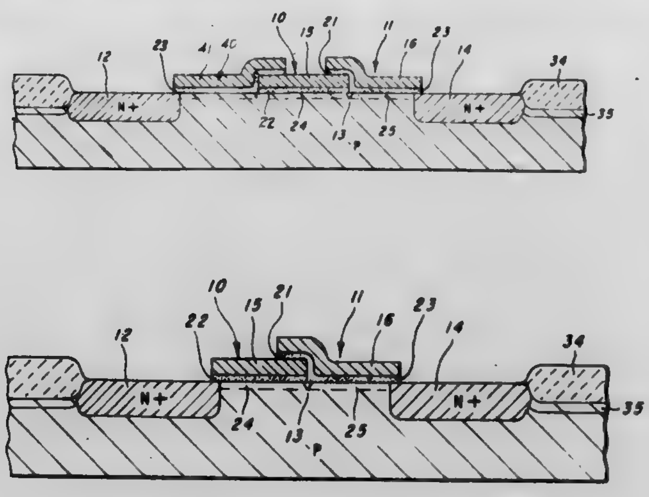
Division of Ser. No. 102,301, Dec. 10, 1979, Pat. No. 4,319,263, which is a continuation-in-part of Ser. No. 907,234, May 18, 1978, Pat. No. 4,213,139. This application Jan. 26, 1982, Ser. No. 342,953

Int. Cl.[3] H01L *21/22*

U.S. Cl. 29—571 **9 Claims**

1. A method of making a pair of adjacent semiconductor devices comprising the steps of applying a first layer on a face of a semiconductor body then patterning it to define an electrode of one of the devices, applying a second layer on said face and patterning it to define an electrode of the other of the

semiconductor devices, the second layer partially overlapping the first layer, then introducing impurity material into the face

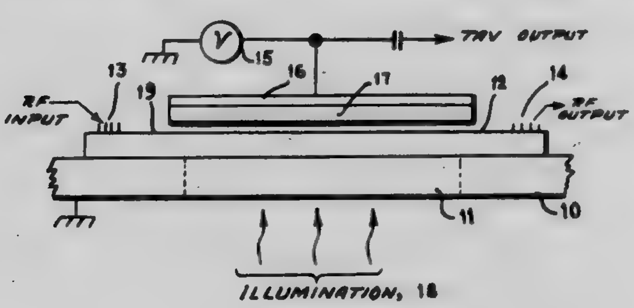


using the first and second layers as a mask to create regions of the semiconductor devices.

4,380,864
METHOD FOR PROVIDING IN-SITU NON-DESTRUCTIVE MONITORING OF SEMICONDUCTORS DURING LASER ANNEALING PROCESS

Pankaj K. Das, Cohoes, N.Y., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jul. 27, 1981, Ser. No. 286,821
Int. Cl.[3] H01L *21/268, 21/263;* G06G *7/195*
U.S. Cl. 29—574 7 Claims



1. A method for providing in-situ non-destructive monitoring of semiconductors during annealing process comprising the steps of

affixing an electrical contact to the top surface of a semiconductor to be annealed,

positioning a surface acoustic wave device having input and output transducers adjacent to said semiconductor, the surface acoustic wave propagating surface of said surface acoustic wave device being in close juxtaposed proximity to the bottom surface of said semiconductor,

applying an r.f. input to said surface acoustic wave device input terminal,

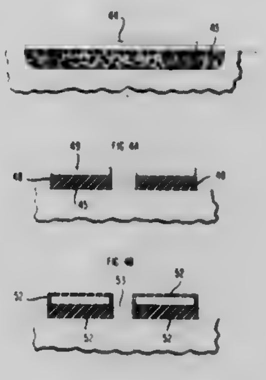
illuminating the bottom surface of said semiconductor through said surface acoustic wave device with radiant energy to effect annealing thereof, and

measuring the transverse acoustoelectric voltage on said electrical contact, said transverse acoustoelectric voltage being a function of said semiconductor conductivity.

4,380,865
METHOD OF FORMING DIELECTRICALLY ISOLATED SILICON SEMICONDUCTOR MATERIALS UTILIZING POROUS SILICON FORMATION

Robert C. Frye, Piscataway, and Harry J. Leamy, Summit, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 13, 1981, Ser. No. 321,263
Int. Cl.[3] H01L *21/76, 21/20*
U.S. Cl. 29—576 W 11 Claims

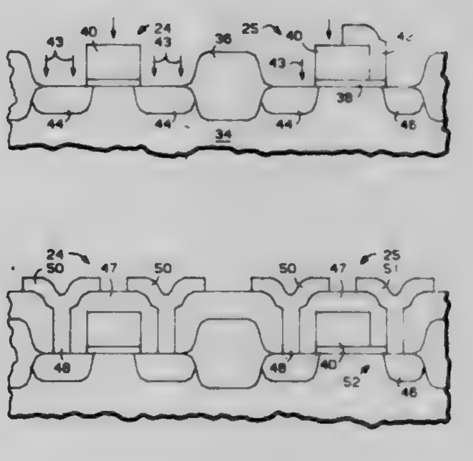


1. A process for producing a vertically isolated region of single crystal silicon comprising the steps of (1) forming a region of porous silicon that is larger in area than said region of single crystal silicon, (2) forming said region of single crystal silicon within the boundaries of said region of porous silicon such that said region of single crystal silicon overlies a section of said region of porous silicon and (3) subjecting said section to oxidation to produce said vertical isolation wherein said section has a density which varies less than 10 percent over its area and to a depth of at least 1000 A.

4,380,866
METHOD OF PROGRAMMING ROM BY OFFSET MASKING OF SELECTED GATES

Roger S. Countryman, Jr., and Paul T. Lin, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

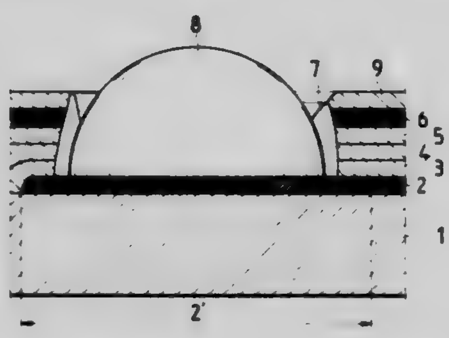
Filed May 4, 1981, Ser. No. 260,493
Int. Cl.[3] H01L *21/263;* G11C *11/40;* H01L *7/44*
U.S. Cl. 29—577 C 8 Claims



1. A process for making a MOS ROM array having a plurality of devices programmed to first or second memory states which comprises the steps of: providing a silicon wafer of first conductivity type having a surface; selectively forming a field oxide on said surface to surround at said surface a plurality of active device locations; forming a thin gate oxide on said surface in said active device locations; selectively forming polycrystalline silicon gate electrodes overlying portions of said thin gate oxide; forming a programming mask at selected ones of said active device locations, at said selected locations said mask overlying a portion of said polycrystalline silicon gate electrode and a portion of said thin gate oxide adjacent but not overlaid by said electrode; introducing dopant to said

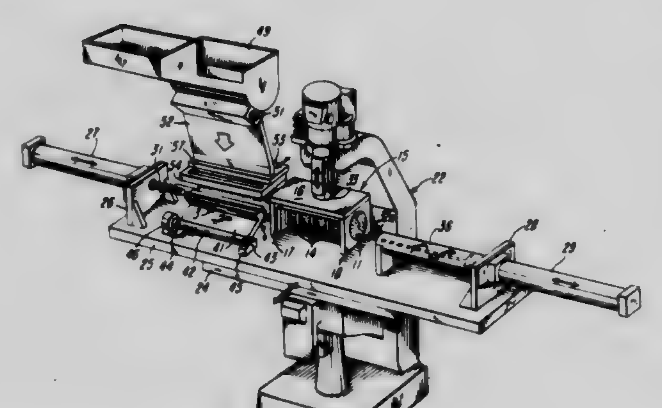
wafer to form source and drain regions of second conductivity type at locations not overlaid by said programming mask, programming devices to said first memory state in locations where source and drain regions are formed adjacent a gate electrode and programming devices to said second memory state in locations where one of said source and drain regions is not formed adjacent said gate electrode.

4,380,867
METHOD FOR MAKING ELECTRICALLY CONDUCTIVE PENETRATIONS INTO THIN FILMS
Jorma O. Antson, Espoo, Finland, assignor to Oy LohJa AB, Virkkala, Finland
Filed Jul. 9, 1981, Ser. No. 281,668
Claims priority, application Finland, Aug. 1, 1980, 802420
Int. Cl.[3] H01L *27/14*
U.S. Cl. 29—590 11 Claims



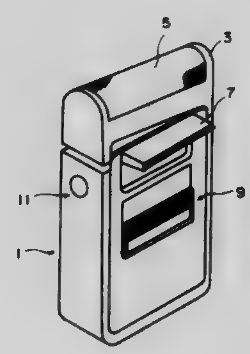
1. A method for making electrically conductive penetrations into an interior layer of thin films, particularly from the outside surface of thin films grown by means of deposition as layers at a temperature of 200° to 700° C., comprising placing a metallic substance on said interior layer within each desired penetration area before the preparation of the following layer, wherein such a metallic substance is used whose melting point is lower and boiling point higher than said growing temperature of the layers, and growing at least one additional layer on said interior layer, whereby the metallic substance, which is molten at said growing temperature prevents the formation of layers above itself and, when hardening, forms the desired electrically conductive penetrations.

4,380,868
TUBE LOADING APPARATUS
Robert E. Hall, Dayton, Ohio, assignor to United Aircraft Products, Inc., Dayton, Ohio
Filed Mar. 30, 1981, Ser. No. 248,717
Int. Cl.[3] B23P *19/04, 15/26*
U.S. Cl. 29—726 8 Claims



1. Apparatus for loading tubes one at a time into header and baffle members formed with rows of perforations and assembled in a holding fixture to complete a tubular core of a heat exchanger or the like, including a table movable in a first sense in increments corresponding to the distance between adjacent perforations of a row of perforations, means for moving said table in said increments, single opposing power cylinders mounted on said table, said cylinders projecting respective aligned extensible and retractable guide and push rods therefrom, means for movably supporting a holding fixture intermediately of said rods and independently of said table for movement in a second sense substantially at right angles to table movements and in increments each corresponding to the distance between adjacent rows of perforations, whereby said rods may be aligned with successive perforations of a row of perforations by a movement of said table incrementally in said first sense and with successive rows by a movement of said fixture incrementally in said second sense, tube support means intermediately of said push rod and said fixture providing a resting place for a tube to align with said rods, and means for delivering tubes one at a time to said support means.

4,380,869
ELECTRIC SHAVER OF RECIPROCATING DRIVE TYPE HAVING TRIMMER BLADE
Kenzo Shirakawa; Masao Matsumoto, and Shinsaku Yasunaka, all of Hikone, Japan, assignors to Matsushita Electric Works, Ltd., Kadoma, Japan
Filed May 6, 1981, Ser. No. 261,278
Claims priority, application Japan, May 15, 1980, 55-64930
Int. Cl.[3] B26B *19/10*
U.S. Cl. 30—34.1 10 Claims



1. An electric shaver, comprising:
a housing,
an outer blade frame mounted to the upper end of said housing,
an outer blade holding means for detachably holding said outer blade frame,
an outer blade mounted to said outer blade frame,
inner blade means disposed inside said outer blade frame for cooperating with said outer blade,
a motor being housed within said housing,
a power supply for supplying an electric power to said motor,
first coupling means for coupling said motor and said inner blade means for imparting a reciprocating movement to said inner blade means,
trimmer blade means supported by said housing and provided to selectively assume a first state thereof being retracted toward said housing or a second state thereof being protruded outward of said housing,
displacement means coupled to said trimmer blade means in said housing and to be displaceable to a first position for placing said trimmer blade means to said first state or a second position for placing said trimmer blade means to said second state,
second coupling means for coupling said motor and said trimmer blade means for imparting a reciprocating movement to said trimmer blade means on the occasion of said second state of said trimmer blade means,
first operation means provided to be operable from outside said housing to be capable of selectively assuming a first, second and third positions,
switching means associated with said first operation means for supplying an electric power from said power supply to

said motor only at said second and third positions of said first operation means,

first acting means associated with said switching means for acting upon said displacement means in association with displacement of said first operation means to said third position for displacing said displacement means to said second position, and

second operation means provided independently of said first operation means to be operable from outside said housing for acting upon said displacement means for displacing said displacement means to said second position independently of said first acting means.

4,380,870

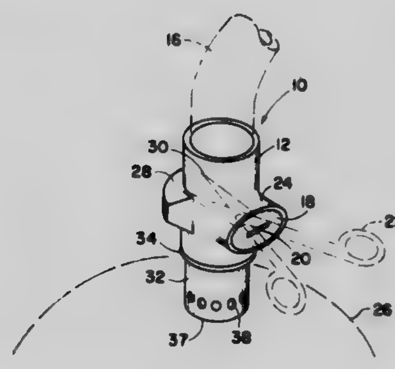
VACUUM HAIR CUTTING DEVICE

Gary D. Otto, Tahlequah, Okla., assignor to Feather Quick Companies, Inc., Tahlequah, Okla.

Filed Aug. 24, 1981, Ser. No. 295,668

Int. Cl.[3] **B26B** *19/44*

U.S. Cl. 30—133 **4 Claims**



1. An improved hair cutting apparatus used in conjunction with a vacuum suction source comprising a hollow cylindrical main housing connectible at an upper end to a vacuum hose and having a lower end disposable at a predetermined fixed distance away from the head of a person whose hair is to be cut, a supporting means extending from one side of said main housing for securing a pair of scissors in a constant transversely oriented position, a stabilizing means extending from a side opposite said one side of said main housing for supporting the cutting tips of said pair of scissors, and a member having a slot therein mounted in said main housing beneath and parallel to said pair of scissors; and whereby placing the lower end of said main housing at said predetermined distance away from said head and activating said vacuum suction source draws a portion of hair into said main housing and through said slot to be cut by said pair of scissors.

4,380,871

MECHANICAL PUNCH DRIVER

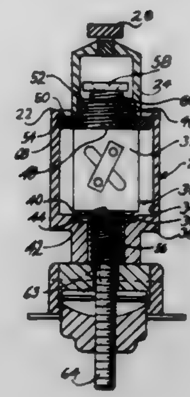
Larry G. Adleman, Rockford, Ill., assignor to Ex-Cell-O Corporation, Troy, Mich.

Filed Jun. 11, 1981, Ser. No. 272,451

Int. Cl.[3] **B26F** *1/32*

U.S. Cl. 30—360 **6 Claims**

1. A mechanical operator for driving a punch through sheet material to remove a slug therefrom so as to form a clearance hole in the sheet material comprising a thrust housing, a recirculating ball screw unit having a screw and a rotatable nut, means for supporting said rotatable nut within said thrust housing for rotation with respect thereto, input drive means including a pair of relatively rotatable operating handles for producing a rotative input force on said rotatable nut to cause non-rotative axially linear movement of said screw, a draw stud secured to said screw and conjointly moveable therewith, said draw stud having a threaded end receiving the punch to



pull the punch through the sheet material while eliminating frictional thread drag between the punch and the draw stud.

4,380,872

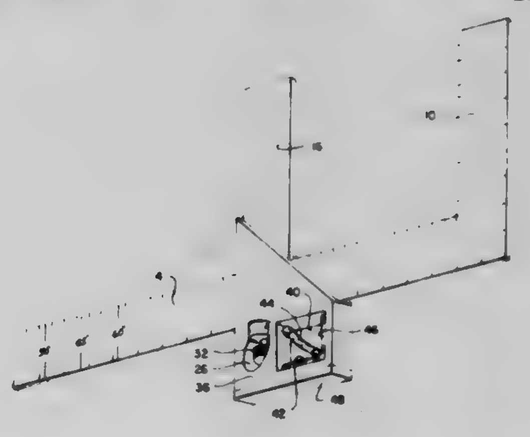
PIPE FITTER'S COMBINATION INSTRUMENT

Claude D. Moran, R.D. #1, Butler, Pa. 16001

Filed Dec. 9, 1980, Ser. No. 212,131

Int. Cl.[3] **G01B** *3/38*

U.S. Cl. 33—174 N **17 Claims**



1. An adjustable instrument adapted for use by a pipefitter for positioning and weld joining pipe lengths with a variation of respectively different common fittings, comprising:

a rigid squaring tool having an elongated major bar portion with coextensive first and second straight edges and with a fixed leg portion extending from an end of the bar portion and at a right angle to the first straight edge of the major bar portion and in coplanar orientation to the bar portion,

a carriage means slidably secured to the bar portion,

a rigid adjustable leg slidably secured to the carriage means in a first position of extension thereon such that the adjustable leg extends transversely from the first straight edge of the bar portion and coextensive and parallel to the fixed leg portion,

the carriage means including inwardly-contained manually-releasable locking means permitting the adjustable leg to be selectively slid along the bar portion to adjust the distance between it and the fixed leg portion,

the carriage means being adapted to permit selective removal and reinstallation of the adjustable leg on the bar portion, from the first position of extension to a second position of extension wherein the adjustable leg extends from the second straight edge of the bar portion which is opposite to the first straight edge from which it projected in the first position of extension,

a spacer block section integral to the carriage means and extending, when the rigid adjustable leg is in its first position of extension, from the second straight edge of the bar portion a distance of not less than the difference between the radius of any typical pipe length and the radius taken

at the widest point of the widest standard fitting for such typical pipe length, and

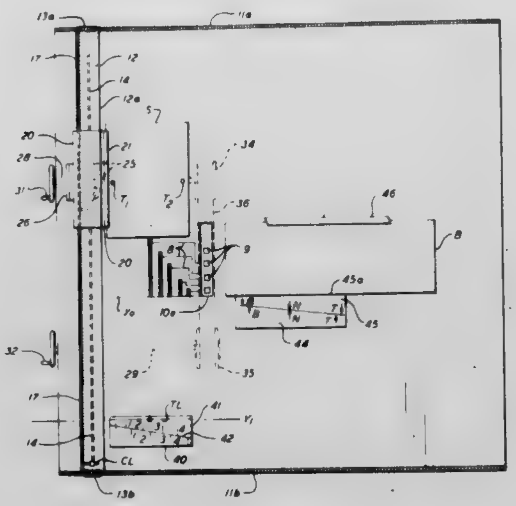
the spacer block section having an outer end unemcumbered face which is parallel to the straight edge of the major bar portion, said end face engaging the pipe length when the rigid adjustable leg is in its second position of extension.

4,380,873
RESET CIRCUIT FOR ZERO FORCE TOUCH PROBE
John W. Ayres, and Harold S. James, both of Lynchburg, Va., assignors to The Babcock & Wilcox Company, New Orleans, La.
Filed Mar. 12, 1981, Ser. No. 242,865
Int. Cl.³ G01B *7/28*
U.S. Cl. 33—174 P 1 Claim

1. An automatically resetable co-ordinate measuring system for determining the relative dimensions of an object comprising movable means for measuring the relative dimensions of the surfaces defining said object as said movable measuring means is moved along said object, means for displaying said relative dimensions determined by said measuring means, means for indicating when contact with a surface of said object has been made by said measuring means, said indicating means being actuated at the instant said measuring means makes contact with a said surface and remaining actuated until said measuring means makes contact with another of said surfaces being measured, means for comparing said relative dimensions displayed on said displaying means with the relative location of said measuring means, memory means for storing a series of measured dimensions, and said comparing means actuating said memory means to accept the measured dimension from said measuring means and causing said displaying means to be reset when the difference between said relative dimensions and said relative location exceeds a predetermined value.

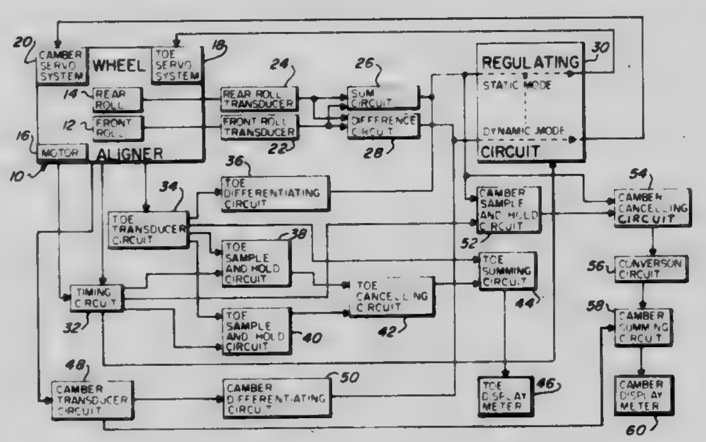
4,380,874
SIGN-MAKING METHOD
Gregory R. Waldron, West Oneonta, N.Y., assignor to Scott Machine Development Corporation, Walton, N.Y.
Division of Ser. No. 905,748, May 15, 1978, abandoned. This application Apr. 27, 1981, Ser. No. 257,657
Int. Cl.³ B41B *1/00;* B32B *31/16;* G09F *7/16*
U.S. Cl. 33—184.5 6 Claims

1. A method of forming one or more rows of characters on a sign blank by transfer of successive characters from a carrier sheet, which includes steps of moving a carriage carrying said carrier sheet in a first direction through discrete distances, each of which is an integral multiple of a predetermined distance to locate successive characters to be transferred along the row of characters being formed, characterized by predetermining the position in said first direction of said sheet relative to an edge of said sign blank by affixing said sheet to said carriage with indicia defining a first reference line on said sheet registered with indicia defining a second reference line having a predetermined position in said first direction with respect to



a third reference line, and determining the position in said first direction of said sign blank by registering said edge of said sign blank with said third reference line, whereby the positions in said first direction of said rows of characters relative to said edge of said sign blank may be predetermined.

4,380,875
WHEEL ALIGNMENT APPARATUS AND METHOD
Lowell H. Erickson, 1495 S. Steele St., Denver, Colo. 80210; Marcellus S. Merrill, 678 Lafayette, Denver, Colo. 80218, and David Chrisp, 7705 Walker Dr., Littleton, Colo. 80123
Continuation of Ser. No. 172,988, Jul. 28, 1980, abandoned. This application Jul. 8, 1982, Ser. No. 396,422
Int. Cl.³ G01B *5/255*
U.S. Cl. 33—203.13 11 Claims



1. A wheel aligning apparatus for determining dynamically the toe and camber angles of a wheel while a pair of rolls are rotating and using these angles in the alignment of the wheel but while the rolls no longer rotate, the apparatus comprising:

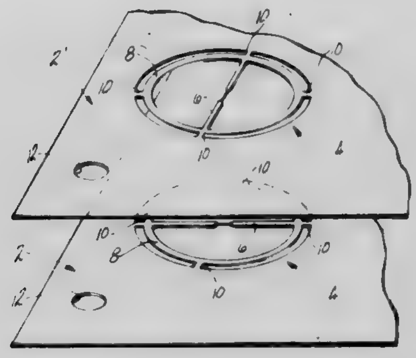
first means for determining the dynamic toe angle and dynamic camber angle of the wheel while the rolls are rotating;

second means responsive to said first means for determining the change in the toe angle and the change in the camber angle due to alignment of the wheel while the rolls are not rotating, said second means including means for providing a conversion factor for use in outputting a signal corresponding to the change in camber angle; and

third means responsive to said first means and said second means for combining the dynamically determined toe angle and the change in toe angle and for combining the dynamically determined camber angle and the change in

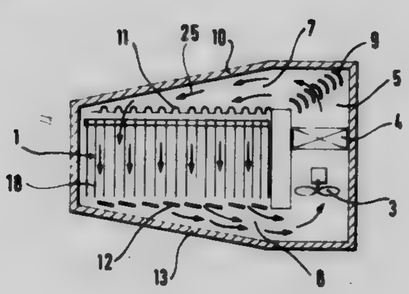
camber angle to provide the toe angle and camber angle during alignment of the wheel.

4,380,876
RETICLE AND METHOD OF MAKING THE SAME
Ronald A. Strassburg, Ruidoso, N. Mex., assignor to W. R. Weaver Co., El Paso, Tex.
Filed Nov. 7, 1980, Ser. No. 205,028
Int. Cl.³ F41G *1/38;* G02B *27/32*
U.S. Cl. 33—297 **4 Claims**



1. A reticle comprising a pair of relatively identical planar members, each planar member being formed from a unitary sheet of stock material and having an arcuate peripheral part surrounding two generally semi-circular hollow areas and an integral cross hair part extending between opposing sides of said arcuate peripheral part and separating said two generally semi-circular hollow areas, said members being permanently fixed in abutting relationship, said cross hair part on one member being substantially perpendicular and in fixed relative position to said cross hair part on the other member.

4,380,877
FLUID CIRCULATION APPARATUS USING FLUID FLOW DEFLECTION GRATING
Jacques Poux, Grenoble, France, assignor to Alsthom-Atlantique, Paris, France
Filed Jul. 23, 1981, Ser. No. 286,397
Claims priority, application France, Jul. 23, 1980, 80 16221
Int. Cl.³ F26B *21/02*
U.S. Cl. 34—225 **5 Claims**



1. A low head loss fluid circulation apparatus, said apparatus comprising:

duct means defining a circulation fluid flow path,

a drying chamber or the like within said flow path formed by an upstream inlet grating spanning said flow path and spaced from a downstream outlet grating which also spans said flow path and with said gratings extending generally parallel to each other and perpendicular to the flow path,

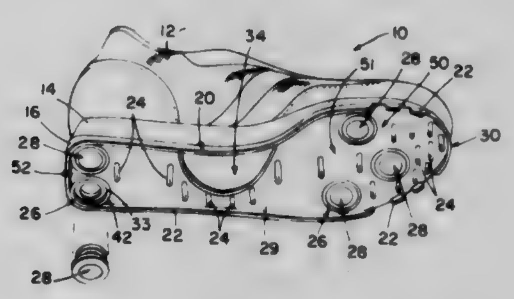
and wherein said flow path duct means include at least an oblique flow path portion upstream of said inlet grating and leading thereto,

and wherein said inlet grating comprises a fluid flow deflection grating for receiving an incident flow of fluid arriving along an incident direction defined by said first oblique flow path portion and for forming an exit flow of fluid leaving along an exit direction that is at least 45° different from the incident direction,

and wherein the fluid flow is substantially uniform over its entire cross-section at a distance from the grating,

said inlet fluid flow deflection grating being in the shape of a panel constituted by at least one thin, corrugated, perforated sheet, each corrugation being in the form of at least two substantially plane flank strips, said plane flank strips and said corrugations formed thereby extending lengthwise in a direction perpendicular to both the fluid flow incident and exit directions, said plane flank strips being spaced from each other and being joined by a bottom strip to define with said plane flank strips a valley opening to the fluid flow incident direction, at least some of the perforations in said sheet being through said bottom strips, and wherein said perforations extend over at least fifty percent of the surface area of said bottom strips.

4,380,878
OUTSOLE
Joseph J. Skaja, Newburyport, Mass., assignor to Keds Corporation, Cambridge, Mass.
Filed Sep. 26, 1980, Ser. No. 191,265
Int. Cl.³ A43C *15/00;* A43B *5/00*
U.S. Cl. 36—67 D **16 Claims**



1. An outsole for an athletic shoe comprising:

a flexible integrally molded sole unit,

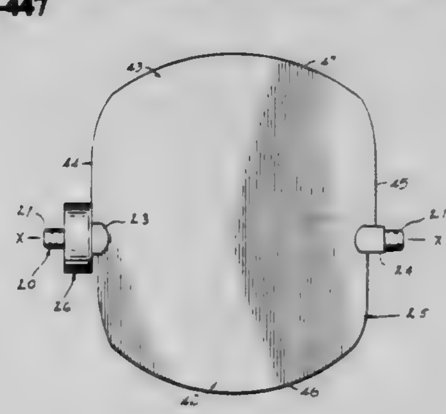
said sole unit having multiplicity of outwardly extending receptacles integrally molded at the ball and heel portions of said sole unit, said receptacles having integral wall portions,

plugs demountably held by said receptacles, said plugs having surfaces in contact with and held by said wall portions,

said sole unit having an outwardly extending bar unit around the perimeter thereof, and

said perimeter bar being discontinuous and tapered in height in the region adjacent the toe of said shoe.

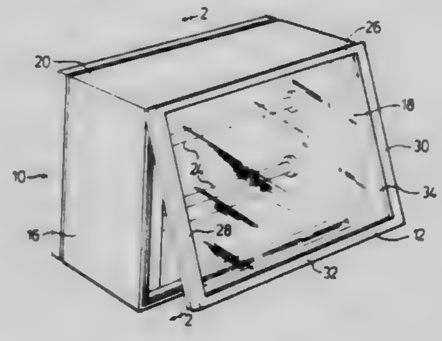
4,380,879
MATRIX DISPLAY
Lloyd Seibert, Coeur d'Alene, Id., assignor to American Sign & Indicator Corporation, Spokane, Wash.
Filed Dec. 11, 1980, Ser. No. 215,359
Int. Cl.³ G09F *3/04;* G08B *5/00;* G09F *3/18;* G08B *23/00*
U.S. Cl. 40—447 **9 Claims**



1. A movable display assembly adapted for use in a spatial

arrangement that includes a plurality of individually controlled assemblies, said display assembly comprising:
an upright frame surrounding an open window;
bearing means at opposite sides of the window on said frame along a transverse bearing axis;
an armature pivotally mounted by said bearing means for angular movement relative to said frame about the bearing axis;
a thin disk fixed to said armature, said disk having visually contrasting outer surfaces at opposite sides thereof;
and means on said frame and armature for pivoting the armature and disk about the bearing axis between two or more alternate angular positions relative to the frame;
said disk being removably mounted on said armature to one side of said armature axis by a pair of opposed slotted tabs releasably engaging opposite side edges of the disk, said tabs being in alignment with one another to one side of said armature axis;
one tab being wider than the other;
said disk having notches along opposed side edges thereof complementary in width to the respective tabs, whereby the disk is properly indexed on the armature by matching of the respective notches and tabs.

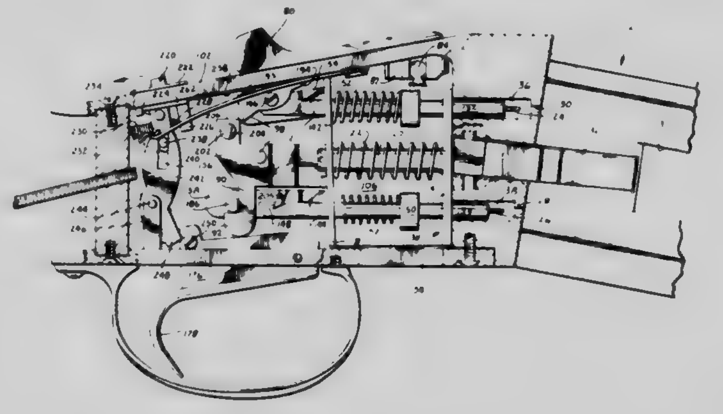
4,380,880
ILLUMINATED SIGN ASSEMBLY
James Gandy, Mississauga, Canada, assignor to Signtech Inc., Mississauga, Canada
Filed Sep. 14, 1981, Ser. No. 301,491
Int. Cl.³ G09F *13/04*
U.S. Cl. 40—564 **2 Claims**



1. An illuminated sign assembly comprising a casing having a top, a wall extending downwardly from the top, the top having a substantially horizontal shelf and a downwardly extending lip below the shelf, the wall having a flange with a free end portion resting on the shelf, a hinge member having a generally U-shaped section with upwardly extending spaced arms connected by a bight, the bight being located below the downwardly extending lip of the top with one arm extending upwardly on one side of the lip below the flange, means detachably securing the flange to said one arm of the hinge member, and the other arm of the hinge member extending upwardly on the opposite side of the lip to the said one arm to retain the wall in assembly with the top while permitting limited upward pivotal movement of the wall relative to the top by pivoting of the free end of the flange on the shelf.

4,380,881
HIGH SPEED FIRING MECHANISM FOR SINGLE-TRIGGER DOUBLE-BARRELED FIREARM
Osborne Klavestad, Shakopee, Minn., assignor to The Olde Savannah Arms Company, Savannah, Ga.
Division of Ser. No. 114,839, Jan. 24, 1980, Pat. No. 4,328,635, which is a continuation of Ser. No. 900,155, Apr. 26, 1978, abandoned. This application Dec. 14, 1981, Ser. No. 330,074
Int. Cl.³ F41C *19/00*
U.S. Cl. 42—42 R **1 Claim**

1. In a double-barreled, single-trigger firearm, including a firing mechanism comprising a cocking plate for urging a first firing pin and a second firing pin into a cocked position, each of said first and second firing pins being attached to a firing pin lever including a notch therein for engaging first and second cocking pins, respectively, which retain said firing pin in said cocked position until said cocking pin is lifted from said notch; a firing mechanism frame mounted in a fixed relationship to the body of said firearm; said first and second cockingpins being fixedly mounted to first and second cocking pin levers rotatably mounted to said frame to remove said cocking pin from said notch in response to upward rotation thereof; a trigger attached to a trigger plate mounted for upward and downward movement in response to selective operation of said trigger; an improvement to said firing mechanism comprising in combination:
a control lever slidably mounted on said frame for movement in a direction substantially parallel to the longitudinal axis of said first and second firing pins;
bias means connected to said control lever for urging said control lever forward and downward onto to said trigger plate;
a stop member mounted on said control lever;
a blocking member mounted on said frame;
means at the rear end of said firing pin lever for engaging said control lever to prevent forward movement thereof



by said biasing means when said first firing pin is in said cocked position;
said control lever including a first actuator portion for engaging said first cocking pin lever and for providing upward rotation thereof in response to upward movement of said trigger plate;
said first actuator portion being mounted on said control lever in a spaced-apart relationship relative to said stop member so that said stop member travels a sufficient distance to engage said blocking member in response to said first actuator portion moving said first cocking pin lever a predetermined distance to disengage said first cocking pin from said first notch;
said stop member being responsive to subsequent downward movement of said trigger plate to move under said blocking member; and
said control lever being responsive to said downward movement of said trigger plate to be moved forwardly by said bias means to engage said second actuator portion of said control lever with said second cocking pin lever, so that subsequent upward movement of said trigger plate causes said second firing pin to be released.

4,380,882
LONG LIFE PURSE SEINE RING
Dominick J. Flammini, 7946 Laurelridge Rd., San Diego, Calif. 92120
Filed Feb. 3, 1982, Ser. No. 345,613
Int. Cl.³ A01K *73/12*
U.S. Cl. 43—14 **5 Claims**

1. The combination in a seine net assembly, comprising:
(a) a seine net having ring ties attached thereto;
(b) a pursing cable;
(c) a seine ring, in plurality, mounted on said pursing cable;
(d) each said seine ring being an internally recticylindrical

annulus slidably mounted on said pursing cable, each annulus having radially outwardly extending portions having a plurality of means for connection therein selectively connected to one ring tie at points in said radially

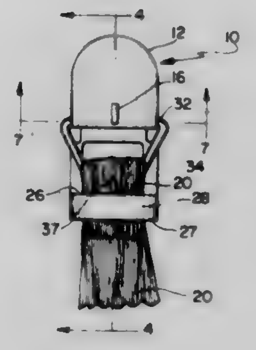
extending portions spaced circumferentially of said seine ring, so that cable wear on said annulus is distributed when said ring tie is connected to said means for connection at said points successively during use of the seine net assembly.

4,380,883
FISHING SIGNAL APPARATUS
Edward Greaux, 390 New Brunswick Ave., Perth Amboy, N.J. 08861
Filed Jan. 5, 1981, Ser. No. 222,349
Int. Cl.^{3} A01K *97/12*
U.S. Cl. 43—17 **10 Claims**

1. A fishing signal apparatus comprises a block, means to clampingly releasably and slideably engage said block to selected portions of the length of a fishing rod adjacent its distal most end, said means to engage said block including said block having a slot therein, said slot having a longitudinal axis, said longitudinal axis of said slot being configured to be coaxially aligned with the longitudinal axis of said fishing rod when said block is installed at any location along the length of said fishing rod, a spring wire, one end of said spring wire fixedly secured to said block, said spring wire having a bend, said bend being located intermediate said block and the free end of said spring wire, whereby said free end of said spring wire is disposed upwardly and outwardly from said longitudinal axis of said slot, whereby said spring wire resides in a plane, said longitudinal axis of said slot passing through said plane, a bell, means to clampingly slidingly engage said bell to selected portions of the length of said spring wire.

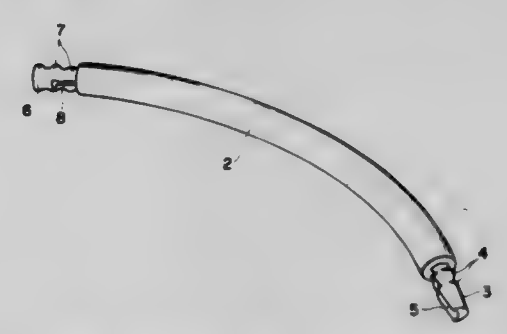
4,380,884
FISHING LURE
Robert B. Pond, P.O. Box 45, South Attleboro, Mass. 02703
Filed Jan. 19, 1981, Ser. No. 226,175
Int. Cl.^{3} A01K *85/00*
U.S. Cl. 43—42.09 **3 Claims**

1. An artificial fishing lure having a detachable streamer comprising:
(a) a weighted body having the locking portion of a clasp formed therein and having a recessed cavity formed therein adjacent to said locking portion, said locking portion being of ring-like configuration and extending substantially transversely across the rear portion of said cavity;
(b) a streamer element which is received in said cavity and extends through said ring-like locking portion;
(c) a wire bail having at least one end which is attached to said body in a manner which allows pivotal movement of said bail relative to said body, said bail being positioned on said body so that it is detachably receivable in said locking



portion with a portion of said bail extending across said cavity to retain said streamer element therein, whereby said bail and said body including said locking portion thereof cooperate to define a clasp on said lure for detachably receiving and retaining said streamer element in said cavity;
(d) means attached to said body for the connection thereof to a pulling means; and
(e) hook means attached to said body.

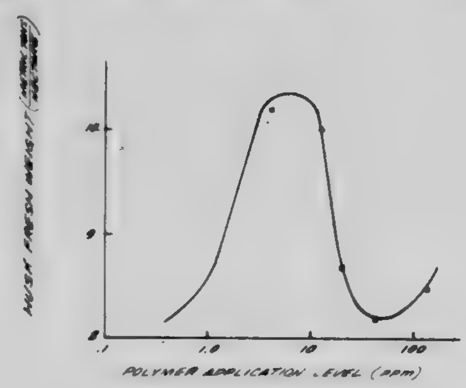
4,380,885
HOOP TOY
Tadashi Komagata, Tokyo, Japan, assignor to Tsukuda Co., Ltd., Tokyo, Japan
Filed Jan. 9, 1981, Ser. No. 223,929
Claims priority, application Japan, Aug. 18, 1980, 55-115962[U]
Int. Cl.^{3} A63H *33/02, 1/32;* **B25G** *3/00*
U.S. Cl. 46—220 **1 Claim**



1. A hoop toy which is easily disassemblable comprising a plurality of members in the form of arc segments and integral fastening means for removably connecting said members to each other; said fastening means comprising a projection integrally formed in one end of each member and a socket integrally formed in the other end of each member, said projections and sockets being flexible and elastic such that a larger diameter portion of the projection can, with momentary distortion of either or both of the projection and socket, be forcibly inserted through a smaller diameter portion of the socket, with said projection and socket thereafter returning to their original shapes; said socket being corrugated to form a plurality of circumferential ribs along its entire length and having an inwardly directed guide ridge extending longitudinally outwardly from the end of said socket proximal to said member along only a part of the length of said socket; said projection being corrugated from the end proximal to said member to form a plurality of circumferential ribs along a part of its length corresponding to the length of said socket and thereafter being

tapered to its distal end, and having a guide groove along its entire length adapted to cooperate with said guide ridge; and wherein the interior surface portion of said socket and the exterior surface portion of said projection corresponding thereto closely conform as to dimensions and shape.

4,380,886
METHOD OF PROMOTING WATER TRANSPORT THROUGH SOIL
Evan E. Koslow, Westport, Conn., and J. Samuel Batchelder, Pasadena, Calif., assignors to Koslow Technologies, Inc., Westport, Conn.
Division of Ser. No. 147,911, May 8, 1980. This application Jan. 30, 1981, Ser. No. 229,938
The portion of the term of this patent subsequent to Aug. 7, 1996, has been disclaimed.
Int. Cl.³ C09K *17/00*
U.S. Cl. 47—58 **16 Claims**



1. A method of promoting and controlling the transport of water through medium and coarse grained soils comprising the step of applying to medium or coarse grained soil a soil amendment composition at a level of at least 0.05 but less than 20 parts per million parts by weight of dry soil, said composition comprising a substantially linear, substantially water-soluble hydrophilic polymer of ethylene oxide having a molecular weight greater than 50,000, said polymer having one or more functional groups disposed along the polymer chain, said polymer chain comprising one or more segments characterized by an absence of said functional group therein and a minimum length, said minimum length of the polymer chain segment being at least 0.1 micrometer when said polymer chain segment is secured to none of said functional groups at either end thereof or to one of said functional groups only at one end thereof and at least 0.2 micrometer when said polymer chain segment is secured to a respective one of said functional groups at each end thereof, said functional group or groups being more capable of attaching said polymer to a solid soil phase than is said polymer chain segment and said polymer chain segment being adapted to extend into an aqueous soil phase.

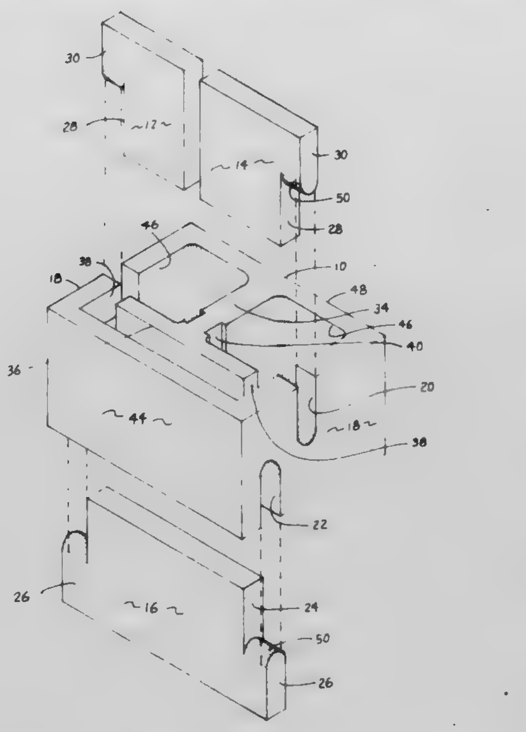
4,380,887
INSULATED STRUCTURAL BLOCK
Kenneth S. Lee, 1711 Palomar, Ann Arbor, Mich. 48103
Filed Oct. 6, 1980, Ser. No. 194,018
Int. Cl.³ E04C *1/40;* **E04B** *2/00*
U.S. Cl. 52—405 **23 Claims**

1. In a structural block having a plurality of holes extending therethrough defined by webs and faces of the block,

one of said webs comprising a cross-wise web extending substantially parallel to the faces of the block,

two of said webs substantially adjacent the ends of the block, extending between the faces of the block and joining the cross-wise web to said faces,

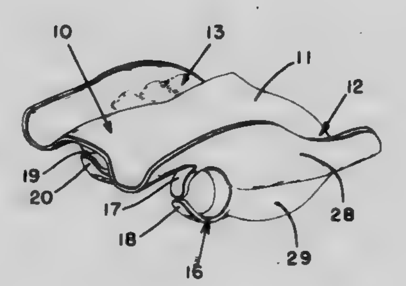
at least one interior web joining the cross-wise web to one of said faces, said interior web extending the full height of the block from the cross-wise web to the one face,



said webs adjacent the ends of said block each formed with at least one horizontal slot extending through the web, and,

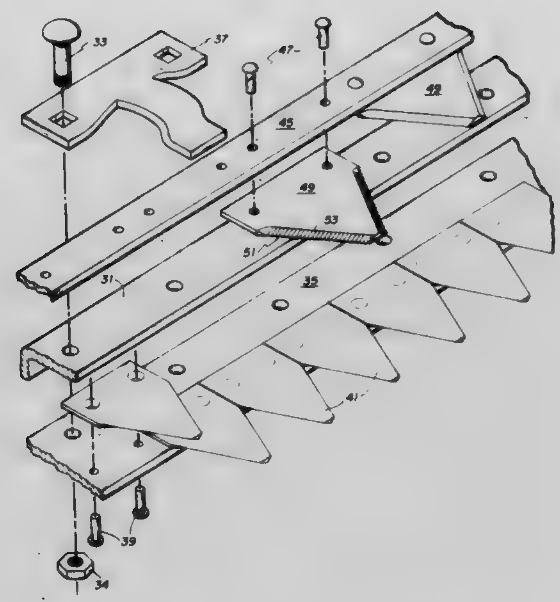
horizontal slots in the cross-wise web adjacent the end webs.

4,380,888
MOUTHPLATE FOR HORSES OR THE LIKE
Dennie C. Lanham, Southern Pines, N.C., assignor to Raymond M. Williams, Southern Pines, N.C.
Filed Feb. 27, 1981, Ser. No. 238,990
Int. Cl.³ B68B *7/00;* **A61D** *5/00*
U.S. Cl. 54—8 **3 Claims**



1. A mouthplate for insertion into the mouth of a horse or the like for use during such time as the horse wears a bridle having a bit, said mouthplate to prevent the interior cheeks of the horse from being cut or abraded by contacting rough edges of the teeth as pressure is applied to the bit, the mouthplate comprising: a support means, said support means including an inverted u-shaped portion, said u-shaped portion fitting against the roof of the mouth, said support means for positioning between certain teeth of the horse, a flange member, said flange member joined to said support means, a securing means, said securing means comprising a at least one substantially circular flexible finger member, said at least one finger member forming an opening through which a bridle bit can be releasably attached, said securing means being positioned below a portion of said support means and said support means extending forward of said flange member and forward of said securing means whereby said support means is positioned between the canine teeth and the molars of the horse.

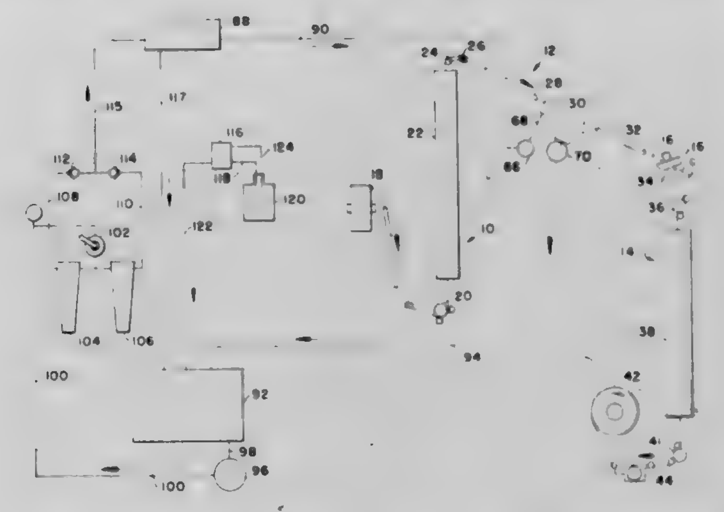
4,380,889
CUTTER BAR FOR RICE COMBINES
Benny Isbell, P.O. Box 195, Humnoke, Ark. 72072
Filed Nov. 23, 1981, Ser. No. 323,718
Int. Cl.³ A01D *55/02*
U.S. Cl. 56—296 12 Claims



1. In a grain reaper for a rice combine or the like having a reel, a cutter mounting bar mounted below said reel, and a reciprocating driver arm for a cutter blade bar, an improved reciprocating cutter assembly comprising,
a stationary cutter element having a length not substantially less than the width of said reel,
said stationary cutter element including a plurality of fixed bars having mounting holes near the rear edge thereof to accept fasteners for mounting to the under side of said cutter mounting bar, holes near the forward edge thereof for the attachment of cutting blades and further having a width sufficient to extend forward of the front edge of said cutter mounting bar,
a plurality of fixed cutting elements with triangular blades secured along the top of said bars with a predetermined fixed blade pitch of two inches, each of said elements having a pair of holes therein and being secured by rivets passing through said pair of holes and corresponding holes in said fixed bars,
a moving cutter bar at least substantially as long as said stationary cutter element with means for coupling one end thereof to said reciprocating driver arm,
a plurality of generally triangular moving cutting blades secured along the bottom of said moving cutter bar with a predetermined moving blade pitch of three inches, said blades being secured by removable fasteners,
each said moving blade having two sharpened serrated cutting edges,
said moving cutter bar being mounted above said fixed bars just forward of said cutter mounting bar with the rear of the fixed cutting blades and the rear of said moving cutting blades approximately in alignment,
a plurality of hold-down clips being secured at their rear ends to said cutter mounting bar, having an arch extending over said moving cutter bar, and having a foot at the front end in sliding contact with the upper surface of said moving cutting blades.

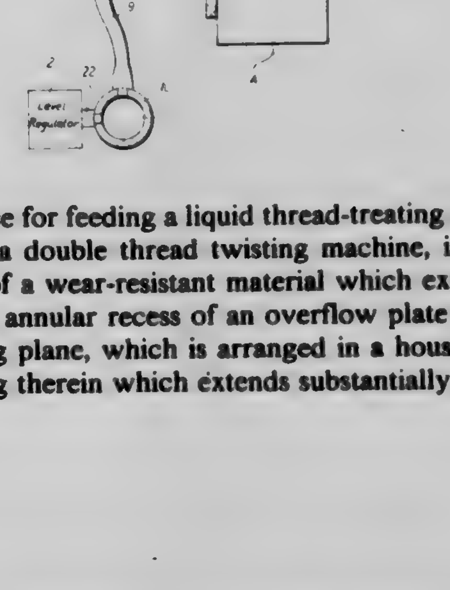
4,380,890
BELT FALSE TWISTING APPARATUS
William H. Stewart, Jr., Campobello, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.
Filed Aug. 6, 1981, Ser. No. 290,518
Int. Cl.³ D02G *1/02*; D01H *13/30*
U.S. Cl. 57—286 1 Claim

1. A false twist crimping machine comprising: a primary heater, means to supply a yarn to said primary heater, a cooling bath, means to guide the yarn from said primary heater to said cooling bath, a belt false twisting mechanism, means to supply the yarn to said false twisting mechanism, means to take-up the yarn false twisted in said mechanism, means to supply a cooling liquid to said cooling bath and means operably associated with said cooling bath to purify and recirculate cooling water from said cooling bath to said means to supply a cooling liquid, said means to purify and recirculate the cooling liquid including a



sump connected to said cooling bath, a reservoir operably associated with said sump and located above said cooling bath, pump means connected to said sump and said reservoir to pump liquid from said sump to said reservoir and filter means mounted between said pump means and said reservoir to filter particles of matter from said cooling liquid, said means to purify including a metering pump to periodically supply chlorinated liquid to said sump.

4,380,891
DEVICE FOR FEEDING A LIQUID THREAD-TREATING MEDIUM TO THE THREAD IN A DOUBLE THREAD TWISTING MACHINE
Gerhard Wehrmeister, Kempten, Fed. Rep. of Germany, assignor to Saurer-Allma GmbH, Kempten, Fed. Rep. of Germany
Filed Jun. 11, 1981, Ser. No. 272,619
Claims priority, application Fed. Rep. of Germany, Jul. 16, 1980, 8019080[U]
Int. Cl.³ D01H *13/30, 7/86*
U.S. Cl. 57—296 9 Claims



1. In a device for feeding a liquid thread-treating medium to the thread in a double thread twisting machine, including a wiping head of a wear-resistant material which extends from below into an annular recess of an overflow plate and into a thread running plane, which is arranged in a housing, which has an opening therein which extends substantially parallel to

the spindle axis and which has an insert in the opening inducing a capillary action which transports thread-treating medium from a supply pipeline to the upper port of the opening, the improvement comprising wherein the insert is a pin made of a rigid material and having a noncylindrical cross section so that between the outer surface of the pin and the inner surface of the opening small gaps are formed which produce the capillary action.

4,380,892

FRICTION SPINNING APPARATUS AND METHOD FOR CLEANING

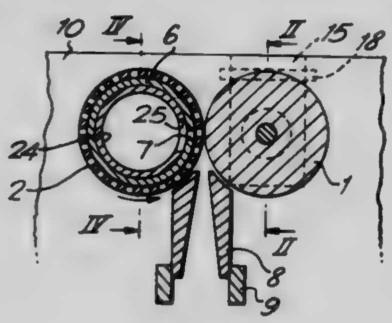
Alan Parker, 7 Darvel Close, Breightmet, Bolton, Lancashire; Peter J. Dickinson, 30 Narcissus Ave., Helmshore, Rossendale, Lancashire; Douglas O. Clough, 26 Parkwood Dr., Rawtenstall, Rossendale, Lancashire, and William M. Farnhill, Burnley, all of England

Filed Sep. 14, 1981, Ser. No. 301,917

Claims priority, application United Kingdom, Oct. 8, 1980, 8032418

Int. Cl.³ D01H *7/885*

U.S. Cl. 57—401 **13 Claims**



1. Apparatus for open end spinning of yarn, comprising two bodies of rotation each defining a surface and arranged such that in an operating position the surfaces are closely adjacent at a line of closest approach so as to define between them at that line a yarn formation area, a fibre feed duct for feeding fibres into the yarn formation area which feed duct terminates in the operating position closely adjacent the surfaces, means mounting the two bodies and the feed duct such that relative movement is provided between the feed duct and one of the bodies away from and back to the operating position in a direction transverse to the line and to increase and decrease respectively the spacing therebetween and means for defining the operating position such that the return to the operating position is made without the need for resetting.

4,380,893

COMPRESSOR BLEED AIR CONTROL APPARATUS AND METHOD

Richard F. Stokes, Phoenix; James D. Timm, Tempe; Stephen R. LaCroix, Scottsdale, and Milton R. Adams, Tempe, all of Ariz., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Feb. 19, 1981, Ser. No. 235,794

Int. Cl.³ F04D *27/02*

U.S. Cl. 60—39.07 **23 Claims**

1. A system for supplying gas discharged from a compressor or the like to gas-operated apparatus having a variable gas flow rate demand, the compressor having an inlet opening and means for variably adjusting the area of such inlet opening, said system comprising:

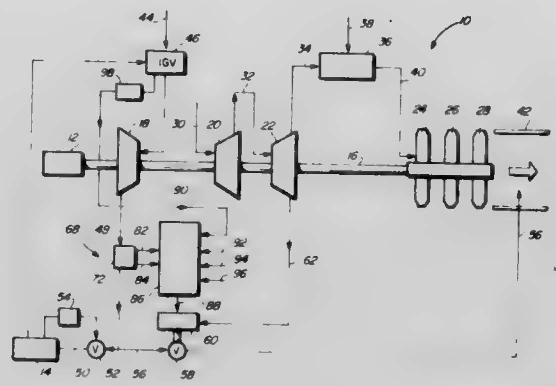
(a) duct means for flowing to the gas-operated apparatus gas discharged from the compressor;

(b) means defining a surge outlet passage from said duct means;

(c) surge flow regulating means operable to variably restrict gas flow outwardly through said surge outlet passage;

(d) means for sensing the value of a predetermined flow-related parameter within said duct means and generating an error signal having a magnitude indicative of the deviation between the sensed value of said parameter and a desired value thereof, said sensing and generating means including comparator means for comparing the sensed value of said parameter to a set point value thereof and responsively generating said error signal;

(e) control means for utilizing said error signal to operate



said surge flow regulating means in a manner providing an essentially constant minimum gas flow rate through said duct means despite fluctuations in the flow rate of gas received by the gas-operated apparatus; and

(f) means associated with said comparator means for varying said set point value of said parameter in response to variation in the area of the compressor inlet opening.

4,380,894

FUEL SUPPLY CONTROL SYSTEM FOR A TURBINE ENGINE

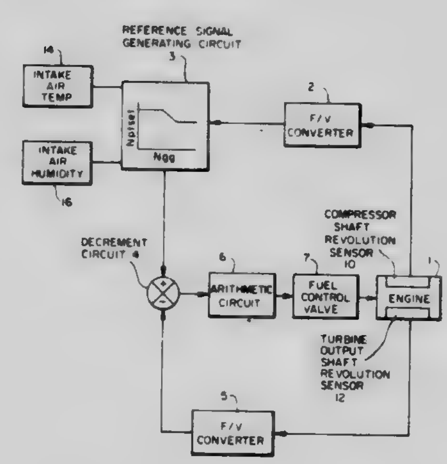
Toshimi Abo, Yokohama, and Hideo Iwatsu, Yokosuka, both of Japan, assignors to Nissan Motor Company, Limited, Yokohoma, Japan

Filed Sep. 8, 1980, Ser. No. 184,902

Claims priority, application Japan, Oct. 9, 1979, 54-115969

Int. Cl.³ F02C *9/28*

U.S. Cl. 60—39.161 **7 Claims**



1. A fuel supply control system for a gas turbine engine comprising:

a turbine output shaft;

a compressor shaft;

a fuel control valve varying the ratio of an energized period and a deenergized period depending on the engine operating condition;

first means for generating a first signal indicative of said compressor shaft revolution speed;

second means for determining a target turbine output shaft revolution speed based on said first signal value and generating a reference signal having a value indicative of said target turbine output shaft revolution speed, said second means increasing said target turbine output shaft revolution speed when said first signal value is below a predetermined value;

third means for determining an actual turbine output shaft

revolution speed and generating a second signal indicative of the determined actual turbine output shaft revolution speed; and

fourth means for comparing said second signal value with said reference signal value in order to determine the difference between the actual turbine output shaft revolution speed and target speed and for determining a duty cycle of a pulse signal based on the determined difference to control the ratio of the energized period and the deenergized period of said fuel control valve to reduce the difference in order to drive the engine at a constant speed.

4,380,895

COMBUSTION CHAMBER FOR A GAS TURBINE ENGINE HAVING A VARIABLE RATE DIFFUSER UPSTREAM OF AIR INLET MEANS

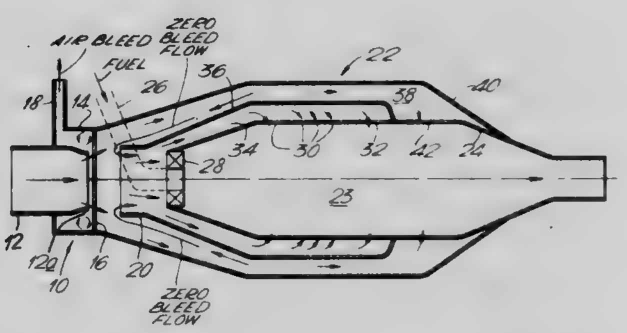
Richard C. Adkins, Milton Keynes, England, assignor to Rolls-Royce Limited, London, England

Continuation-in-part of Ser. No. 122,272, Feb. 19, 1980, abandoned, and Ser. No. 62,418, Jul. 31, 1979, which is a continuation-in-part of Ser. No. 827,109, Aug. 23, 1977, abandoned. This application Jun. 15, 1981, Ser. No. 274,285

Claims priority, application United Kingdom, Sep. 9, 1976, 37326/76; Feb. 20, 1979, 7906034

Int. Cl.^{3} F02C *7/04, 9/14*

U.S. Cl. 60—39.23 **4 Claims**



1. A combustion chamber apparatus comprising a chamber having first and second air inlet means and a variable rate diffuser upstream of both of said first and second air inlet means, said first air inlet means comprising a first annular duct defined by part of the wall of the combustion chamber and an intermediate casing, said combustion chamber having inlets for the flow of primary, secondary and dilution air from the first annular duct, said second air inlet means comprising a second annular duct, said second annular duct including a part of the wall of said combustion chamber having air inlets for flow of bypass air, said variable rate diffuser comprising a primary duct arranged to receive a supply of compressed air and having a downstream facing outlet, said primary duct being located in a secondary duct, a fence in said secondary duct downstream of the outlet of said primary duct and downstream of a bleed duct having a variable rate bleed, said bleed duct being in said secondary duct upstream of said fence and capable of being controlled to low and zero bleed conditions, said outlet of said primary duct being smaller in diameter than the diameter of the first air inlet means of the combustion chamber whereby flow of fluid in said second annular duct is reversed and drawn from said combustion chamber and is discharged from said second duct into said first air inlet means and then into said combustion chamber when said variable rate bleed duct is controlled to low and zero bleed conditions.

4,380,896

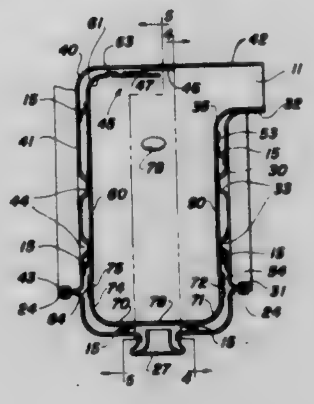
ANNULAR COMBUSTOR HAVING CERAMIC LINER

David J. Wiebe, Palm Beach Gardens, Fla., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 22, 1980, Ser. No. 189,536

Int. Cl.^{3} F02C *7/20*

U.S. Cl. 60—39.32 **8 Claims**



1. An annular combustor for use in a turbine engine, comprising

an annular metal shell having a generally rectangular cross-section and including an outer perimetrical wall, an inner perimetrical wall, an aft wall, and a forward wall, the shell having

an axially-projecting aft outlet at the intersection of the aft wall and inner perimetrical wall,

inwardly-projecting spacer means mounted on the inner side of the shell,

retaining clip means on the inner side of the shell adjacent to the aft outlet, and

a plurality of heat-insulating liner segments on the inner side of the metal shell, spaced therefrom by the spacer means, the plurality of liner segments including

outer perimetrical endwall liner segments, curved to extend along the outer perimetrical wall of the metal shell, each endwall segment having, at each of its forward and aft sides, a radially-inward-extending flange whose edge ends in radially-inward-extending inwardly-offset tab means,

aft wall liner segments of planar arcuate shape, extending along the aft wall of the metal shell, each having radially-inward-extending outwardly-offset tab means at its radially inner edge matable with the retaining clip means, and having radially-outward-extending outwardly-offset tab means at its radially outer edge matable with the tab means of the endwall segments, and further including

forward wall liner segments of generally planar arcuate shape, each extending along the forward wall of the metal shell to end in a radially-outward-extending edge having radially-outward-extending outwardly-offset tab means matable with the tab means of the endwall segments, and each of the forward wall liner segments having an inward flange at its radially inner end extending along the inner perimetrical wall ending in an aft-extending edge having aft-extending outwardly-offset tab means matable with the retaining clip means.

4,380,897

GAS TURBINE CONTAINING AN ADDITIONAL COMBUSTION GAS COMPRESSOR

Tadeusz Zaba, Ennetbaden, Switzerland, assignor to BBC Brown, Boveri & Company Limited, Baden, Switzerland

Filed Sep. 29, 1980, Ser. No. 191,383

Claims priority, application Switzerland, Nov. 14, 1979, 10148/79

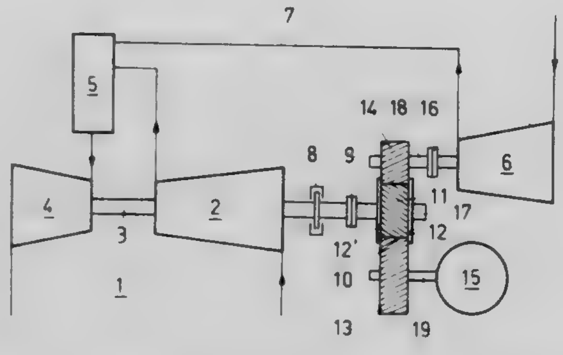
Int. Cl.^{3} F02C *3/22, 7/36*

U.S. Cl. 60—39.33 **2 Claims**

1. A gas turbine installation comprising:

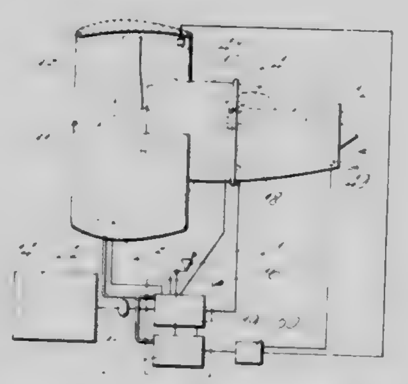
a gas turbine;

a combustible gas compressor;
a gearing drive containing gears;
a coupling and an axial bearing for rotatably connecting the gearing drive with the gas turbine;
a further coupling for rotatably connecting said gearing drive with the combustible gas compressor;
a generator;
a power take-off shaft for driving said generator by means of said gearing drive;



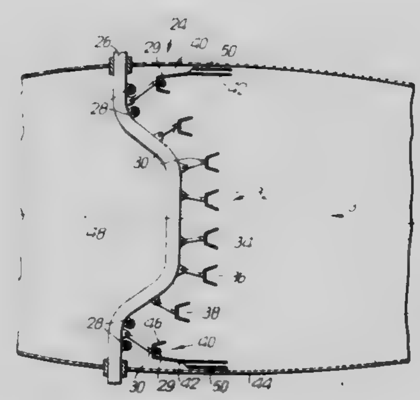
said gears of said gearing drive containing helical teeth;
said gears of said gearing drive including a drive gear;
pressure plates provided for said drive gear of said gearing drive for thrust compensation; and
the helical teeth of the gears of said gearing drive possessing helix angles selected such that a force acting upon the pressure plates and resulting from a thrust applied by the combustible gas compressor is reduced by axial components of the helical teeth.

4,380,898
FUEL CONTROL SYSTEM FOR A GAS TURBINE ENGINE
Hugh F. Cantwell, Littleover, England, assignor to Rolls-Royce Limited, London, England
Filed Nov. 20, 1980, Ser. No. 208,816
Claims priority, application United Kingdom, Dec. 21, 1979, 7944133
Int. Cl.³ F02C *9/28*
U.S. Cl. 60—243 **10 Claims**



1. A fuel system for a gas turbine engine of the type having a high pressure spool, means for producing signals proportional to the rotational speed of the high pressure spool, engine inlet pressure and at least one other parameter uniquely related to the thrust produced by the engine, a thottle lever for selecting a desired value of engine thrust and a main fuel control unit for adjusting the fuel flow to the engine in accordance with the throttle lever angle and the measured rotational speed of the high pressure spool so as approximately to produce the desired thrust, and a trimmer for determining from the throttle lever angle and said engine inlet pressure the desired value of said other parameter, comparing the computed value with the measured value, and applying a trimming input to the main fuel control unit to trim this unit in accordance with the input to provide a fuel flow to the engine which causes the engine to produce the desired engine thrust.

4,380,899
REHEAT SYSTEMS FOR GAS TURBINE ENGINES
David O. Davies, Duffield, and Michael Sherwood, Kegworth, both of England, assignors to Rolls-Royce Limited, London, England
Filed Jan. 19, 1978, Ser. No. 874,123
Claims priority, application United Kingdom, Jan. 21, 1977, 2479/77
Int. Cl.³ F02K *3/10*
U.S. Cl. 60—261 **13 Claims**

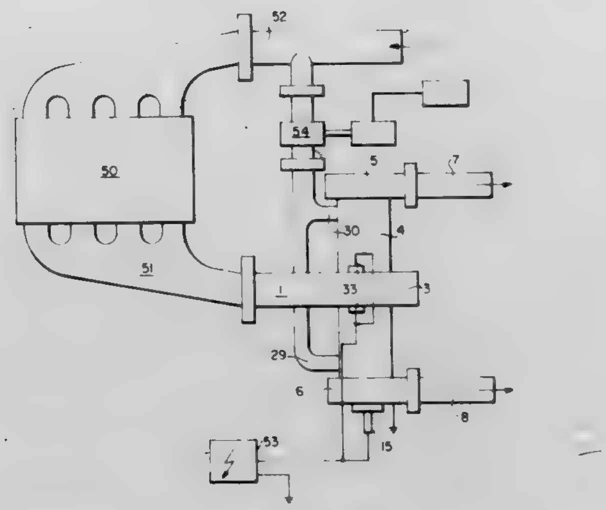


1. A reheat system for a gas turbine engine having a jet pipe, said reheat system comprising:
a plurality of gutters, said gutters being annular in shape and being coaxially arranged in the jet pipe of said engine;
fuel injection means, said fuel injection means being operable for injecting fuel into said jet pipe upstream of said plurality of gutters, the radially outermost gutter having an outer wall and an inner wall to define a substantially channel shaped cross-section, said outer wall being located adjacent to the wall of said jet pipe and extending along the length of said jet pipe for a substantially further distance than said inner wall, and said outer wall comprising an upstream portion and a downstream portion, said upstream portion being arranged at a small acute angle to the axis of said jet pipe, and said downstream portion being arranged substantially parallel to the axis of said jet pipe.

4,380,900
APPARATUS FOR REMOVING SOLID COMPONENTS FROM THE EXHAUST GAS OF INTERNAL COMBUSTION ENGINES, IN PARTICULAR SOOT COMPONENTS
Ernst Linder, Mühlacker; Rudolf Babitzka, Kirchberg; Johannes Brettschneider, Ludwigsburg; Wilhelm Polach, Möglingen; Wolf Wessel, Oberriexingen, and Gerhard Stumpp, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
Filed May 26, 1981, Ser. No. 267,322
Claims priority, application Fed. Rep. of Germany, May 24, 1980, 3019991
Int. Cl.³ F01M *3/00*
U.S. Cl. 60—275 **4 Claims**

1. An apparatus for the removal of solid components from an exhaust gas system of an internal combustion engine, comprising an intake system, a spiral housing, a connecting line connecting said exhaust gas system with said spiral housing to provide an inlet for said apparatus, a tubular housing having an axial center, a circumferential wall and end portions, said tubular housing being connected to said spiral housing, a first electrode extending longitudinally along said axial center of said housing and insulated therefrom, a perforated second electrode surrounding said first electrode, a first annular chamber between said wall and said second electrode within said tubular housing, at least one exhaust recirculation line extend-

ing from said first annular chamber to said intake system of said engine to provide one outlet, a second annular chamber disposed between said electrodes, said second annular chamber being connected with said spiral housing to receive exhaust



gases discharged from said exhaust gas system, said spiral housing discharging tangentially into said second annular chamber, and a discharge line leading tangentially from said second annular chamber back to said exhaust system to provide a second outlet.

4,380,901

HYDRAULIC PERCUSSION MACHINE

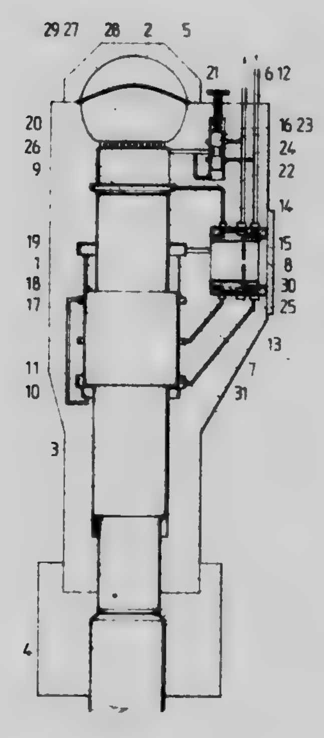
Pertti V. Rautimo, Lahti; Raimo Pelto-Huikko, Hki, and Esko A. O. Ahlman, Kartano, all of Finland, assignors to Kone Oy, Helsinki, Finland

Filed Jun. 27, 1980, Ser. No. 163,794

Claims priority, application Finland, Jun. 29, 1979, 792066

Int. Cl.[3] **F01B** *25/04;* **F01L** *25/04*

U.S. Cl. 60—418 **6 Claims**



1. An improved hydraulic percussion machine, comprising: a body; a piston within said body; hydraulic passages including a high pressure line and a valve associated with said body to define an hydraulic operating circuit; an hydraulic pressure accumulator disposed in axial alignment with and above said piston; said accumulator having a separate gas-filled chamber and a liquid-filled chamber, said accumulator being in communication with said piston for storing piston stroke energy which accelerates said piston for striking against a tool disposed at the working end of said machine; wherein the improvement comprises: providing said machine with a separate stroke standardizing circuit for maintaining accumulator pressure independent of pressure within said hydraulic operating circuit; said standardizing circuit being provided by pressure monitoring means disposed within hydraulic passages connecting said operational circuit and said accumulator; said monitoring means serving to monitor pressure in said accumulator responsive to piston stroke; and said standardizing circuit being self-regulating during machine operation to permit said piston stroke to be independent of liquid pressure and volumetric flow in said high pressure line supplying said operating circuit.

4,380,902

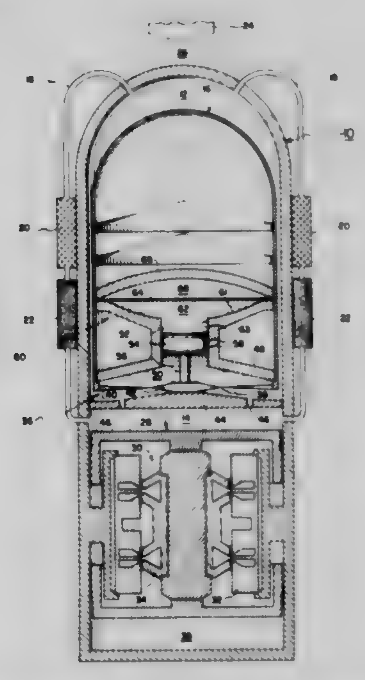
SEALED OIL-BACKED DISPLACER SUSPENSION DIAPHRAGM

Nicholas G. Vitale, Schenectady, N.Y., assignor to Mechanical Technology Incorporated, Latham, N.Y.

Filed Jun. 5, 1981, Ser. No. 270,892

Int. Cl.[3] **F02G** *1/04*

U.S. Cl. 60—520 **4 Claims**



1. A displacer suspension system for a free piston Stirling engine having a hermetic vessel enclosing a working space adapted to contain a working gas and in which oscillates a displacer for displacing working gas back and forth between an expansion space in said working space serially through a heater, a regenerator, a cooler, and into a compression space in said working space, and then back again; said suspension system comprising:

a first diaphragm fixed at its center and outer edge to said vessel and said displacer so that said diaphragm flexes between concave and convex shapes when said displacer oscillates;

a rigid wall fastened to said displacer and extending generally parallel to said diaphragm; said rigid wall and said diaphragm bounding two sides of a first cavity adapted to be filled with an incompressible liquid;

a piston mounted in said vessel and axially fixed with respect thereto;

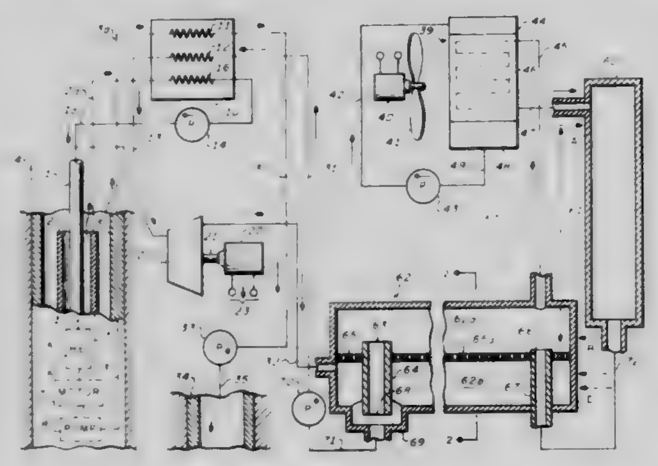
a cylinder formed in said rigid wall and receiving said piston for relative axial movement therewith;

a second diaphragm sealed at its outer peripheral edge to said vessel and having one face defining with said rigid wall a second cavity adapted to be filled with said incompressible liquid, said cylinder communicating between said cavities and being substantially sealed by said piston, said second diaphragm flexing when said displacer moves from its center position and storing energy in so flexing that is returned to said displacer to restore said displacer from an extreme axial position toward said center position;

whereby axial oscillation of said displacer causes said cylinder to reciprocate relative to said piston and causes said first diaphragm to flex between said concave and convex

shapes, thereby displacing liquid in said first cavity, which liquid displacement is accommodated by movement of said piston in said cylinder, and leakage between said cylinder and said piston being contained by and returned from said second cavity.

4,380,903
ENTHALPY RESTORATION IN GEOTHERMAL ENERGY PROCESSING SYSTEM
Hugh B. Matthews, Boylston, Mass., assignor to Sperry Corporation, New York, N.Y.
Filed Mar. 25, 1981, Ser. No. 247,434
Int. Cl.³ F03G *7/00*
U.S. Cl. 60—641.4 **9 Claims**



1. An improved Rankine cycle machine of the type having a turbine-motor means driven by a working fluid and having a condenser for sub-cooling the working fluid, wherein the improvement comprises

means for restoring enthalpy derived from superheated exhaust vapor from said turbine-motor to said sub-cooled working fluid, further comprising:

(a) coupling means for supplying said working fluid in said superheated expanded exhaust form from said turbine-motor means to working fluid transfer means,

(b) said transfer means further providing direct-contact nonturbulent flow means for passively transferring superheat and latent heat from said expanded exhaust to said sub-cooled working fluid,

(c) means for condensing said working fluid from desuperheated vapor form in a pressurized environment to create said sub-cooled working fluid in liquid form, said condensing means having a coolant supply operating in an ambient pressure environment independent of and isolated from said working fluid, and

(d) coupling means for receiving said sub-cooled working fluid from said condensing means and for supplying said sub-cooled working fluid to said transfer means, while restoring a pressure head to said sub-cooled working fluid.

4,380,904
AIR FUEL ENGINE
Anthony T. Zappia, 12374 Brompton Rd., Carmel, Ind. 46032
Filed May 19, 1980, Ser. No. 151,137
Int. Cl.³ F01B *29/04*
U.S. Cl. 60—712 **6 Claims**

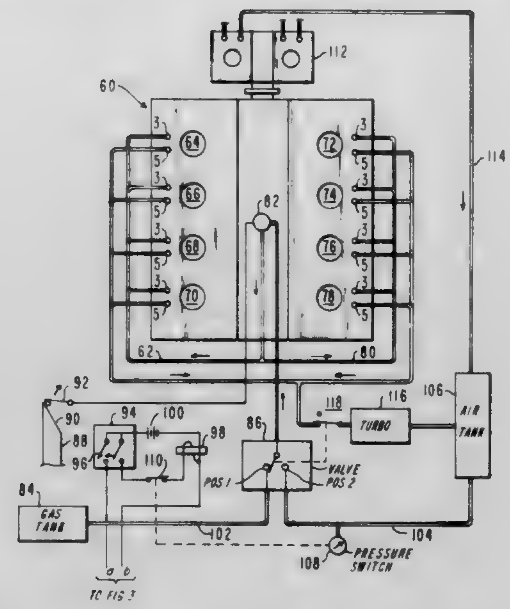
1. An engine comprising in combination:

a plurality of gasoline-fired cylinders operably responsive to gasoline and compressed fluid;

means for regulating gasoline and compressed fluid supplied to said cylinders, said means being connected to said cylinders and;

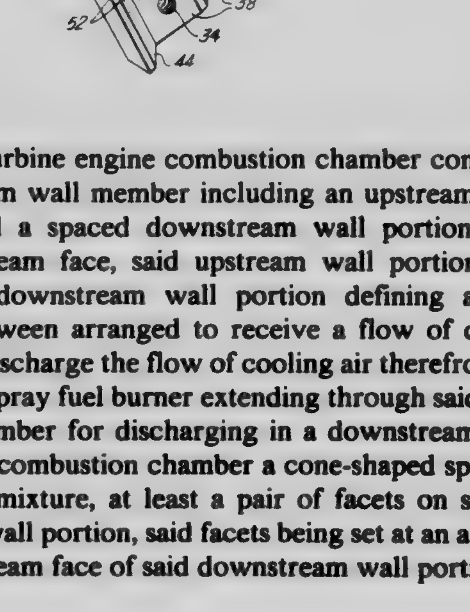
valving means for connecting either gasoline or compressed fluid to said means for regulating gasoline and compressed fluid, said valve being regulated by the speed of said engine and the pressure of the fluid,

whereby said cylinders operate in response to gasoline when gasoline is connected thereto and operate in response to compressed fluid when compressed fluid is connected thereto, and whereby the means for regulating gasoline and compressed



fluid operates to regulate gasoline supplied to said cylinders when gasoline is connected to said means for regulating and operates to regulate compressed fluid supplied thereto when compressed fluid is connected to said means for regulating.

4,380,905
GAS TURBINE ENGINE COMBUSTION CHAMBERS
Richard B. Smart, Mickleover, and Sidney E. Slattery, Foston, both of England, assignors to Rolls-Royce Limited, London, England
Continuation of Ser. No. 127,546, Mar. 6, 1980, abandoned. This application Mar. 24, 1982, Ser. No. 361,454
Claims priority, application United Kingdom, Mar. 22, 1979, 791057
Int. Cl.³ F02G *1/055*
U.S. Cl. 60—756 **10 Claims**



1. A gas turbine engine combustion chamber comprising:

an upstream wall member including an upstream wall portion and a spaced downstream wall portion having a downstream face, said upstream wall portion and said spaced downstream wall portion defining a chamber therebetween arranged to receive a flow of cooling air and to discharge the flow of cooling air therefrom, at least one air spray fuel burner extending through said upstream wall member for discharging in a downstream direction into the combustion chamber a cone-shaped spray of fuel and air mixture, at least a pair of facets on said downstream wall portion, said facets being set at an angle to the downstream face of said downstream wall portion, one of

said pair of facets being positioned on one side of and spaced from said air spray fuel burner and the other of said pair of facets being positioned on the other side of and spaced from said air spray fuel burner, each of said pair of facets having a plurality of apertures for the flow of cooling air from said chamber to said downstream wall, said apertures in each facet being aligned to direct a flow of cooling air across a width of the downstream face of said downstream wall portion in a direction generally parallel to a part of the downstream wall portion adjacent the respective facet and in a direction toward said air spray fuel burner to cause the cooling air to directly interact with the spray of fuel and air mixture therefrom whereby combustion in a primary zone of the combustion chamber is improved.

4,380,906

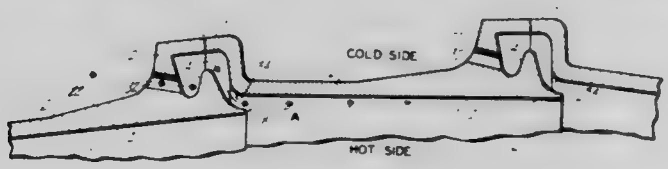
COMBUSTION LINER COOLING SCHEME

James A. Dierberger, Hebron, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Jan. 22, 1981, Ser. No. 227,317

Int. Cl.^{3} F02C *7/12, 1/00*

U.S. Cl. 60—757 **5 Claims**



1. For a combustor having a louvered liner formed by a plurality of louvers defining a combustion zone, the outer face of said liner exposed to cooler air and the inner face of said liner exposed to hot gases of combustion, said cooler air flowing from an upstream to a downstream direction relative to the flow of the hot gases in the combustion process, a radially outward extending annular flange on one end of one of said louvers of said liner spaced from an end of one of said louvers, the next adjacent louver having an over-lying end abutting said flange and defining therewith an outer annular cavity surrounding said end of said louver, a radially outward extending fin on said one end of said louver spaced intermediate the end of said louver and said flange and spaced from said over-lying end defining a pair of annular subchambers, the end of said louver adjacent said fin having a lip and the next adjacent louver being spaced from said lip to define an annular slot communicating with said subchambers, an inlet opening facing the flow of cooler air for admitting cooler air into said annular chamber to impinge on said fin, change direction and flow from one of said subchambers to the other of said subchambers and through said slot into said combustion zone whereby the cooling air in said subchambers coalesce into a film and discharge as a film through said slot to adhere adjacent the inner face of said liner as it flows downstream in said combustion zone.

4,380,907

METHOD OF BOILING LIQUEFIED GAS

Robert S. Barnes, Woking, and Raymond Harper, Harlow, both of England, assignors to Cryoplants, Ltd., Edmonton, England

Filed Jul. 9, 1981, Ser. No. 281,737

Claims priority, application United Kingdom, Jul. 14, 1980, 8022934

Int. Cl.^{3} F17C *7/02*

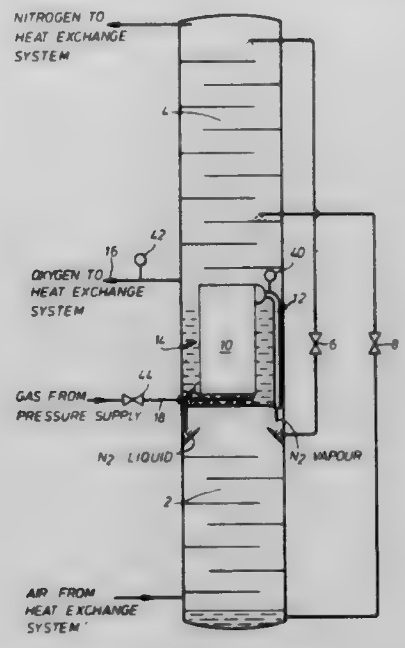
U.S. Cl. 62—52 **5 Claims**

1. A method of boiling a liquefied gas in a heat exchanger having cavities formed in heat exchange surfaces comprising the steps of:

(a) passing another fluid into said heat exchanger in indirect heat exchange relation with said liquefied gas to thereby supply thermal energy to said liquefied gas;

(b) introducing bubbles of a seeding gas into the liquefied gas in the heat exchanger;

(c) trapping at least some of said bubbles of seeding gas in said cavities; and



(d) retaining said trapped bubbles in said cavities until said bubbles increase to a size such that said bubbles break away from said cavities while leaving a sufficient residue of vapors of the liquefied gas in the cavities to enable further bubbles to form therein by boiling of said liquefied gas.

4,380,908

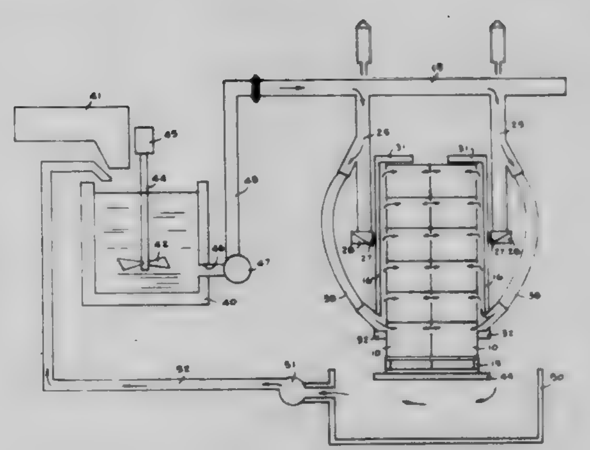
METHOD AND APPARATUS FOR CHILLING PRODUCE

Richard V. Crabb, Jr., Aromas, Calif., assignor to Growers Ice Company, Salinas, Calif.

Filed Feb. 10, 1982, Ser. No. 347,503

Int. Cl.^{3} F25D *17/02*

U.S. Cl. 62—64 **8 Claims**



1. The method of injecting a cooling solution into a produce carton wherein the produce carton has openings on one pair of opposing end walls, said method comprising the steps of:

providing a pair of plates having passages therein through which a cooling solution can be pumped,

clamping said plates on the opposing end walls of the produce carton with sufficient force to form a seal between the carton and plate,

pumping a cooling solution through said plate passages and through the carton openings into the produce carton until sufficient cooling solution is deposited in the carton to cool the produce therein, and

removing the plates from the produce carton.

4,380,909

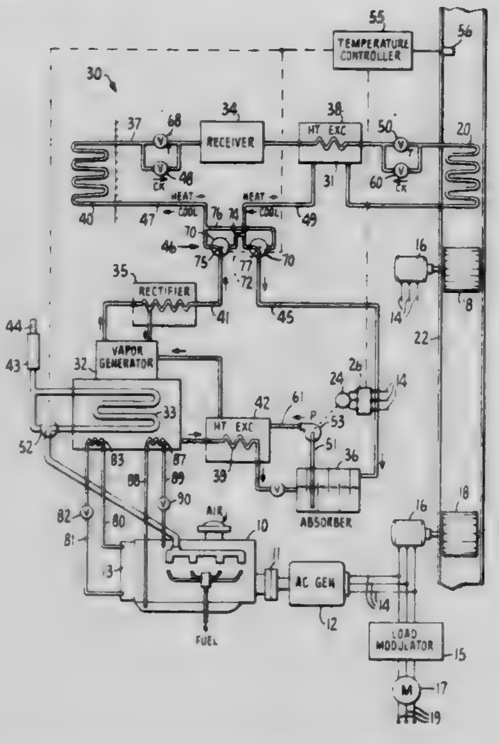
METHOD AND APPARATUS FOR CO-GENERATION OF ELECTRICAL POWER AND ABSORPTION-TYPE HEAT PUMP AIR CONDITIONING

Harry M. Sung, Moraga, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Jul. 17, 1981, Ser. No. 284,379

Int. Cl.³ F25B *7/00*

U.S. Cl. 62—79 **8 Claims**



1. Method of simultaneously supplying electrical power and thermal energy to local energy conversion units which comprises operating an internal combustion engine to mechanically drive an electrical generator, said generator being electrically connected to a system adapted to modulate said load to hold the temperature of the engine exhaust gas within a range of from about 500° F. to about 1200° F., flowing said exhaust gas from said engine through a vapor generator of an absorption-type refrigeration system to heat and increase the pressure of vapor from the refrigerant component of the operating fluid in said system, selectively extracting the heat from said vapor by condensing it at substantially constant pressure to a substantially liquid state by selectively flowing said vapor either through a heat exchanger exposed to outside air for ambient air cooling of said vapor or to a heat exchanger exposed to air flow in a local air heating system, simultaneously flowing the resultant condensed refrigerant liquid from the selected heat exchanger through an expansion valve to the other of said heat exchangers for reduction of the pressure of said liquid flowing therethrough to absorb heat from air flow over said other heat exchanger, and returning the expanded resultant refrigerant vapor at such reduced pressure to said vapor generator through an absorber for solution in the carrier liquid withdrawn from said vapor generator after said refrigerant vapor is extracted, and compressing by heat the evaporated refrigerant by passing said exhaust gas from said internal combustion engine through said vapor generator.

4,380,910

MULTI-STAGE INDIRECT-DIRECT EVAPORATIVE COOLING PROCESS AND APPARATUS

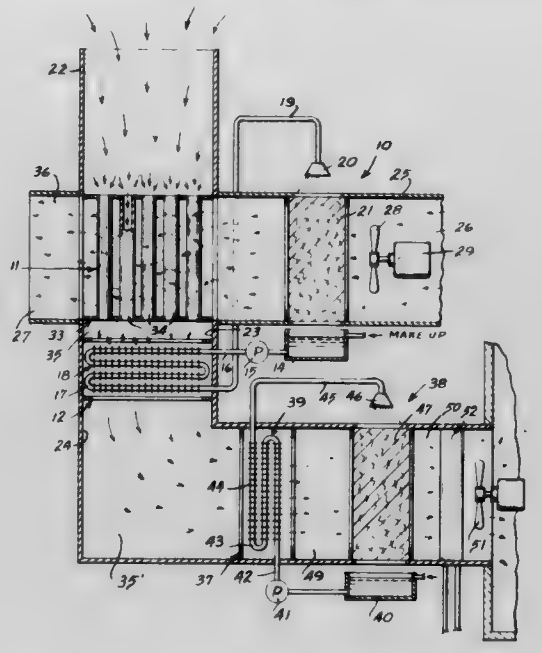
Larry M. Hood, Albuquerque, and Doy M. West, Tijeras, both of N. Mex., assignors to Aztech International, Ltd., Albuquerque, N. Mex.

Filed Aug. 13, 1981, Ser. No. 292,367

Int. Cl.³ F25D *17/06*

U.S. Cl. 62—91 **12 Claims**

1. The process of cooling a first air stream, comprising the steps of: passing the air stream through a first heat exchanger in heat exchange relationship with a second air stream passing through a recirculating first body of water that is evaporatively cooled by said second air stream, passing said first air stream through a second heat exchanger in heat exchange relationship but out of contact with a recirculating second body of water that is evaporatively cooled downstream by said



first air stream, and passing said first air stream in direct contact heat exchange relationship with a third heat exchanger which includes said second body of evaporatively cooled water.

4,380,911

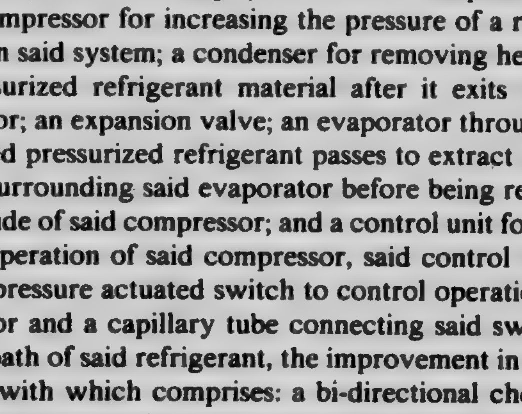
REFRIGERATION CONTROL APPARATUS

William A. Zumbiel, 85 Dudley Rd., Ft. Mitchell, Ky. 41017

Filed Aug. 5, 1981, Ser. No. 290,364

Int. Cl.³ F25B *49/00*

U.S. Cl. 62—228 **6 Claims**



1. A refrigeration cooling system which comprises a motor driven compressor for increasing the pressure of a refrigerant material in said system; a condenser for removing heat to cool said pressurized refrigerant material after it exits from said compressor; an expansion valve; an evaporator through which said cooled pressurized refrigerant passes to extract heat from the area surrounding said evaporator before being returned to the inlet side of said compressor; and a control unit for controlling the operation of said compressor, said control unit comprising a pressure actuated switch to control operation of said compressor and a capillary tube connecting said switch with the flow path of said refrigerant, the improvement in combination therewith which comprises: a bi-directional check valve positioned between said pressure actuated switch and the flow path of said refrigerant, said valve permitting refrigerant pressure changes to be transmitted directly through said capillary tube to said pressure actuated switch so long as said capillary line remains unbroken, said check valve further functioning to seal off the flow path of said refrigerant in the event a break occurs in said tube.

4,380,912

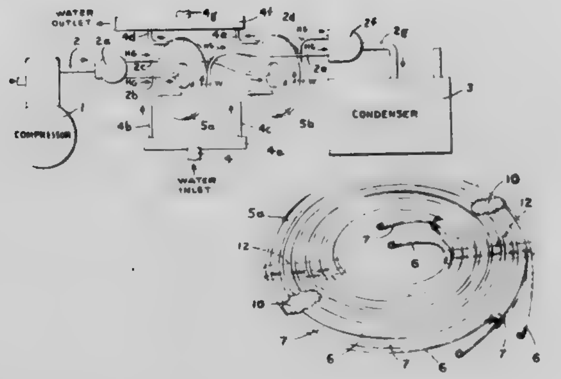
DOUBLE WALL TUBE ASSEMBLY FOR USE IN HEAT EXCHANGERS

Ray C. Edwards, Kinnelon, N.J., assignor to Edwards Engineering Corp., Pompton Plains, N.J.

Continuation of Ser. No. 17,243, Mar. 5, 1979, abandoned. This application May 18, 1981, Ser. No. 264,860

Int. Cl.³ F25B *39/04;* F25D *7/10*

U.S. Cl. 62—506 **4 Claims**



1. A dual wall tube to tube assembly for wound heat exchangers comprising,

a. a first tubular member made from standard stock tubing from the group of copper and steel alloys having a substantially constant outer diameter along the length thereof,

b. said first tubular member having first heat conductive wall means defining a first fluid flow passage therethrough, a first inlet for a first heated fluid, and a first outlet for said heated fluid,

c. a second tubular member also made from standard stock tubing from the group of copper and steel alloys,

d. said second tubular member having second heat conductive wall means defining a second fluid flow passage therethrough, a second inlet for a second fluid to be heated, and a second outlet for said second fluid,

e. said second tubular member having a first indented section parallel to the axis of the longitudinal length of said second wall means uniformly shaped and sized on the outer face thereof with a curvature substantially equal to that of the outer diameter of said first tubular member to permit the first wall means of said first tubular member to be formed and forced into matching and direct physical mating engagement with the first indented section in the second wall means of said second tubular member, so as to minimize any air gaps between said first wall means and said first indented section,

f. said second tubular member having at least a second indented section parallel to the axis of the length of said second wall means spaced a predetermined circumferential distance from said first indented section and also uniformly shaped and sized on the outer face thereof with a curvature substantially equal to that of the outer diameter of said first tubular member to permit the first wall means of said first tubular member to also be formed and forced into matching and direct physical mating engagement with the second indented section in the second wall means of said second tubular member so as to further minimize air gaps between said first wall means and said first indented section and the first wall means and the second indented section whereby said first tubular member and said second tubular member provide intimate, efficient and operative direct heat conductive contact on each of said respective indented faces,

g. said uniformly shaped and sized first and second indented sections on the second wall means forming along the longitudinal length of the second fluid flow passage in said second tubular member a uniformly restricted portion along the inner wall defining the second fluid flow passage to increase the velocity of the fluid flowing through said second fluid flow passage along the inner wall of said second wall means adjacent the surface of operative direct heat conductive contact of said second wall means with the first wall means of the first tubular member, and

h. means for maintaining said first and second tubular members in interfitting contact one with the other along the radial extent thereof.

4,380,913

WEFT THREAD LAYING APPARATUS WITH COMBING ELEMENT

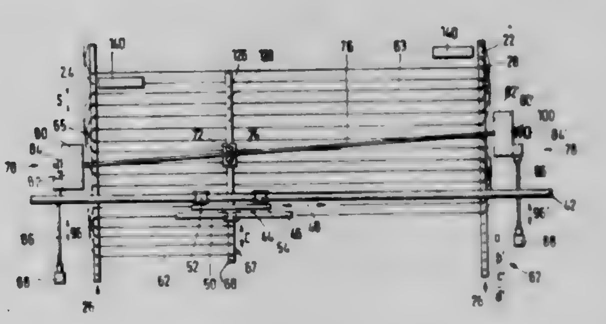
Christian Wilkens, Heusenstamm, Fed. Rep. of Germany, assignor to Karl Mayer Textilmaschinenfabrik GmbH, Obertshausen, Fed. Rep. of Germany

Filed Apr. 29, 1981, Ser. No. 258,773

Claims priority, application Fed. Rep. of Germany, May 6, 1980, 3017255

Int. Cl.³ D04B *23/06*

U.S. Cl. 66—84 A **9 Claims**



1. A weft thread magazine for a warp knitting machine having a needle bed, said magazine comprising, in combination:

(a) a pair of endless transfer chain means each having holding means for retaining weft threads in parallel and for presenting them to said needle bed;

(b) a thread laying arrangement for transporting weft threads from one of said pair of transfer means to the other, said arrangement including a carriage means having at least one thread guide for guiding at least one of the appropriate weft threads into a position parallel to an already laid weft thread; and

(c) a combing element mounted on said carriage means and having at least one combing peg and being operable to introduce said peg between weft threads proximate one of said pair of transfer chain means, to move said peg parallel to the weft threads and to remove said peg proximate the other transfer chain means.

4,380,914

TWIST KEY HOLDER

Hanns W. Beier, Valhalla, N.Y., assignor to Magic Novelty Co., Inc., New York, N.Y.

Filed Nov. 5, 1980, Ser. No. 204,237

Int. Cl.³ A47G *29/10*

U.S. Cl. 70—456 R **6 Claims**

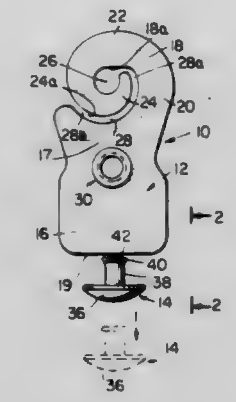
1. A twist key holder for removably coupling a key to a ring, said twist key holder including:

a twist key body,

a hook formed of a stiff but pliant material attached to the body, the hook including a stem portion, a mid-portion and a tip portion which follow a spiraling path terminating in the tip portion, the stem, the mid-portion and the tip encircling to define a generally circular opening, the tip portion terminating in close spaced relation to the mid-portion, the tip portion being adapted for twisting and flexing movement out of the plane of the hook,

a passageway of narrowing width formed in the hook, said passageway leading into the opening, said passageway being relatively wide adjacent the exterior of the twist key holder for receiving the key ring and narrow adjacent the opening to block passage of the key ring from within the

opening, the tip flexing out of the plane of the hook by application of a sideways force to permit passage and entry of the key ring through the passageway into the opening, the tip flexing into the plane of hook upon entry of the key ring in the opening to lock the key ring in engagement with the twist key holder while enabling ready disengagement of the key ring by flexing the tip for passage of the key ring to the exterior of the key holder,



an attaching button including an enlarged head, a stem attached to the head, and an enlarged flange at the end of the stem, and

means for attaching the button to the body, said means including a stud configured to accept the attaching button, the stud being shaped to pass through the aperture of a key of standard configuration.

4,380,915

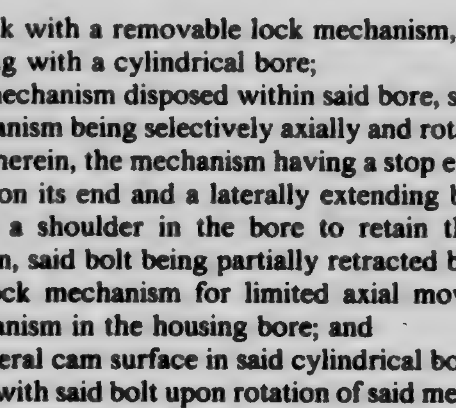
LATCH HAVING A REMOVABLE LOCK

Herbert Kincaid, Libertyville, and Michael L. Wray, Wheeling, both of Ill., assignors to The Eastern Company, Naugatuck, Conn.

Filed Apr. 6, 1981, Ser. No. 251,155

Int. Cl.[3] E05B *9/04, 9/08, 13/10, 33/00*

U.S. Cl. 70—224 **13 Claims**



6. A lock with a removable lock mechanism, comprising:

a housing with a cylindrical bore;

a lock mechanism disposed within said bore, said entire lock mechanism being selectively axially and rotationally movable therein, the mechanism having a stop engaging finger fixed on its end and a laterally extending bolt which engages a shoulder in the bore to retain the mechanism therein, said bolt being partially retracted by actuation of the lock mechanism for limited axial movement of the mechanism in the housing bore; and

a peripheral cam surface in said cylindrical bore for engagement with said bolt upon rotation of said mechanism in the bore, to affect complete retraction of the bolt for removal of the mechanism from the housing.

12. An improved lock for a latch of the type operable by rotation of a handle, the improvement comprising:

a lock receptacle on said handle having a bore therethrough;

a removable lock disposed within said bore, said entire lock being selectively axially and rotationally movable within said bore, said lock having a stop engaging finger fixed on its end and a retractable bolt on its side; and

a plurality of bolt engaging surfaces within said bore to hold the lock, while locked, within said bore with said finger engaging the stop, to hold the lock within said bore, while unlocked, with said finger disengaged from said stop, and to retract said bolt upon rotation of said lock within said bore for removal of said lock from said bore.

4,380,916

ROLLING APPARATUS FOR SEQUENTIAL ROLLING

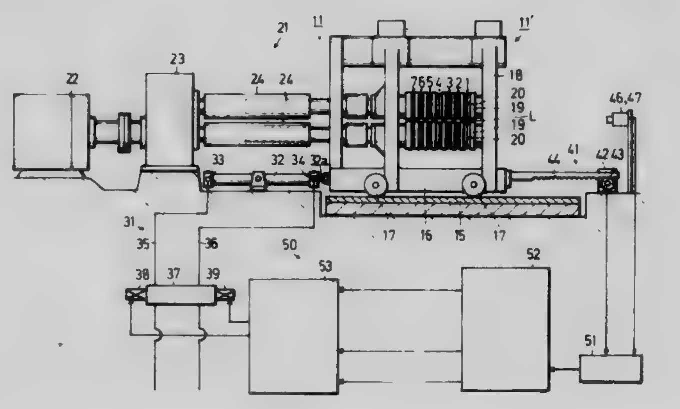
Teruaki Tanaka, Aichi, Japan, assignor to Daidotokushuko Kabushikikaisha, Japan

Filed Aug. 21, 1981, Ser. No. 294,875

Claims priority, application Japan, Aug. 28, 1980, 55-118969; Jul. 20, 1981, 56-113148

Int. Cl.[3] B21B *31/18*

U.S. Cl. 72—7 **4 Claims**



1. A rolling apparatus comprising first and second conveyance systems spaced apart from each other along a conveyance line for reciprocating a material to be rolled along said conveyance line and a rolling mechanism so disposed that said conveyance line extends therethrough for rolling the material during reciprocation thereof, said rolling mechanism including:

a. a rolling unit having a frame adapted to move in the direction perpendicular to said conveyance line, a pair of rotatable rolls each provided with a plurality of shape grooves at the circumference thereof and disposed so that said conveyance line continuously extends therebetween, a plurality of shape apertures provided between said rolls by said shape grooves for rolling the material;

b. a drive system connected to said rolling unit for rotating said rolls;

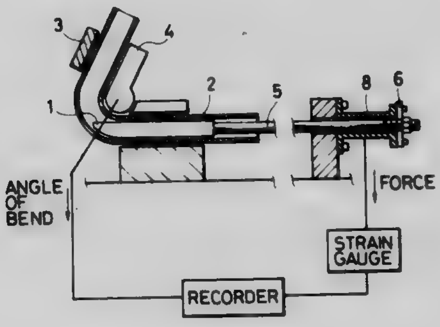
c. a shift system connected to said rolling unit for moving said rolling unit in the direction perpendicular to said conveyance line so as to selectively locate said shape apertures on said conveyance line;

d. a system connected to rolling unit for detecting the position of said rolling unit relative to said conveyance line and providing a signal to indicate said position; and

e. a system connected to said shift system for controlling said shift system and including (1) a unit for setting the order of locating said shape apertures on said conveyance line, (2) a unit for selecting said shape apertures set in said setting unit in said order and providing a signal to indicate the particular shape apertures to be located on said conveyance line, (3) a unit for computing the difference between the value of signal from said detecting system and that of signal from said selecting unit and providing a signal to indicate said difference, (4) a unit for generating signals to indicate the speed of moving of said rolling unit by receiving the differential signal from said computing unit so that said generating unit provides a signal to move said rolling unit at a higher speed when the value of said differential signal is larger than a first marginal value, a signal to move said rolling unit at a lower speed when said value is smaller than said first marginal value but larger than a second marginal value, and a signal to

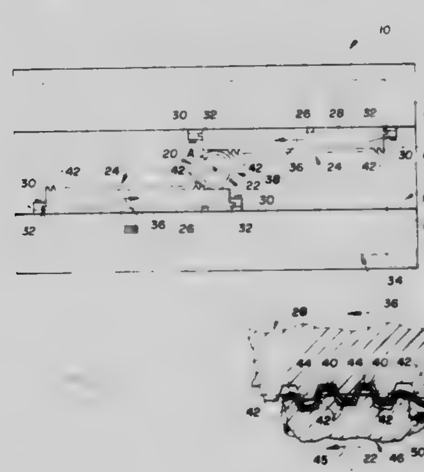
stop said rolling unit from moving when said value is smaller than said second marginal value, and (5) a section for controlling said shift system in accordance with the signals from said generating unit.

4,380,917
TUBE-BENDING MACHINE
Fumihiko Uchida, Koganei; Kazuo Sato, and Soji Takahashi, both of Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Feb. 5, 1981, Ser. No. 231,922
Claims priority, application Japan, Feb. 22, 1980, 55-20521
Int. Cl.[3] B21D *9/05*
U.S. Cl. 72—8 9 Claims



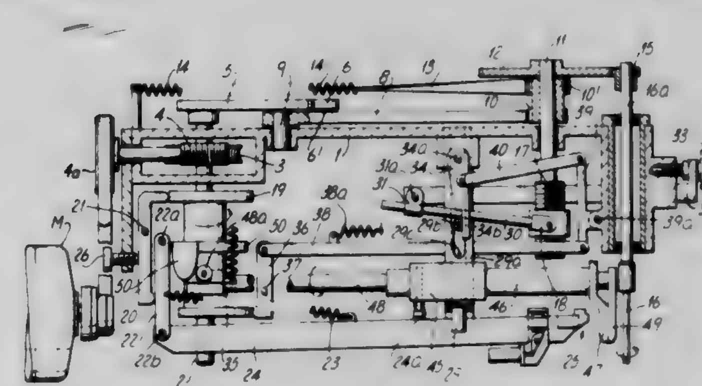
1. A tube-bending machine comprising:
a mandrel,
bending means to bend a tube with said mandrel inserted in said tube, and
force detection means for detecting a force acting on said mandrel in an axial direction of said mandrel during bending of the tube by said bending means, so as to sense a bending condition of said tube.

4,380,918
THIN-WALL SPLINE FORMING MACHINE
James T. Killop, Warren, Mich., assignor to Anderson-Cook Inc., Fraser, Mich.
Filed Mar. 2, 1981, Ser. No. 239,266
Int. Cl.[3] B21D *9/14, 17/00, 53/28*
U.S. Cl. 72—88 5 Claims



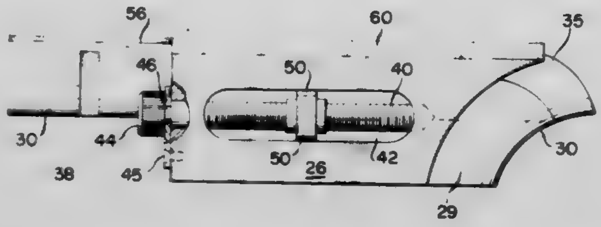
1. In apparatus for forming splines in a thin-wall sleeve of a power transmission member, said apparatus including a toothed mandrel on which the sleeve is mounted in preparation for splining and also including a pair of toothed forming racks that are driven in a parallel relationship to each other in opposite directions on opposite sides of the mandrel such that meshing of the forming racks and the mandrel with the sleeve therebetween forms splines in the sleeve, the improvement comprising: the forming racks having associated teeth that are spaced from the toothed mandrel during meshing thereof with the thin-wall sleeve located therebetween, said teeth of the racks having associated tooth pitch lines extending parallel to the direction of rack movement, the mandrel having a tooth pitch circle that is tangent to the forming rack pitch lines, and the mandrel having teeth that project outwardly from the pitch circle thereof the same extent the teeth of the racks project inwardly of the mandrel pitch circle upon meshing with the mandrel with the sleeve therebetween whereby one half of the formed splines are radially inward of the mandrel pitch circle and one half of the formed splines are radially outward of the mandrel pitch circle.

4,380,919
COIL WINDING MACHINE
Giuseppe Camardella, Saronno, Italy, assignor to Tekma Kinomat S.p.A., Caronno Pertusella, Italy
Filed Oct. 14, 1980, Ser. No. 196,311
Claims priority, application Italy, Jan. 22, 1980, 19355 A/80
Int. Cl.[3] B21F *3/04*
U.S. Cl. 72—132 36 Claims



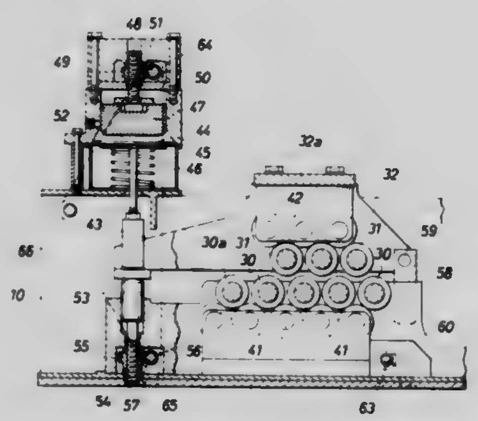
1. A coil winding machine for winding unsupported wire coils, comprising
a main driving shaft adapted to be driven in rotation by a motor,
a set of control cams on said main shaft,
a rotary spindle on which the coil is formed when the spindle rotates,
means for rotating the spindle, comprising a sector gear and a toothed gearing comprising at least one pinion on the spindle shaft, and a main gearwheel, said sector gear being oscillated by a first cam of said set of cams,
means mounting said pinion and said spindle shaft for movement parallel to themselves, along an arc concentric with the rotation axis of said main gearwheel,
a wireguide for feeding and distributing the wire being wound, said wireguide being also adapted to move forward and position the leading end of the wire in respect of the spindle, at the start of the winding, the forward movement of the wireguide being controlled by a second cam of said set of cams and the leading end of the wire being dragged by the wireguide by releasable wire gripping means on said wireguide,
power means for actuating said wire gripping means,
shears for cutting the wire at the end of the winding, controlled by a third cam of said set of cams and the position of which can be adjusted in respect of the spindle and of the wireguide through end adjustment means allowing to determine the length of the terminals at the start and at the end of the winding, and
means for predetermining the distribution of the turns in the coil to be formed.

4,380,920
ADJUSTABLE WIPER DIE FOR BENDING TUBULAR MEMBERS
Jeffrey W. Coop, Sr., and Jeffrey W. Coop, Jr., both of 12924-30 Lakeland Rd., Santa Fe Springs, Calif. 90670
Filed Oct. 14, 1980, Ser. No. 196,361
Int. Cl.³ B21D *7/04*
U.S. Cl. 72—158 **8 Claims**



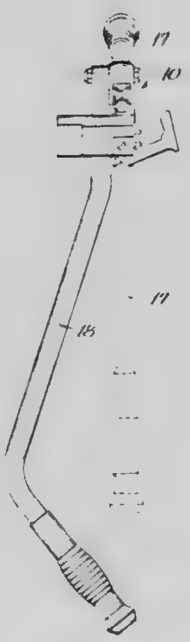
1. An adjustable wiper die for bending tubular members, comprising:
a carriage member defining a fixed die block having a longitudinal channel formed therein;
an adjustable wiper blade adapted to be received in said channel of said carriage member;
an adjustable gauge means for selectively positioning said wiper blade in said carriage; and
means for securing said wiper blade in a selected position relative to said carriage.

4,380,921
ROLL LEVELLER
Makoto Matsui, Shiroyama, Japan, assignor to Aida Engineering Ltd., Sagamihara, Japan
Filed Nov. 4, 1980, Ser. No. 203,886
Claims priority, application Japan, Nov. 22, 1979, 54-150596; May 6, 1980, 55-60681[U]
Int. Cl.³ B21D *1/02, 3/02*
U.S. Cl. 72—165 **8 Claims**



1. A roll leveller comprising:
a frame having a first and a second end;
a plurality of parallel lower rolls rotatably mounted on said frame and positioned side by side in the direction in which a material to be levelled is fed by said roll leveller, said lower rolls being adapted to be driven;
a plurality of parallel upper rolls;
a bracket means having third and fourth ends respectively corresponding to said first and second ends of said frame, said plurality of parallel upper rolls being rotatably mounted thereon in spaced opposed relationship to said lower rolls;
a stop means mounted on said first end of said frame for movement toward and away from said bracket means and engaged by said third end of said bracket means;
a connecting shaft means pivotally connected to said fourth end of said bracket means and mounted on said second end of said frame for movement toward and away from said frame so as to effect changes in spacing between said upper rolls and said lower rolls;
a rod means connected to said bracket means adjacent said stop means and extending away from said stop means; and
a piston-cylinder means, mounted on said frame and connected to said rod means, for moving said rod means and said bracket means away from said stop means by pivoting movement around the pivotal connection of said fourth end of said bracket means to said connecting shaft means.

4,380,922
TUBE BENDER CONSTRUCTION
Leonard J. Kowal, Prospect Heights, Ill., assignor to Imperial Clevite Inc., Rolling Meadows, Ill.
Filed Jan. 30, 1981, Ser. No. 229,865
Int. Cl.³ B21D *7/02*
U.S. Cl. 72—388 **19 Claims**

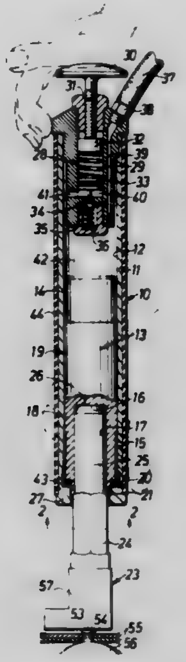


1. In a tube bender having a mandrel defining a bending groove extending arcuately about a bend axis in a first direction from a bend start position which may vary with the type of tube to be bent, the diameter thereof, wear of the tube bender parts, and the like, means for holding the tube at a holding position adjacent the bend start position in a second direction opposite said first direction, and forming means swingable about said bend axis for urging a tube to be bent progressively into the bending groove, the improvement comprising:
cooperating first and second indicia means associated respectively with said mandrel and said forming means for indicating the angular extent of a bend provided in the tube as a result of movement of the forming means from the bend start position; and
adjusting means for angularly adjusting at least one of said first and second indicia means to provide accurate correlation therebetween of the tube to be bent with the bend start position in accurately indicating said angular extent at least one of said indicia means including a bend start indicator portion including a plurality of angularly spaced bend start position indications.

4,380,923
VIBRATION DAMPED RIVET BUCKING TOOL
Wolfgang Emmerich, Munkhagen, Finland, assignor to Atlas Copco Aktiebolag, Nacka, Sweden
Filed Sep. 30, 1981, Ser. No. 307,305
Claims priority, application Sweden, Oct. 1, 1980, 8006875
Int. Cl.³ B21J *15/40*
U.S. Cl. 72—482 **6 Claims**

1. A vibration damped rivet bucking tool comprising a housing (11) subjectable to a manual bucking force, a cylinder bore (12) in said housing, abutment means (20) at one end of said cylinder bore, a piston (13) sealingly and reciprocally disposed

in said cylinder bore and defining a damping chamber (42) at the other end thereof, a rivet bucking die (23) connected to said piston (13) at said one end of said cylinder bore to form an assembly with said piston and applicable by said manual force against a rivet to be bucked, and passage means (39) for supplying compressed air to said damping chamber to cooperate with said piston for transmitting said manual force thereto and to said die during rivet bucking, characterized by said damping chamber (42) of said cylinder bore (12) having a volume ex-



ceeding the displacement volume of said piston (13) under recoil during rivet bucking sufficiently to isolate said housing (11) from undesirable vibration, and pressure reduction valve means (28) on said housing (11) connected to said passage means (39) for selectively adjusting the air pressure in said damping chamber (42) so as to bias said piston and die assembly (13, 23) onto said abutment means (20) by an elastic force approximately equal to the optimal manual force required for proper rivet heading and bucking in the riveting work at hand.

4,380,924

METHOD FOR MONITORING FLOW CONDITION OF LIQUID METAL

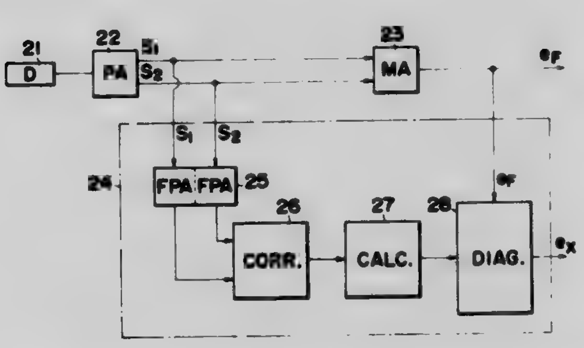
Koichiro Nakamoto; Kiyokazu Ishii, and Nobumi Ohyama, all of Mito, Japan, assignors to Doryokuro Kakunenryo Kaihatsu Jigyodan, Tokyo, Japan

Filed Apr. 16, 1981, Ser. No. 254,664

Claims priority, application Japan, May 2, 1980, 55-59002

Int. Cl.[3] G01F *1/58;* G01N *27/74*

U.S. Cl. 73—19 **5 Claims**



3. A method for monitoring flow condition of a liquid metal comprising:

disposing in the flowing direction of the liquid metal a detector consisting of an excitation coil applied with an a.c. current and at least two detection coils disposed on both sides of said excitation coil; and

detecting the polarity of a peak point of the cross-correlation function of fluctuation signals occurring in said detection coils to thereby determine the presence or absence of voids.

4,380,925

DEVICE FOR BALANCING DISKS

Michael S. Martino, South Windsor, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Sep. 14, 1981, Ser. No. 301,930

Int. Cl.[3] G01M *1/00;* G06C *1/00*

U.S. Cl. 73—66 **7 Claims**

1. A device for determining the angularity of unbalance of several disks with respect to one another in assembling the disks into a rotor construction the device including:

a base member having a linear scale of disk unbalance and an angular scale for disk positioning both said scales having the same zero point;

a linear scale member pivoted at the zero point of the scale on the base member and having a linear scale of disk unbalance beginning at the pivot point; and

an angular scale member pivoted to said linear scale member and having both an angular scale and a linear unbalance scale thereon.

4,380,926

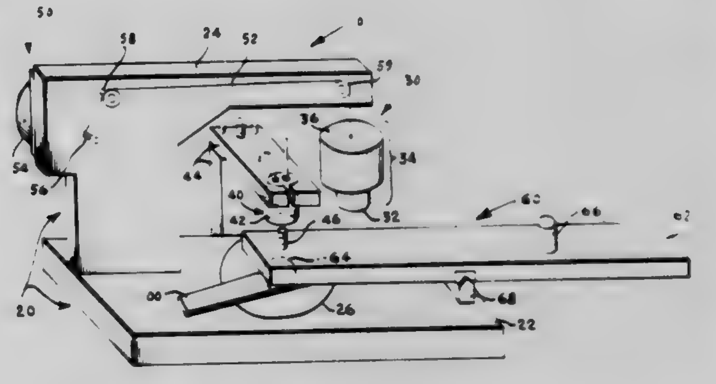
BATTERY ELECTRODE HARDNESS TESTER

David H. Fritts, Dayton, and John F. Leonard, Xenia, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jan. 22, 1981, Ser. No. 227,564

Int. Cl.[3] G01N *3/44*

U.S. Cl. 73—83 **3 Claims**



1. A method of testing relative hardness of a specimen of an electrode plaque which is of a thickness of approximately 0.75 mm and which is made of a non-homogenous, sintered material in order to establish electrode performance, said method comprising the steps of:

a. positioning said specimen on a support in contact with a means for applying, in sequence, a first preselected compression load and a second preselected compression load,

with said second preselected load being greater than said first preselected load,

b. applying said first preselected compression load to said specimen, whereby a first indentation is formed thereby in said specimen;

c. measuring the depth of said first indentation;

d. applying said second preselected greater compression load to said specimen, whereby a second indentation is formed thereby in said specimen, with said second indentation located in a superimposed positioned on said first indentation; and

e. measuring the depth of said second indentation;

(f) determining a difference in said depths;

(g) determining the relative hardness of said specimen by analyzing said differences in said depths, said relative hardness being inversely related to said difference in said depths, in that said specimen is relatively hard if said difference in said depths is relatively small, whereas said specimen is relatively less hard if said difference in said depths is relatively great, and

(h) determining electrode performance by directly relating said relative hardness to better electrode performance.

4,380,927
RIM MECHANISM FOR TIRE INSPECTION ARRANGEMENT

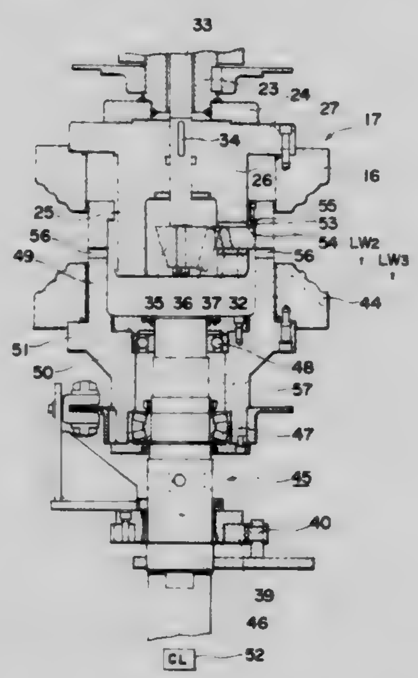
Ryoichi Oda, Himeji, and Munenori Iuchi, Shirakawa, both of Japan, assignors to Sumitomo Rubber Industries, Ltd., Hyogo, Japan

Filed Jul. 21, 1981, Ser. No. 285,504

Claims priority, application Japan, Jul. 22, 1980, 55-104011[U]

Int. Cl.³ G01M *17/02*

U.S. Cl. 73—146 **3 Claims**



1. In a tire inspection arrangement which includes a rim mechanism having an upper rim mechanism rotatably supporting an upper rim and a lower rim mechanism also rotatably supporting a lower rim for vertical movement with respect to said upper rim for inspecting a tire fitted between said upper and lower rims, the improvement of said rim mechanism which comprises stopper members movably provided in a reduced diameter portion of said upper rim so as to be selectively projected radially outwardly from and retracted radially inwardly into said reduced diameter portion, a central shaft axially extending through said upper rim and coupled thereto for vertical movement and simultaneous rotation in one unit with respect to said upper rim by driving means, cam means provided at the lower end portion of said central shaft for said selective projection and retraction of said stopper members from and into said reduced diameter portion in association with the vertical movement of said central shaft, a support shaft axially extending through said lower rim having a hollow cylindrical portion to be fitted into said reduced diameter portion of said upper rim, for vertically moving said lower rim with respect to said upper rim and also rotating said lower rim through a predetermined angle with respect to said upper rim by driving means, and lower engaging stepped portions to be stopped by said stopper members so as to set the lower rim at a position for defining a predetermined rim width with respect to said upper rim and upper engaging stepped portions to be stopped by said stopper members so as to set the lower rim at another position for defining a rim width slightly broader than said predetermined rim width with respect to said upper rim, said lower and upper engaging stepped portions being respectively provided on the hollow cylindrical portion of said lower rim in positions of displacement in the direction of rotation of said lower rim, said stopper members being displaced by the rotation of said support shaft for changing over of the engaging positions thereof between the lower engaging stepped portions and the upper engaging stepped portions.

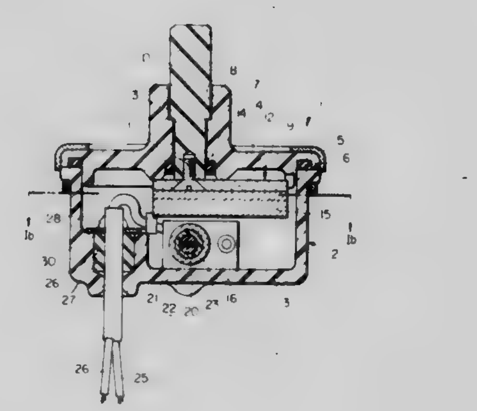
4,380,928
ROTATIONAL ANGLE SENSOR

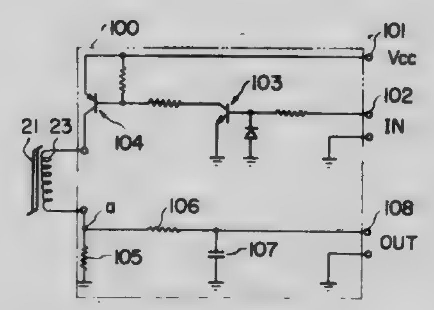
Shinichiro Iwasaki, Auburn Heights, Mich., assignor to Aisin Seiki Company, Limited, Kariya, Japan

Continuation of Ser. No. 182,703, Aug. 29, 1980, abandoned. This application Apr. 21, 1982, Ser. No. 370,188

Int. Cl.³ G01B *7/30*

U.S. Cl. 73—518 **11 Claims**





1. A rotational angle sensor device, comprising:

a casing;

a movable body rotatably supported by said casing, the position of said movable body being responsive to an angular displacement caused by an external object;

permanent magnet means rigidly secured to said movable body in said casing for providing a magnetic field;

core means disposed adjacent to a range of movement of said permanent magnet means, said core means including magnetically soft material;

electrical coil means including at least one coil wound about said core means;

means for detecting the rotational position of said movable body, comprising,

means for applying a pulse voltage to a first terminal of said coil to saturate magnetically said core means, and

means coupled to a second terminal of said coil for producing a rotational angle output signal indicative of the rotational position of said magnet means and therefore of said movable body based on the time between application of said pulse voltage and saturation of said core means.

4,380,929

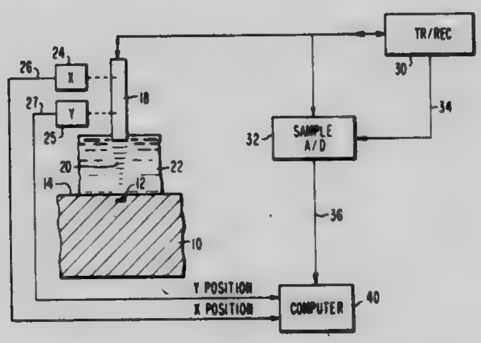
METHOD AND APPARATUS FOR ULTRASONIC DETECTION OF NEAR-SURFACE DISCONTINUITIES

Bruce J. Taszarek, Mt. Lebanon, and Warren R. Junker, Monroeville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 30, 1981, Ser. No. 279,504

Int. Cl.[3] G01N *29/04*

U.S. Cl. 73—579 9 Claims



1. A method of determining near-surface discontinuities in a workpiece comprising the steps of:

(A) positioning an ultransonic projector above an area of said workpiece;

(B) energizing said projector to project a pulse of acoustic energy toward said area;

(C) receiving acoustic energy reflected as a result of said projection;

(D) determining, from said received acoustic energy, the fundamental frequency of acoustic energy resonating in a section of workpiece material between a near-surface discontinuity and the surface of said workpiece;

(E) determining from said frequency the average thickness of said section, and therefore the average depth of said discontinuity.

4,380,930

SYSTEM FOR TRANSMITTING ULTRASONIC ENERGY THROUGH CORE SAMPLES

Julius Podhrasky, Dallas, and Eve S. Sprunt, Richardson, both of Tex., assignors to Mobil Oil Corporation, New York, N.Y.

Filed May 1, 1981, Ser. No. 259,773

Int. Cl.[3] G01N *29/00*

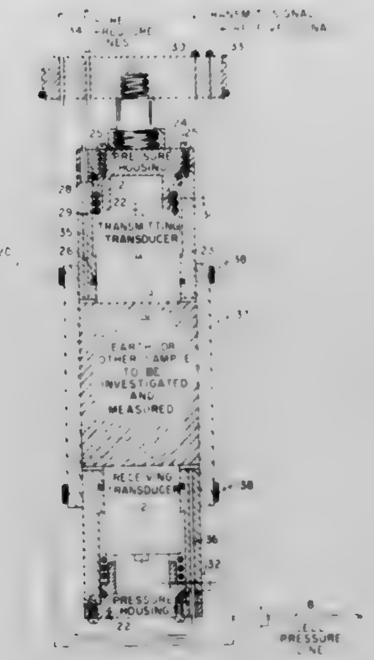
U.S. Cl. 73—594 8 Claims

1. A system for transmitting ultrasonic energy through a material sample comprising:

(a) ultrasonic energy transducing means in contact with said material sample for transmitting ultrasonic energy into said sample and for receiving the energy after it has traveled through said sample,

(b) a pressure cell for housing said sample under a confining pressure simulating subterranean pressure conditions, and

(c) means for isolating said ultrasonic energy transducing means from the confining pressure condition on said cell



such that said ultrasonic energy transducing means operates at ambient pressure conditions.

4,380,931

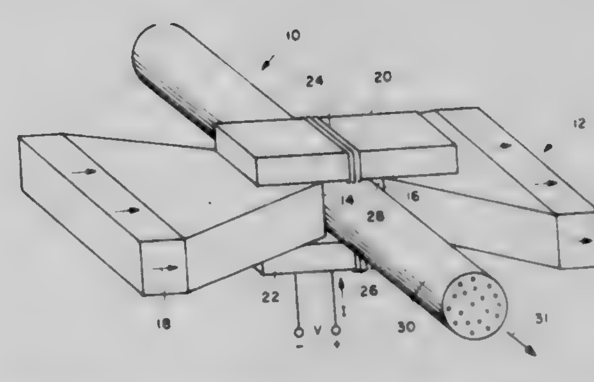
APPARATUS AND METHOD FOR QUANTITATIVE NONDESTRUCTIVE WIRE TESTING

Harold M. Frost; James H. Prout, and Robert W. Reed, all of State College, Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 23, 1981, Ser. No. 256,750

Int. Cl.[3] G01N *29/04*

U.S. Cl. 73—643 12 Claims



1. An apparatus for nondestructive testing (NDT) an electrically conductive and elongated test material having a longitudinal axis using noncontacting electromagnetic ultrasound transducers (EMT'S) which comprises:

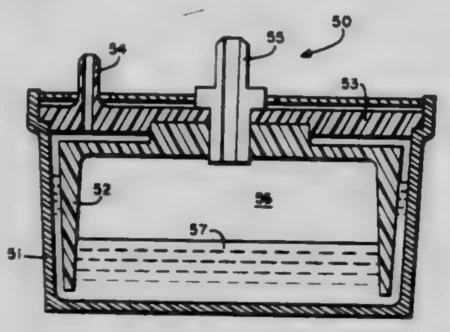
a magnet with pole pieces forming a gap and with the direction of magnetization thereof being generally perpendicular to the longitudinal axis of the test material;

at least one noncontacting electromagnetic ultrasound transducer (EMT) as a transmitter-transducer having the coil thereof adjustably positioned along the longitudinal axis of the test material to have electrical pulses passing therethrough in a direction parallel to the longitudinal axis of the test material and thus generating torsional ultrasound waves in the test material traveling along the longitudinal axis thereof; and

at least one more noncontacting electromagnetic ultrasound transducer (EMT) as a receiver-transducer having the coil thereof adjustably positioned colinear with said transmitter-transducer and receiving the torsional ultrasound

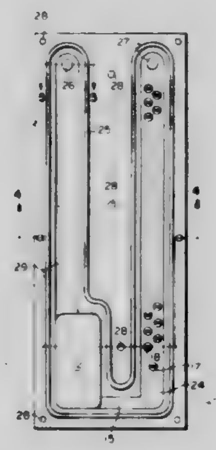
waves traveling along the longitudinal axis of the test material.

4,380,932
CAPACITANCE MANOMETER DIFFERENTIAL PRESSURE SENSOR
Richard C. Mott, Harwood Heights, and Thomas A. Stamm, Chicago, both of Ill., assignors to Honeywell Inc., Minneapolis, Minn.
Filed Mar. 2, 1981, Ser. No. 239,808
Int. Cl.³ G01L *9/12*
U.S. Cl. 73—749 7 Claims



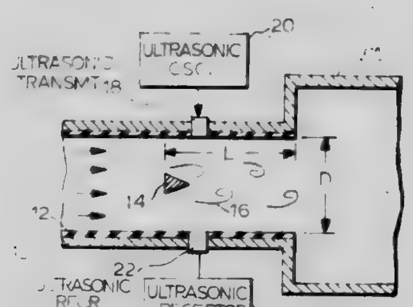
1. A transducer for providing an output signal having a value determined by an input pressure differential comprising:
capacitance manometer means having a first input for receiving a first input pressure and a second input for receiving a second input pressure, said capacitance manometer means having a capacitance determined by the difference between said first and second input pressures, said capacitance manometer means having an outer electrode and an inner electrode, and a reservoir of dielectric fluid, said inner electrode located within said outer electrode and said inner and outer electrodes and said dielectric fluid reservoir all being concentric with one another such that the differential pressure between the first and second input pressures determines the level of dielectric fluid between said inner and outer electrodes; and,
output means connected to said capacitance manometer means for providing an output signal having a value dependent upon said capacitance.

4,380,933
ELECTRICAL CONTROL MERCURY MONOMETER
William A. Irvin, 2384 Corbett St., Jacksonville, Fla. 32204
Division of Ser. No. 91,102, Nov. 5, 1979, Pat. No. 4,297,081. This application Aug. 3, 1981, Ser. No. 289,319
Int. Cl.³ G01L *9/00*
U.S. Cl. 73—749 7 Claims



1. A mercury manometer indicating a differential pressure and for providing a closed electrical circuit at preselected pressure readings comprising:
(a) a body formed from a block of electrically nonconductive material, said body having formed in its front surface
(i) a mercury well having a first channel communicating with a pressure input connection,
(ii) an essentially rectangular mercury column channel having an upper pressure outlet connection, said channel formed by a broad, flat rear face and a pair of narrow side walls,
(iii) a second channel communicating between said well and said mercury column channel,
(iv) a continuous O-ring groove bounding said mercury well, said first channel, said mercury column channel, and said second channel, and
(v) a plurality of conductive contacts embedded in a vertical array in said rear face of said mercury column channel forming said electrical control contacts, said contacts extending through said block to form rear external electrical connections;
(b) an O-ring gasket formed from resilient material and disposed in said O-ring groove;
(c) a transparent face plate attached to said front surface of said body block and adapted to compress said O-ring gasket to form a pressure tight seal between said face plate and said mercury well, said first channel, said mercury column channel, and said second channel thereby forming a mercury well for holding mercury and said vertical mercury column; and
(d) mercury disposed in said well and said column, whereby pressure applied to said pressure input connection causes said mercury column to rise and sequentially form electrical connections between said common contact and others of said plurality of electrical control contacts.

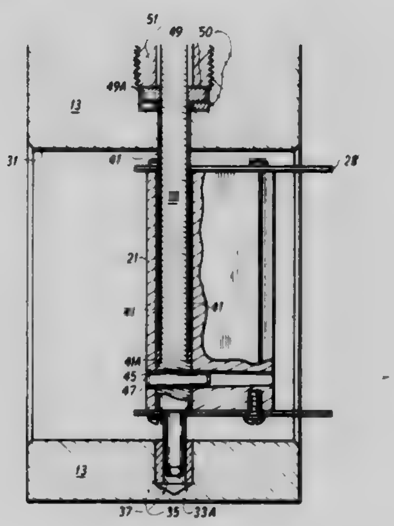
4,380,934
GASEOUS FLUID FLOW METER UTILIZING KARMAN VORTEX STREET
Kuniteru Okuda; Teruki Fukami, both of Tokyo; Yoshiaki Asayama, Himeji; Shunichi Wada, Himeji, and Masami Kabuto, Himeji, all of Japan, assignors to Oval Engineering Co., Ltd. and Mitsubishi Denki Kabushiki Kaisha, both of Tokyo, Japan
Continuation-in-part of Ser. No. 956,599, Oct. 30, 1978, abandoned. This application Dec. 22, 1980, Ser. No. 218,743
Claims priority, application Japan, Nov. 4, 1977, 52-148024; Jun. 12, 1978, 53-80067; Sep. 7, 1978, 53-123314; Sep. 20, 1978, 53-129325
Int. Cl.³ G01F *1/32*
U.S. Cl. 73—861.23 5 Claims



1. A gaseous fluid flow meter utilizing a Karman vortex street and comprising a conduit having opposed flat walls and through which a gaseous fluid to be measured flows, a vortex generating member disposed perpendicularly to the direction of flow of the fluid to generate the Karman vortex street downstream thereof, a vortex detector disposed on the conduit and having means in one flat wall for transmitting a continuous ultrasonic wave across the Karman vortex street and means in the other flat wall positioned opposite said ultrasonic wave transmitting means in a direction perpendicular to the direction of the flow of the gaseous fluid through said conduit for receiving the continuous ultrasonic wave to detect the changes in phase of the ultrasonic wave indicating the number of vortices of the Karman vortex street generated in a unit time, a sound absorbing material on only the portion of the inner surfaces of

the flat walls of said conduit around said transmitting means and around said receiving means and extending sufficiently far along said walls from said means for preventing the generation of standing waves in front of said walls due to the reflection of the said ultrasonic wave, and said conduit having a straight section extending downstream of said vortex detector and an expanded section connected to said straight section and having a larger inside diameter than said straight section, said straight section having a length no greater than twice the inside dimension of said conduit.

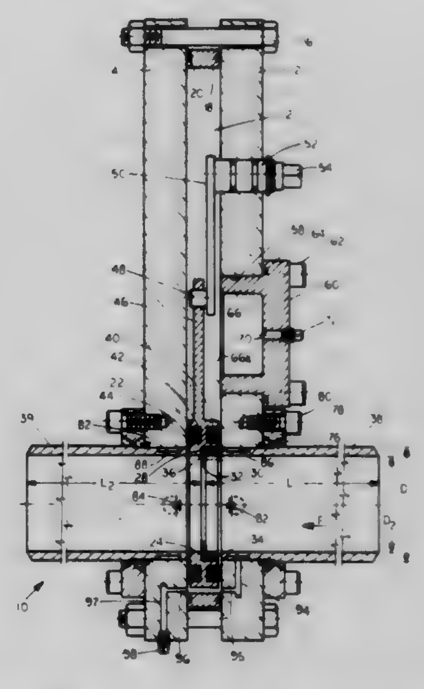
4,380,935
EXTERNAL SENSING VORTEX FLOWMETER
George E. Sgourakes, Millis, Mass., and Paul J. Lefebvre, Little Compton, R.I., assignors to The Foxboro Company, Foxboro, Mass.
Filed Feb. 20, 1981, Ser. No. 236,416
Int. Cl.³ G01F *1/32*
U.S. Cl. 73—861.24 **18 Claims**



1. Apparatus for measuring the flow rate of a fluid stream, comprising in combination:
a conduit for carrying said fluid stream;
an elongate vortex-shedding body in said conduit and positioned with its longitudinal axis transverse to the direction of fluid flow to shed vortices alternately from opposite sides thereof, to apply an alternating torque to said body about said longitudinal axis;
support shaft means secured to said body and aligned with said longitudinal axis, said support shaft means being rotatably mounted to said conduit for rotation about said axis, and having one end extending out through an opening in said conduit, beyond the wall thereof;
a relatively thin flexible tube surrounding a portion of said support shaft means adjacent said one end and coaxial therewith, the outer end of said tube being sealingly secured to the wall of said conduit, and the inner end of said tube being sealingly secured to said support shaft means, to prevent fluid leakage through said opening; and
sensing means external to said conduit and coupled to said support shaft means, for developing a signal representative of the flow rate of said fluid stream.

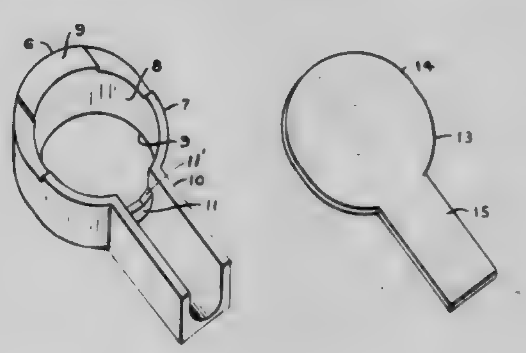
4,380,936
TUBE MOUNTING FOR ORIFICE METER
Davis A. Van Scoy, Simonton, Tex., assignor to Grove Valve and Regulator Company, Oakland, Calif.
Filed Jun. 8, 1981, Ser. No. 271,638
Int. Cl.³ G01F *1/42*
U.S. Cl. 73—861.62 **5 Claims**

1. An orifice meter comprising:
a housing with a pair of opposing body plates having aligned circular openings therethrough; and
an orifice plate positioned in said housing in alignment with said openings;
characterized in that it includes:
an upstream flow tube of standard pipeline outer diameter and a selected inner diameter;
a mounting plate welded around said upstream flow tube closely spaced from one end thereof;
bolt means securing said mounting plate to one of said body plates with said one end of said flow tube extending into the circular openings therein;



means for sealing between said upstream flow tube and said one body plate;
means forming a tap port through said upstream flow tube at a predetermined distance from said orifice plate;
pressure tap ducts bored laterally through said one body plate; and
an enlarged recess in the outer wall of said flow tube including said tap port to ensure communication with said pressure tap duct.

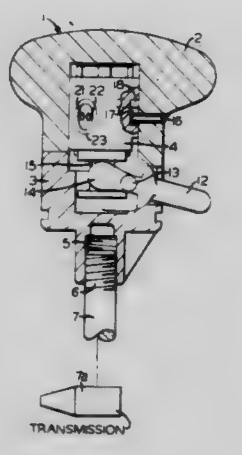
4,380,937
SAMPLER FOR A HOT LIQUID
William J. Collins, 7005 Madison St., Merrillville, Ind. 46410
Filed Apr. 13, 1981, Ser. No. 253,543
Int. Cl.³ G01N *1/12*
U.S. Cl. 73—864.56 **38 Claims**



1. A section of a device for obtaining a sample of hot liquid from a supply thereof, said section comprising a relatively thick ring shaped wall structure having a pair of outer substantially planar bearing surfaces and providing a relatively large opening defined by internal surfaces which intersect said bearing surfaces, at least one of said bearing surfaces serving to be engaged by a substantially planar surface of a complementary section whereby the latter in combination with said opening defines a chamber for receiving a sample of such a liquid, said wall structure being provided with an entrance through which the sample enters such a chamber, and said wall structure also being provided with an integral formation extending outwardly from said entrance for accommodating an inner ex-

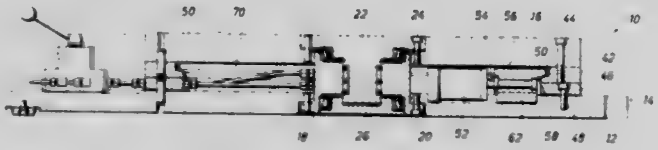
tremity of a tubular means for receiving a sample for flow into such a chamber.

4,380,938
COMBINATION TRANSMISSION GEAR SELECTOR VALVE FOR AUTOMOTIVE VEHICLES
Paul E. Olson, Lexington, Ky., assignor to American Standard Inc., Lexington, Ky.
Filed Mar. 12, 1981, Ser. No. 243,156
Int. Cl.³ G05G *9/00*
U.S. Cl. 74—473 R **6 Claims**



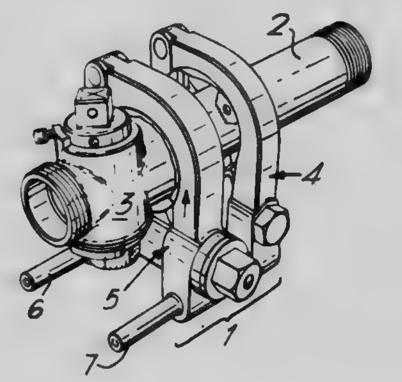
1. A transmission gear selector valve device for automotive vehicle transmissions having a gear shift lever having a free end by which the lever may be manually operated to a plurality of positions for selecting one of a plurality of forward speed ratios or reverse speed ratios of the transmission of said gear selector valve device comprising:
(a) a housing including an upper portion and a base portion secured together to form a single housing unit removably carried on said free end to act as a knob for the gear shift lever;
(b) a valve means reciprocably operable in said housing between a low range position, to adjust the transmission to a low gear ratio disposition, and a high range position, to adjust the transmission to a high gear ratio disposition; and
(c) a manually operable lever connected to said valve element for effecting selective operation thereof to either its said low range or high range positions.

4,380,939
ROTARY INDEXING TABLE
Richard E. Gardner, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.
Filed Jul. 1, 1980, Ser. No. 165,101
Int. Cl.³ B23Q *17/00*
U.S. Cl. 74—813 L **4 Claims**



1. A rotary indexing table comprising
a base plate,
a top plate,
bearing means for rotatably mounting said top plate from said base plate,
hydraulically actuated clamping means for preventing rotation of said top plate, and
means for locating preselected positions of said top plate,
said clamping means including,
a plurality of actuators,
a wedge block connected to and moved by each of said actuators, and
a tapered surface rotating with said top plate,
said wedge blocks engaging said tapered surface upon actuation of said actuators to clamp said top plate against rotation.

4,380,940
NO TORQUE TOOL
Ronald E. Morgan, Biggleswade, and Thomas Pearce, Beckenham, both of England, assignors to British Gas Corporation, London, England
Filed Apr. 3, 1981, Ser. No. 250,770
Claims priority, application United Kingdom, Nov. 11, 1980, 8036117
Int. Cl.³ B25B *17/00*
U.S. Cl. 81—57.16 **5 Claims**



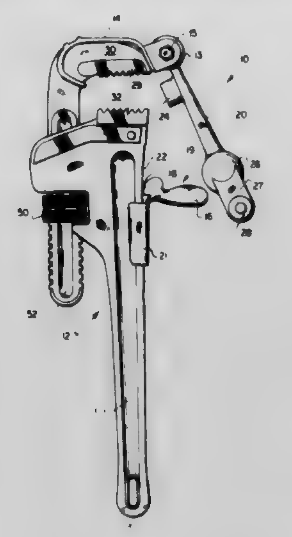
1. A device for coupling a first component to a second component by means of a screw thread or decoupling a first such component from a second such component, said device comprising restraining means, first demountable clamping means, rigidly attached to said restraining means, for clamping said first component, and second demountable clamping means rigidly attached to said restraining means, said second demountable clamping means comprising retaining means and gripping means for gripping said second component comprising a split gripping member mounted within said restraining means and rotatable with respect to said retaining means, said gripping member including a toothed portion located on the outer periphery thereof and said gripping means further comprising a worm for, when rotated, driving said toothed portion of the gripping member so as to apply a torque to said second component.

4,380,941
DETACHABLE JAW-LOCKING DEVICE FOR AN ADJUSTABLE PIPE WRENCH
Hyrum D. Petersen, 438 E. Barnard, Centerville, Utah 84014
Filed Oct. 27, 1980, Ser. No. 200,964
Int. Cl.³ B25B *13/58*
U.S. Cl. 81—180 R **2 Claims**

1. A device adapted for attachment to an adjustable wrench for enclosing the open end thereof, comprising:
an extendable locking member having an attachment end and an enlarged locking end and being adapted with means to permit releasable fixation of said extendable locking member at different positions on said adjustable wrench in a closed position across the open end of said adjustable wrench;
means for attaching said attachment end to said adjustable wrench;
means for securing said locking end to said adjustable wrench and permitting subsequent detachment of said locking end therefrom, said securing means comprising a U-shaped catch having a slot narrower than the enlarged locking end, said catch being adapted for slideable fixation at various positions along said adjustable wrench, said catch being capable of receiving said enlarged locking end in seated configuration with the extendable locking mem-

ber in a closed position with respect to the jaws of the adjustable wrench; and

said respective attaching and securing means being adapted



for attachment to the wrench on opposing sides of its open end so as to allow extension and locking of said extendable locking member across the open end, despite changes in jaw opening size.

4,380,942

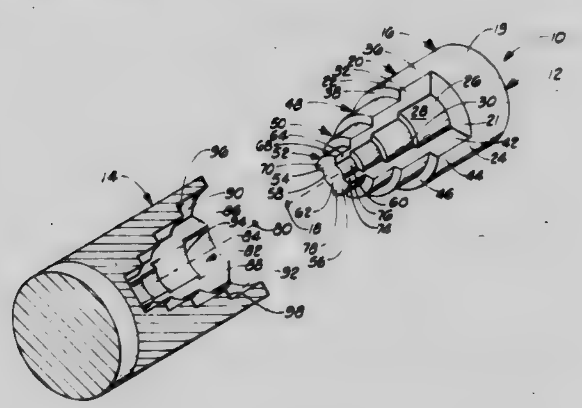
TORQUE-TRANSMITTING TOOL ASSEMBLY

John W. Fenton, 1258 Aalapapa Dr., Kailua, Hi. 96734

Filed Jun. 25, 1981, Ser. No. 277,068

Int. Cl.³ B25B *15/00*

U.S. Cl. 81—436 10 Claims



9. A drive assembly for transmission of an externally applied torque, comprising:

a tool member, comprising:

a shank element longitudinally rotatable about a tool axis, for receiving an externally applied torque;

a plurality of tier elements having invariant cross-section along the tool axis, each tier element comprising:

a first torque section comprising:

first and second side surfaces extending radially with respect to the tool axis and spaced therefrom, the first and second side surfaces coplanar with the first and second side surfaces of the first torque section of each other tier element;

a riser surface; and

a step surface; and

a second torque section comprising:

first and second side surfaces extending radially with respect to the tool axis and spaced therefrom, the first and second side surfaces coplanar with the first and second side surfaces of the second torque section of each other tier element;

a riser surface; and

a step surface;

wherein each tier element supports the adjacent tier element more distant from the shank element, and wherein the riser surface of each tier element is nearer to the tool axis than the riser surface of the adjacent tier element nearer the shank element; and

a driven member, rotatable about a member axis and having a plurality of member walls defining a recess, the tool member receivable therein, the recess characterized as having member walls drivingly engagable with each of the first and second side surfaces of the first and second torque sections of a selected tier element.

4,380,943

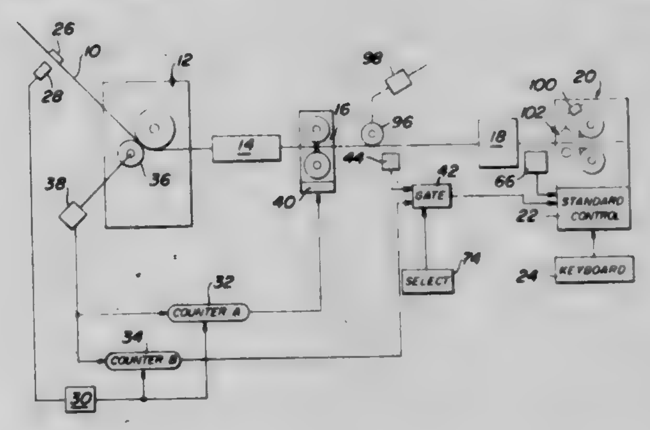
AUTOMATED CUT-TO-MARK CONTROL FOR CUT-OFF MACHINE

Donald J. Evans, Cherry Hill, N.J., assignor to Molins Machine Company, Inc., Cherry Hill, N.J.

Filed May 20, 1981, Ser. No. 265,509

Int. Cl.³ B26D *5/34, 5/36;* **G05B** *19/29*

U.S. Cl. 83—38 11 Claims



1. A method of automatically controlling a cut-off machine having knives operable in a cut-to-mark mode wherein the knives cut a moving web divisible into a leader having a first set of registration marks and a trailer having a second set of registration marks, there being a transition between the first and second sets of marks, comprising:

(a) applying a target to the trailer adjacent a preselected registration mark of the second set;

(b) tracking the target electronically to a shear upstream of the cut-off machine;

(c) automatically severing the web transversely at the shear into a leader and trailer when the target is tracked to the shear;

(d) tracking the target electronically from said shear to a position intermediate the shear and said cut-off machine;

(e) causing the kinves to cut the trailer automatically at the preselected registration mark of the second set; and

(f) causing the knives to cut the trailer automatically in the cut-to-mark mode at the registration marks of the second set which follow said preselected registration mark.

4,380,944

METHOD FOR CUTTING SHEET MATERIAL WITH VARIABLE GAIN CLOSED LOOP

H. Joseph Gerber, and Leonard G. Rich, both of West Hartford, Conn., assignors to Gerber Garment Technology, Inc., South Windsor, Conn.

Division of Ser. No. 73,871, Sep. 10, 1979, Pat. No. 4,331,051. This application Jan. 29, 1981, Ser. No. 229,760

Int. Cl.³ D06H *7/00;* **B26D** *1/10*

U.S. Cl. 83—49 8 Claims

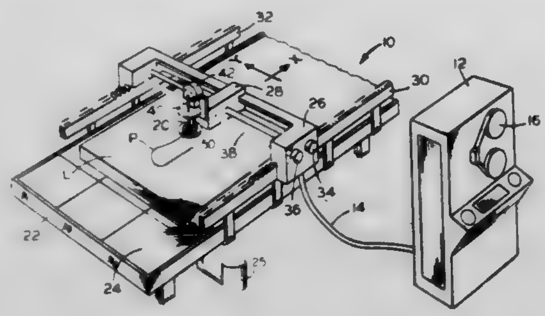
1. A method of cutting limp sheet material with a cutting blade comprising:

advancing the cutting blade and sheet material relative to one another in cutting engagement and generally tangent to a desired cutting path;

sensing lateral loads applied to the blade by the sheet material as the blade is advanced;

orienting the blade slightly out of a position tangent to the cutting path as the blade is advanced to oppose the lateral loads applied to the blade; and

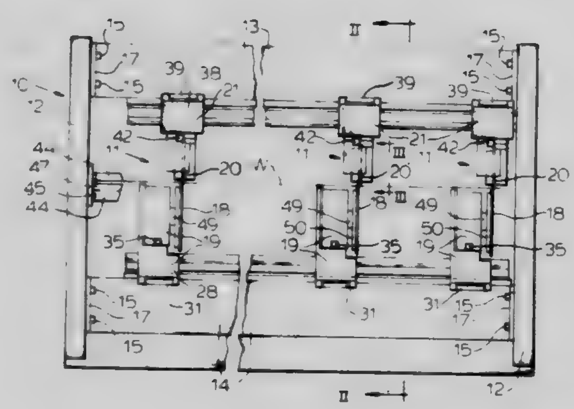
regulating the amount by which the blade is oriented out of the tangent position in accordance with the sensed lateral



load on the blade and an adjustable gain factor influencing the effect of lateral load on blade orientation; and

adjusting the gain factor as the blade advances in accordance with the rate at which the blade and material are advanced relative to one another.

4,380,945
PREADJUSTABLE WEB SLITTER AND NON-DEFLECTING MOUNTING THEREFOR
Gerald A. Guild, Dalton, and Kenneth G. Frye, South Egremont, both of Mass., assignors to Beloit Corporation, Beloit, Wis.
Filed Jan. 26, 1981, Ser. No. 228,261
Int. Cl.³ B23D *19/06*
U.S. Cl. 83—482 23 Claims



1. In a slitter comprising a lower blade carried rotatably by a lower blade head and an upper blade carried rotatably by an upper blade head, said blades being cooperative to slit a running web:

a supporting frame having generally vertically spaced lower and upper rigid parallel beams located, respectively, to underlie and overlie the web transversely in substantially spaced relation to the web, and each of said beams having a respective face which is directed toward the web; said lower beam having means on its said face for supporting said lower blade head under the web for selective adjustment longitudinally along the beam and transversely relative to said web;

said upper beam having means on its said face for supporting said upper blade head for selective adjustment longitudinally along said upper beam and transversely relative to the web;

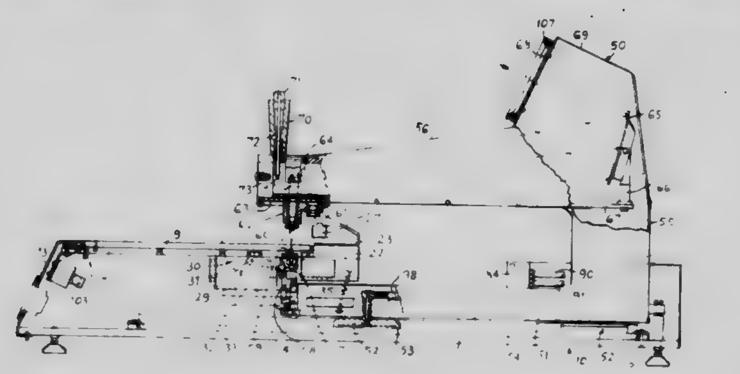
at least one of said beams having a bed plate fixed to its said face and extending therealong for a distance substantially as long as the width of said web, and having a lip along its length projecting horizontally from one side of said one beam;

a rail fixed on said bed plate and projecting toward the web and extending throughout substantially the length of said bed plate;

the blade head supported by said one beam having means thereon engaging said rail for longitudinal adjustment movement along the rail; and

said one beam blade head having a surface thereon engaging one side of said lip, a clamping element engaging the opposite side of said lip, and means for releasably drawing said clamping element and said one beam head toward one another and thereby effecting a clamping engagement of said lip between said head surface and said clamping element for maintaining said one beam blade head in selected adjusted position along said rail and said one beam and relative to the other of said blade heads.

4,380,946
FILM PUNCH REGISTRATION
Donald Mayston, St. Albans, England, assignor to Protocol Engineering Limited, St. Albans, England
Filed Aug. 18, 1980, Ser. No. 178,736
Claims priority, application United Kingdom, Aug. 24, 1979, 7929647; Jul. 4, 1980, 8021991
Int. Cl.³ B26D *7/01*
U.S. Cl. 83—521 14 Claims



1. Apparatus for punching a plurality of exposed films to obtain punch registration, said apparatus comprising a platform for supporting the films to be registered and punched, a plurality of punches for punching the films, two projection screens, optical means for magnifying two images of respective areas of film, means for projecting the two magnified images onto the two screens respectively, the screens, the optical means and the projection means for the two images respectively being carried by two projection units each of which is independently movable with respect to the platform, means for producing a cushion of air under each projection unit on which the latter can be moved and means for connecting each projection unit alternately to a source of air pressure to produce the cushion of air and a source of vacuum to hold the projection unit in an in-register position.

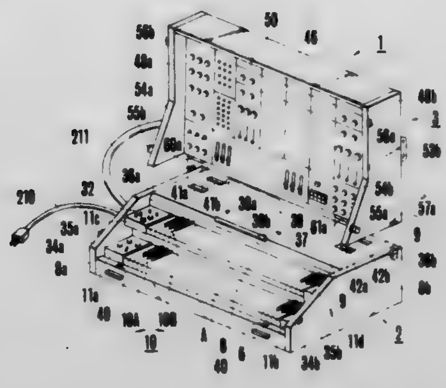
4,380,947
PORTABLE ELECTRONIC MUSICAL INSTRUMENT HAVING SEPARABLE CONTROLLING PANEL AND KEYBOARD
Tetsuo Nishimoto, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 10, 1981, Ser. No. 272,334
Claims priority, application Japan, Jun. 20, 1980, 55-87357[U]; Jul. 2, 1980, 55-93269[U]; Jul. 11, 1980, 55-97631[U]; Jul. 12, 1980, 55-98555[U]
Int. Cl.³ G10C *3/02*
U.S. Cl. 84—176 13 Claims

1. A portable electronic musical instrument divided into two half units which jointly constitutes said instrument, comprising:

a first unit provided with a keyboard including a plurality of keys; and

a second unit detachable from said first unit and provided with a controlling panel for setting parameters of a tone to be produced and side walls on both sides of said controlling panel;

said first and second units having such contours that when they are combined for portage they form a box like structure;



said first unit comprising a front wall and two side walls, the upper edge of each side wall decreasing its height toward said front wall so as not to interfere with a hand of a performer playing said musical instrument.

4,380,948

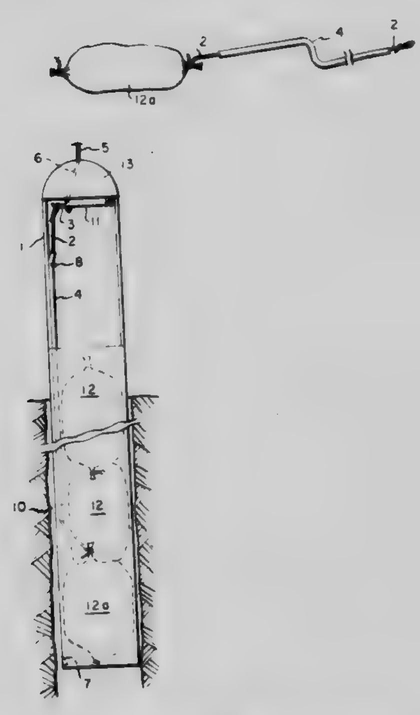
LOADING OF WELLBORES WITH EXPLOSIVES

Frank A. Loving, Jr., Hagerstown, Md., and Walter J. Simmons, Martinsburg, W. Va., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 272,079, Jun. 10, 1981, abandoned. This application Aug. 5, 1981, Ser. No. 290,329

Int. Cl.³ C06D *1/08;* F42B *3/00*

U.S. Cl. 86—20 C **9 Claims**



1. A method of loading bags of explosive into a wellbore comprising:
(a) suspending in the wellbore a rigid bag-positioning tube having its open bottom end within the wellbore and its top end outside the wellbore, said top end being adapted to receive a tube-suspending cable having one of its ends attached inside said positioning tube and the other to an external tube-supporting fixture;
(b) threading a length of cord through a length of plastic tubing, one exposed end of said length of cord being provided with a loop and the other attached to a bag of explosive;
(c) introducing said bag of explosive into said positioning tube through an access port therein above the top of the wellbore, lowering said bag to the bottom of said tube, and attaching the loop on the end of said length of cord to a cord-securing/releasing means affixed to an inside surface of said positioning tube adjacent its top end, said cord-securing/releasing means acting in cooperation with said cable to secure said cord when said cable is placed under tension by the weight of the suspended tube, and to release said cord when the tension on said cable is relaxed, said tubing being releasably secured longitudinally to the inside wall of said positioning tube;
(d) dropping additional bags of explosive into said positioning tube;
(e) lowering the bag-laden tube to the bottom of the wellbore by paying out the tube-suspending cable, whereby relaxation of tension on the cable causes said cord to be released from said tube; and
(f) applying tension to the cable and thereby raising said positioning tube to the top of the wellbore whereby the released bag-supporting cord and the bags of explosive remain in the wellbore.

7. Apparatus for loading bags of explosive into a wellbore comprising:
(a) a rigid tube for positioning the bags in the wellbore, said tube having an open bag-releasing end and an opposite bag-receiving end adapted to receive a tube-suspending cable having one of its ends attached inside said tube and the other to an external tube-supporting fixture for suspending said tube in a wellbore, a portion of the wall of said tube near said bag-receiving end being removed to provide an access port for the introduction of bags of explosive;
(b) a bag-supporting cord threaded through a length of tubing and having one exposed end provided with a loop and the other exposed end adapted to be attached to a bag of explosive, said tubing being releasably secured longitudinally to the inside wall of said positioning tube; and
(c) a cord-securing/releasing means affixed to an inside surface of said positioning tube adjacent its bag-receiving end, said cord-securing/releasing means acting in cooperation with said cable to secure the looped end of said cord when said cable is placed under tension, and to release said cord when the tension on said cable is relaxed.

4,380,949

BRAIDED STRANDED ROPE FORMING MACHINE

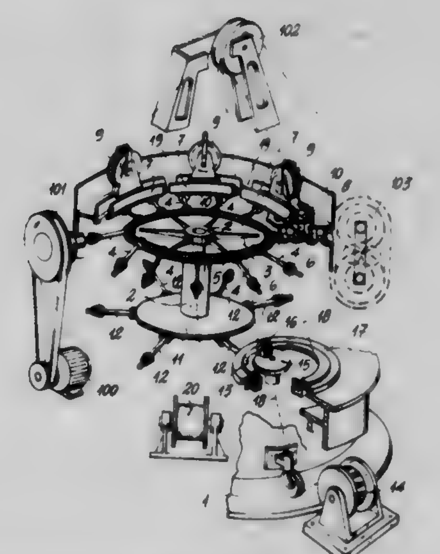
Walter Betta, Bergamo, Italy, assignor to Wabing S.r.l., Bergamo, Italy

Filed Oct. 14, 1980, Ser. No. 196,492

Claims priority, application Italy, Oct. 26, 1979, 2934 A/79

Int. Cl.³ D04C *3/40, 3/42*

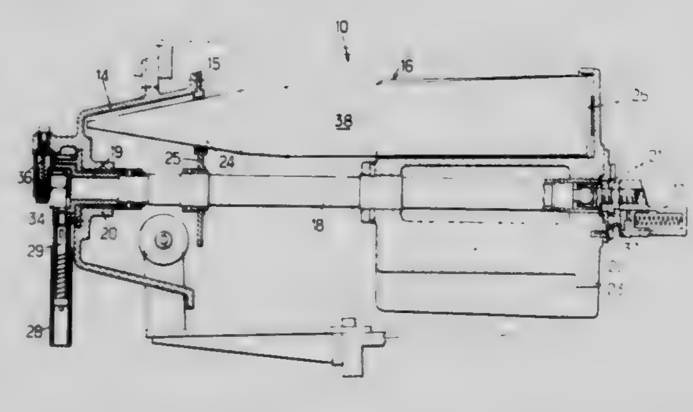
U.S. Cl. 87—48 **5 Claims**



1. A rotary braider comprising:
a stationary frame;
a circular guideway fixed to said frame;
a series of carriages movably mounted on said guideway, each of said carriages carrying a bobbin;
drive means for driving said series of carriages in a circular path defined by said guideway;

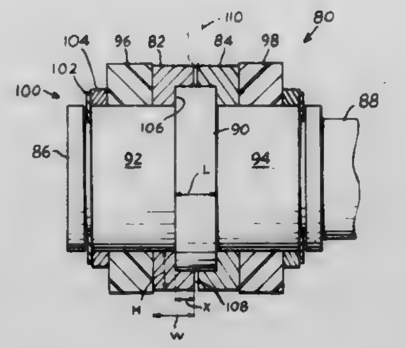
a plurality of spools disposed at fixed locations with respect to said frame;
a guide for collecting threads exiting said bobbins and said spools;
a plurality of thread guide devices for reciprocating the thread from said spools inside and outside said circular path and between adjacent ones of said carriages moving in said circular path, said thread guide devices each including a rotating element;
a central rotating member;
a gear ring affixed to said central rotating member;
a plurality of shafts operatively coupled to said gear ring, said shafts being disposed radially with respect to the axis of the central rotating member;
gears disposed at the ends of said shafts distal from said central rotating member; and
gear means affixed to each of said carriages for engaging at least two of the gears at the distal ends of said shafts at any given time.

4,380,950
LOADING APPARATUS FOR A MEDIUM CALIBER WEAPON
Lucien H. Renoux, Le Havre-Graville, France, assignor to Hispano-Suiza, Saint-Cloud, France
Filed Jun. 9, 1980, Ser. No. 157,304
Claims priority, application France, Jun. 15, 1979, 79 15878
Int. Cl.³ F41F *9/06*
U.S. Cl. 89—33 BA **7 Claims**



1. In a turret assembly comprising a turret and a manually loaded medium caliber weapon supported by the turret and having a cartridge chamber into which each round of ammunition is manually inserted by forward movement of the round into the chamber, a loading apparatus comprising:
a stationary casing fixed to said turret behind said cartridge chamber and having an ammunition outlet aperture located rearwardly of said cartridge chamber at a distance thereof slightly in excess of the length of an individual said round, and offset to the side of the centerline of the chamber to provide a spacing rearwardly of the cartridge which is unobstructed to permit manual transport of a round of ammunition from the outlet aperture of the casing and also manual loading of a round of ammunition from a location other than the loading apparatus,
a barrel mounted in said casing for rotation about a substantially horizontal axis offset laterally relative to the cartridge chamber centerline, formed with a plurality of ammunition receiving locations distributed at equal angular intervals about said axis, said casing and barrel having cooperating means for individually retaining each said round at a receiving location when not in a registry with said ammunition outlet aperture,
manually actuatable means for rotating said barrel by angular steps selected to bring each location in turn into registry with said aperture, whereby the round of ammunition in the registering location may be manually withdrawn forwardly through said aperture and slightly laterally into the cartridge chamber.

4,380,951
MUD PUMP PISTON ASSEMBLY
Clifford C. Bottoms, Rte. 2, McKinney, Tex. 75069
Continuation-in-part of Ser. No. 126,339, Mar. 3, 1980, Pat. No. 4,317,409. This application May 18, 1981, Ser. No. 264,449
Int. Cl.³ F16J *9/00*
U.S. Cl. 92—244 **2 Claims**



1. A mud pump assembly comprising:
a piston rod having an end portion with a pair of cylindrical member-mounting surfaces and a projecting cylindrical flange between them;
a pair of wear rings mounted at opposite sides of said flange;
a pair of piston members mounted on said member-mounting surfaces on either side of said wear rings; and
retainer means mounted on said piston rod for retaining said piston members;
each of said wear rings having a cross-section substantially in the form of a rectangle with a rectangular cut-out in one corner that closely receives one end of said flange, the sum of the axial lengths of said cut-outs being slightly less than the axial length of said flange so that the ends of the wear rings are slightly separated, said cylindrical member-mounting surfaces extending to said cylindrical flange and forming 90° angles at their intersection with said flange, and the radially innermost surfaces of said wear ring substantially resting on one of said cylindrical member-mounting surfaces, to allow the wear rings to slide axially along said cylindrical surfaces during removal;
said wear rings formed of material at least about as stiff as steel, and the width of each wear ring minus the width of the cut-out, being more than one-fourth the height of the cut-out therein, whereby to avoid substantial bending of the wear rings when they are separated by forcing their slightly separated ends apart.

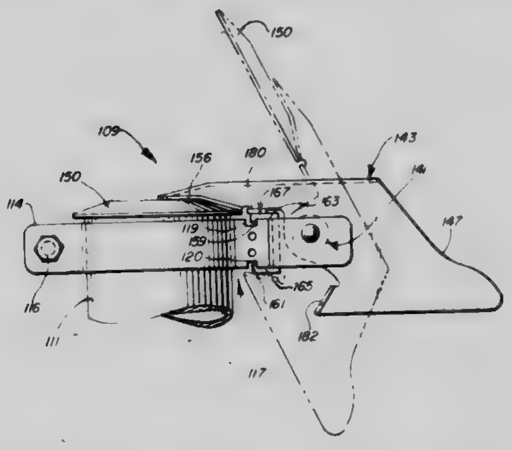
4,380,952
COVER ASSEMBLY FOR VERTICAL EXHAUST PIPES
W. Richard Jones, North Barrington, and Earl Conrad, Lake in the Hills, both of Ill., assignors to Mercury Metal Products, Schaumburg, Ill.
Filed Jan. 28, 1981, Ser. No. 229,189
Int. Cl.³ F23L *17/02*
U.S. Cl. 98—59 **6 Claims**

1. A gravity actuated protective cover device adapted to be secured upon an upstanding exhaust stack of an internal combustion engine to prevent entry of extraneous matter therein during the inoperative condition of the engine and comprising:
A. a support member adapted to be secured to the exhaust stack and having a pivot structure mounted thereon, the support member having a clamping formation to straddle and be clamped to the exhaust stack which includes adjustable fastening means, said support member being formed of a pair of metal straps of generally mirror construction connected face to face, the pivot structure and fastening means being generally aligned horizontally when the support member is installed on a stack,
B. a balance arm mounted on said pivot structure for rocking movement about said pivot structure in a vertical plane, the balance arm having a cover member connected to the

front end thereof and a counter-weight vane, the vane and cover member being on respective opposite sides of the pivot structure, the balance arm being adapted for said rocking movement between two positions, one of which is with the cover member disposed over the end of the exhaust stack but without touching the same, the other position being with the cover member substantially rotated away from the stack,

C. the balance arm being heavier on the cover member side of the pivot than on the vane of the pivot so that the normal condition of the balance arm is with the cover member in the first of said positions when the engine is not operating,

D. said straps having ear portions thereof spaced apart to provide a bifurcated portion in which the pivot structure



is mounted with said balance arm straddled by said ear portions, and wherein said pivot structure comprises

(1) a pair of aligned annular flanges with axial passageways therethrough laterally formed on said balance arm, and

(2) a pair of generally cylindrical plastic sleeve bearings pivotally mounted in axial alignment on a pivot shaft member passing through said ear portions so that each of said bearings is fitted within a respective one of said passageways to seat said respective annular flange thereon, wherein at least one of said sleeve bearings comprises a generally cylindrical body having an annular collar flange formed on one end of said body and positioned so that said collar flange engages a respective one of said ear portions in order to limit axial movement of said sleeve bearing on said pivot shaft.

4,380,953

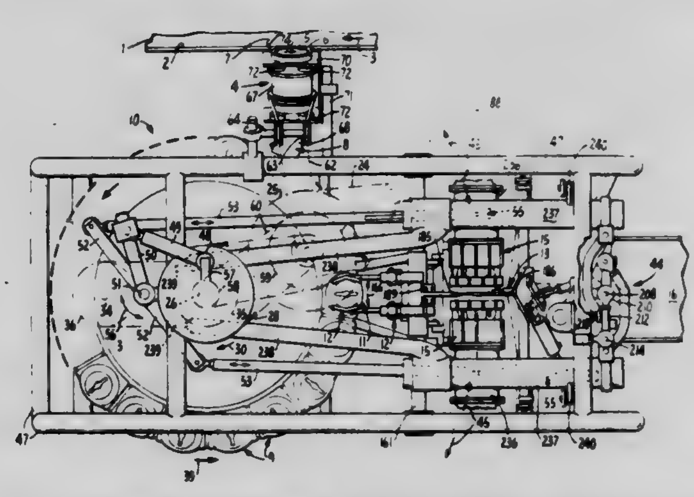
TRANSFER MECHANISM IN A PEACH PITTER

David M. Anderson, Lafayette, Calif., and John C. Erb, Carson City, Nev., assignors to Filper Corporation, Reno, Nev.

Continuation-in-part of Ser. No. 940,917, Sep. 11, 1978, Pat. No. 4,254,701. This application Feb. 2, 1981, Ser. No. 230,240

Int. Cl.[3] A23N *4/04, 4/22*

U.S. Cl. 99—549 **8 Claims**



1. In a transfer mechanism which transfers a peach from an aligner to peach bisecting blades having pit gripping means thereon adjacent to the pitting axis at a pitting station spaced from the aligner while maintaining the suture plane of such peach in the central plane of said blades, the improvement comprising:

(a) A pair of opposed, spaced claws each supported on one side of said central plane and being formed with oppositely inwardly facing peach-engaging surfaces diverging oppositely outwardly from and surrounding a central depression intersecting said pitting axis when said claws are at said pitting station for centering a peach carried by said claws about said pitting axis;

(b) Supporting means supporting said claws for movement toward and away from each other;

(c) Connecting means connecting said claws for movement together from said aligner to said pitting station and for removing said claws toward and away from each other;

(d) Drive means for moving said claws through a cycle of operation toward and away from said aligner and said pitting station and yieldably urging said connecting means to bias said claws toward each other during movement toward said pitting station for transferring the peach thereto and away from each other during movement toward said aligner for releasing said peach.

4,380,954

METHOD AND APPARATUS FOR CONTROLLING THE PRESSURE EXERTED ON A MATERIAL WEB IN THE ROLLER NIP OF A ROLLING MILL

Eugen Edele, Reutlingen, Fed. Rep. of Germany, assignor to Kleinewefers GmbH, Krefeld, Fed. Rep. of Germany

Filed Feb. 5, 1981, Ser. No. 231,944

Claims priority, application Fed. Rep. of Germany, Feb. 28, 1980, 3007452

Int. Cl.[3] B30B *13/00, 3/04*

U.S. Cl. 100—35 **12 Claims**

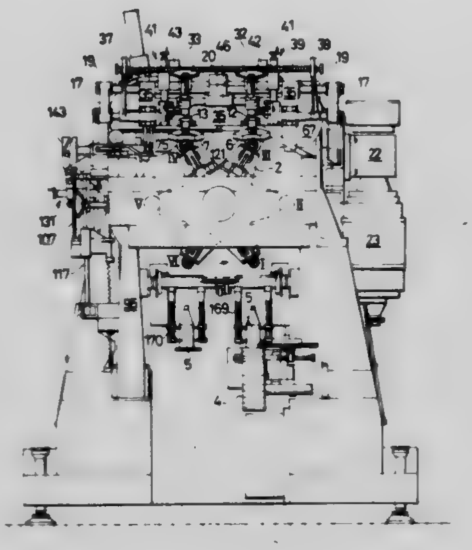
1. A method for controlling the pressure exerted on a material web in the nip between two cooperating rollers of a rolling mill having a roller loading device, particularly a calender having a plurality of vertically stacked rollers, the lowermost of which is supported on at least one working cylinder which can be rapidly bled, comprising the steps of:

a. measuring the support force supplied by said working cylinder;

b. determining the actual value of the pressure exerted in the nip on the web, while taking into consideration the weight of said roller supported by said working cylinder; and

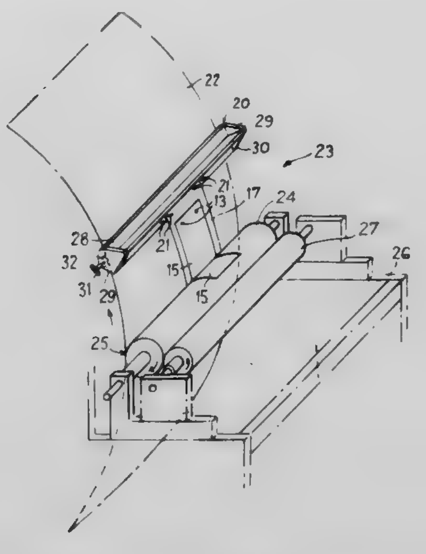
c. eliminating the deviation between said actual value and a desired set point value by changing the force produced by the loading device.

4,380,955
ROTARY TYPE TAPERED PART TRICHROMATIC PRINTER
Tsunehiko Okura, 3692, Oaza Koori, Konan-shi, Aichi-ken, Japan
Filed Mar. 25, 1981, Ser. No. 247,315
Claims priority, application Japan, Dec. 26, 1980, 55-183933
Int. Cl.³ B41F *17/28*
U.S. Cl. 101—38 A **2 Claims**



1. A rotary type tapered part trichromatic printer apparatus, comprising:
- (a) a pair of rotary tables having a predetermined distance therebetween and being operatively arranged for synchronous intermittent rotation about a substantially horizontal core;
- (b) clamping means circumferentially and operatively arranged in relation to the horizontal axial core for clamping materials for printing;
- (c) first and second screen printers respectively located to define first and second printing stop stations within substantially the same horizontal plane above said horizontal axial core of said rotary tables;
- (d) a third screen printer located to define a third printing stop station for printing materials in substantially the same horizontal plane as said horizontal axial core, said third screen printer including a screen and a squeegee;
- (e) a pivotal member secured to a machine frame of the apparatus, said pivotal member carrying the screen and the squeegee and being pivotable to move the screen and the squeegee in a front to back direction, a left to right direction, a vertical direction and along the direction of a tapered part of said materials to be printed;
- (f) a screen carriage support frame operatively connected to the pivotal member with connecting rod means and being movable to pivot said pivotal member in a direction causing the screen to move into and out of a printing position;
- (g) a linkage mechanism operatively connected to the pivotal member for moving the squeegee of the third screen printer relative to the pivotal member in cooperating with first and second squeegees respectively located within the first and second screen members; and
- (h) a transverse movable member operatively connected to pivot the third screen in cooperation with the pivotal member, causing synchronous rotation of the first and second screens.

4,380,956
MOUNTING OF FLEXIBLE PRINTING PLATES
Graham J. Elworthy, Leighton Buzzard, England, assignor to Protocol Engineering Limited, Hertfordshire, England
Filed Sep. 8, 1981, Ser. No. 300,359
Claims priority, application United Kingdom, Sep. 9, 1980, 8029111
Int. Cl.³ B41C *1/02*; B41F *27/00*
U.S. Cl. 101—401.1 **16 Claims**



1. A method of mounting flexible printing plates in at least one of a rotary printing press and mounter-proofer, said method comprising the steps of:
- (a) producing a set of exposed films each having an image and two registration holes formed therein at the same set distance from the film image and with the same hole size and centre distance,
- (b) providing a set of unexposed flexographic printing plates, at least one for each of said films,
- (c) drilling with a hollow drill two registration holes in the unexposed flexographic printing plates with a hole size and centre distance to match those of the registration holes of said exposed films,
- (d) passing register pins through the drilled registration holes in said unexposed flexographic printing plates and the registration holes in said exposed films, at least one film for each said unexposed flexographic printing plate,
- (e) exposing and processing said unexposed flexographic printing plates thereby to produce a set of exposed and processed flexographic printing plates each having its image in register to the said drilled registration holes therein,
- (f) providing at least one flexible carrier sheet for said exposed and processed flexographic printing plates,
- (g) forming first registration holes adjacent an edge of said at least one flexible carrier sheet,
- (h) forming second registration holes having the same hole size and centre distance as the drilled registration holes in said exposed and processed flexographic printing plates, in said at least one carrier sheet whereby said second registration holes in said at least one carrier sheet match said drilled registration holes in said exposed and processed flexographic printing plates and whereby a final position for each of said exposed and processed flexographic printing plates is obtained relative to its image in at least one of the printing press and mounter-proofer,
- (i) applying pressure-sensitive adhesive to one face of each of said exposed and processed flexographic printing plates,
- (j) passing register pins through said matching registration holes in at least one of said exposed and processed flexographic printing plates and said at least one carrier sheet thereby to locate said at least one exposed and processed flexographic printing plate on said at least one carrier sheet in an in-register position,
- (k) securing said at least one exposed and processed flexo-

graphic printing plate to said at least one carrier sheet in the in-register position by means of the adhesive,

(l) removing the said register pins from the said matching registration holes in said at least one exposed and processed flexographic printing plate and said at least one carrier sheet,

(m) locating said at least one exposed and processed flexographic printing plate in an in-register position in at least one of the printing press and mounter-proofer with the aid of said at least one carrier sheet,

(n) and locating the remaining ones of said exposed and processed flexographic printing plates in turn in the same in-register position with the aid of said at least one carrier sheet.

4,380,957

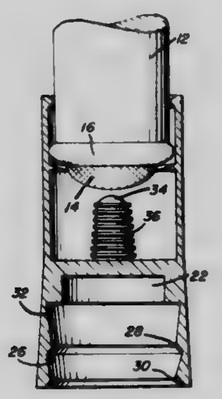
FLARE WITH IMPROVED STARTER CAP

Jesse K. Makainai, Jr., 45-042 Kaneohe Bay Dr., Kaneohe, Hi. 96744

Filed Sep. 23, 1980, Ser. No. 189,749

Int. Cl.³ F42B ***3/18***

U.S. Cl. 102—202.1 **9 Claims**



1. A fusee including a tubular housing containing a pyrotechnic mixture, one end of said housing including a match head defining an outwardly opening central cavity therein, a cover sleeve having a central partition therein and including opposing end recesses on opposite sides of said central partition, a scratch head mix central projection supported within one of said recesses on the corresponding side of said partition, said cover sleeve being removably telescoped over said one end with said one end telescopes into the other of said recesses and being alternately telescopingly engageable over said one end with the latter telescoped into said one recess in position for frictional telescopic engagement of said projection within said cavity to effect ignition of said head when an axial force is applied to increase the telescopic engagement of said one housing end and the end of said sleeve defining said recess.

4,380,958

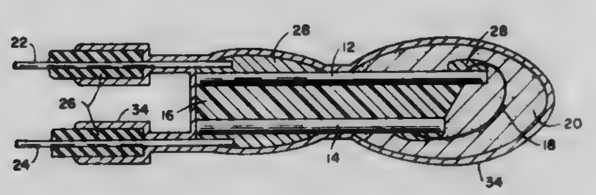
ELECTROSTATIC SAFE ELECTRIC MATCH

Robert E. Betts, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 17, 1980, Ser. No. 217,349

Int. Cl.³ F42B ***3/18***

U.S. Cl. 102—202.2 **6 Claims**



1. A safe electroexplosive device comprising: an electric match, coating means covering the surface of said match for providing a restrictive shield to electrical discharges external to said match, said coating means comprising an electrically conductive medium encompassing said match.

4,380,959

SPEED CONTROL FOR GRAVITY OPERATED TROLLEYS

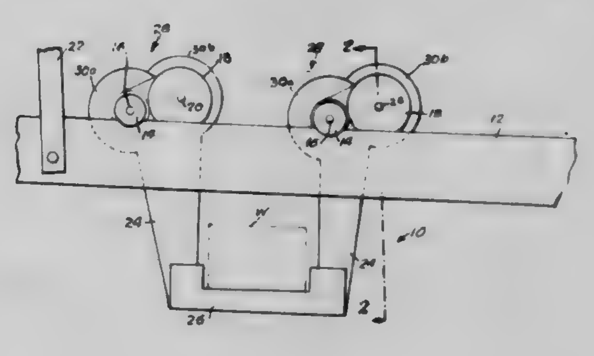
John H. Brems, Birmingham, and James T. Graham, Rochester, both of Mich., assignors to F. Jos. Lamb Company, Warren, Mich., a part interest

Continuation-in-part of Ser. No. 908,941, May 24, 1978, abandoned. This application Aug. 4, 1980, Ser. No. 174,812

The portion of the term of this patent subsequent to Feb. 23, 1999, has been disclaimed.

Int. Cl.³ B61B ***3/00***

U.S. Cl. 104—93 **12 Claims**



1. A gravity conveyor comprising downwardly inclined track means, a trolley adapted to support a workpiece and supported on said track means for travel thereon in response to the gravitational force on the trolley, said trolley being supported on said track means by a pair of separate track-engaging wheels, said trolley and track means being designed so that one of said wheels engages the track means when the trolley is empty and the other wheel engages the track means when the trolley is loaded with a workpiece, a first means for applying a retarding torque to said one wheel and separate second means for applying a retarding torque to the second wheel, whereby each of said wheels is prevented from rolling freely on the track means to thereby control the velocity of the trolley when empty and when loaded, the diameters of the two wheels and the two means for applying torque thereto being selected such that one wheel and the torque applying means for said wheel produces a greater retarding torque than the other wheel and the means for applying torque thereto, even when the trolley is subjected to the same loading, the wheel and torque applying means which produces the greater torque being utilized when the trolley is loaded and the wheel and torque applying means which produces the lesser torque being utilized when the trolley is empty.

4,380,960

POLLUTION-FREE LOW TEMPERATURE SLURRY COMBUSTION PROCESS UTILIZING THE SUPER-CRITICAL STATE

Norman L. Dickinson, 16230 Greenwood LA., Monte Sereno, Calif. 95030

Continuation-in-part of Ser. No. 948,682, Oct. 5, 1978, Pat. No. 4,292,953. This application May 6, 1981, Ser. No. 261,143

Int. Cl.³ F23D ***1/00***

U.S. Cl. 110—347 **16 Claims**

1. A continuous pressurized combustion process comprising the steps of:

preparing an aqueous slurry of fuel particles containing alkali in an amount at least the chemical equivalent of the sulfur in the fuel as alkali sulfate;

pressurizing the fuel slurry;

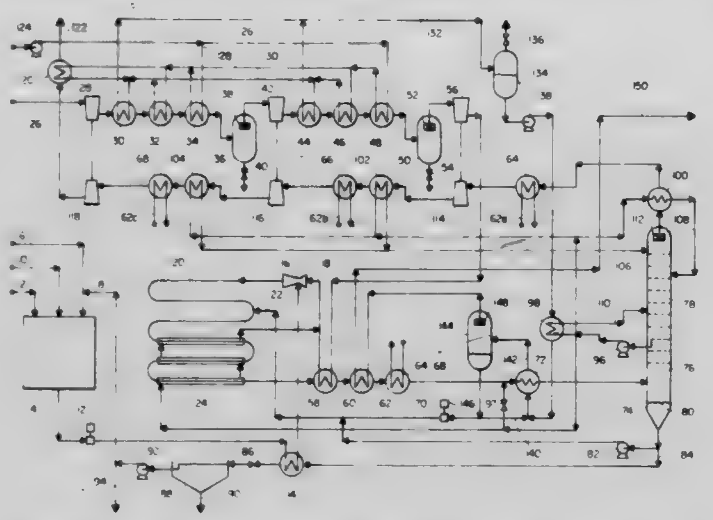
preheating the fuel slurry;

pressurizing an oxygen-containing gas;

preheating the oxygen-containing gas;

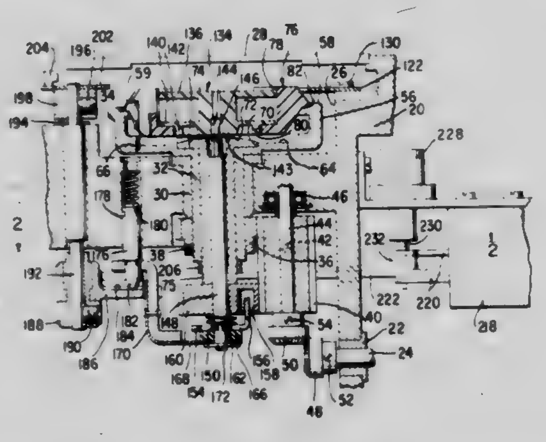
mixing the preheated fuel slurry and the preheated oxygen-

containing gas at the entrance to an inlet zone of an elongated combustion reactor, forming a gaseous phase comprising the oxygen-containing gas and water vapor in which the fuel and alkali particles are entrained;
providing a water vapor pressure of at least 3 atmospheres in the gaseous phase, as measured at the outlet of the reactor:
permitting the fuel particles to burn at a temperature not exceeding 1600° F. as the gaseous phase flows from the inlet zone to the reactor outlet, forming gaseous and entrained solid combustion products;



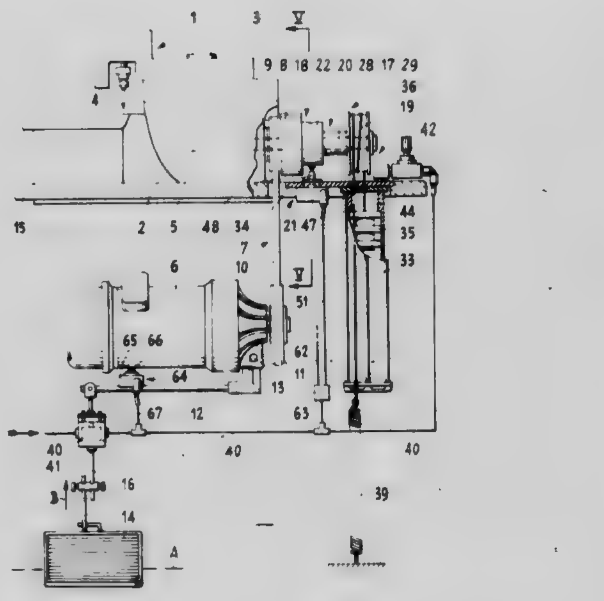
cooling the combustion products at essentially combustion pressure, by extracting useful heat therefrom, to a temperature below their dewpoint; and
separating from uncondensed gaseous products an aqueous condensate containing suspended and dissolved solid products.

4,380,961
VARIABLY CONTROLLABLE BOBBIN THREAD PULL-OFF MECHANISM
Gerhard Reinert, Bayside, N.Y., and Donald R. Davidson, Berkeley Heights, N.J., assignors to The Singer Company, Stamford, Conn.
Filed Mar. 23, 1981, Ser. No. 246,564
Int. Cl.³ D05B *57/14, 57/26*
U.S. Cl. 112—231 **9 Claims**



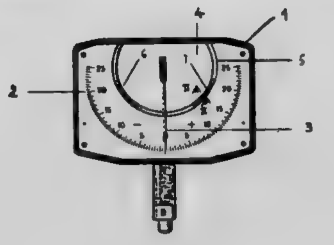
1. In a sewing machine, a vertical axis looptaker including a drive shaft therefor, a non-rotatable bobbin case in the looptaker, a disc housed within the looptaker, a drive shaft for the disc concentric with the drive shaft for the looptaker, a thread carrying bobbin supported on the bobbin case for free rotation above the disc, means operably connected with the looptaker shaft for rotating the looptaker, means operably connected with the disc shaft and responsive to control input signals for causing the disc to be oscillated, between a fixed and a variably controllable position through an angle dependent upon the said signals, the disc being adapted to engage and pull thread from the bobbin according to said angle when the disc is moved in one direction, and to release the thread for use in the formation of a stitch when the disc is moved in the opposite direction.

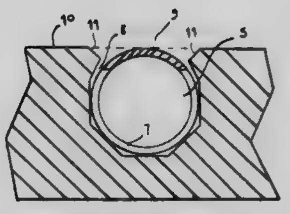
4,380,962
NEEDLE POSITIONING DEVICE FOR SEWING MACHINES
Jean P. Touret, Chatillon sur Bagneux, France, assignor to Rockwell International Corporation, Pittsburgh, Pa.
Filed Jan. 9, 1981, Ser. No. 223,614
Claims priority, application Italy, Feb. 5, 1980, 19698 A/80
Int. Cl.³ D05B *69/22*
U.S. Cl. 112—274 **7 Claims**



1. A needle positioning device for sewing machines of the type having a clutch brake type operating motor, a control shaft operatively connected to the needle and to the motor by transmission drive members with an operatively associated control apparatus for selectively operating and braking the control shaft through said operating motor, said needle positioning device comprising:
(a) a selective positioning means (18) including:
(i) a cylindrical member (22) mounted on and for rotation with the control shaft;
(ii) a reference pin (23) fixed in and extending radially from the periphery of said cylindrical member;
(b) an auxiliary actuator (19) operatively associated with the control shaft for effecting selective rotation thereof upon stopping the sewing machine including:
(i) a pulley (29) operatively connected to the control shaft;
(ii) a pneumatic cylinder (33) connected to the control apparatus;
(iii) flexible means defining a cable (36) interconnecting the piston of said pneumatic cylinder (33) with said pulley 29;
(iv) return means defining a spring (39) connected to said cable (36) for returning the piston and said pulley (29) to their initial positions upon completion of selective location of the needle;
(c) release means (64) operatively connected to the control apparatus and said operating motor for temporarily disconnecting the control shaft from the motor during selective rotation of the control shaft by said auxiliary actuator;
(d) a unidirectional clutching device (20) mounted on the control shaft intermediate said cylindrical member (22) and auxiliary actuator (19) for transmitting the motion provided to the control shaft and said cylindrical member; and
(e) locating means for moving a stud into the pathway of travel of said reference pin (23) to effect stopping the needle in a preselected position.

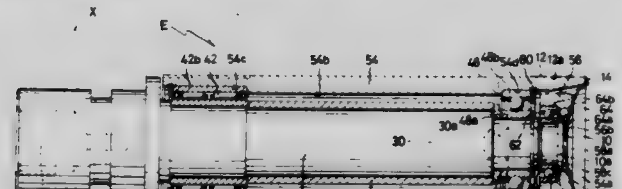
4,380,963
MOVABLE LIMIT MARKERS FOR VIEWING GLASS OF MEASURING INSTRUMENTS
Jean Berney, Les Bioux, Switzerland, assignor to Les Fabriques d'Assortiments Reunies, Le Locle, Switzerland
Filed Dec. 12, 1980, Ser. No. 215,859
Claims priority, application Switzerland, Dec. 14, 1979, 11076/79
Int. Cl.[3] G09F *9/37*
U.S. Cl. 116—324 10 Claims





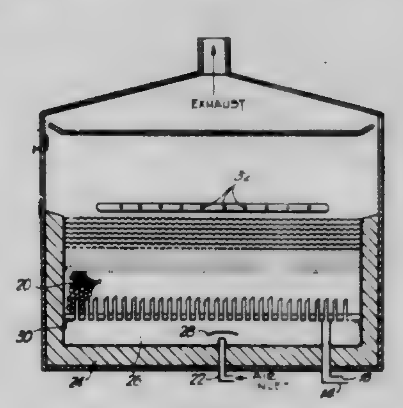
1. Apparatus for marking limits of a measurement in which a movable display means displays a measured value,
said apparatus comprising a viewing glass having a front surface and through which said display means is observed, said viewing glass comprising an open arcuate groove extending parallel to the movement of said display means, at least a first displaceable marker located in said open groove being accessible to be manually displaced in said open groove to denote said marking limits, said groove in cross-section having a first portion which narrows inwardly towards the front surface to retain said first marker and a second portion which widens outwardly from the first portion to the front surface, said at least first displaceable marker comprising a cylindrical member freely slideable along said open groove, said open groove being of such size to permit said displaceable marker to be moved by finger pressure directly applied to the displaceable marker with the displaceable marker being slid in the groove by an operator to denote the measurement limit.

4,380,964
HOLDING SPINDLE FOR PRINTING AND COATING CYLINDRICAL CONTAINERS
Katsuo Abe; Masahiro Nishio, and Akira Matsubara, all of Ishioka, Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan
Filed Mar. 4, 1981, Ser. No. 240,438
Int. Cl.[3] B05C *13/00*
U.S. Cl. 118—50 1 Claim



1. A holding spindle mountable on a spindle shaft and utilized for printing and coating cylindrical containers comprising an outer sleeve means for receiving a cylindrical container, said outer sleeve means having an inner diameter less than the diameter of the cylindrical container to thereby provide a clearance between said outer sleeve means and the cylindrical container disposed thereon, bearing means rotatably mounting said outer sleeve means on said spindle shaft, bottom receiving pad means, said bottom receiving pad means having a seating surface, said seating surface having a curvature corresponding to the curvature of the bottom surface of said cylindrical container, aspirating means applying a vacuum to said seating surface, said aspirating means comprising an opening in said seating surface leading to a source of vacuum and providing a vacuum to effect seating and mating of the common curvature of said seating surface and the inside bottom surface of said cylindrical container to thereby enhance the stability of the cylindrical container on the holding spindle, and mounting means detachably mounting said bottom receiving pad means to provide for readily replacing and changing said bottom receiving pad means to accommodate cylindrical containers having bottom surfaces of differing curvature, said mounting means comprising a bearing between said spindle shaft and said bottom receiving pad means to rotatably support said bottom receiving pad means on said spindle shaft independently of said outer sleeve means.

4,380,965
ELECTRODE FOR A FLUIDIZABLE BED COATING APPARATUS
Jorg-Hein Walling, Beaconsfield; Andre Dumoulin, Montagnes, and Gerald R. Arbuthnot, Chateauguay, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada
Filed Oct. 19, 1981, Ser. No. 312,650
Int. Cl.[3] F26B *17/00*
U.S. Cl. 118—621 6 Claims



1. A fluidizable bed coating apparatus comprising a porous support member having an upper surface to support a bed of fluidizable coating powder, an electrode disposed completely beneath the upper surface of the support member, the electrode comprising a plurality of electrically conductive tubes and a gas impervious carrier for the tubes, and means to connect a source of electric current to the electrode, the tubes extending from the carrier and having free ends at each of which there is a concentration in intensity of an electric field when the electrode is connected to the source of electric current, the tubes providing channelling for a fluidizing gas passing from one side of the carrier to the other to ensure that the gas passes through the concentrations in intensity of the electric field.

4,380,966
DEVELOPMENT APPARATUS
Kazuo Isaka; Kimio Nakahata, both of Kawasaki; Masaaki Sakurai, Hanno; Tsuyoshi Watanabe, Kawasaki; Fumitaka Kan, Tokyo, and Kenji Takeda, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 7, 1981, Ser. No. 309,383
Claims priority, application Japan, Oct. 11, 1980, 55/142204; Sep. 30, 1981, 56/155225; Sep. 30, 1981, 56/155226; Sep. 30, 1981, 56/155227
Int. Cl.[3] G03G *15/09*
U.S. Cl. 118—651 38 Claims

36. An apparatus for developing latent images on latent-

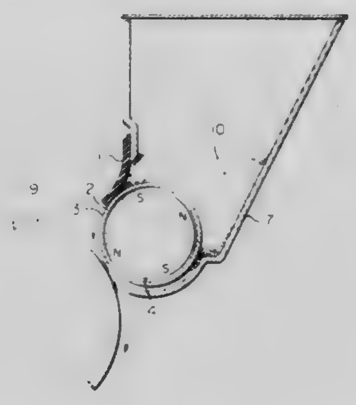
image carrying means by the application of developer, comprising:

a movable sleeve of non-magnetic material for carrying one-component magnetic toner on its surface;

a magnet roller fixedly disposed within said sleeve;

means for supplying said one-component magnetic toner to said surface of said sleeve;

a magnetic doctor blade for controlling the thickness of the magnetic toner layer formed on said sleeve, said doctor blade being disposed opposed to the magnetic pole of said



magnet roller to form a magnetic field between said magnetic blade and said magnet roller by which said magnetic toner layer will be controlled into a uniform thickness less than the gap between said sleeve and said latent-image carrying means; and

means for applying an electric alternating field to the gap between said sleeve and said latent-image carrying means;

the surface of said sleeve being subjected to anodized aluminum treatment and thereafter roughened by sand blast treatment with irregularly shaped particles.

4,380,967

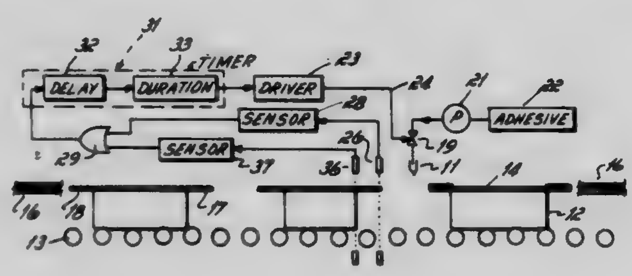
SYSTEM FOR AUTOMATICALLY COATING OBJECTS WITH A PLURALITY OF QUANTITIES OF A COATING MATERIAL USING A SINGLE DISCHARGE APPARATUS

Timothy S. Matt, Bay Village, Ohio, assignor to Nordson Corporation, Amherst, Ohio

Filed Sep. 14, 1981, Ser. No. 301,520

Int. Cl.³ B05C *11/00*; H03K *17/26*

U.S. Cl. 118—669 **5 Claims**



1. A system for automatically coating objects with a plurality of quantities of a coating material comprising:

a discharge device coupled to a source of coating material;

means for discharging the coating material from the discharge device in response to a control signal;

means for moving the objects relative to the discharge device in a path past the discharge device;

a first sensor positioned along said path and operative to generate a first sensor signal in response to the presence of an object at a first point on said path upstream of said discharge device;

a second sensor positioned along said path and operative to generate a second sensor signal in response to the presence of an object at a second point on said path downstream of the first point and upstream of said discharge device;

a delay timer responsive to either of the sensor signals to produce a delay signal after a delay time corresponding to a predetermined distance of travel by a sensed object on the path;

a duration timer responsive to the delay signal to produce a duration signal for a duration time corresponding to a predetermined distance of travel by a sensed object on the path, the delay timer and the duration timer being operable to function simultaneously; and

driver means for coupling a control signal to the coating material discharging means in response to the duration signal from the duration timer.

4,380,968

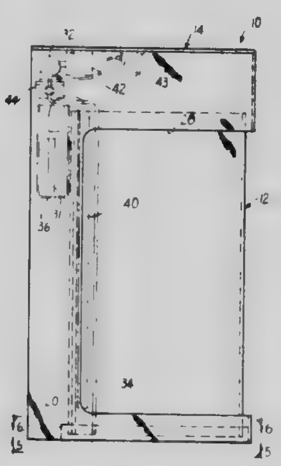
ART OF EXHIBITING FISH

Arthur B. Renny, 11688 Wayburn, Detroit, Mich. 48224

Filed Feb. 17, 1978, Ser. No. 878,706

Int. Cl.² A01K *64/00*

U.S. Cl. 119—5 **6 Claims**



1. Improvement in the art of exhibiting fish comprising a vertical aquarium consisting of a transparent fish tank and a metal cowl, said aquarium requiring the usual accoutrements for proper operation thereof, said fish tank standing vertically and having a height greater than its width or depth, said cowl standing vertically and having a height, width, and depth greater than that of said fish tank, said cowl covering said accoutrements and silencing in part the noise from the operation thereof, said cowl having a cutaway portion in the front and side walls thereof so as to expose said fish tank to view, and said fish tank having radiused front corners and no seams therealong so as to present from the front and sides thereof a full and unobstructed view thereof, said cowl having vertically extending sheet metal stnachions at the rear corners of said fish tank, said cutaway portion extending continuously around the sides and front of said cowl from one rear corner stanchion thereof to the other, whereby said cowl is wholly devoid of any front corner stanchions resulting in the aforesaid full and unobstructed view of said fish tank.

4,380,969

APPARATUS FOR UNLOADING POULTRY

Doverd E. Thomas, 2319 Fairway Cir., SE., Decatur, Ala. 35601

Filed Oct. 13, 1981, Ser. No. 310,737

Int. Cl.³ A01K *31/07*

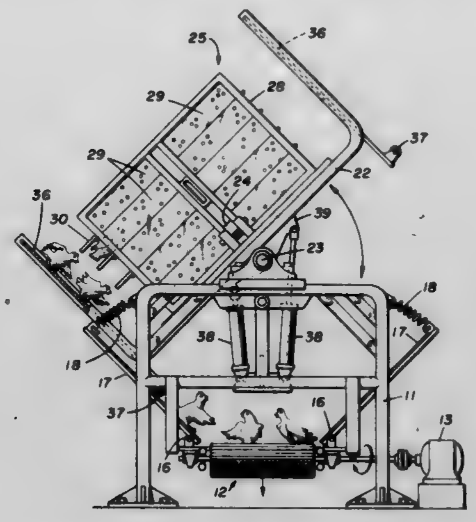
U.S. Cl. 119—82 **15 Claims**

1. Apparatus for unloading poultry from a cage having an opening in the side thereof, comprising:

a. movable means for supporting and moving the cage to an inclined position, and

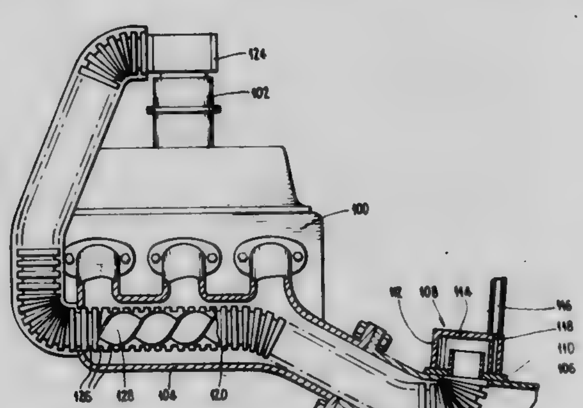
b. a chute carried by the supporting means for movement with the cage as said cage is moved to said inclined posi-

tion, said chute being spaced from the opening in the cage and so positioned relative to the cage that when the cage



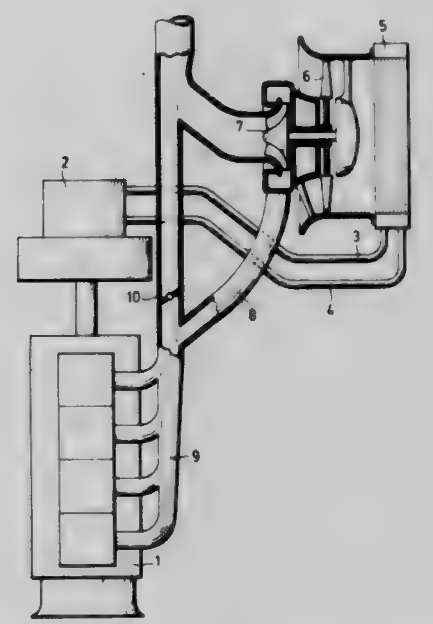
supporting means moves the cage to said inclined position the poultry slides out of the cage onto the chute.

4,380,970
COMBUSTION ENGINES
Roy A. Davis, 43 Glendower St., Perth, Australia (6000)
Continuation-in-part of Ser. No. 75,003, Sep. 12, 1979, abandoned. This application Mar. 27, 1981, Ser. No. 248,499
Claims priority, application Australia, Aug. 1, 1979, PD9818
Int. Cl.^{3} F02B *43/08;* F02D *19/00;* F02M *25/00*
U.S. Cl. 123—3 10 Claims



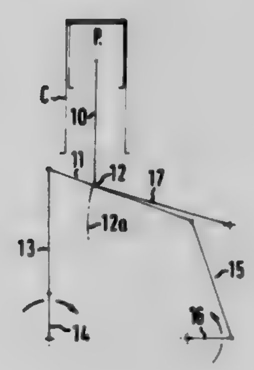
1. An internal combustion engine comprising inlet means, a combustion chamber and exhaust means, a dissociation chamber in heat communication with the exhaust means, inlet means for the dissociation chamber and outlet means for the dissociation chamber, means for introducing water to the dissociation chamber through the inlet means thereof, and means for introducing gases into the inlet means of the combustion chamber from the dissociation chamber from the outlet means thereof, wherein said dissociation chamber is in the form of a transition tube located at least in part within the exhaust means and said transition tube contains a spirally wound ribbon along at least part of its length located within the exhaust means, whereby in use, water in the transition tube is urged outwardly into contact with walls of the transition tube and hydrogen and oxygen so produced is introduced into the combustion chamber through the inlet means thereof.

4,380,971
INTERNAL COMBUSTION ENGINE HAVING A RETARDER
Paul Tholen, Bergisch Gladbach; Leo Lichtblau, Cologne; Friedemann Albers, St. Augustin, and Dieter Esche, Cologne, all of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz Aktiengesellschaft, Cologne, Fed. Rep. of Germany
Filed Aug. 4, 1981, Ser. No. 290,014
Claims priority, application Fed. Rep. of Germany, Aug. 16, 1980, 3031059
Int. Cl.^{3} F01P *1/06*
U.S. Cl. 123—41.31 8 Claims



1. An arrangement for an internal combustion engine having an exhaust conduit, a retarder, and a heat exchanger connected to said retarder for re-cooling retarder oil, cooling air being supplied to said heat exchanger during a braking operation of said internal combustion engine, the improvement in combination therewith comprising a blocking device arranged in said exhaust conduit for at least partially closing off said exhaust conduit during a braking operation and thus retaining gas flowing from said internal combustion engine, said retained gas flow being utilized for effecting said supplying of cooling air to said heat exchanger, by-pass means provided as to said blocking device arranged in said exhaust conduit, and means for generating a cooling air flow being provided in said by-pass means, said means for generating a cooling air flow being driven by exhaust gas flowing through said by-pass means.

4,380,972
INTERNAL COMBUSTION ENGINES
Malcolm F. Parkins, Elm Tree Cottage, South End, Ogbourne St. George, near Marlborough, Wiltshire, England
Filed Jul. 8, 1980, Ser. No. 166,824
Claims priority, application United Kingdom, Jul. 9, 1979, 7934966; Jul. 10, 1979, 7924037
Int. Cl.^{3} F02B *75/04*
U.S. Cl. 123—78 F 2 Claims



1. A four stroke internal combustion engine having at least

one cylinder; a single reciprocating piston within the cylinder; valve controlled exhaust porting at the upper end of the cylinder; means for causing the piston to partake of a power stroke which is longer in length than the induction stroke of the piston, wherein the piston reaches essentially the same height within the cylinder at the end of the compression stroke as it does at the end of the exhaust stroke, said means comprising; a primary crank shaft and a secondary crank shaft, said crank shafts being drivingly coupled to rotate in opposite directions and said secondary crank shaft rotating at half the rotational speed of the primary crank shaft; a linkage connecting the piston to the said crank shafts; said linkage comprising a floating link, primary and secondary connecting rods pivoted to the ends of the floating link and to the primary and secondary crank shafts respectively, and a connecting rod connecting the piston to an intermediate point of the floating link nearer the end thereof to which the primary connecting rod is pivoted; and a tracking arm pivoted by one end and having its opposite end swinging in a shallow arc, said opposite end being pivoted on the floating link at said intermediate point; additional exhaust porting at the bottom of the cylinder and positioned to be uncovered by the piston at the end of the power stroke but remain covered at the end of the induction stroke, and wherein the opening and closing of said additional exhaust porting is controlled solely by the piston.

4,380,973

GLOW PLUG FOR DIESEL ENGINES

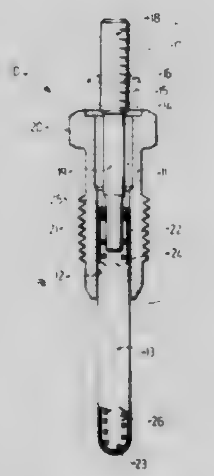
Leo Steinke, WN-Hegnach, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

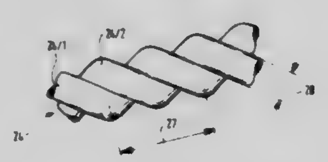
Filed Aug. 6, 1981, Ser. No. 290,598

Claims priority, application Fed. Rep. of Germany, Oct. 9, 1980, 3038124

Int. Cl.³ F02P *19/00*

U.S. Cl. 123—145 A **3 Claims**





1. Glow plug for an internal combustion engine having
a housing (11);
a glow element (13) seated within the housing;
a connecting bolt (19) retained within the housing and insulated therefrom, extending into the glow element (13),
said glow element (13) comprising a metal sleeve (23) closed at the bottom,
a resistance wire element (24) positioned within the sleeve and secured to the bottom (23) of the glow element and connected to the connecting bolt at the other end of the glow element,
a filler of a good heat conductive insulating material within the sleeve of the glow element retaining the resistance wire in position,
and wherein the sleeve is reduced in diameter after assembly of the wire and the filler to compact the filler therein,
wherein, in accordance with the invention,
the resistance wire (24) comprises n twisted wire elements or stands (24/1, 24/2),
the pitch (27) of the twist of the wire, before reduction of diameter of the glow plug element (13), being greater than n-times the diameter (28) of any one of the strands or wire elements (24/1, 24/2).

4,380,974

FUEL SUPPLY SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

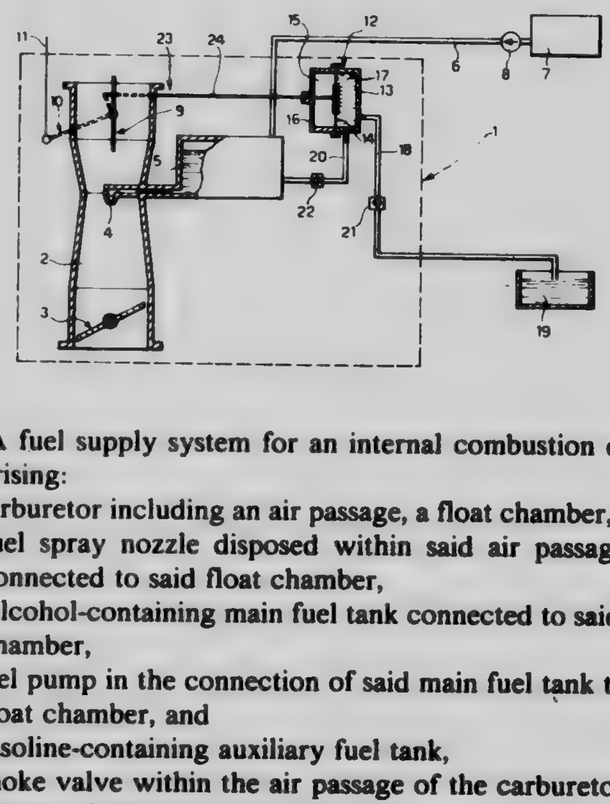
Carlo Grosso, Turin, Italy, assignor to Fiat Auto S.p.A., Turin, Italy

Filed Mar. 24, 1981, Ser. No. 247,031

Claims priority, application Italy, Mar. 24, 1980, 67447 A/80

Int. Cl.³ F02N *17/00*

U.S. Cl. 123—179 G **2 Claims**



1. A fuel supply system for an internal combustion engine comprising:
a carburetor including an air passage, a float chamber, and a fuel spray nozzle disposed within said air passage and connected to said float chamber,
an alcohol-containing main fuel tank connected to said float chamber,
a fuel pump in the connection of said main fuel tank to said float chamber, and
a gasoline-containing auxiliary fuel tank,
a choke valve within the air passage of the carburetor, upstream of said fuel spray nozzle,
a gasoline supply diaphragm device, including a hollow casing and a diaphragm member within said hollow casing, which defines a first chamber vented to the atmosphere, and a second chamber,
a first conduit connecting said second chamber to said auxiliary fuel tank,
a second conduit connecting said second chamber to said float chamber,
first and second one-way valves interposed in said first and second conduits respectively, preventing flow of fuel from the second chamber to the auxiliary fuel tank and from the float chamber to the second chamber,
a choke valve actuating mechanism including mechanical connecting means extending between said choke valve and said diaphragm member of the gasoline supply device; whereby said mechanical connecting means causes displacement of said diaphragm member towards a position in which said second chamber has a minimum volume, when said choke valve is displaced towards its operating position during starting and warming up of the engine.

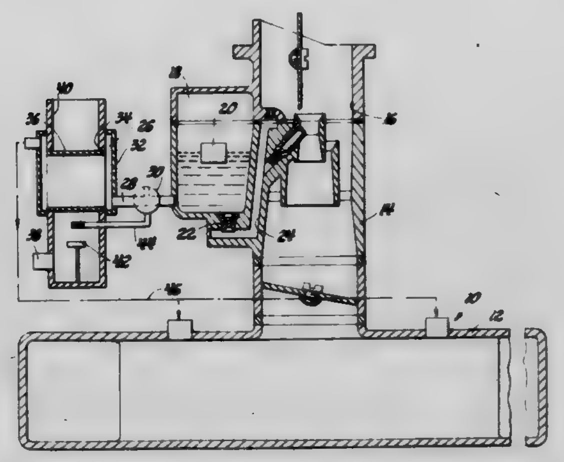
4,380,975

COLD STARTING SYSTEM FOR ALCOHOL FUELED ENGINE

Thomas M. Powell, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 6, 1981, Ser. No. 251,487
Int. Cl.³ F02N *17/00*

U.S. Cl. 123—179 H **2 Claims**



1. A cold starting system for an engine having means for mixing liquid alcohol with air to form an air-fuel mixture and having an induction manifold for conducting said mixture to the engine, said system comprising:

an alcohol heating chamber,

an alcohol burner chamber in heat exchange relation with said heating chamber,

an igniter in said burner chamber,

means effective prior to stopping the engine for supplying a quantity of liquid alcohol to said heating chamber,

means effective prior to starting the engine at engine temperature below a selected value for energizing said igniter and for delivering a stream of liquid alcohol from said heating chamber to said igniter, thereby burning the stream of alcohol to create a supply of hot gases in said burner chamber effective to vaporize liquid alcohol remaining in said heating chamber,

and means for conducting alcohol vapor from said heating chamber to said induction manifold to thereby provide sufficient alcohol vapor to start the engine.

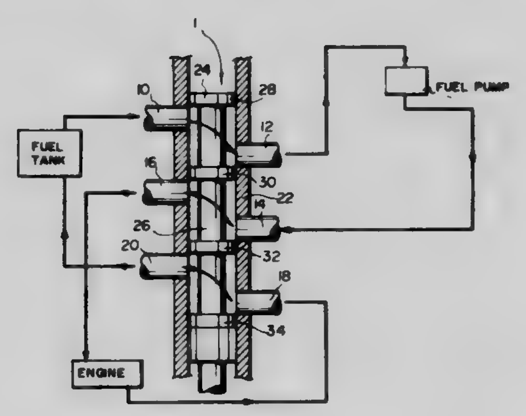
4,380,976

FUEL FLOW ARRESTOR

Peter Bottiglieri, Box 85, Coal Harbour, B.C., Canada (V0N 1K0)

Filed Oct. 20, 1980, Ser. No. 198,710
Int. Cl.³ F02D *17/02*

U.S. Cl. 123—198 DB **13 Claims**



1. A fuel flow arrestor for an internal combustion engine, said engine including a pump for pumping fuel to an engine fuel distribution means, said arrestor comprising:

(a) a first valve normally open to enable fuel flow to a combustion chamber of said engine and closeable to stop fuel flow to said combustion chamber;

(b) a second normally closed valve for opening to connect an inlet port of said pump to an inlet port of said engine fuel distribution means;

(c) a third valve normally open to enable fuel flow from a fuel tank to said pump and closeable to stop fuel flow from said fuel tank to said pump;

(d) a fourth normally closed valve for opening to divert fuel flow from an outlet port of said pump to said fuel tank; and,

(e) a fifth valve normally open to enable fuel return from said engine fuel distribution means to said fuel tank and closeable to stop fuel return from said engine fuel distribution means to said fuel tank.

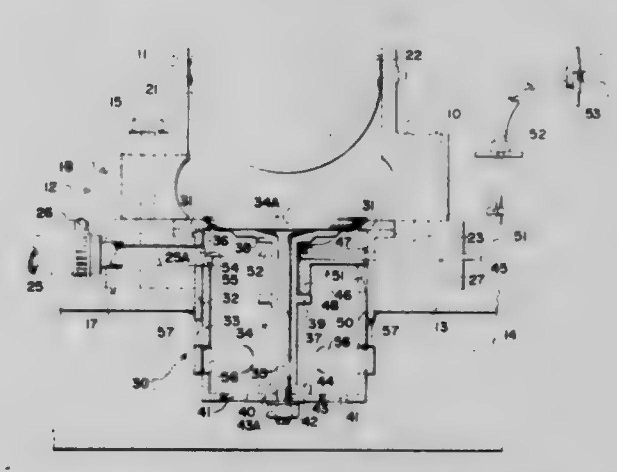
4,380,977

DEVICE FOR SELECTIVELY CONTROLLING THE NUMBER OF OPERATIVE CYLINDERS IN MULTI-CYLINDER ENGINES

Edward Holstein, 284 Rouge Rd., Winnipeg, Manitoba, Canada (R2W 1V7)

Filed Nov. 24, 1980, Ser. No. 209,965
Int. Cl.³ F02D *17/02*

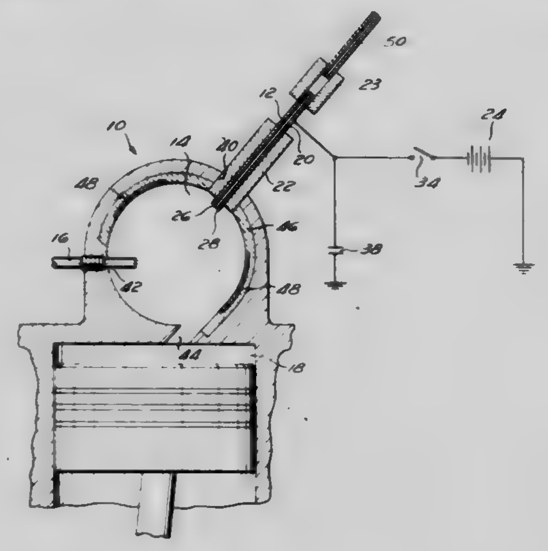
U.S. Cl. 123—198 F **26 Claims**



1. A device for selectively controlling the number of operative cylinders in a multi-cylinder internal combustion engine which includes a multi-barrel carburettor and an attaching flange therefor, with one half of the barrels being operatively connected to one half of the cylinders and the other half of the barrels being operatively connected to the other half of the cylinders, intake manifolds operatively connected between the barrels and the cylinders operatively connected thereto; comprising in combination a valve assembly operatively connected between the one half of the barrels of the carburettor and the manifold operatively connected thereto, said valve assembly being movable from a barrel shut off position to a barrel open position and vice versa, means to move the valve assembly from one position to the other position and relief air intake means between atmosphere and said manifold, said air intake means being operatively connected to said manifold when said valve assembly is in the barrel shut off position and disconnected from said manifold when said valve assembly is in the barrel open position, said device including an apertured mounting plate operatively secured between the carburettor flange and the intake manifolds, said mounting plate including a communication aperture between said one half of said barrels and the corresponding intake manifold and a further communication aperture between said other half of said barrels and said other intake manifold, said valve assembly being situated within one of said apertures, said valve assembly including a valve seat surrounding the upper end of the communication aperture in which the valve assembly is situated, a valve having a valve head and a stem depending therefrom, said head being operatively engageable with said seat, a piston and cylinder, said cylinder extending from adjacent said seat into the manifold connected to said one of said communication aper-

tures, said piston being operatively connected to said valve stem for movement therewith and means operatively connecting said relief air intake means to the interior of said piston when said valve is in the barrel shut off position.

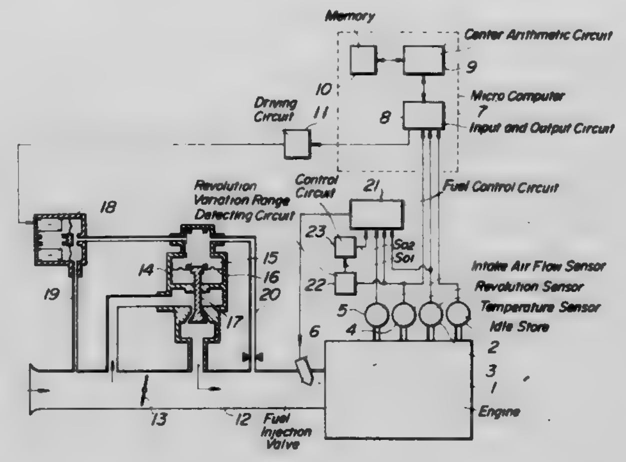
4,380,978
ELECTROSTATIC DIESEL FUEL INJECTOR
Bruce W. Maynard, Jr., Woodland Hills, and William T. Webber, Agoura, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.
Filed Apr. 22, 1980, Ser. No. 140,080
Int. Cl.³ F02B *3/00*
U.S. Cl. 123—275 **8 Claims**



1. A precombustor for use in diesel engines comprises:
a precombustion chamber comprising:
an injector port for housing an electrostatic injector;
an ignitor port for housing an ignition means; and
a flow passage substantially opposite said injector port for conveying air into said precombustion chamber and combusted gases from said precombustor to a diesel cylinder; and
an electrostatic fuel injector, comprising:
an electroconductive injector body having at least one fuel inlet and at least one fuel outlet;
means for electrically insulating said injector body from said diesel engine; and
means for charging said injector body to more than about 10,000 volts;
wherein the interior of said precombustion chamber further comprises electrical insulation; and
wherein said precombustion chamber has at least one electrode located along the interior walls for attracting or repelling the fuel droplets.

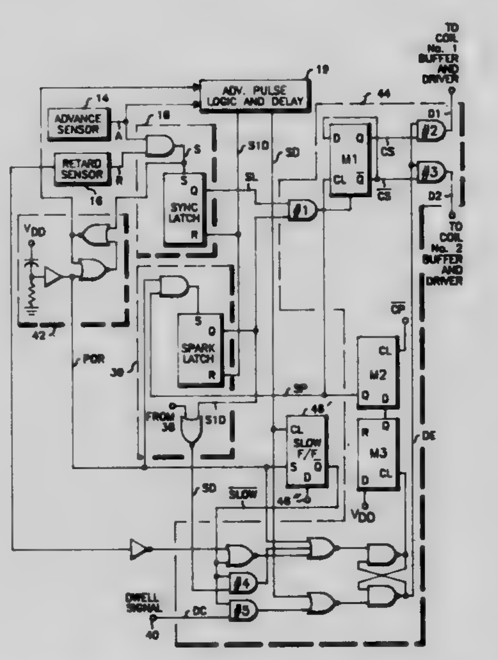
4,380,979
IDLING REVOLUTION CONTROL DEVICE FOR AN INTERNAL COMBUSTION ENGINE
Sadao Takase, Yokohama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan
Continuation-in-part of Ser. No. 100,568, Dec. 5, 1979, abandoned. This application Feb. 9, 1981, Ser. No. 232,545
Claims priority, application Japan, Dec. 6, 1978, 53-149927
Int. Cl.³ F02D *1/04*
U.S. Cl. 123—339 **4 Claims**

1. An idling rpm control device for an internal combustion engine for controlling idling rpm thereof depending upon operating parameters thereof, comprising:
(a) a revolution sensor for producing signals indicative of engine revolutions;
(b) rpm range detecting means for detecting a range of variations in idling rpm of the engine, said range detecting means comprising a range detecting circuit for receiving said signals from said revolution sensor and generating a signal corresponding to a range of variations in rpm of the engine; and
(c) fuel control means for changing a fuel-air ratio of mixture to decrease said range of variations in idling rpm, said fuel control means comprising a change control circuit for generating signals for changing the fuel-air ratio of mixture when said signal from said range detecting circuit is more than a determined value, and a fuel control circuit



for changing the fuel-air ratio of mixture in response to the signal from said change control circuit and receiving signals corresponding to parameters from a temperature sensor for detecting temperature of the engine, said revolution sensor for detecting revolutions of the engine and an intake air flow sensor for detecting intake air flow rate to generate driving pulses for actuating a fuel injection valve.

4,380,980
IGNITION SPARK TIMING CIRCUIT
Rupin J. Javeri, Elk Grove, Ill., assignor to Motorola Inc., Schaumburg, Ill.
Filed Oct. 13, 1981, Ser. No. 310,029
Int. Cl.³ F02P *7/00*
U.S. Cl. 123—414 **8 Claims**



1. An ignition spark timing circuit comprising:
first circuit means for providing first and second control signals, each in response to engine crankshaft rotation;
second circuit means for providing a spark enabling signal;
third circuit means for providing a switching signal having two values in response to crankshaft velocity being above or below a predetermined velocity;
fourth circuit means including latching means coupled to be set by the spark enabling signal and reset by the first

control signal delayed, and providing a spark detect output signal;

fifth circuit means for providing a dwell control signal; and

sixth circuit means for providing a dwell enabling signal, the sixth circuit means controlled by the switching signal to enable dwell in response to the first control signal and to disenable dwell in response to the second control signal at engine velocities below the predetermined velocity, and to enable dwell in response to the dwell control signal and disenable dwell in response to the spark detect signal at velocities higher than the predetermined velocity.

4,380,981

KNOCKING CONTROL SYSTEM FOR USE WITH SPARK IGNITION INTERNAL COMBUSTION ENGINE

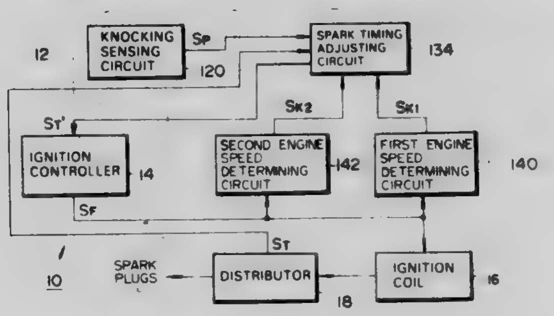
Toshio Enoshima, Fujisawa; Shoji Furuhashi, and Hideyuki Tamura, both of Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Feb. 12, 1981, Ser. No. 234,007

Claims priority, application Japan, Feb. 18, 1980, 55-17811

Int. Cl.³ F02P ***5/04, 5/14***

U.S. Cl. 123—415 14 Claims



1. A knocking control system for a spark ignition internal combustion engine, comprising:

(a) a reference spark timing determining means for determining a reference spark timing for the engine according to the engine speed and load;

(b) a knocking sensing means for sensing engine knocking to produce a knocking signal representing the presence of the knocking;

(c) an engine operational state determining means for sensing one of engine speed and load to produce a drive signal when said one of engine speed and load is in a predetermined range;

(d) a spark timing adjusting means responsive to the knocking signal for setting an amount of retardation of the timing from the reference spark timing and;

(e) a range change means responsive to the drive signal for determining an allowable maximum amount of spark timing retardation from the reference spark timing such that outside a predetermined range of one of engine speed and load, the allowable maximum amount of spark timing decreases.

4,380,982

IGNITION TIMING CONTROL METHOD

Mamoru Kobashi, Aichi, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Continuation of Ser. No. 163,066, Jun. 26, 1980, abandoned. This application May 28, 1982, Ser. No. 383,308

Claims priority, application Japan, Jul. 2, 1979, 54-82570

Int. Cl.³ F02P ***5/04, 5/08;*** **F02B** ***3/00;*** **F02D** ***5/00***

U.S. Cl. 123—416 5 Claims

1. An ignition timing control method for an internal combustion engine having at least one cylinder and a crankshaft, comprising the steps of:

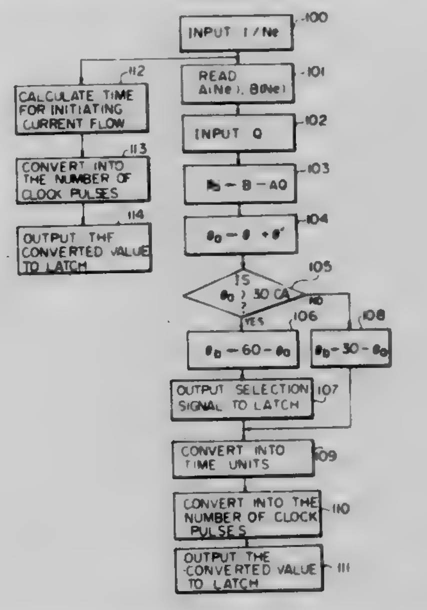
detecting a parameter which affects the ignition timing of the operating engine;

generating at least one electrical signal which indicates the value of the detected parameter; and

calculating, in response to said generated electrical signal, a spark advance angle which represents an optimum ignition timing at the value of said detected parameter, wherein the improvement comprises:

selecting one reference crank angle position from a plurality of different reference crank angle positions for each cylinder, said selected reference crank angle position depending on the value of said calculated spark advance angle;

calculating the difference angle between said selected reference crank angle position and the crank angle position corresponding to the calculated spark advance angle;



sensing when the crankshaft rotates through the selected reference crank angle position;

calculating an ignition control value which represents a period of time required by the crankshaft to rotate through said calculated difference angle; and

producing an ignition spark in response to said ignition control value when said period of time has elapsed after the crankshaft rotates past said sensed selected reference crank angle position.

4,380,983

IGNITION TIMING CONTROL APPARATUS

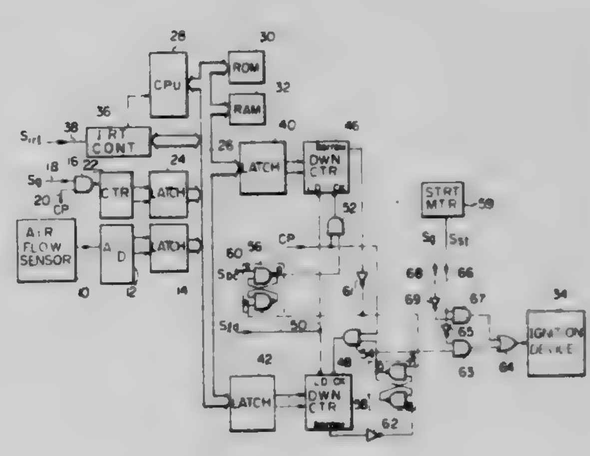
Mamoru Kobashi, Aichi, and Hideo Miyagi, Okazaki, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Continuation of Ser. No. 164,546, Jul. 2, 1980, abandoned. This application Jun. 15, 1982, Ser. No. 388,727

Claims priority, application Japan, Jul. 6, 1979, 54-92457

Int. Cl.³ F02P ***5/04***

U.S. Cl. 123—424 6 Claims



1. An electronic ignition control apparatus for a spark-ignition internal combustion engine having a crankshaft, a plurality of cylinders, and an equal plurality of pistons slidably mounted in respective cylinders and operatively connected to the crankshaft, said apparatus comprising:

means for generating at least one condition signal which indicates the operating condition of the engine when the engine is running;
means for generating a starting signal when the engine is in the starting condition;
a crankshaft position sensor having a single pickup for detecting a plurality of angularly spaced predetermined crankshaft positions including at least a fixed firing position for each cylinder;
means responsive to said single pickup for generating a crankshaft position signal when the crankshaft passes each predetermined position;
means responsive to said at least one condition signal for calculating an optimum ignition timing value for said operating condition of the engine;
means for selecting one of said crankshaft position signals from said single pickup occurring prior to the fixed firing position signal for each cylinder;
means responsive to said calculated optimum ignition timing value and to the selected one of said crankshaft position signals occurring prior to the fixed firing position signal for each cylinder for producing a calculated ignition timing signal for each cylinder when the crankshaft passes through a position corresponding to the calculated optimum ignition value for the respective cylinder;
means for selecting said calculated ignition timing signals for timing the sparks applied to the cylinders when the starting signal is absent and for selecting said fixed firing signals for timing the sparks applied to the cylinders when said starting signal is present.

4,380,984

ELECTRONIC CONTROLLED CARBURETOR

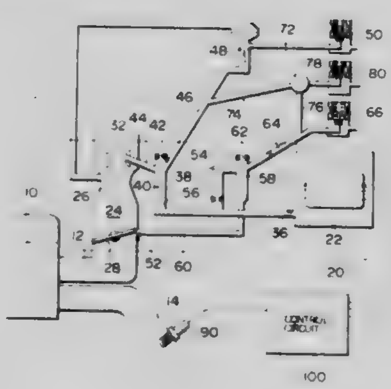
Tadashi Nagai, Yokosuka; Ken Nakamura, Kawasaki, and Yasuo Nakajima, Yokosuka, all of Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

Filed Jun. 29, 1981, Ser. No. 278,396

Claims priority, application Japan, Jul. 1, 1980, 55-89872

Int. Cl.[3] F02B *33/00;* F02M *23/04;* F02B *3/00;* F02M *7/14*

U.S. Cl. 123—440 14 Claims



1. An electronic controlled carburetor for an internal combustion engine, comprising:
(a) an induction passage for supplying a combustible mixture to said engine;
(b) a source of fuel;
(c) fuel metering means communicating between said source of fuel and said induction passage, said fuel metering means communicated with the atmosphere through a main air bleed passage and also through an auxiliary air bleed passage;
(d) first and second solenoid valves provided in said main and auxiliary air bleed passages for varying the rates of air flow to said fuel metering means, respectively;
(e) engine exhaust gas analyzing means effective for sensing selected constituents of the exhaust gases of said engine and producing in response thereto an output signal; and
(f) a control circuit responsive to the output signal of said engine exhaust gas analyzing means for operating said first and second solenoid valves, said control circuit comprising a first comparator for providing the difference between the output of said engine exhaust gas analyzing means and a predetermined reference value, an amplifier for providing a first signal proportional to the difference, a first integrator for providing a second signal resulting from integrating the difference, an adder for providing a third signal resulting from adding the first and second signals, a first pulse generator for providing a first drive pulse signal having a duty ratio dependent upon the third signal to said first solenoid valve, a second comparator for providing the deviation between the second signal and a predetermined reference value, a second integrator for providing a fourth signal resulting from integrating the deviation, and a second pulse generator for providing a second drive pulse signal having a duty ratio dependent upon the fourth signal to said second solenoid valve.

4,380,985

FLOW RATE CONTROL SYSTEM FOR FLUID BEING SUPPLIED TO AN INTERNAL COMBUSTION ENGINE, HAVING INITIAL POSITION SETTING FUNCTION FOR FLOW RATE CONTROL VALVE ACTUATOR

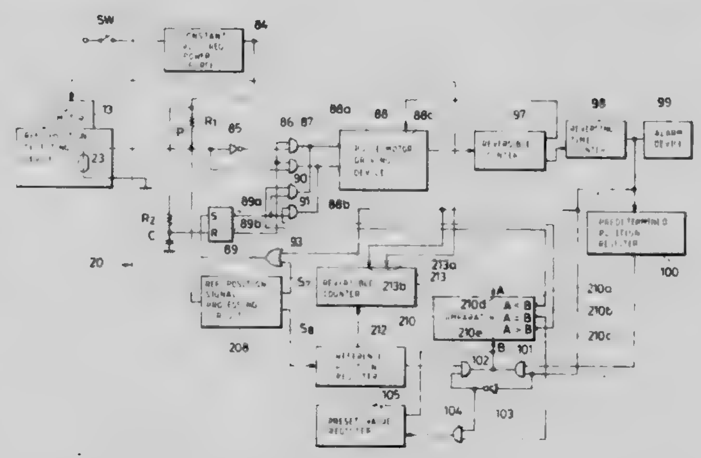
Kazuo Otsuka, Higashikurume; Shin Narasaka, Yono, and Shumpei Hasegawa, Niiza, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 7, 1981, Ser. No. 281,118

Claims priority, application Japan, Jul. 12, 1980, 55-095512

Int. Cl.[3] F02M *7/18*

U.S. Cl. 123—440 12 Claims



1. A flow rate control system for controlling the flow rate of a fluid being supplied to an internal combustion engine, which comprises: valve means for varying the flow rate of one of air and fuel, forming said fluid, to thereby control the air/fuel ratio of an air/fuel mixture being supplied to said engine; a pulse motor for driving said valve means; position detecting means for detecting the valve position of said valve means with respect to a reference position to produce two different levels of output depending upon a detected valve position; and an electrical circuit connected to said pulse motor, said position detecting means and a power switch, said electrical circuit being arranged for operation such that: (a) when said position detecting means produces one level of output upon turning on said power switch, said electrical circuit drives said pulse motor in the direction of said reference position until said position detecting means produces the other level of output; (b) when said position detecting means produces said other level of output upon turning on said power switch or when said position detecting means has come to produce said other level of output as a result of said driving of said pulse motor in said paragraph (a), said electrical circuit drives said pulse motor in the direction of said reference position until sad position detecting means produces said one level of output: and (c) said electrical circuit is responsive to occurrence of said one level of output during said driving of said pulse motor in said paragraph (b), to stop said pulse motor.

4,380,986

METHOD AND APPARATUS FOR CLOSED-LOOP CONTROL OF THE AIR NUMBER IN A SELF-IGNITING INTERNAL COMBUSTION ENGINE

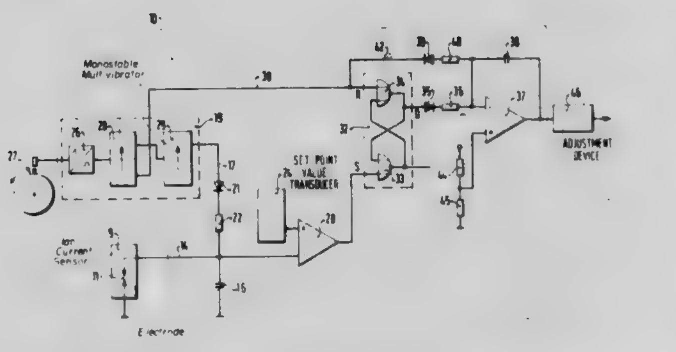
Reinhard Latsch, Vaihingen; Heinz Schöber, Bietigheim-Bissingen; Gerhard Müller, Asperg, and Valerio Bianchi, Neuss, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Nov. 5, 1980, Ser. No. 204,136

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1979, 2944834

Int. Cl.³ F02B *3/00*

U.S. Cl. 123—489 **15 Claims**



1. A method for the closed-loop control of the air number λ of the operating mixture for combustion in a self-igniting internal combustion engine, comprising the steps of:

detecting the ion current associated with a permissible soot number of the exhaust gas exhausted from the engine with at least one ion current sensor located in the immediate vicinity of an outlet valve of the engine;

generating a set-point value of the ion current which corresponds to the value of the ion current in the range of $\lambda = 1.0$–1.5, said ion current increasing sharply in this air number range;

comparing the detected ion current with the set-point value in a closed-loop control device and establishing a deviation of the detected ion current from the set-point value; and

adjusting the composition of the operating mixture and consequently the air number λ as a function of the deviation, whereby the set-point valve of the ion current is maintained and the permissible soot number of the exhaust gas is not exceeded.

4,380,987

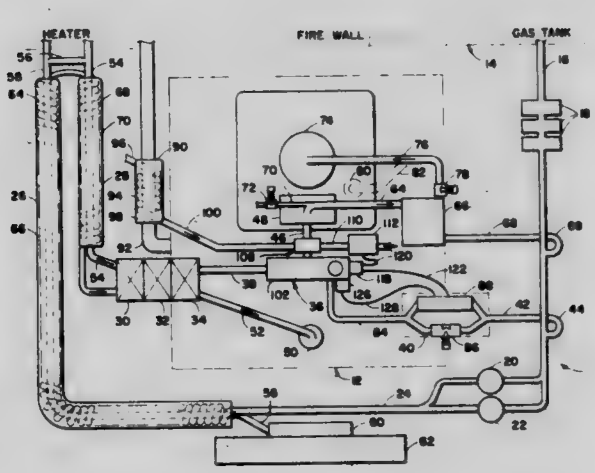
CIRCULATING FUEL HEATING SYSTEM FOR INTERNAL COMBUSTION ENGINES

Theron H. Crain, Rte. 7, Box 164-B, Muskogee, Okla. 74401

Filed Mar. 9, 1981, Ser. No. 241,585

Int. Cl.³ F02M *31/00*

U.S. Cl. 123—558 **16 Claims**



1. A circulating fuel heating system for internal combustion engines having a carburetor, said system comprising

heat exchanger means for raising fuel to beyond its vaporization temperature, pump means for delivering fuel to said heat exchanger means, a heat source carried by the engine and operably connected to the heat exchanger means for raising the temperature of said fuel, a fuel flow controller operably connected between the heat exchanger means and the carburetor, return control means operably connected between the fuel flow controller and the pump means for routing a first portion of unused fuel back to said pump means and a vapor capture means operably connected between the carburetor and the pump means for routing a second portion of unused fuel back to the pump means.

4,380,988

AIR/FUEL RATIO CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES, HAVING EXHAUST GAS RECIRCULATION CONTROL FUNCTION

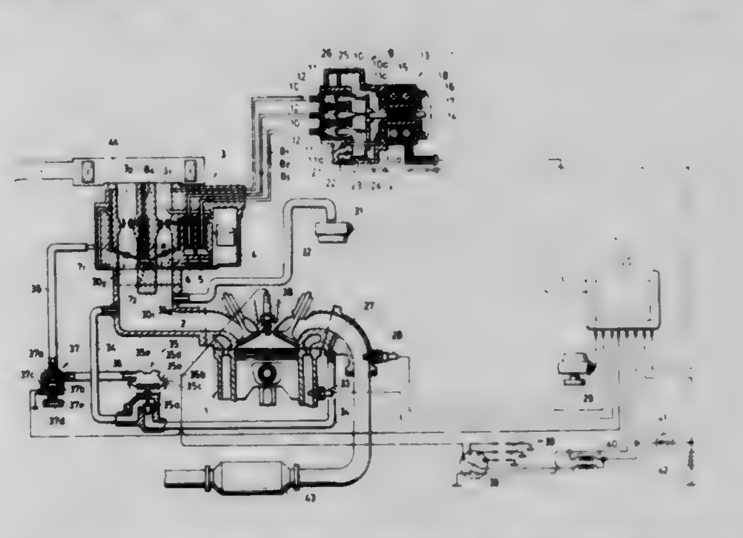
Kazuo Otsuka, Higashikurume; Shin Narasaka, Yono, and Shumpei Hasegawa, Niiza, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 24, 1981, Ser. No. 295,750

Claims priority, application Japan, Aug. 28, 1980, 55-119114

Int. Cl.³ F02M *25/06*

U.S. Cl. 123—571 **2 Claims**



1. An air/fuel ratio control system for performing feedback control of the air/fuel ratio of an air/fuel mixture being supplied to an internal combustion engine having an intake system, an exhaust system and a throttle valve arranged within said intake system, said air/fuel ratio control system comprising in combination: means for detecting the concentration of an exhaust gas ingredient emitted from said engine; fuel quantity adjusting means for producing said mixture being supplied to said engine; and an electrical circuit operatively connecting said concentration detecting means with said fuel quantity adjusting means in a manner effecting feedback control operation to control the air/fuel ratio of said mixture to a predetermined value in response to an output signal produced by said concentration detecting means; an exhaust gas recirculation passage communicating said intake system with said exhaust system; an exhaust gas recirculation valve arranged across said exhaust gas recirculation passage and having means actuatable by negative pressure to open said valve; a port opening in said intake system at a location slightly upstream of said throttle valve in idle position thereof; a negative pressure passage communicating said port with said exhaust gas recirculation valve; a solenoid valve arranged to close said negative pressure passage; an absolute pressure sensor adapted to produce an output signal continuously variable with a change in absolute pressure present in said intake system; an engine temperature sensor adapted to produce an output signal continuously variable with a change in engine coolant temperature; and a circuit provided within said electrical circuit for detecting an operating condition of said engine and electrically connected to said solenoid valve; said electrical circuit being operable on output signals produced by said absolute pressure sensor and said engine temperature sensor to carry out control of the air/fuel

ratio of said mixture, said output signals of said absolute pressure sensor and said engine temperature sensors being supplied to said engine operating condition detecting circuit; said electrical circuit being also operable on said output signals of said two last-mentioned sensors to cause said solenoid valve to close said negative pressure passage and simultaneously allow atmospheric air to be introduced into said negative pressure-actuatable means of said exhaust gas recirculation valve when said output signal of said absolute pressure sensor has a value lower than a first predetermined value or when said output signal of said engine temperature sensor has a value lower than a second predetermined value.

4,380,989

IGNITION SYSTEM FOR INTERNAL COMBUSTION ENGINE

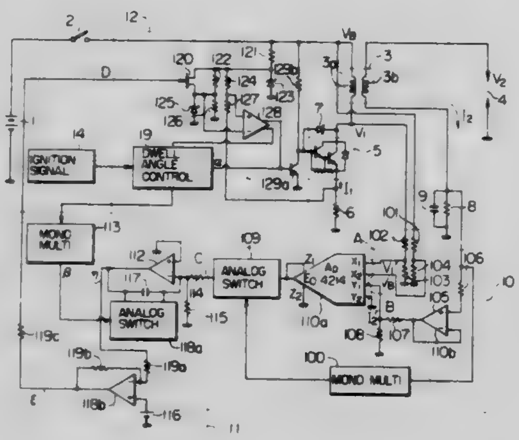
Iwao Takaki, Chiryu, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Nov. 19, 1980, Ser. No. 208,346

Claims priority, application Japan, Nov. 27, 1979, 54-164698[U]; Dec. 18, 1979, 54-165316

Int. Cl.[3] **F02P** *11/00, 1/00;* **H02M** *3/22;* **F02P** *1/08*

U.S. Cl. 123—644 **16 Claims**



1. An ignition system for an internal combustion engine comprising an ignition signal generator generating an ignition signal in synchronism with the rotation of the engine, a power transistor unit turned on-off in response to the ignition signal generated from said ignition signal generator, an ignition coil including a primary winding and a secondary winding electrically isolated from each other, the primary winding being connected to said power transistor unit turned on-off to interrupt the primary current supplied to the primary winding of said ignition coil, a spark plug connected to one end of the secondary winding of said ignition coil, a secondary current detecting resistor connected between the other end of the secondary winding of said ignition coil and an earth potential point for detecting the secondary current flowing through the secondary winding of said ignition coil, a calculating circuit receiving both of the secondary current detected by said secondary current detecting resistor and the primary voltage detected by a primary voltage resistor connected to a grounded side end of the primary winding of said ignition coil as its input signals for calculating, on the basis of these input signals, an ignition control value representing the characteristics of the secondary electrical circuit of said ignition coil, and means responsive to the output signal from said calculating circuit for controlling the high voltage applied across said spark plug.

4,380,990

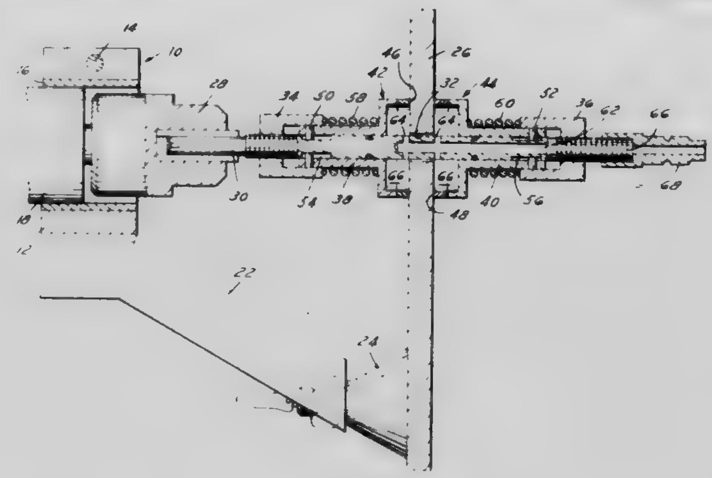
PORTABLE CORE DRILL CUTTER FOR HARD BRITTLE SHEETS

Dante S. Giardini, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Jul. 28, 1977, Ser. No. 819,904

Int. Cl.[3] **B23B** *35/00, 41/00;* **B28D** *1/02*

U.S. Cl. 125—20 **14 Claims**



1. A portable, lightweight drill assembly for enlarging a hole or opening in a piece of plate glass or the like, comprising, in combination, means for detachably mounting a drill motor on one side of the glass, the motor having a drill shaft extending through the glass from one side to the other through a hole of a diameter accommodating the shaft and coaxial with the opening to be enlarged, a pair of core drills facing one another one each on opposite sides of the glass and having cutter faces of a larger diameter than the hole in the glass, means operatively securing the core drills to the drill shaft for simultaneous rotation therewith, the faces of the core drills being contiguous to opposite glass surfaces, means mounting at least one of the core drills on the shaft for axial movement relative to the shaft, and spring means biasing the cutter faces of the core drills against the contiguous glass surfaces whereby operation of the drill motor effects a simultaneous rotational cutting by the pair of core drills into opposite surfaces of the glass by the simultaneous axial movement of the drills in opposite directions towards one another to provide the desired enlarged hole, and a fluid passage connected at one end to a source of fluid under pressure, the passage at its other end opening adjacent the hole in the glass to be enlarged and internal of the cutter faces for discharge from the passage radially outwardly under pressure past the cutter faces of the core drills to continuously flush grinding swarf away from the cutters and thereby minimize loading of the drills.

4,380,991

DRILLING DEVICE

Martin Richter, Freising, and Wolfgang Erdt, Munich, both of Fed. Rep. of Germany, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein

Filed Jul. 29, 1980, Ser. No. 173,374

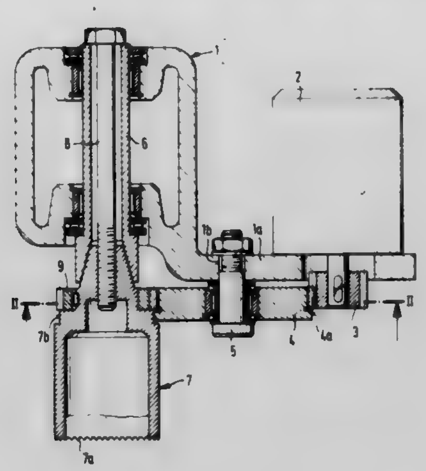
Claims priority, application Fed. Rep. of Germany, Jul. 30, 1979, 2930856

Int. Cl.[3] **B23B** *41/00;* **B28D** *1/14*

U.S. Cl. 125—20 **3 Claims**

1. Device for drilling rock, concrete, reinforced concrete and similar materials comprising a housing, a spindle located within said housing and rotatable about an axis therein, a replaceable drilling tool connectably mounted on said spindle for rotation therewith, a driving pinion located in said housing laterally of said spindle, an intermediate gear positionable in meshed engagement with said driving pinion, a gear wheel driven by said driving pinion via said intermediate gear and said gear wheel arranged to transfer rotational movement to said drilling tool, wherein the improvement comprises that said gear wheel is mounted on said drilling tool, the spacing between said intermediate gear and said spindle being adjustable

with the spacing between said intermediate gear and said driving pinion being maintained the same, the diameter of the rolling circle of said gear wheel corresponds essentially to the outside diameter of said drilling tool, and said drilling tool



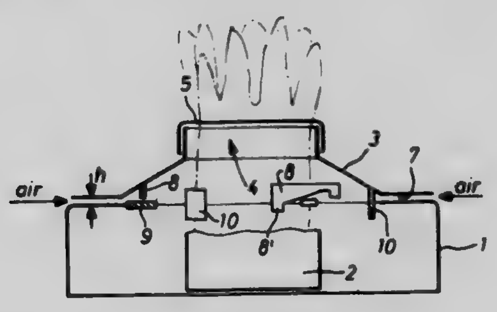
comprising a plurality of drilling tools each of a different diameter and selectively individually replaceably connected to said spindle and the relation between the diameter of said gear wheel and of the outside diameter of said drilling tools affords the correct constant cutting speed for a specific material.

4,380,992

BURNER, ESPECIALLY FOR A FLAMBÉ PORTABLE STOVE OR THE LIKE

Markus Spring, Sirnach, Switzerland, assignor to Spring AG, Metallwarenfabrik, Eschlikon, Switzerland

Filed Sep. 2, 1980, Ser. No. 182,973
Claims priority, application Fed. Rep. of Germany, Sep. 11, 1979, 2936595
Int. Cl.³ F24C *5/00*
U.S. Cl. 126—43 **2 Claims**



1. A burner for a small portable stove, especially for a flambe stove, comprising:
  - a burner lower portion equipped with a fuel container for a fuel which is to be combusted;
  - a burner upper portion having a flame opening and cooperating with said burner lower portion;
  - means for regulatably lifting said burner upper portion with respect to said burner lower portion for forming an air inlet gap extending at least partially about said burner;
  - said means for regulatably lifting said burner upper portion comprising at least three run-on inclined elements between the burner upper portion and said burner lower portion, so that by moving the burner upper portion in relation to the burner lower portion it is possible to alter the height of said air inlet gap;
  - said run-on inclined elements are provided at an underside of said burner upper portion; and said lifting means further including means coacting with said run-on inclined elements provided at the burner lower portion;
  - said coacting means at said burner lower portion comprising fixed tongues; and
  - said burner upper portion being rotatable relative to said burner lower portion for adjusting the air inlet gap.

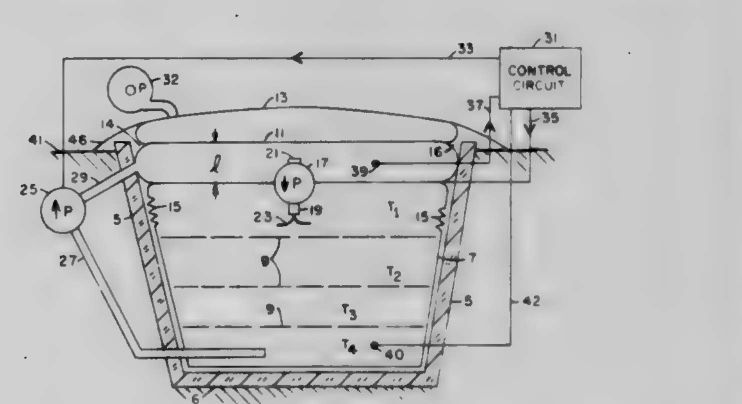
2. A burner for a small portable stove, especially for a flambe stove, comprising:
  - a burner lower portion equipped with a fuel container for a fuel which is to be combusted;
  - a burner upper portion having a flame opening and cooperating with said burner lower portion;
  - means for regulatably lifting said burner upper portion with respect to said burner lower portion for forming an air inlet gap extending at least partially about said burner;
  - said means for regulatably lifting said burner upper portion comprising at least three run-on inclined elements between the burner upper portion and said burner lower portion, so that by moving the burner upper portion in relation to the burner lower portion it is possible to alter the height of said air inlet gap;
  - said run-on inclined elements are provided at an underside of said burner upper portion; and said lifting means further including means coacting with said run-on inclined elements provided at the burner lower portion;
  - said coacting means at said burner lower portion comprising fixed tongues; and
  - said burner upper portion being lengthwise displaceable with respect to the burner lower portion for adjusting the air inlet gap.

4,380,993

COMBINED SOLAR COLLECTOR AND STORAGE POND

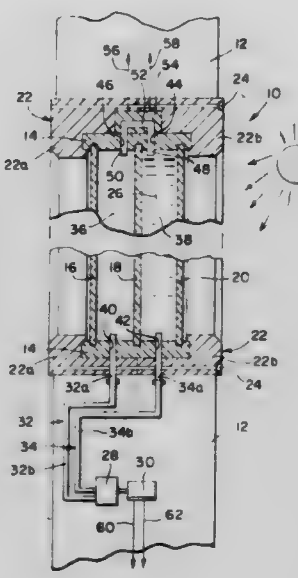
Hermann J. Spitzer, 8004 Arcade St. (Fairfax County), Lorton, Va. 22079

Filed Jul. 28, 1980, Ser. No. 172,901
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—415 **14 Claims**



10. A combined solar energy collector and solar energy storage pond assembly comprising: A storage pond comprising a large flexible plastic bag supported in the lower portion of a containment structure and occupying most of the volume of said containment, said large plastic bag being filled or nearly filled with black radiation absorbing fluid; said energy collector comprising a smaller absorber bag or compartment of clear, flexible plastic adapted to be filled with said black radiation absorbing fluid; a first pump/valve mounted in a hole in the top surface of said large bag or compartment and the bottom surface of said absorber bag or compartment, said pump/valve being adapted to pump heated radiation absorbing fluid from said absorber bag or compartment to said storage pond; and a second pump/valve adapted to pump cool radiation absorbing fluid from the bottom of said storage pond to the absorber bag or compartment after said absorber bag or compartment has been emptied by said first pump/valve.

4,380,994
ALL SEASON WINDOW
Robert A. Seemann, 89 Earl Ave., Hamden, Conn. 06514
Division of Ser. No. 52,770, Jun. 28, 1979, Pat. No. 4,347,835. This application May 12, 1982, Ser. No. 377,663
Int. Cl.³ F24J *3/02;* **E06B** *7/12, 7/14*
U.S. Cl. 126—431 **4 Claims**



1. An all season window comprising:

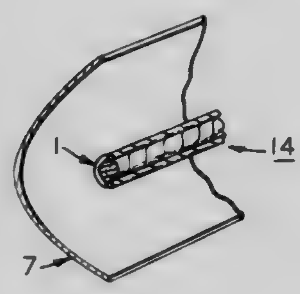
a peripherally extending pane mounting frame mounting said window in an exterior wall of a structure having an interior space;

first, second and third panes of essentially rigid transparent sheet material mounted sealingly and fixedly within said frame in spaced parallel relationship each to the other, said second pane being interposed between said first and third panes, said second pane comprising solar heat ray absorbent material;

a discrete amount of heat absorbent liquid maintained either at a first location between said first and second panes to minimize transfer of heat from absorbed solar energy to said interior space or at a second location between said second and third panes to provide said heat to said interior, said discrete amount being sufficient to substantially fill only one of said locations at a time;

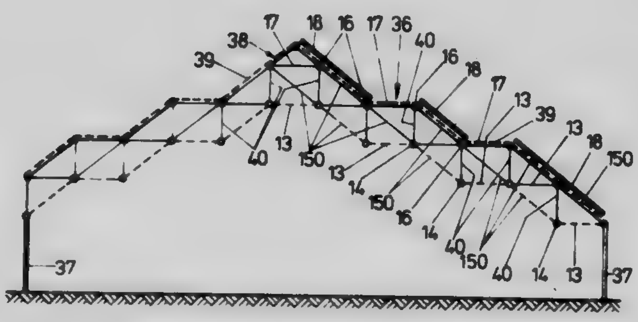
and means for selectively moving said heat absorbent liquid between said first and second locations.

4,380,995
SOLAR ENERGY CONVERTERS AND ABSORBERS THEREFOR
Alastair Robertson, Glentramman Manor House, Lezayre, nr. Ramsey, Isle of Man, England
Filed May 7, 1979, Ser. No. 36,765
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—438 **12 Claims**



1. A solar energy converter comprising a reflector and an absorber, said reflector being adapted for direct exposure to solar radiation and having a concavely curved reflecting surface for collecting and reflecting solar radiation onto said absorber, and said absorber comprising a convexly curved wall and a concavely curved wall joined together to define an internal chamber of generally crescent-shaped cross-section, said absorber being arranged with respect to the reflector so that solar radiation directed by the reflector onto the absorber falls substantially perpendicularly onto substantially the whole of the convexly curved wall thereof, said internal chamber being in the form of a narrow conduit for the passage of heat exchange fluid in a turbulent flow manner so as to remove heat from said convexly curved wall of the absorber, and including thermal insulation on said concavely curved wall of said absorber to minimize heat losses therefrom.

4,380,996
ROOF CONSTRUCTION FOR BUILDINGS
Max Mengeringhausen, Wurzburg, Fed. Rep. of Germany, assignor to MERO-Raumstruktur GmbH & Co., Wurzburg, Fed. Rep. of Germany
Continuation of Ser. No. 28,356, Apr. 9, 1979, abandoned. This application Apr. 30, 1981, Ser. No. 259,141
Claims priority, application Fed. Rep. of Germany, Apr. 8, 1978, 2815268
Int. Cl.³ F24J *3/02;* **F28F** *9/00*
U.S. Cl. 126—450 **9 Claims**



1. In a roof construction for buildings, particularly buildings which do not have a north-south alignment, comprising a space framework formed by rods and knot elements, with first rods in a top chord and second rods in a bottom chord and diagonal rods connecting said first and second rods, whereby the diagonal rods are arranged in groups in a plurality of intersecting planes, running oblique to the horizontal, and the intersecting planes including the diagonal rods are arranged in groups that are parallel to each other,

the improvement characterized in that:

a section of planes, which include groups of diagonal rods of the space framework (**33, 35, 36**) is aligned independent of the alignment of the building (**5, 30, 31, 41**) in the direction of the highest position of the sun, and

solar collectors (**18**) are arranged in said planes and mounted on the diagonal rods wherein the framework (**33,35,36**) is deformed on condition that for sets of rods (**15,150**) pointing in the direction of the highest elevation of the sun and with parallel upper chord axes, the junctions (**14**) of the lower chord form a grid with grid lines (**34**) parallel to the building contours and presenting essentially uniform spacings (L_a,L_b) along each axis.

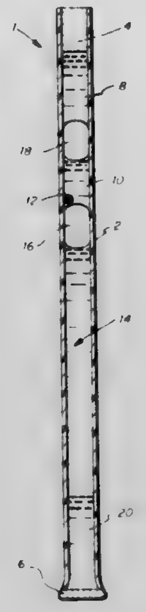
4,380,997
EMBRYO TRANSFER METHOD AND APPARATUS
Stanley P. Leibo, San Antonio, Tex., assignor to Rio Vista International, Inc., San Antonio, Tex.
Filed Apr. 7, 1981, Ser. No. 251,969
Int. Cl.³ A61D *7/00, 7/02*
U.S. Cl. 128—1 R **23 Claims**

1. A method for thawing and transferring frozen embryos to recipients comprising:

(a) thawing a volume of frozen cryoprotective agent containing the embryo;

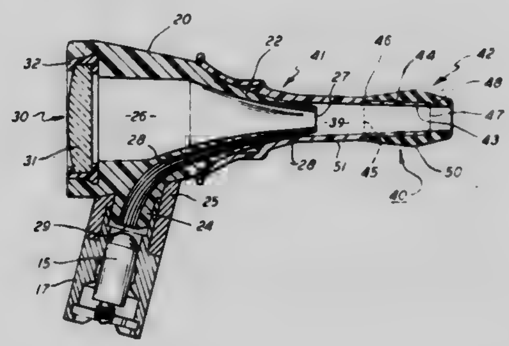
(b) combining said thawed volume with an effective volumetric amount of a diluent solution for diluting the cryoprotective agent, said diluent solution having a concentration of a nontoxic, nonpermeating diluent sufficient to

result in a dilution mixture which is substantially isosmolal; and



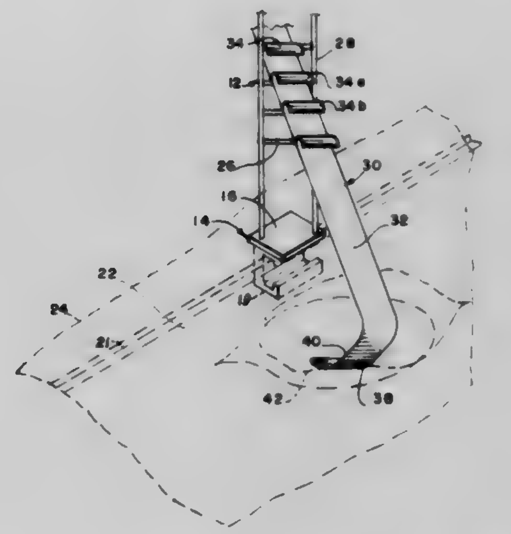
(c) transferring said dilution mixture and embryo directly into a recipient where washing of said dilution mixture from said embryo occurs.

4,380,998
SOFT TIP SPECULUM
Joseph D. Kieffer, III, Camillus; John Cecil, Jr., and Barden A. Conroe, both of Skaneateles, all of N.Y., assignors to Welch Allyn, Inc., Skaneateles Falls, N.Y.
Filed Jan. 5, 1981, Ser. No. 222,281
Int. Cl.^{3} A61B *1/22*
U.S. Cl. 128—9 **7 Claims**



1. A removable speculum for use in conjunction with an instrument that is inserted into the ear canal and includes
a general frusto-conical body formed of a rigid material having an extended section disposed outwardly from the smaller end wall of the body and having a reduced diameter with respect to the smaller end wall, so as to form a radially extended shoulder therewith, the extended section terminating in a front end face, said body and said reduced diameter extended section having an unobstructed access opening passing therethrough,
a locking means for removably securing the body to the instrument,
a hollow cylindrical tip mounted upon said extended section that is formed of a soft flexible material that conforms against the wall of the ear canal to establish a positive seal thereagainst, said tip having a rear wall that is seated against said shoulder and a front wall that passes over and abuts against the front end face of the extended section, whereby the tip is prevented from moving axially on the extended section and collapsing into said opening as it is inserted and maneuvered in the ear canal, and
said tip further having a raised midsection that overlies the extended section and tapers downwardly toward each wall whereby the tip can be maneuvered in the ear without breaking the seal.

4,380,999
STEPPED SURGICAL RETRACTOR
Keelin E. Healy, 3402 Treehouse Pkwy., Norcross, Ga. 30093
Filed Jul. 15, 1980, Ser. No. 169,022
Int. Cl.^{3} A61B *17/02*
U.S. Cl. 128—20 **7 Claims**

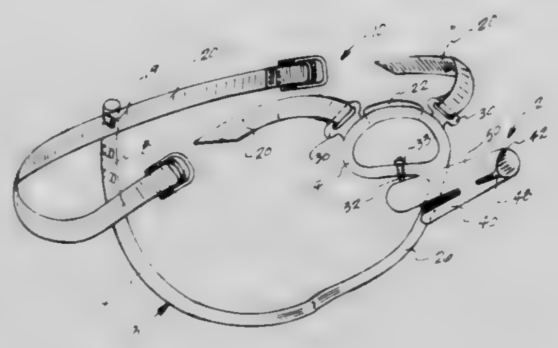


1. In a surgical retractor for retracting and lifting a body organ:
an elongated retractor member means for mounting on a surface such as on one side of an operating table for longitudinal adjustment upwardly or downwardly and transversely of the mounting surface to change the effective length thereof, said retractor member having opposite ends and a plurality of retaining members at spaced positions thereon,
a curved retracting end means of said retractor member means defining a slope portion in which at least part of the body organ is supported for lifting,
a support member means extending vertically upwardly to the mounting surface for adjustably supporting said retractor member above the organ on the mounting surface, whereby the height of the end of the retractor member means opposite from the slope portion may be adjusted in vertical height by moving same selectively upwardly or downwardly and substantially through said support member means to change the effective length of the elongated retractor member means, said support member means comprising a plurality of individual support members spaced from one another upwardly above the mounting surface from each other,
said retractor member means being selectively movable from one position on said support means upwardly or downwardly and selectively inwardly or outwardly relative to the mounting surface to engage a selected retaining member with one selected support member thereby to determine the height and effective length of the retractor member,
thereby to change the angle of the retractor member with respect to the transverse line of the operating table whereby the height, angle and effective length of said retractor member may be adjusted and set.

4,381,000
DEVICE FOR USE IN HUMAN COPULATION
Lee G. Duncan, 898 N. Highland Ave., NE., Atlanta, Ga. 30306
Filed Apr. 2, 1981, Ser. No. 250,248
Int. Cl.^{3} A61F *5/00*
U.S. Cl. 128—79 **12 Claims**

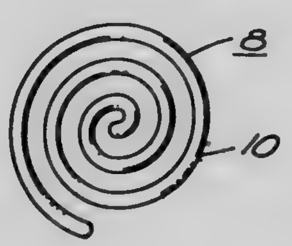
1. A device to be worn by the human male during the act of sexual intercourse comprising sheath means for encircling and shielding the shaft of the penis from a point directly behind the glans to the base portion thereof to retract and retain the skin of the shaft therewithin, and harness means adapted to be worn about the lower portion of the male body for supportably

positioning said sheath means to prevent its longitudinal movement along the penis and relative movement of the skin along the shaft of the penis during intercourse, said harness means comprising an elongate relatively rigid section having a base portion at one end thereof for location on the central lower abdomen of the body of the male above the penis and in juxtaposition to the pubic bone, and a semi-rigid flexible elongate member attached to and extending from said base portion



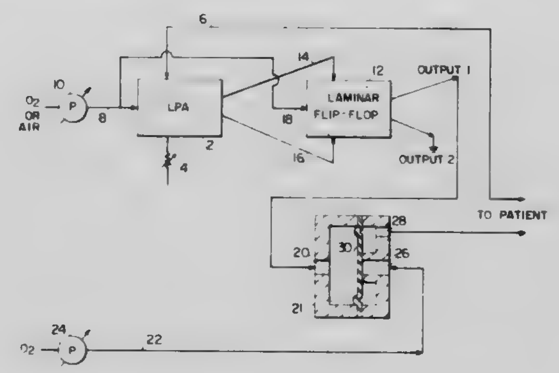
passing between the legs of the male body and having an end portion to be positioned adjacent the lower vertebra of the spinal column of the body, and flexible strap means for interconnecting said base portion and said end portion of said semi-rigid elongate member about the hips of the body to draw the base portion and the end portion of the elongate member into firm engagement with the pubic bone and lower vertebra of the spine of the male body, respectively.

4,381,001
IUD ARRANGEMENT
Seth T. Shaw, Jr., 30036 Via Borica, Rancho Palos Verdes, Calif. 90274
Division of Ser. No. 55,900, Jul. 9, 1979, which is a continuation-in-part of Ser. No. 928,093, Jul. 26, 1978, Pat. No. 4,233,968, Ser. No. 927,765, Jul. 25, 1978, and Ser. No. 928,106, Jul. 26, 1978, abandoned. This application Jul. 1, 1980, Ser. No. 165,187
Int. Cl.³ A61F *5/46*
U.S. Cl. 128—130 **17 Claims**



1. A medicated intrauterine device of the type insertable into the uterus for retention therein for a predetermined time period and comprising, in combination, a uterus insertable body member comprising a polymer matrix having an external surface contacting the uterus, a coating on a first portion of said external surface of said body member comprising a drug, and said drug compromising at least a guanidine in one of a non-biodegradable monomer, non-biodegradable dimer, non-biodegradable oligomer and non-biodegradable, cross-linked polymer form and said drug chemically bonded to said surface of said polymer matrix.

4,381,002
FLUIDIC-CONTROLLED OXYGEN INTERMITTENT DEMAND FLOW DEVICE
George Mon, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Dec. 18, 1980, Ser. No. 217,881
Int. Cl.³ A61M *16/00*
U.S. Cl. 128—204.24 **6 Claims**



1. An apparatus for providing intermittent flow of respiratory fluid to an individual, comprising:
- a supply of respiratory fluid;
- fluid application means for applying said respiratory fluid to a respiratory orifice of the individual;
- respiratory fluid communication means for providing a flow of said respiratory fluid from said respiratory fluid supply to said fluid application means;
- valve means, placed in said respiratory fluid communication means for interrupting said flow of respiratory fluid;
- a laminar bi-stable amplifier for controlling the operation of said valve means, including an inlet, a first outlet, a second outlet, a first control port, and an opposite second control port;
- an atmospherically biased laminar proportional amplifier for controlling the operation of said laminar bi-stable amplifier, including an inlet, a first outlet, a second outlet, a first control port, and an opposite second control port;
- a source of low pressure power fluid;
- power fluid supplying means for providing a flow of said power fluid from said power fluid source into the inlets of the laminar proportional amplifier and the laminar bi-stable amplifier, respectively;
- pressure sensing means for sensing a pressure at said respiratory orifice of the individual;
- pressure communication means for communicating said sensed pressure to the first control port of said laminar proportional amplifier;
- fluid communication bias means for atmospherically biasing said laminar proportional amplifier by communicating an atmospheric pressure flow to the second control port of said laminar proportional amplifier,
  - wherein whenever said sensed pressure falls to an inhalation pressure indicating the initiation of an inspiration cycle by said individual, said sensed inhalation pressure communicated to said first control port of the laminar proportional amplifier and said atmospheric pressure communicated to said second control port of the laminar proportional amplifier comprise a first difference signal which causes said power fluid to flow from the inlet to the first output of said laminar proportional amplifier, and
  - whenever said sensed pressure rises to an exhalation pressure indicating the initiation of an expiration cycle by said individual, said sensed exhalation pressure communicated to said first control port of said laminar proportional amplifier and said atmospheric pressure communicated to said second control port of the laminar proportional amplifier comprise a second difference signal which causes said power fluid to flow from the inlet to

the second output of said laminar proportional amplifier;

amplifier control fluid communication means for connecting the first and second control ports of the laminar bi-stable amplifier to the first and second outputs of the laminar proportional amplifier, respectively, so that switching of the power fluid between the two outputs of the laminar proportional amplifier in response to said first and second difference signals causes corresponding switching of the power fluid between the two outputs of the laminar bi-stable amplifier; and

valve control fluid communication means for connecting at least one output of the laminar bi-stable amplifier in fluid communication with said valve means, wherein said valve means is controlled by the laminar bi-stable amplifier to open whenever said sensed pressure falls to said inhalation pressure and to close whenever said sensed pressure rises to said exhalation pressure.

4,381,003

METHOD AND APPARATUS FOR THE AUTOMATIC SEMICONTINUOUS PERITONEAL DIALYSIS

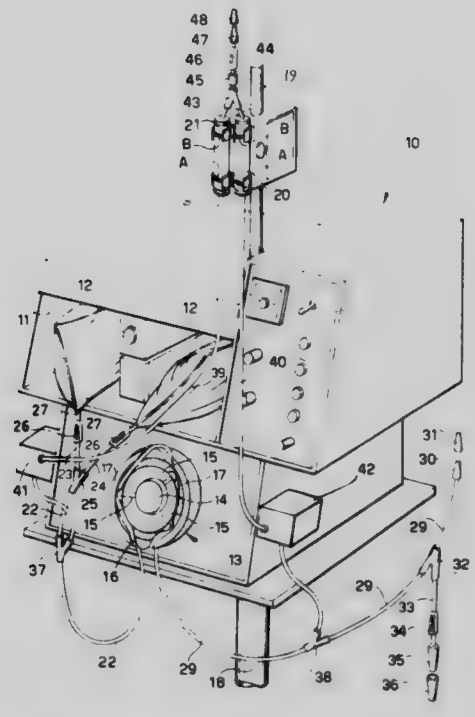
Vincenzo Buoncristiani, Via Marco Polo, 4, Foligno (Perugia), Italy

Filed Oct. 24, 1980, Ser. No. 200,425

Claims priority, application Italy, Oct. 26, 1979, 43514 A/79

Int. Cl.³ A61M *5/00*

U.S. Cl. 128—213 A **7 Claims**



1. In an apparatus for conducting automatic semicontinuous peritoneal dialysis, including a supply of dialysing solution, an inlet catheter for insertion into the peritoneal cavity of a patient undergoing treatment, and a pumping means for pumping dialysing solution in a pumping direction either to or from said suply of dialysing solution and said peritoneal cavity, the improvement comprising:

(a) control means connected to said pumping means for automatically actuating said pumping means to change said pumping direction; and

(b) safety means connected to said control means for preventing unwanted pressure build-up in said peritoneal cavity, said safety means including a shunt circuit connected to said pumping means, said shunt circuit comprising an upstream branch connected upstream of said pumping means and in communication with said supply of dialysing solution, and a downstream branch connected downstream of said pumping means and in communication with said inlet catheter, said control means actuating said pumping means upon detection by said safety means of unwanted pressure build-up in said downstream branch, said control means being set for actuating said pumping means to change said pumping direction before said downstream branch is completely filled with dialysing solution being pumped to said peritoneal cavity.

4,381,004

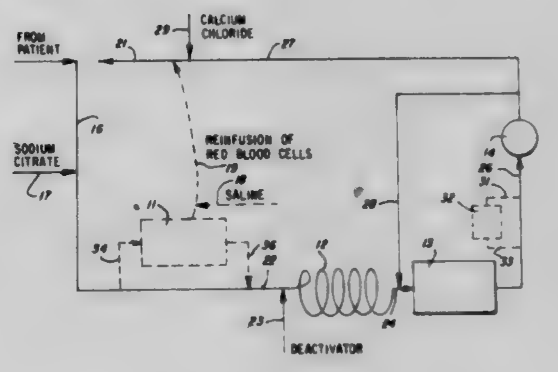
EXTRACORPOREAL SYSTEM FOR TREATMENT OF INFECTIOUS AND PARASITIC DISEASES

Albert L. Babb, Seattle, Wash., assignor to Biomedics, Inc., Arlington Heights, Ill.

Filed Jan. 15, 1981, Ser. No. 225,309

Int. Cl.³ A61M *1/03*

U.S. Cl. 128—214 R **17 Claims**



1. The method of treating or preventing a disease caused by microorganisms in the bloodstream comprising withdrawing blood from a bloodstream, treating at least a fraction of the withdrawn blood extracorporeally with a microorganism inactivator, and thereafter introducing at least a fraction of said blood, having a reduced microorganism level, into a bloodstream, said introduced blood or blood fraction being substantially free of said microorganism inactivator.

4,381,005

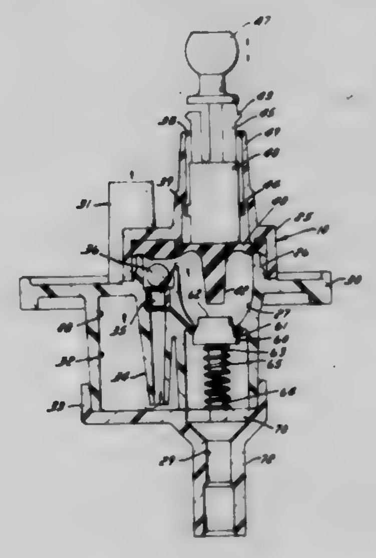
INTRAVENOUS PUMP CHAMBER

Albert F. Bujan, Waukegan, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

Filed Jun. 29, 1981, Ser. No. 278,546

Int. Cl.³ A61M *5/00;* F09B *21/02*

U.S. Cl. 604—152 **10 Claims**



1. An intravenous pump chamber for pumping intravenous liquids including blood by means of an intravenous pump having driver means and mechanization to move the driver means in an up and down manner, said pump chamber comprising:

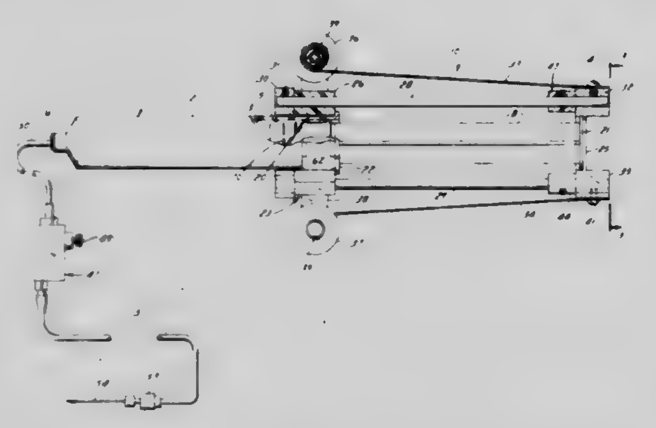
a chamber defined by a housing member presenting a cavity portion;

inlet and outlet passage means in fluid communication with said cavity;

one way valve means operatively associated with said inlet passage means;

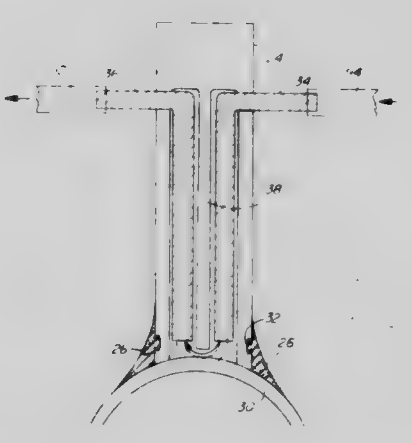
a diaphragm means positioned over said cavity and spaced from said outlet passage means;
a plunger member operatively positioned and guided to contact said diaphragm member at one end and said driver means at the other;
said outlet passage means defined by a valve seat;
an outlet valve member, said outlet valve member presenting a downwardly and outwardly extending lateral wall surface constructed and arranged to direct said liquid downwardly and away from said biasing means in a uniform manner as said liquid passes through said outlet passage means; and
biasing means operatively associated with said valve member to bias said valve member against said valve seat in an axial manner.

4,381,006
CONTINUOUS LOW FLOW RATE FLUID DISPENSER
Joseph N. Genese, Waukegan, Ill., assignor to Abbott Laboratories, North Chicago, Ill.
Filed Nov. 10, 1980, Ser. No. 205,825
Int. Cl.[3] A61M *5/00*
U.S. Cl. 128—218 A **8 Claims**



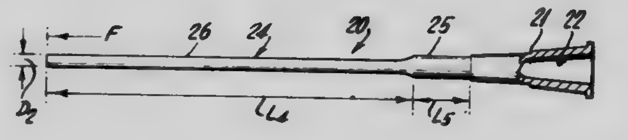
1. A syringe device for delivery of the contents thereof at a slow, uniform rate comprising:
a syringe including:
a barrel member defining a substantially tubular chamber having an internal wall portion and a nozzle portion;
a plunger member having a sealing member secured thereto at one end and an engagement portion at the other, said sealing member in slidable engagement with said internal wall portion and said plunger member positioned for reciprocal movement in and out of said barrel member;
engagement surfaces extending from said barrel member;
a syringe carrier member including:
an abutment member for contact with said engagement portion of said plunger member;
a driver member constructed and arranged for contact with said engagement surfaces of said barrel member opposite said abutment member;
two oppositely positioned guide means slidably associated with said driver member and extending longitudinally of said barrel member;
two oppositely positioned negator biasing means operatively extending between said driver member and said carrier abutment member;
control means of the fluid passage type defined by a variable restrictor operatively associated with said nozzle portion; and
a length of tubing extending from said control means opposite said nozzle portion;
whereby upon placement of a portion of said plunger member out of said syringe barrel and movement of said carrier abutment member away from said driver member said biasing means will be placed under tension; placement of said syringe in said syringe carrier member and upon closing of said control means, said fluid material will be retained in said syringe barrel, and upon opening of said control means, said carrier driver member and said carrier abutment surface will be forced in opposing directions to thereby move said plunger sealing member toward said nozzle portion to expel said fluid material from said barrel member and out through said tubing at a slow steady rate.

4,381,007
MULTIPOLAR CORNEAL-SHAPING ELECTRODE WITH FLEXIBLE REMOVABLE SKIRT
James D. Doss, Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.
Filed Apr. 30, 1981, Ser. No. 258,970
Int. Cl.[3] A61B *17/36*
U.S. Cl. 128—303.1 **20 Claims**



1. An apparatus utilizing radio-frequency electrical energy without a remote electrode for reshaping a cornea comprising:
a plurality of electrode means having tips;
housing means disposed about said plurality of electrode means;
insulating means disposed within said housing means between said electrode means;
means for positioning said tips of said electrode means adjacent but spaced from a cornea to be reshaped;
means for producing an alternative voltage in the radio-frequency range;
means for applying said radio-frequency voltage to said tips of said electrode means and thereby radio-frequency energy in a preselected pattern to the cornea to be reshaped;
means for flowing an electrically conductive liquid coolant in the vicinity of one said tip, over the cornea, and from the cornea in the vicinity of another tip; and
flexible skirt means removably secured to said housing means for effectively damming said coolant over the cornea so that it does not run off.

4,381,008
METHODS OF IMPROVING SURFACE CHARACTERISTICS OF EXTRUDED THERMOPLASTIC TUBING AND PRODUCTS PRODUCED THEREBY
Joseph J. Thomas, Bridgewater, and Martin Sobel, Flemington, both of N.J., assignors to Johnson & Johnson, New Brunswick, N.J.
Filed Sep. 8, 1978, Ser. No. 940,548
Int. Cl.[3] A61M *25/00*
U.S. Cl. 604—265 **2 Claims**



1. An intravenous catheter comprising a hub and a section of hollow, extruded, thermoplastic tubing made of a single un-

coated material connected to said hub and extending substantially axially therefrom, said tubing having:

a nonstretched portion extending a short distance from one end of said tubing, relative to the entire length of said tubing, and having a first outside diameter, a first inside diameter and a first surface lubricity;

a stretched portion extending for the remainder of the length of said tubing and having a reduced outside diameter less than the outside diameter of said nonstretched portion and having a reduced inside diameter less than the inside diameter of the nonstretched portion and having a increased surface lubricity greater than the surface lubricity of the nonstretched portion so that said stretched portion of tubing may slide more freely and with less friction during intravenous insertion.

4,381,009

HAND-HELD DEVICE FOR THE LOCAL HEAT-TREATMENT OF THE SKIN

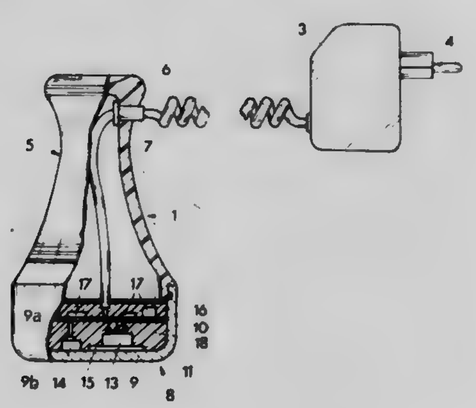
Franco Del Bon, 139 Feldstrasse, 4663 Aarburg, Switzerland

Filed Jan. 28, 1981, Ser. No. 228,937

Claims priority, application Switzerland, Jan. 28, 1980, 654/80-8

Int. Cl.³ A61F *7/00*

U.S. Cl. 128—399 **4 Claims**



1. A hand-held device for the local heat treatment of a patient's skin which device comprises:

(a) a casing having a bottom wall the outer face of which contains a treatment face;

(b) a handle part which is connected to the casing at a part thereof spaced from the bottom wall of the latter; as well as

(c) an electric heating unit in the interior of the casing which unit comprises

(i) a power transistor, a cooling vane and a heat sensor unit adapted for measuring the temperature of the treatment face;

said power transistor comprising an encapsulating hull being of heat-conductive material and being integral with said cooling vane, and

said cooling vane being of a flat configuration and in planar contact with the inner surface of said bottom wall;

and the heat sensor unit being arranged spaced from said cooling vane on the inner surface of the bottom wall of the casing in direct physical contact with said bottom wall; and

(ii) an electric circuit means disposed in the interior of the casing which circuit means is adapted for controlling electric current flow in the power transistor in response to any temperature variations of the treatment face of the bottom wall detected by said heat sensor unit, said electric circuit means being connected with the power transistor and the heat sensor unit, and comprising connecting means adapted for connecting said circuit means with a source of low voltage direct current, and a poured-in synthetic resin filling in the lower part of said casing, embedding said power transistor, cooling vane and electric circuit means and filling the space between said cooling vane and said heat sensor unit.

4,381,010

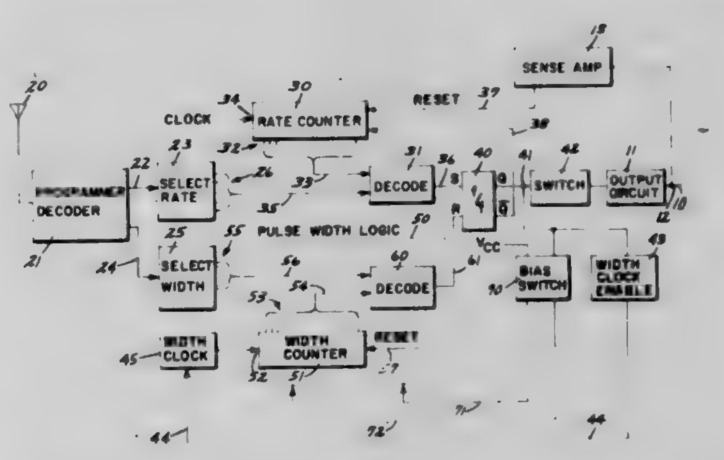
HEART PACEMAKER WITH INTEGRATED INJECTION LOGIC ENERGY SAVING CIRCUITRY

David L. Thompson, Fridley, Minn., and Donald W. Zobel, Tempe, Ariz., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Apr. 3, 1981, Ser. No. 250,640

Int. Cl.³ A61N *1/36*

U.S. Cl. 128—419 PG **12 Claims**



1. In a digitally controlled implantable heart pacemaker, a plurality of logic circuits interconnected to perform pacemaker control functions, first bias means for supplying bias current to a first group of said logic circuits, a second bias means for providing a switchable bias current to a second group of said logic circuits, and control means for controlling said second bias means and operative to increase bias current to said second group of logic circuits at selected intervals to increase the switching speed thereof during said selected intervals.

4,381,011

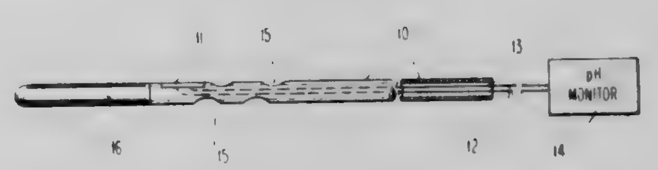
ENTERAL FEEDING APPARATUS AND METHOD

Lewis S. Somers, 3rd, 516 E. Gravers La., Wyndmoor, Pa. 19118

Filed May 4, 1981, Ser. No. 260,332

Int. Cl.³ A61B *5/00*

U.S. Cl. 128—635 **15 Claims**



1. A system for introducing fluid material into a preselected area of the gastro-intestinal tract of a patient, and characterized by:

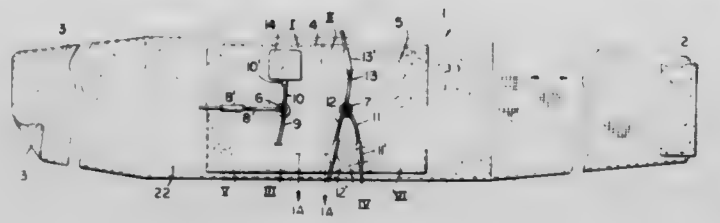
an elongated flexible tube, said tube having a substantially axial lumen through which fluid can flow, a proximal end and a distal end, and having perforations therethrough along a preselected portion of the distal end of said tube, said perforations communicating from said lumen to the outside of said tube;

means for introducing said fluid into said elongated flexible tube;

pH measuring means positioned on said tube proximate to said distal end, for generating a signal representative of the pH of the body fluid adjacent to said distal end; and

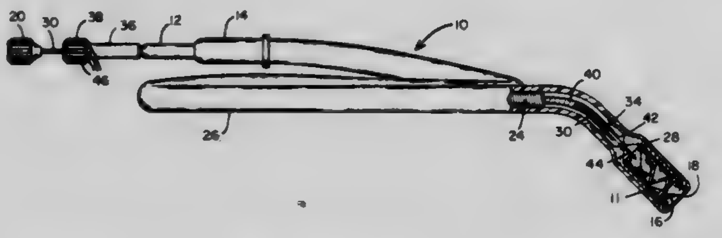
position means operatively connected to said pH measuring means for monitoring said adjacent pH signed and for determining the position of said distal end as a function of said monitored pH.

4,381,012
ELECTRODE PLACEMENT DEVICE
Allen S. Russek, Medford, N.Y., assignor to Wallant International Trade, Inc., New York, N.Y.
Filed Sep. 24, 1980, Ser. No. 190,242
Int. Cl.^{3} A61B *5/04*
U.S. Cl. 128—644 **33 Claims**



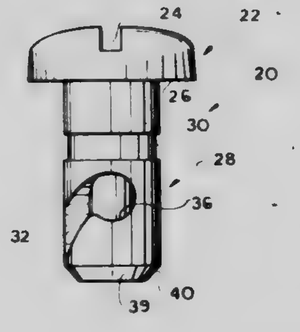
1. A device for continuously fixed automatic anatomically correct placement of at least one electrode means against one or more predetermined portions of a body, said at least one electrode means being adapted to transmit electrical signals, said device comprising:
- a substantially non-stretchable first portion adapted to be placed against a body portion of a wearer, said first portion having at least one electrode means at at least one electrode receiving position thereon;
- means for electrically connecting said at least one electrode means to an electrical signal generating and/or signal receiving device;
- touch-type locating means on said first portion and being cooperable with a given body portion of a wearer, said given body portion of the wearer having touch locatable characteristics, for positively automatically locating said device relative to said given body portion of the wearer, said at least one electrode means being a corresponding substantially fixed distance from said locating means so as to be adjacent said one or more predetermined body portions of the wearer each and every time the device is mounted to the body of the wearer, said one or more predetermined body portions being substantially fixed distances from said given body portion which last mentioned fixed distances are substantially the same as respective first mentioned fixed distances; and
- means for removably securing said first portion to the body of the wearer with said touch-type locating means adjacent said given body portion of the wearer and with said at least one electrode means adjacent to said one or more predetermined body portions of the wearer.

4,381,013
"J" STYLET WIRE
Robert G. Dutcher, Columbia Heights, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.
Filed Mar. 19, 1981, Ser. No. 244,933
Int. Cl.^{3} A61N *1/36*
U.S. Cl. 128—785 **19 Claims**



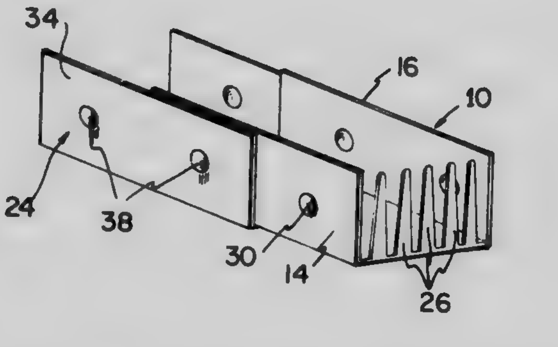
1. A body implantable lead comprising:
- a conductor having a proximal end and a distal end and having a lumen extending from said proximal end to said distal end;
- an insulating sheath covering said conductor;
- fixation means for securing said distal end of said conductor to body tissue; electrical connector attached to said proximal end of said conductor for electrically coupling said conductor to an electrical generator;
- stylet means removably located within said lumen of said conductor for imparting a curve to a portion of the distal end of the conductor for guiding placement of said distal end of said conductor; and
- flexible means, having a proximal end, rotatably and removably located within said lumen of said conductor coaxial to said stylet means for transferring torque induced at said proximal end of said flexible means to said fixation means while said stylet means imparts a curve to the distal end portion of said conductor.

4,381,014
RING ELECTRODE FOR PACING LEAD AND METHOD OF MAKING SAME
Richard D. Sandstrom, Scandia; Robert G. Dutcher, Columbia Heights, and Keith A. Ufford, Maple Grove, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Filed Oct. 10, 1980, Ser. No. 195,987
Int. Cl.^{3} A61N *1/04*
U.S. Cl. 128—786 **17 Claims**



1. An electrode for an implantable lead comprising:
- an electrical conductor;
- a continuous insulating sheath;
- conductor means
- means for attaching said conductor means to said electrical conductor; and
- conductive ring of material substantially impervious to body fluids frictionally attached to said conductor means and said continuous insulating sheath.

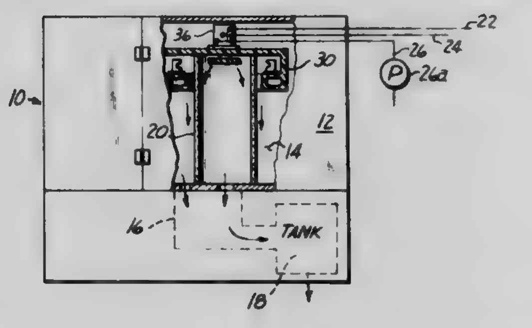
4,381,015
HAIR CUTTING GUIDE
Rickie Harvath, P.O. Box 132, Blaine, Me. 04734
Filed Jun. 15, 1981, Ser. No. 273,636
Int. Cl.^{3} A45D *24/00*
U.S. Cl. 132—45 R **1 Claim**



1. A hair cutting guide comprising a base portion and first and second side walls, the first and second side walls extending upwardly from the base portion in right angle relation thereto and in spaced relation to each other defining a bearing end and a free end and providing a trough like configuration and the guide including an inner sleeve, the inner sleeve having a base and side walls, the side walls extending upwardly from the base in spaced relation to each other, the inner sleeve positioned

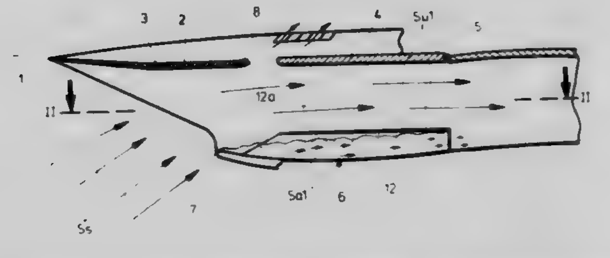
between the first and second side walls with the base in superposed relation to the base portion and the inner sleeve moveable longitudinally in relation to the base portion.

4,381,016
CLEANING FLUID DISTRIBUTION HEAD
Robin S. Douglas, 28381 Mount Stephen Ave., Canyon Country, Calif. 91351, and John M. Sweeney, 43050 Lemonwood Dr., Lancaster, Calif. 93534
Filed Jul. 7, 1981, Ser. No. 281,073
Int. Cl.^{3} B08B *3/02, 9/02*
U.S. Cl. 134—170 **21 Claims**



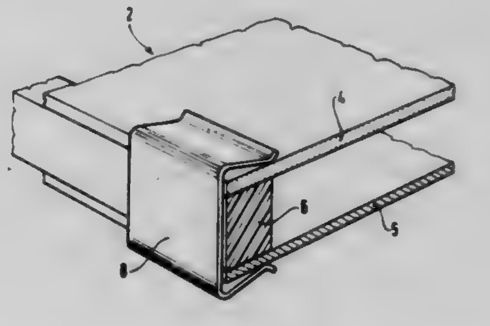
1. Cleaning fluid distribution head for cleaning elongated tubes, comprising structure adapted for endwise reception in a tube to be cleaned, said structure defining a series of flow passages communicating respective sets of inlet and outlet ports for separate delivery of different fluids to the tube for tube cleaning, said outlet ports being of a number and position to direct said fluids generally axially of the tube without contact of the fluid with adjacent tube inner wall, and means carried by said structure within said tube adapted and arranged to rotate responsive to impingement of cleaning fluids thereon from any of said outlets and thereby to redirect a first portion of outlet port delivered fluids centrifugally laterally outward onto the adjacent tube inner wall for sheet flow thereon, and to pass a second portion of said delivered fluids axially of said tube for mergence beyond said means with said redirected fluid portion on the tube inner wall, whereby the entire tube inner wall is subjected to cleaning fluids.

4,381,017
AIR INLET, ESPECIALLY A TWO-DIMENSIONAL AIR INLET SET AT AN ANGLE ON ONE SIDE FOR GAS TURBINE JET PROPULSION PLANTS FOR DRIVING AIRPLANES
Norbert Bissinger, Siegertsbrunn, Fed. Rep. of Germany, assignor to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany
Filed Mar. 16, 1981, Ser. No. 244,107
Claims priority, application Fed. Rep. of Germany, Apr. 5, 1980, 3013265; Feb. 25, 1981, 3107002
Int. Cl.^{3} F15B *27/02*
U.S. Cl. 137—15.1 **5 Claims**



1. In an air inlet for a gas turbine, especially a two-dimensional air inlet set at an angle on one side for gas turbine jet propulsion plants for driving airplanes, having an air inlet channel curved in space, especially double curved, and leading to the compressor of the propulsion plant, and further having, especially one, inlet cross-section for the supersonic operation controllable by means of adjustable ramps arranged overhead which are in the raised position during subsonic operation and which are tilted down during supersonic operation, so that a variable, convergent-divergent air inlet geometry is produced in the air inlet, the improvement comprising at least one flow guide fence (12) arranged in the zone of the air inlet channel (9) in which, due to flight conditions particularly angles of attack of the aircraft used in flight, a separation flow (Sa1) occurs, said flow guide fence (12) reaching substantially radially into said air inlet channel to an extent just sufficient to avoid disadvantages of said separation flow, said flow guide fence following particularly the longitudinal central plane (M) of the air inlet channel, said flow guide fence having an upstream end located in the area of the beginning of the channel curvature and a downstream end extending at least to the end of the channel curvature, said downstream end extending, in case of a doubly bent, air inlet channel (9 or 10, 11) at least to the turning point (W) in the curvature.

4,381,018
FLUIDIZATION UNIT
Alain Gernez, St. Jean de la Ruelle, France, assignor to Compagnie Europeenne pour l'Equipement Menager "CEPEM", Paris, France
Filed Jan. 25, 1980, Ser. No. 115,176
Claims priority, application France, Jan. 25, 1979, 79 01969
Int. Cl.^{3} B05C *19/02*
U.S. Cl. 137—592 **3 Claims**



1. A fluidisation unit comprising: at least one fluidiser and a chamber for containing a granular, powdery or like substance to be fluidised, said chamber having a non-porous bottom wall, and said at least one fluidiser comprising an integral, removable assembly, said assembly comprising a non-porous base sheet member, a porous sheet member sized to and overlying said base sheet member, and holding means including a peripheral sealing member interposed between said sheet members about the edges thereof and holding the sheet members apart in a fixed relationship, and wherein said at least one fluidiser is removably installed in said chamber underlying said granular substance with its non-porous sheet member overlying and resting against said non-porous bottom wall of the chamber, and wherein each fluidiser assembly is a held together by clips.

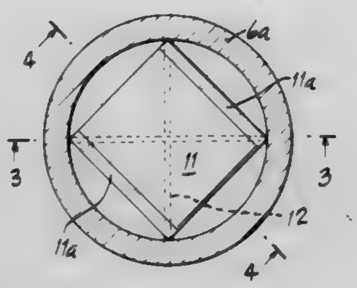
4,381,019
PRESSURE RESPONSIVE VALVE
Herbert E. Lindtveit, Centerport, N.Y., assignor to Sid Harvey, Inc., Valley Stream, N.Y.
Filed Jul. 6, 1981, Ser. No. 280,893
Int. Cl.^{3} F16K *15/14*
U.S. Cl. 137—843 **7 Claims**

1. A drip preventing valve adapted for installation in a conduit (2,5) between a pump discharge outlet and a nozzle (3), comprising:

a. a first pipe fitting (6,14) having an open end and an opposite end adapted for connection to said conduit;
b. a second pipe fitting (10) extending within said open end of the first fitting and cooperating with said first fitting to define a chamber, said second fitting having an inner end with a valve port (10*a*) encircled by a valve seat (10*b*), and an outer end attachable to said conduit for fluid communication therewith;
c. closed, flexible-walled, gas-filled cell means (11,15) within

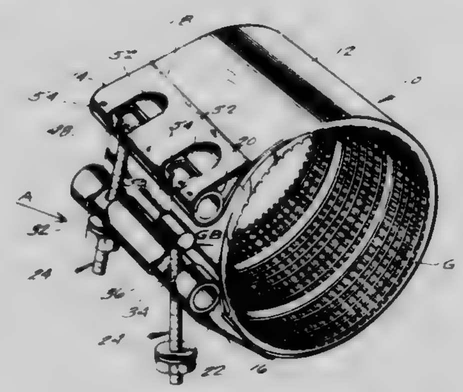
the chamber, said cell means being a single cell (11) formed of a section of flexible tubing flattened and sealed at its ends; and

d. means in the chamber opposite the seat and limiting the movement of the cell means in a direction away from the seat, said cell means having an unstressed dimension in said direction greater than the distance between the seat



and said movement limiting means, so that when the pressure within the cell means is at least equal to the pressure in the chamber, the cell means engages the seat and closes the valve port, said cell means being compressed when the pressure in the chamber is greater than the pressure in the cell means to decrease said dimension of the cell means and open the valve port.

4,381,020
SINGLE AND MULTIPLE SECTION PIPE REPAIR OR SERVICE CLAMPS
Joseph L. Daghe, Decatur; William L. Hauffe, Warrensburg, and Garrett D. Terrill, Oakley, all of Ill., assignors to Mueller Co., Decatur, Ill.
Filed Jul. 30, 1981, Ser. No. 288,325
Int. Cl.[3] F16L *55/16*
U.S. Cl. 138—99 **11 Claims**



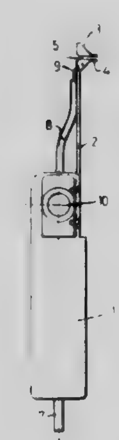
1. A low profile pipe clamp for encircling a pipe, said pipe clamp comprising:

a split flexible band means having at least one pair of opposed spaced apart looped ends extending fully widthwise of the band means and in a lengthwise direction of the pipe when the band means encircles the pipe, each of said looped ends of said band means having at least one slot therein, the slot of one of said looped ends opposing the slot of the other of said looped ends and each slot having a portion thereof with an enlarged width and extending in a longitudinal direction of the band means and positioned away from a terminus of the respective looped ends;

means for drawing said looped ends toward one another to tighten said band means about the pipe, said last-mentioned means distributing a load to said looped ends uniformly across the width of said looped ends and including a first tubular trunnion means freely rotatable in one of said looped ends and having an aperture extending transversely therethrough, said first tubular trunnion means having an axial length substantially equal to the width of the one of said looped ends, a second tubular trunnion means in the other of said looped ends and at least capable of rotation therein when the looped ends are drawn together, said second tubular trunnion means having an axial length substantially equal to the width of the other of said looped ends and having an open slot therein with a portion at one end widened in a direction parallel to the axis of the second tubular trunnion means, a T-bolt having a threaded shank and a T-head, said T-bolt being positioned through the aperture in said first tubular trunnion means and having a nut threaded onto its shank prior to assembly of the clamp on the pipe, said T-bolt and said first tubular trunnion means being pivotable to a position where the T-head of said T-bolt can fit through the widened portion of the slot of said second tubular trunnion means and bear against the interior thereof when the clamp is being assembled on the pipe, and

means to hold said second tubular trunnion means temporarily against rotation and axial movement in the other of said looped ends prior to assembly of the clamp on the pipe, said last-mentioned means permitting rotation of said second trunnion means in the other of said looped ends when said looped ends are drawn toward one another.

4,381,021
HANDTOOL FOR THREADING YARNS IN YARN-PROCESSING APPARATUS
Paul Gunneman, Mierlo, Netherlands, assignor to Ruti-Te Strake B.V., Deurne, Netherlands
Filed Feb. 24, 1981, Ser. No. 237,643
Claims priority, application Netherlands, Feb. 26, 1980, 8001162
Int. Cl.[3] D03J *3/00;* **G03B** *1/56*
U.S. Cl. 139—380 **6 Claims**



1. Handtool for threading a yarn into a difficult-to-reach path in a yarn processing apparatus, comprising a handle, a conduit which has an inlet for connection to a source of pressurized fluid and which extends from said handle and has a discharge orifice adjacent to its free end, a yarn support arranged to hold the leading end of the yarn in position to be entrained by a jet of fluid discharged from said orifice, and a valve for shutting off the flow of pressurized fluid through said conduit, whereby said conduit serves as a probe for placing the leading end of the yarn in position to be inserted into said path by a jet of fluid discharged through said orifice.

4,381,022
HOLY WATER FONT
Joseph M. Medynski, 183 E. Main St., Ramsey, N.J. 07446
Filed Dec. 10, 1981, Ser. No. 329,393
Int. Cl.[3] B65B *3/04*
U.S. Cl. 141—86 **4 Claims**

1. An improved holy water font comprising;

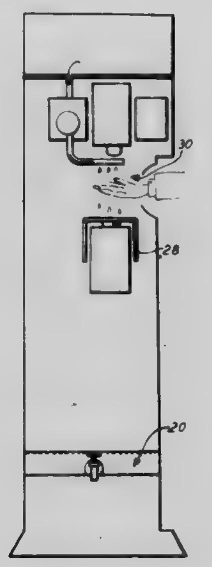
a stand including an upright, hollow member having an opening permitting the user to place his hand therein;

photoelectric exciter and receiving means disposed vertically on respective sides of said opening for generating a

light path through a part of the volume accessible through the opening;

water dispensing means, positioned above said opening whereby water is dispensed in response to a control electrical signal;

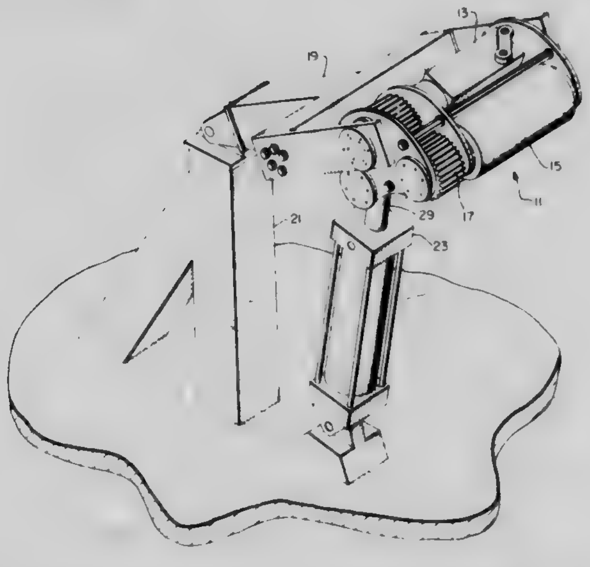
a transparent protective shield means disposed over the one of said exciter or receiving means disposed below said opening for protecting same from dispensed water; and,



means for generating said control electrical signal in response to the interruption of the said light path by the hand of the user,

whereby water is dispensed by said water dispensing means onto the hand of the user when said light path is interrupted.

4,381,023
AUXILIARY TORQUE BACK-UP ROLL
Frank J. Fronczak, and John F. Hunt, both of Madison, Wis., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.
Filed Feb. 26, 1981, Ser. No. 238,401
Int. Cl.^{3} B25C *1/00;* **B27L** *5/00*
U.S. Cl. 144—365 **10 Claims**



8. A method for applying supplemental torque to a log axially mounted on a rotary veneer lathe, the method comprising the steps of:

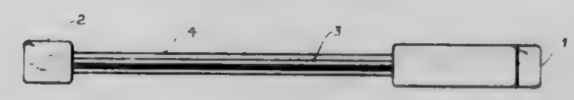
applying a rotational force to the outer periphery of a log utilizing a drive roller;

controlling the normal force between the roller and the log;

determining when slippage exists between the log and and the roller; and

increasing the normal force between the log and roller until the slippage is eliminated.

4,381,024
HACK SAW
Raymond C. Dreier, 1115 Industrial Ave., Escondido, Calif. 92025
Filed Dec. 28, 1981, Ser. No. 334,646
Int. Cl.^{3} B27B *21/02*
U.S. Cl. 145—33 R **2 Claims**



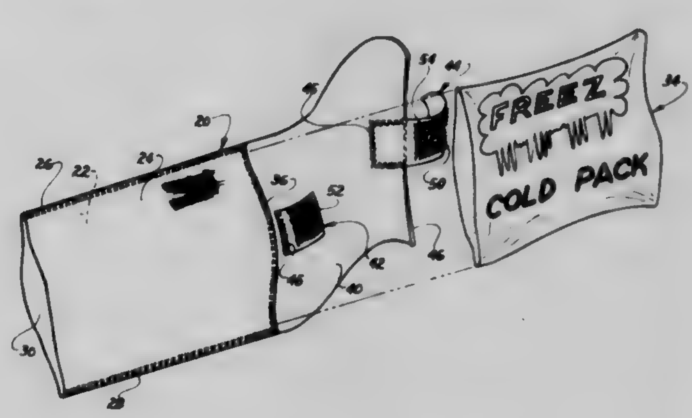
1. An improved hack saw of the type having a frame consisting of a longitudinal, normally horizontal, member having downwardly extending members at each end supporting a saw blade between their lower extremities, one end member being the saw handle, means for applying tension to the saw blade between the two members wherein the improvement comprises:

a. a compression tube positioned between the upper portion of the downwardly extending members;

b. a first rod adjustable in tension between the downwardly extending members positioned above the compression tube; and

c. a second rod adjustable in tension between the downwardly extending members positioned inside the compression tube;

4,381,025
COVER FOR INSTANT HOT OR COLD PACK
Constance E. Schooley, 10443 SW. 120th St., Miami, Fla. 33176
Continuation of Ser. No. 260, Jan. 2, 1979, abandoned. This application Dec. 21, 1981, Ser. No. 333,254
Int. Cl.^{3} A61F *7/06;* **B65D** *33/16*
U.S. Cl. 150—2.4 **7 Claims**



1. A flexible pack which can be positioned and held in place on a selected portion of the body, said pack including an open pouch having a flap which includes a first fastener and winds over and closes the opening of the pouch and an end portion having a separate second fastening means to removably attach said flap to the back surface of said pouch and forming a space between said pouch and said flap for receiving said portion of said body and to provide proper pressure thereon, said pouch being capable of receiving a cold-producing packet actuable by external pressure.

4,381,026
TIRE COOLING STRUCTURE
Frank O. Skidmore, 2513 Third St., Cuyahoga Falls, Ohio 44221
Filed Jan. 12, 1981, Ser. No. 224,374
Int. Cl.^{3} B60C *19/06*
U.S. Cl. 152—153 **11 Claims**

1. In combination,

a standard one-piece drop center rim, said rim having a closed substantially flat well and substantially horizontal

bead receiving flanges extending laterally from the well and integral therewith,

tire bead retaining flanges extending substantially vertically from the edges of the bead receiving flanges and integral therewith,

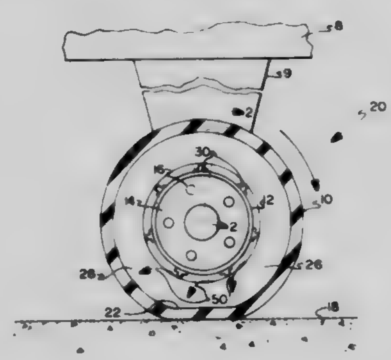
a radially inwardly projecting wheel secured to the well of the rim,

a pneumatic tire having a tread and sidewalls mounted in fluid tight relation on the rim and secured by the tire bead retaining flanges, and

a plurality of circumferentially spaced radially directed inverted T-shaped paddles mounted substantially perpendicular to the torus of the rim but across a substantial portion of the width thereof within the fluid tight cavity defined by the tire and the rim and spaced at a distance apart to effectively agitate the fluid providing pressure in the tire during rotational operation thereof in fluid streams directed from the rim towards the tread of the tire to transfer heat generated at the tread to the rim.

8. In combination,

a standard one-piece drop center rim, said rim having a closed substantially flat well and substantially horizontal



bead receiving flanges extending laterally from the well and integral therewith,

tire bead retaining flanges extending substantially vertically from the edges of the bead receiving flanges and integral therewith,

a radially inwardly projecting wheel secured to the well of the rim,

a pneumatic tire having a tread and sidewalls mounted in fluid tight relation on the rim and secured by the tire bead retaining flanges, and the improvement which consists essentially of

a plurality of circumferentially spaced and circumferentially narrow radially directed paddles mounted substantially perpendicular to the surface of the flat wall of the rim but extending across a substantial portion of the width thereof within the fluid tight cavity defined by the tire and the rim and spaced at a distance apart to effectively agitate the fluid providing pressure in the tire during rotational operation thereof in fluid streams directed from the rim towards the tread of the tire to transfer heat generated at the tread to the rim and to other portions of the tire, said cavity being otherwise clear for fluid flow therein.

4,381,027

TIRE INFLATION SAFETY CAGE

James O. Molen, 189 Conners Ave., Chico, Calif. 95926, and Stephen C. Molen, 1215 East St., Orland, Calif. 95963

Filed Oct. 17, 1980, Ser. No. 198,207

Int. Cl.^{3} B60C *25/00*

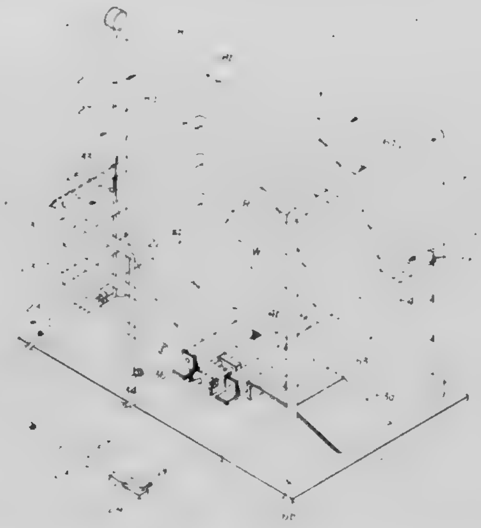
U.S. Cl. 157—1 **20 Claims**

1. A tire inflation safety cage for a tire on a wheel having a lock ring and a tire valve comprising, in combination,

a base plate,

a framework mounted on said base plate having at least one open end and defining an enclosure having an interior for accommodating a wheel having a tire to be inflated, said framework including a plurality of longitudinally extending side members on each side of said framework and means for supporting said side members in spaced-apart, substantially parallel relationship with an open area above said side members for exposing an upper circumferential portion of a tire disposed within said enclosure interior,

means adapted to extend through said open area for connecting said tire valve with an associated source of pressurized



air, said side members having a spaced-apart relationship for permitting selected portions of said lock ring to be struck for positive seating by a hammer swung laterally by an operator and means on said base plate for supportingly engaging a bottom peripheral portion of said tire within said enclosure interior for manual rotation of said tire into selected rotary position.

4,381,028

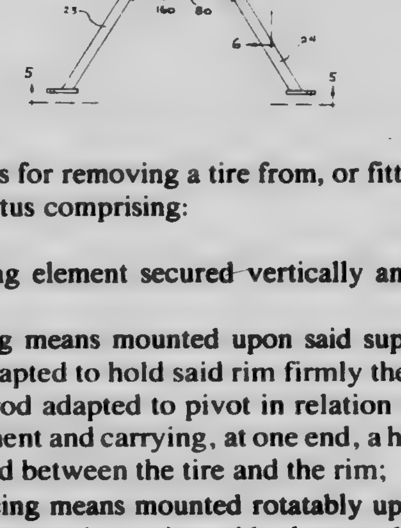
APPARATUS FOR REMOVING A TIRE FROM OR FITTING A TIRE TO A WHEEL-RIM

Louison Patry, 393 8th St. West, Thetford Mines Quebec, Canada

Filed Mar. 30, 1981, Ser. No. 248,796

Int. Cl.^{3} B60C *25/08*

U.S. Cl. 157—1.24 **13 Claims**



1. An apparatus for removing a tire from, or fitting a tire to, a rim, the apparatus comprising:

(a) a stand;

(b) a supporting element secured vertically and rigidly to said stand;

(c) first locking means mounted upon said supporting element and adapted to hold said rim firmly thereto;

(d) a release-rod adapted to pivot in relation to said supporting element and carrying, at one end, a head adapted to be inserted between the tire and the rim;

(e) force reducing means mounted rotatably upon said supporting element and carrying said release-rod; said reducing means comprising a lever-arm, a torque-element with

one end connected to said lever-arm and the other to said release-rod; successive partial rotation of said lever-arm permitting corresponding movements, of lesser magnitude, of said head between the tire and the rim;

(f) second locking means for maintaining said torque-element stationary in relation to said supporting element while the release-rod is being moved between the tire and the rim.

4,381,029

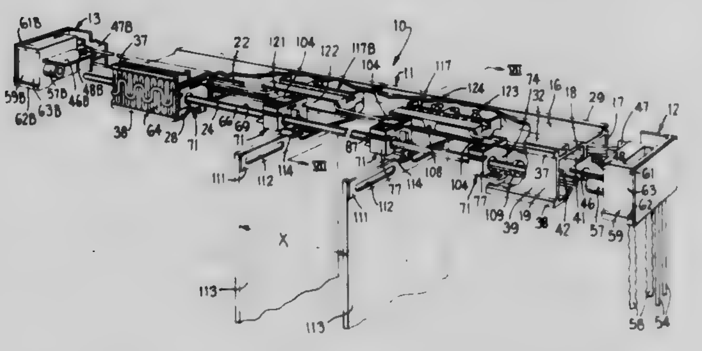
TRAVERSE ROD FOR A VERTICAL BLIND

James A. Ford, and Steven R. Haarer, both of Sherman Township, St. Joseph County, Mich., assignors to Cooper Industries, Inc., Houston, Tex.

Filed Sep. 2, 1981, Ser. No. 298,552

Int. Cl.^{3} A47H *5/032*

U.S. Cl. 160—172 **9 Claims**



1. A traverse rod assembly for a blind having plural vertically extending slats, comprising:

a horizontally elongated hollow traverse rod having front, top, bottom and rear walls, said traverse rod having an intermediate wall depending from said top wall between and substantially parallel to said front and rear walls for dividing the interior of said traverse rod into front and rear elongated channels, said bottom wall having a first lengthwise slot formed therein and opening upwardly in direct communication with said front channel, said rod also having a second lengthwise slot formed therein and opening inwardly in direct communication with said rear channel;

elongated rotatable shaft means positioned within and extending lengthwise through said front channel, said shaft means being disposed with its axis substantially parallel to the lengthwise direction of said front channel;

a plurality of hanger means individually and independently slidably supported in said front channel and extending downwardly through said first slot, each said hanger means including a housing means which is slidably supported within said first channel and is slidable along said rotatable shaft means, said hanger means also including first means pivotally supported on said housing means for pivotal movement about a substantially vertical axis and projecting downwardly therefrom through said first slot and having second means adjacent the lower end thereof for engaging the top of one of said slats, said hanger means further including third means rotatably supported on said housing means and rotatably drivingly connecting said first means to said shaft means for effecting rotation of said first means in response to rotation of said shaft means;

elongated and flexible means positioned within said front channel and connected between adjacent hanger means for limiting the maximum spacing between adjacent said hanger means;

master carrier means slidably supported on said rod and operatively connected with one of said hanger means for effecting movement thereof along said front channel in response to slidable displacement of said master carrier means;

said master carrier means having a first carrier part slidably disposed in said front channel and operatively cooperating with said one hanger means, said master carrier means also having a second part slidably disposed in said rear channel and a third part connected to said first part and projecting rearwardly for connection to said second part; and

elongated flexible propelling means housed within and extending in a lengthwise direction of said rear channel, said propelling means being operatively connected to said master carrier means for controlling the slidable movement thereof along said rod.

4,381,030

DUMMY BAR HEAD FOR A STEEL CONTINUOUS CASTING INSTALLATION CONTAINING AN OPEN-ENDED MOLD

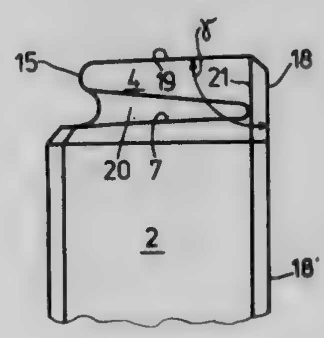
Bernhard Knell, Thalwil, Switzerland, assignor to Concast AG, Zürich, Switzerland

Filed Dec. 29, 1980, Ser. No. 220,506

Claims priority, application Switzerland, Jan. 25, 1980, 605/80

Int. Cl.^{3} B22D *11/08*

U.S. Cl. 164—446 **10 Claims**



1. A dummy bar head for use with a continuous casting installation equipped with an open-ended mold for casting therein a strand withdrawn in a predetermined strand withdrawal direction, comprising:

a main body portion having a boundary surface arranged in the strand withdrawal direction;

a substantially dovetail-shaped coupling portion integral with said main body portion;

said coupling portion having surfaces adapted to form a connection with the cast strand in the strand withdrawal direction;

said connection of said coupling portion being capable of being decoupled from the cast strand by carrying out a relative movement between the dummy bar head and the cast strand which extends approximately transversely with respect to the strand withdrawal direction;

said dovetail-shaped coupling portion comprising a raised body member having a boundary surface in alignment with said boundary surface of said main body portion;

said raised body member having three additional boundary surfaces;

at least two of said additional boundary surfaces being located opposite one another;

said oppositely located boundary surfaces being provided with undercut portions;

said raised body member having a dovetail shape in cross-section taken along a plane parallel to the boundary surface; and

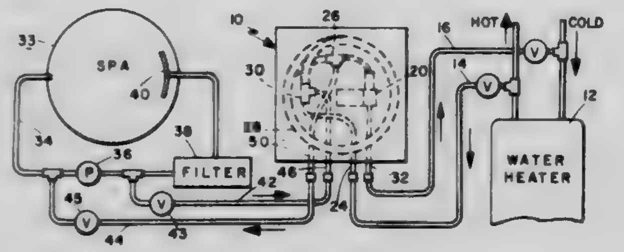
said raised body member having a substantially trapezoidal surface area bounded by the boundary surface and the three additional boundary surfaces.

4,381,031

SPA-DOMESTIC HOT WATER HEAT EXCHANGER

Larry D. Whitaker, 3560 Ingraham Ave., San Diego, Calif. 92109, and Donald M. Herriott, 3234 Wellesley Ave., San Diego, Calif. 92122

Filed Oct. 27, 1980, Ser. No. 200,947
Int. Cl.³ F24H *3/00*
U.S. Cl. 165—39 **9 Claims**



1. A heat exchanger system for installation adjacent a source of hot water and for transfer of heat to a quantity of water remote from said source of hot water, said heat exchanger system comprising:

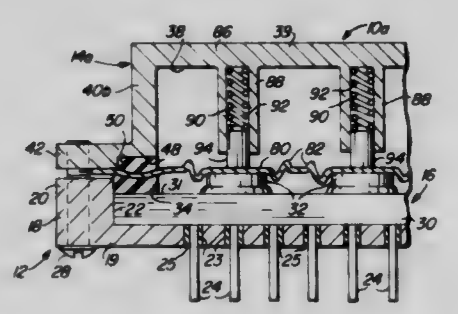
a first heat exchange loop comprising a water passage and a heat exchange surface,
a second heat exchange surface,
a second heat exchange loop adapted to be connected to receive water circulated from the quantity of water remote from the source of hot water and comprising a water passage surrounding a substantial portion of the length of said first heat exchange surface,
circulation means connected to said first heat exchange loop for drawing water from and returning water to the source of hot water,
thermostat means in thermal communication with said second heat exchange loop at a portion thereof that surrounds said first heat exchange loop for detecting the temperature of the water in said second heat exchange loop and turning off said circulation means when a pre-set temperature is reached, and for detecting the temperature in said first heat exchange loop in the absence of circulation in said second heat exchange loop, and shutting off said circulation means.

4,381,032

APPARATUS FOR COOLING HIGH-DENSITY INTEGRATED CIRCUIT PACKAGES

John M. Cutchaw, 7333 E. Virginia Ave., Scottsdale, Ariz. 85257

Filed Apr. 23, 1981, Ser. No. 256,841
Int. Cl.³ F24D *19/02*
U.S. Cl. 165—46 **14 Claims**



1. An apparatus for cooling a high-density integrated circuit package of the type having a substrate with a plurality of discrete integrated circuits arranged thereon in a predetermined geometric array, said apparatus comprising:

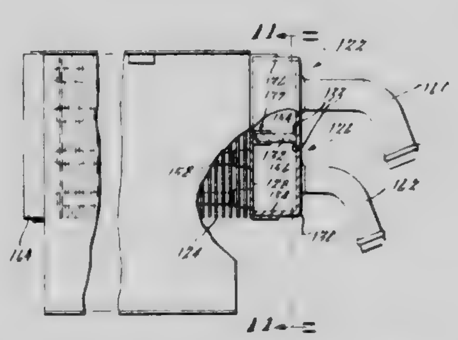
(a) a housing defining an open coolant chamber which is sized so that its opening substantially matches the surface area of the substrate of the integrated circuit package, said housing for positioning in overlaying relationship with respect to the integrated circuit package;
(b) a diaphragm of thin-wall pliable heat conductive material with its peripheral edges fixedly attached to said housing so as to sealingly enclose the coolant chamber thereof, said diaphragm being in contiguous engagement with each of the discrete integrated circuits of the integrated circuit package when said housing is in overlaying relationship therewith;
(c) said housing having an inlet port and an outlet port by which fluid coolant is passable through the coolant chamber of said housing;
(d) partition means fixed in the coolant chamber of said housing for presenting a tortuous flow path for the fluid coolant which is passable therethrough; and
(e) biasing means mounted on said partition means within the coolant chamber of said housing for applying biasing forces on said diaphragm at each location thereof which is in contiguous engagement with the discrete integrated circuits of the integrated circuit package when said housing is in overlaying relationship therewith.

4,381,033

HEADER CONSTRUCTION

Ivan D. Woodhull, Jr., Flat Rock, and Thomas H. Liedel, Maybee, both of Mich., assignors to Karmazin Products Corporation, Wyandotte, Mich.

Continuation of Ser. No. 884,368, Mar. 7, 1978, abandoned, which is a continuation-in-part of Ser. No. 789,411, Apr. 21, 1977, abandoned. This application Apr. 3, 1981, Ser. No. 250,541
Int. Cl.³ F28F *9/02*
U.S. Cl. 165—175 **11 Claims**



1. In a heat exchanger of the fin and tube type, a header construction comprising:

a base member having first and second substantially parallel flange portions spaced apart a predetermined distance and an interconnecting portion;
said interconnecting portion having a plurality of integrally formed spaced smoothly tapered tubular projections adapted to telescopically nest with respective conduits of said heat exchanger, said tubular projections being arranged in a plurality of rows, each row containing a plurality of said tubular projections, said tapered tubular projections being operative to prevent the terminal end of said fluid conduit from projecting beyond the plane defined by said interconnecting portion, each of said tubular projections having a smoothly rounded shoulder portion at its juncture with said interconnecting member;
a cover member having first and second substantially parallel flange portions spaced apart a distance less than said predetermined distance and an interconnecting portion;
said first and second flange portions of said cover member being disposed and secured at a plurality of spaced locations in at least partially overlapping relationship with respective of said first and second flange portions of said base member;
a third flange portion;
a channel member;
means directly securing one of said third flange portion and said channel member to said interconnecting portion of said base member at a plurality of spaced apart locations between said tubular projections,
means securing the other of said third flange portion and said

channel member to said cover member, said third flange portion being received and sealingly secured within said channel; and

sealing means securing adjacent portions of said first flange portions and adjacent portions of said second flange portions in fluid-tight relationship.

2. A heat exchanger comprising:

a heat exchanging core member having a plurality of fluid conducting conduit members surrounded by heat radiating fin members;

a pair of header members disposed at opposite ends of said fluid conduits, each of said header members including:

a base member having first and second generally parallel spaced flange portions, and an interconnecting portion extending generally perpendicularly therebetween, and

a cover member having first and second generally parallel spaced flange portions and an interconnecting portion extending generally perpendicularly therebetween,

said first and second flange portions of said base member being positioned in at least partially overlapping relationship to respective of said first and second flange portions of said cover members to hereby define a substantially enclosed chamber, a plurality of longitudinally spaced spot welds retaining said overlapping flange portions in close proximate relationship along the length thereof and securing means disposed between said overlapping flange portions and securing said overlapping flange portions in fluid-tight sealing relationship,

one of said base members further including a plurality of outwardly extending divergingly tapered tubular projections integrally formed thereon, respective ones of said diverging tubular projections receiving one end of respective ones of said fluid conduits in telescopic relationship and being sealingly secured thereto,

the other of said base members including a plurality of outwardly extending convergingly tapered tubular projections integrally formed thereon, respective ones of said converging tubular projections being telescopically received in the other end of respective ones of said fluid conduits and being sealingly secured thereto,

each of said converging and diverging tubular projections having a smoothly radiused juncture with said base members and the converging and diverging taper of said tubular projections being operative to prevent said fluid conduits from projecting into the interior of said pair of header members so as to promote relatively smooth fluid flow into and out of respective of said header members.

4,381,034

ZERO FREE WATER CEMENT COMPOSITION AND METHOD

Rudolf J. Novotny, Arlington, and Richard G. Gandy, Grand Prairie, both of Tex., assignors to BJ-Hughes Inc., Houston, Tex.

Filed Oct. 9, 1980, Ser. No. 195,460

Int. Cl.^{3} E21B *33/14*

U.S. Cl. 166—292 **3 Claims**

1. A method of cementing well bores, comprising the steps of:

preparing a fluid, pumpable cement slurry, said slurry comprising hydraulic cement, mixing water in the range of 30 to 150 weight percent based on the dry weight of cement, and aluminum hydroxychloride in the range of 0.1 to 4.5 weight percent based on the dry weight of cement;

pumping said slurry to the desired location in the well bore; and

allowing said slurry to set.

4,381,035

SIMULTANEOUS RECOVERY OF THERMAL VALUES AND ORGANIC MATERIALS FROM SOLID CARBONACEOUS FUELS AND WASTE DISPOSAL PROCESS

Joseph R. Hradel, 6482 S. Mission Rd., Mount Pleasant, Mich. 48858

Continuation-in-part of Ser. No. 123,940, Feb. 25, 1980, Pat. No. 4,273,191. This application Apr. 27, 1981, Ser. No. 257,962

The portion of the term of this patent subsequent to Jun. 16, 1998, has been disclaimed.

Int. Cl.^{3} E21B *43/26, 43/27*

U.S. Cl. 166—307 **7 Claims**

1. A process for recovering thermal values and producing organic materials from a solid carbonaceous fuel wherein said fuel is a bituminous coal or a lignite which comprises treating said solid carbonaceous fuel with a black liquor thereby effecting release of said thermal value organic materials from said fuel.

4,381,036

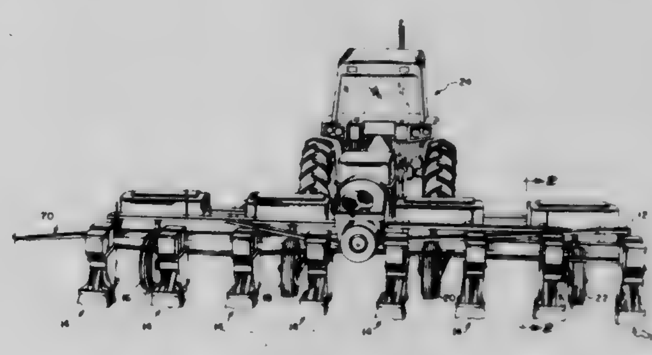
PLANTER HEIGHT AND MARKER CONTROL SYSTEM

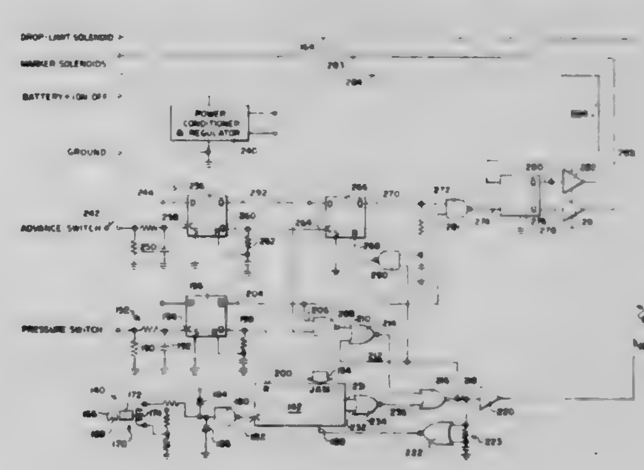
Randolph G. Fardal, Chicago; Edward L. Robinson, Jr., Naperville, and William C. Swanson, Clarendon Hills, all of Ill., assignors to International Harvester Co., Chicago, Ill.

Filed Jun. 5, 1980, Ser. No. 156,538

Int. Cl.^{3} A01B *63/108*

U.S. Cl. 172—2 **14 Claims**





1. For use with an agricultural planter assembly which includes a frame, a plurality of equally spaced planter units mounted to the frame, and at least two wheel assemblies (16, 18) on each side of the planter assembly supporting same, each wheel assembly being pivotally mounted to the frame and including a piston and cylinder mechanism which, when the piston rod thereof is extended on a forward stroke, pivots the wheel assembly downwardly to effect raising of the frame and planter units, electrical-hydraulic control means for parallel coupling (40, 42) the piston and cylinder mechanisms of the at least two wheel assemblies on each side of the planter assembly, and for limiting the retraction of each piston rod of each piston and cylinder mechanism to a predetermined limit less than the full return stroke of the piston rod on the lowering of

the planter units thereby to control the height of the planter frame above the ground and thereby to provide limited relative movement of the piston rods of the piston and cylinder mechanisms for the at least two wheel assemblies as the planter assembly traverses uneven ground, said electrical-hydraulic control means including means for sensing the extent of lowering of the wheel assembly, as the piston rod of each piston and cylinder mechanism associated with each assembly is extended to less than the full forward stroke thereof to raise the planter assembly a limited distance above the ground, means connected to the sensing means for storing an actual signal of equivalent extent to the actual extent for the just said extension of the piston rods to less than the full forward stroke thereof, means for generating a signal of desired equivalent extent to the desired extent of retraction of the piston rods of each of the parallel coupled piston and cylinder mechanisms for the wheel assemblies on one side of the planter assembly, means (**140**, **154**, **142**, **234**, **236**, **216**) for comparing the desired signal with the stored signal, and interruption means (**220**, **114**) connected to the comparing means operative for causing the electrical-hydraulic control means to automatically interrupt and stop retraction of the piston rods when the desired signal equals the stored signal.

4,381,037

PORTABLE ELECTRIC TOOL

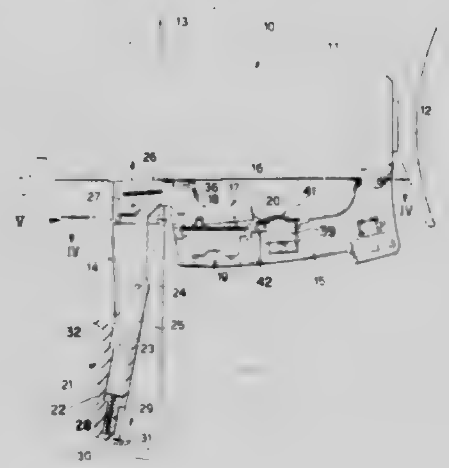
Giuseppe Cuneo, Calolziocorte, Italy, assignor to Black & Decker Inc., Newark, Del.

Filed Oct. 28, 1980, Ser. No. 201,553

Claims priority, application Italy, Oct. 29, 1979, 22984/79[U]

Int. Cl.[3] B23D *45/00;* **B25D** *17/00*

U.S. Cl. 173—170 **7 Claims**



1. In a portable electric drill, hammer drill or hammer having a housing, a first handle arranged on the housing, an electric switch for energizing the drill, a second elongated handle detachably mounted to the housing, and an arrangement for actuating the switch, the arrangement comprising:

a first lever mounted in said first handle to act on said switch, said first lever having a first portion directly engaging said switch and being pivotally mounted on the first handle for movement between first and second positions corresponding to the off and on conditions of the switch;

a second lever mounted on said second elongated handle transversely to said first lever, said second lever having an engaging portion positioned to directly engage said first lever;

said first lever having a second portion to engage said engaging portion of said second lever, said first and second portions of said first lever being spaced from each other with the fulcrum of said first lever therebetween;

said second lever being pivotally mounted within said second elongated handle whereby said engaging portion acts upon said first lever to cause the latter to move from said first position to said second position in response to a pivotal movement of said second lever;

said elongate handle having an opening therein through which an end portion of said second lever projects when said second lever is in its disengaged position for actuation by the hand of an operator;

a hand grip slidably supported on said projecting end portion for operation of said second lever by the operator;

biasing means for biasing said hand grip in an extended position; and

said hand grip and said elongated handle having cooperating detent means when said hand grip is in its extended position for precluding accidental actuation of said second lever, said hand grip being slidable relative to said second lever in opposition to the actuation of said biasing means for freeing said detent means from engagement with each other whereby said second lever may be actuated.

4,381,038

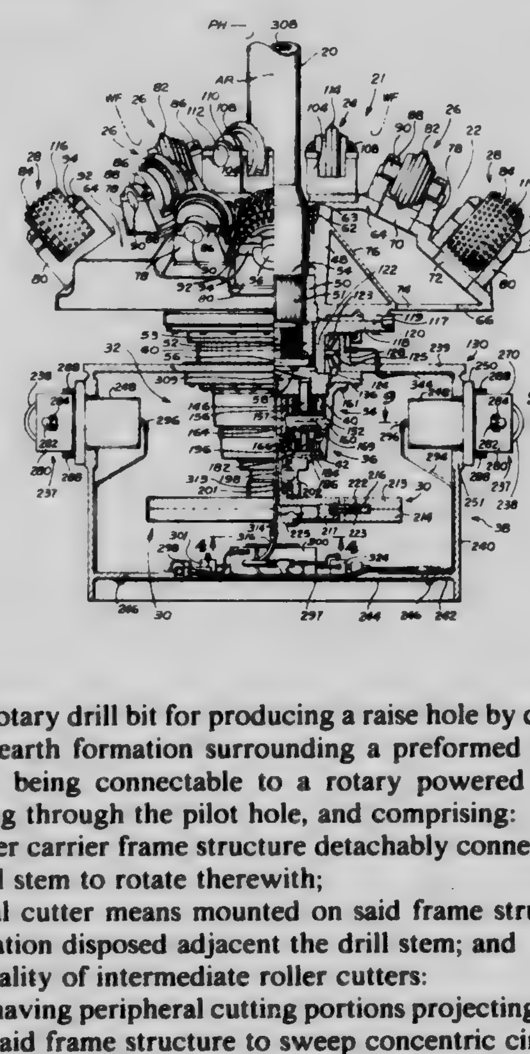
RAISE BIT WITH CUTTERS STEPPED IN A SPIRAL AND FLYWHEEL

David B. Sugden, Tasmania, Australia, assignor to The Robbins Company, Kent, Wash.

Filed Nov. 21, 1980, Ser. No. 208,999

Int. Cl.[3] E21B *10/10, 10/12*

U.S. Cl. 175—344 **48 Claims**



1. A rotary drill bit for producing a raise hole by disintegrating the earth formation surrounding a preformed pilot hole, such bit being connectable to a rotary powered drill stem extending through the pilot hole, and comprising:

a cutter carrier frame structure detachably connected to the drill stem to rotate therewith;

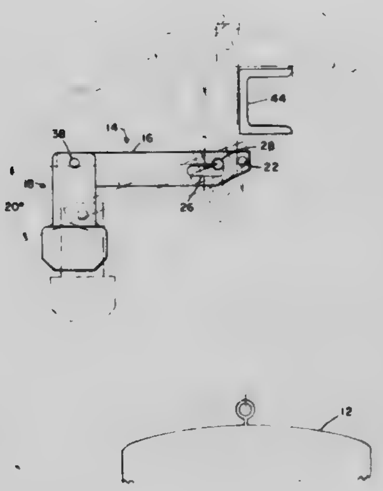
central cutter means mounted on said frame structure at a location disposed adjacent the drill stem; and

a plurality of intermediate roller cutters:

each having peripheral cutting portions projecting upwardly of said frame structure to sweep concentric circles about the longitudinal axis of the drill stem upon rotation of said frame structure; and

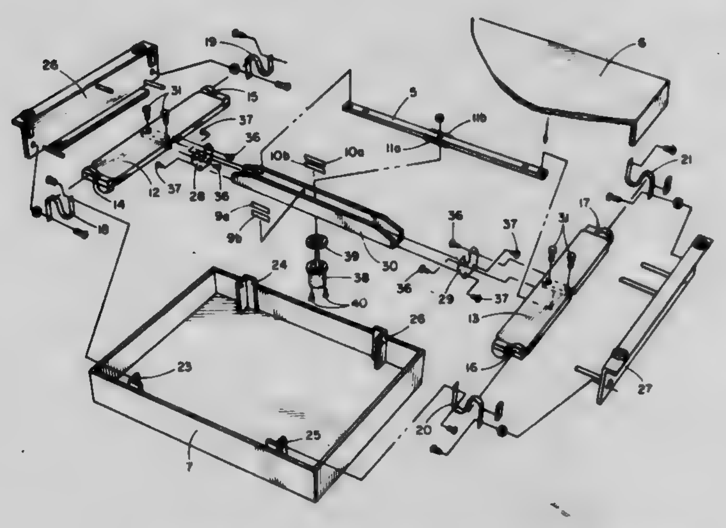
being mounted on said frame structure at locations outwardly of said center cutter means in specific angular relationship to each other to define a cutting profile with the concentric circles swept by the peripheral portions of said intermediate roller cutters in the form of a segment of a spiral extending radially outwardly and downwardly from the center cutter means in a decreasing curvature, said cutting profile being established by angularly orientating said intermediate roller cutters relative to each other to decrease progressively the angle separating the two adjacent chords corresponding to a set of any three adjacent cutting profile circles of any three radially adjacent intermediate roller cutters as the radial location of said intermediate roller cutters from the longitudinal axis of the drill stem increases.

4,381,039
FILTER BAG WEIGHTED HOLDER
Andrew R. Becker, Ellicott City, Md., assignor to Koppers Company, Inc., Pittsburgh, Pa.
Division of Ser. No. 175,376, Aug. 6, 1980. This application Mar. 26, 1982, Ser. No. 362,397
Int. Cl.³ G01G ***19/00;*** **B01D** ***46/06***
U.S. Cl. 177—160 **2 Claims**



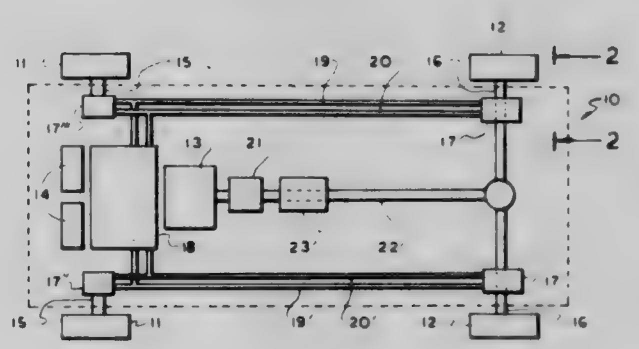
1. A weight for use on a filter bag tensioning device in a bag house in which an elongated lever is pivotally supported intermediate its ends by a pivot affixed within the upper reaches of said bag house and said lever is provided with filter bag support means adjacent one end and weight securement means adjacent its other end comprising, a body member constructed and arranged to be attached to said weight securement means such that, in a horizontal position of said lever, the center of gravity of said weight means is below said weight securement means and, wherein, in positions of the weight securement end of said lever below horizontal, the distance from said center of gravity to said pivot varies from position to position and, in positions of the weight securement end of said lever above horizontal, the distance from said center of gravity to said pivot remains substantially constant.

4,381,040
WEIGHING SCALE WITH CAPACITOR TRANSDUCER
Frans Brouwer, Glencoe, Ill., assignor to Pelouze Scale Co., Evanston, Ill.
Filed Sep. 17, 1981, Ser. No. 303,188
Int. Cl.³ G01G ***3/14***
U.S. Cl. 177—210 C **10 Claims**



1. In a weighing scale, the improvement comprising: an elongated weighing beam, turning means attached to the ends of the beam to flex the center portion of the beam responsively to weight variations on the scale, elongated capacitor plate support means positioned adjacent the weighing beam with its ends being coupled to the turning means so that the support means moves less responsively than the center of the beam to weight variations, and a capacitor transducer having at least one relatively movable plate coupled to a mid-portion of the weighing beam and one relatively fixed plate coupled to the capacitor plate support means adjacent the movable plate whereby capacitance variations are weight responsive.

4,381,041
ELECTRIC POWER GENERATING SYSTEM
Aristotel Butoi, 689 Seneca Ave., Ridgewood, N.Y. 11385
Filed Dec. 31, 1980, Ser. No. 208,699
Int. Cl.³ B60L ***11/18***
U.S. Cl. 180—65 D **14 Claims**



1. An electric power generating system adapted for use in a vehicle including at least one electric generator and one battery, comprising at least one energy converter for receiving superfluous movement of the vehicle and producing pressure fluid flow from such movement, and power transmitting means for receiving and changing the fluid flow into rotational power, and transmitting rotational power to the electric generator when stored rotational power reaches a predetermined level, said power transmitting means comprising two power cylinders, each power cylinder having a power piston therein and a power piston rod extending outwardly from the power cylinder, said power piston being actuated by the pressure fluid flow transferred from the energy converter, coupling means engaged with said power piston rod of the power cylinder for changing reciprocal movement of the power piston into rotational movement, a speed converter disposed between said coupling means and said electric generator, and a two way valve for selectively transmitting said pressure fluid flow into one of said two power cylinders to alternately operate said power cylinders for continuously rotating said speed converter, whereby the generator is operated by superfluous movement of the vehicle to generate electricity.

4,381,042
EXCESSIVE IDLE TERMINATION SYSTEM
John J. Perry, Huntsville, Ala., assignor to Chrysler Corporation, Highland Park, Mich.
Filed Jan. 12, 1981, Ser. No. 224,417
Int. Cl.³ B60K ***15/00***
U.S. Cl. 180—272 **1 Claim**

1. An excess idle termination system for shutting down the engine of a vehicle by interrupting its ignition circuit upon the elapse of a predetermined time period deemed to constitute excess idle comprising:

a multiplicity of switch means associated with conditions indicative of idle and operable in response to occurrence of said condition;

a source of clock pulses;

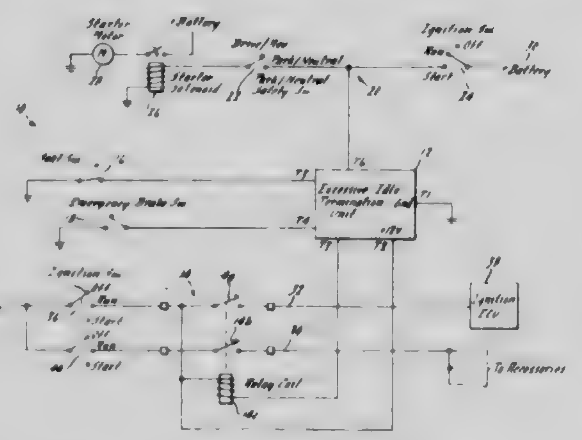
a binary counter circuit comprising a plurality of input and output terminals, one input terminal being a clock terminal for receiving clock pulses, another input terminal being a control terminal which controls the counting of clock pulses by the counter circuit, two output terminals corre-

sponding to selected binary digits of the count in the count circuit;

said binary counter circuit in communication with said source of clock pulses whereby said clock pulses are counted in response to operation of said switch means;

a logic network in communication with the binary digits output of said binary counter circuit whereby the output of said logic network generates a signal in response to a predetermined status of binary digits at selected output terminals of said binary counter, depending on the value of the monitored input condition;

said logic network further conditioned to respond to the attainment of said predetermined status of two binary



digits and still further conditioned to generate a warning signal in response to the concurrent attainment of a predetermined status of only one of said two binary digits and a selected status of a third binary digit of the count in said binary counter circuit, which third binary digit is of lesser significance than that of said first two binary digits;

a warning device;

means coupling said logic network with said warning device to energize said warning device with said warning signal whereby the warning device is intermittently activated at the frequency of the warning signal;

and means coupling the output of said logic network with the ignition circuit for interrupting the ignition circuit, in response to conditioning of said logic network output.

4,381,043

ENGINE MOUNTING STRUCTURE

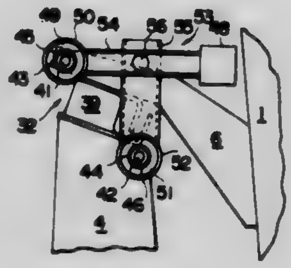
Masao Fukushima, Fuchu, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jan. 26, 1981, Ser. No. 228,206

Claims priority, application Japan, Feb. 1, 1980, 55-11787

Int. Cl.³ B60K *5/012;* **F16F** *15/002*

U.S. Cl. 180—300 **8 Claims**



1. An engine mounting structure for mounting an automotive engine on the body structure of an automotive vehicle, comprising:

a first bracket member to be connected to the body structure of the engine,

a second bracket member to be connected to the body structure of the vehicle and spaced apart from the first bracket member,

a shock and vibration insulating unit structurally intervening between the first and second bracket members and including at least one resilient block, and

a vibration cancelling device comprising rigid first and second elongated members, the first elongated member having one end portion pivotally connected to said first bracket member and the second elongated member having an end portion pivotally connected to said second bracket member, said first elongated member having a longitudinally intermediate portion pivotally connected to the second elongated member, and a mass member connected to another end portion of said first elongated member.

4,381,044

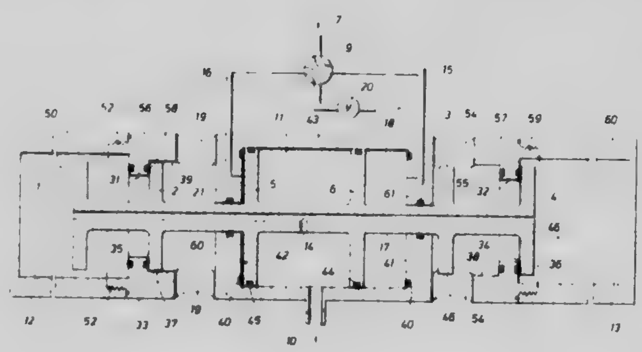
MULTIPLE CHAMBERED GAS POWERED SEISMIC SOURCE

Robert A. Kirby, Houston, Tex., assignor to Exxon Production Research Co., Houston, Tex.

Filed Oct. 6, 1980, Ser. No. 194,487

Int. Cl.³ G01V *1/137, 1/38*

U.S. Cl. 181—118 **19 Claims**



11. Pneumatic apparatus suitable for producing a shock wave in a liquid, comprising:

a shuttle movable through a stroke having a central shuttle shaft with an axis;

first and second outer sealing pistons mounted axially on the shaft proximate to its opposite ends and each of the first and second outer sealing pistons having an inner face; and

first and second inner sealing pistons mounted axially on the shuttle shaft respectively adjacent and interior to the first and second outer sealing pistons and each of the first and second inner sealing pistons having an outer face; and

first and second control pistons mounted axially on the shaft, respectively adjacent and interior to the first and second inner sealing pistons, each of the first and second control pistons having an outer face, being an equal distance from the midpoint of the shuttle shaft, substantially round and of the same diameter, and

the pistons being spaced on the shuttle shaft such that the distance between the inner face of the first outer sealing piston and the outer face of the first inner sealing piston, the inner face of the second outer sealing piston and the outer face of the second inner sealing piston, and the outer face of the first control piston and the outer face of the second control piston are all essentially the same stroke length, and

a gas passage running the axial length of the shuttle shaft, and

a passage located in the shaft between first and second control pistons connecting the outside of the shuttle shaft with the gas passage; and

a first gas storage means mounted about the axis formed by the shuttle shaft at the first end of a control chamber means and disposed about the first outer sealing piston and the first inner sealing piston and having a first gas chamber with walls, an outer end, terminated at an inner end by a first shoulder, and disposed about the first outer sealing piston, and

a first shoulder having an outer sealing face adapted to substantially seal against the inner face of the first outer sealing piston, an inner sealing face adapted to substantially seal against the outer face of the first inner sealing piston, and an opening about the axis of the shuttle shaft larger than the shuttle shaft, and

first exhaust port means located between the first shoulder and the first end of a control chamber;

a second gas storage means mounted about the axis formed by the shuttle shaft at the second end of the control chamber means and disposed about the second outer sealing piston and the second inner sealing piston having

a second gas chamber with walls, an outer end, terminated at an inner end by a second shoulder, and disposed about the second outer sealing piston, and

a second shoulder having an outer sealing face adapted to substantially seal against the inner face of the second outer sealing piston, an inner sealing face adapted to substantially seal against the outer face of the second inner sealing piston, and an opening about the axis of the shuttle shaft larger than the shuttle shaft, and

second exhaust port means located between the second shoulder and the second end of the control chamber;

a control chamber having

an interior wall substantially circular, parallel to the axis of the shuttle shaft, adapted to fit the first and second control pistons, and having a gas charge inlet in a mid portion of the wall, and

a first end having openly terminated therein a first control gas line, a hole adapted for the axial passage of the shuttle shaft between first control piston and first inner sealing piston, gas sealing means in said hole substantially preventing the passage of gas through the hole, and

a second end having openly terminated therein a second control gas line, a hole adapted for the axial passage of the shuttle shaft between second control piston and second inner sealing piston, gas sealing means in said hold substantially preventing the passage of gas through the hole, and

control valve means capable of alternately directing a pressurized gas through the first control gas line while simultaneously venting gas from the second control gas line or directing a pressurized gas through the second control gas line which simultaneously venting gas from the first control gas line.

4,381,045

EXHAUST GAS SILENCER FOR A HEAT ENGINE

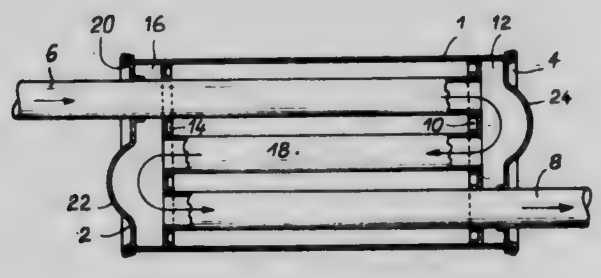
Jean-Pierre Buchwalder, Seloncourt, France, assignor to Cycles Peugeot, Valentigney, France

Filed Jan. 27, 1982, Ser. No. 343,121

Claims priority, application France, Feb. 2, 1981, 81 01940

Int. Cl.³ F01N *1/08*

U.S. Cl. 181—265 5 Claims



1. An exhaust gas silencer for a heat engine, the silencer comprising an outer cylindrical case, a first end wall of the case, a second end wall of the case and a substantially planar intermediate wall of the case, and gas guiding tubes which are supported by said intermediate wall and are put into communication with each other by at least one end chamber which is defined within the case by said intermediate wall and said first end wall, said first end wall comprising in the region of two successive tubes of said tubes, a rounded and hollow boss which projects outwardly of the silencer and has an apex which is spaced from said intermediate wall by a distance which is slightly greater than the radius of the tubes, while the depth of the chamber around said boss is less than the diameter of said tubes so that the boss guides a change in direction of the gas flow between said successive tubes.

4,381,046

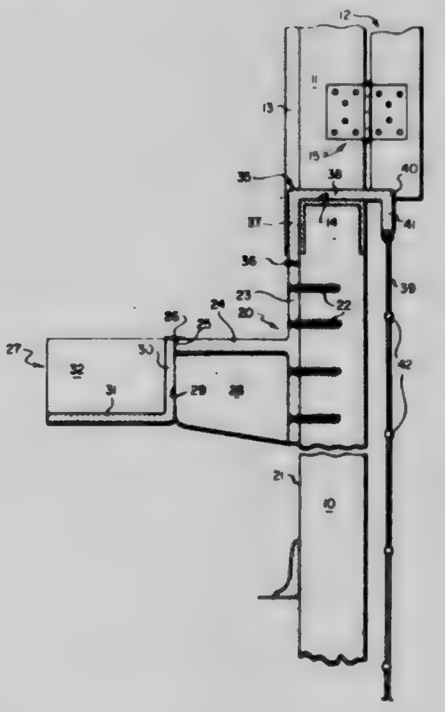
FIRE ESCAPE LADDER STORAGE AND DEPLOYMENT DEVICE

Roy H. Landem, Vernon Hills, Ill., assignor to Ridge Products, Inc., Barrington, Ill.

Filed Dec. 9, 1980, Ser. No. 214,653

Int. Cl.³ E06C *9/14, 1/56*

U.S. Cl. 182—70 3 Claims



1. A method of affording emergency escape from an elevated enclosure to a lower level, comprising the steps:

providing a cabinet having a compartment formed by a top cover portion and a lower base portion therein beneath a window or door opening in an exterior wall of said enclosure;

storing a compact escape device such as a collapsible ladder in said compartment; and

in an emergency, opening the cabinet to expose said ladder and to facilitate deployment thereof and to form first, second, and third stair treads, using said portions of the cabinet, leading from the floor of the enclosure through the exterior wall opening.

4,381,047

PISTON ANTI-KNOCK BACK ASSEMBLIES

Gabriel Gregoire, Asnieres sur Oise; Vincent Robles, Saint Denis, and Pedro Alvarez, Moisselles, all of France, assignors to General Motors Corporation, Detroit, Mich.

Filed Jul. 8, 1981, Ser. No. 281,359

Int. Cl.³ F16D *55/02*

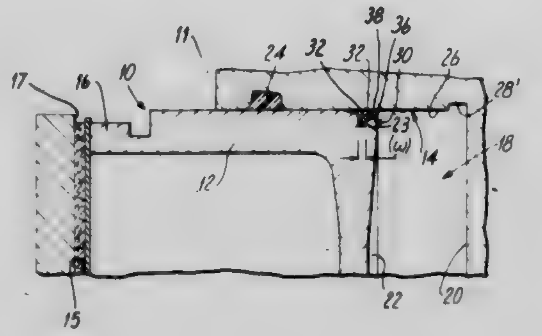
U.S. Cl. 188—71.8 6 Claims

1. In a disc brake assembly having a brake actuator comprising a piston slidably mounted within a cylinder bore having a side wall and an end wall, said actuator being operable to urge a friction surface into contact with a rotary disc surface upon supply of hydraulic fluid under pressure to said cylinder bore, said cylinder bore having an enlarged stepped section therein adjacent the end wall of the cylinder bore, a piston anti-knock back assembly comprising:

said piston having a conical frustum formed head facing the cylinder bore end wall and an annular groove adjacent said head;

an expanded resilient split ring in frictional contact with a main portion of the cylinder bore side wall, and loosely axially located in said annular groove by expanding said ring over said conical frustum piston head until said ring snaps into position in said annular groove;

said ring, when unexpanded, being a sliding fit within the main portion of the cylinder bore and having abutment



spacer means on one side of the ring which, when the unexpanded ring is inserted in the cylinder bore as far as said stepped section of the bore, contacts said cylinder end wall and maintains the plane of the ring far enough from the cylinder end wall to allow said conical frustum piston head to be thrust through the ring to locate the ring in position in said annular groove, said ring frictional contact with the main portion of the cylinder side wall acting so that said ring may be movable by said piston during piston actuated movement but not during piston retractive movement.

4,381,048

ELECTRIC MOTOR WITH AUTOMATICALLY ACTING BRAKE

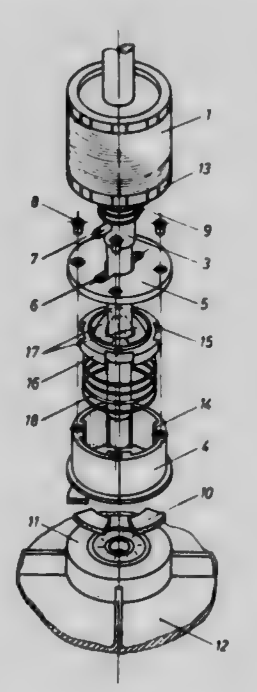
Hans Haverkamp, Oerlinghausen, and Walter Wistinghausen, Detmold, both of Fed. Rep. of Germany, assignors to Hanning Elektro-Werke GmbH & Co., Bielefeld, Fed. Rep. of Germany

Filed Sep. 14, 1981, Ser. No. 302,192

Claims priority, application Fed. Rep. of Germany, Sep. 25, 1980, 3036091

Int. Cl.³ B60T *13/04*

U.S. Cl. 188—171 **5 Claims**



1. Electric motor with automatically acting brake and rotor shaft, which possesses a brake element comprising: an armature plate displaceable on the rotor shaft against first spring means, and released by the magnetic field of the rotor, a disc having guide grooves and located between said element and the armature plate, said disc being axially guided by said element, inclined planes comprised of annular segments facing towards the rotor and extending around the rotor shaft and being disposed axially symmetrically on said disc, said planes being pressed by second spring means bearing against the brake element onto a starting pin inserted into the rotor shaft, said brake element being formed as a pot seating said second spring means and being closed towards the rotor by said armature plate, said armature plate having recesses for the passage of the starting pin of the rotor shaft, said brake element having on its internal surface guide noses for engagement into the guide grooves of said disc, said disc being provided with the inclined planes and being movable on the rotor shaft independently of said armature plate, said inclined planes being arranged ascending in both directions of rotation of the rotor shaft; said second spring means comprising a centrally located spring in said brake element for amplifying the braking force.

4,381,049

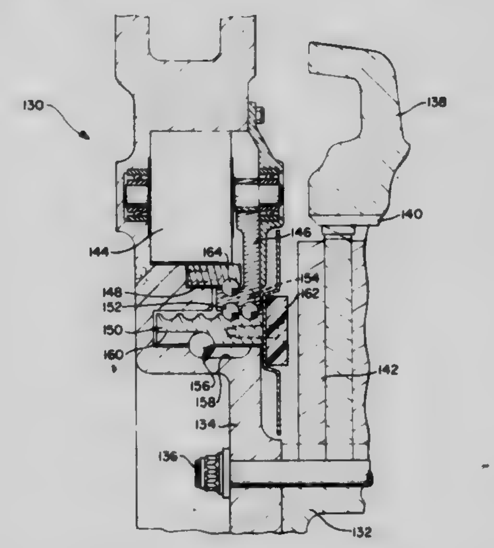
ELECTRICALLY ACTUATED AIRCRAFT BRAKES

Richard L. Crossman, Tallmadge, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio

Filed Jul. 30, 1979, Ser. No. 62,199

Int. Cl.³ F16D *55/08, 55/16;* **B60L** *7/00*

U.S. Cl. 188—72.7 **7 Claims**



6. A brake control assembly for reciprocating movement of a pressure plate, comprising:

a housing;

a torque motor received within said housing;

a ball screw connected to the pressure plate for effectuating movement thereof; and

drive means interconnected between said torque motor and ball screw for driving said ball screw, said ball screw being maintained upon roller means for preventing rotational movement of said ball screw, said roller means comprising a ball maintained between an axial groove in said ball screw and a channel in said housing.

4,381,050

VACUUM MODULATOR ARRANGEMENT FOR AN AUTOMATIC TRANSMISSION

Yoshio Sunohara; Kunio Ohtsuka, both of Yokohama, and Kenichi Sakamoto, Fujisawa, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Oct. 7, 1980, Ser. No. 195,207

Claims priority, application Japan, Oct. 8, 1979, 54-128954

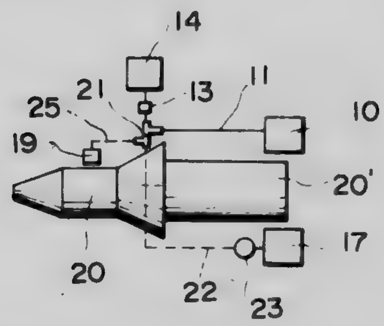
Int. Cl.³ B60K *41/20, 41/04*

U.S. Cl. 192—1 **7 Claims**

1. A vacuum modulator arrangement, comprising:

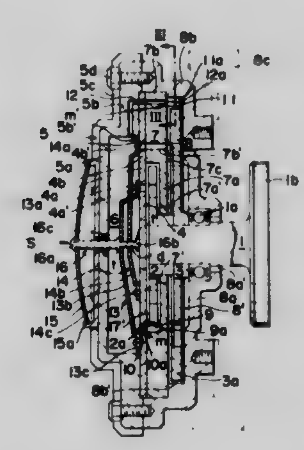
a vehicular automatic transmission;

a fuel-injection pump;
a vacuum source;
a brake booster;
a vacuum modulator;
a throttle modulator for controlling said automatic transmission;
connecting means for operatively interconnecting said vacuum source, said brake booster, said vacuum modulator and said throttle modulator, said connecting means including a branch portion with a common passage; an orifice removably positioned in said common passage, said orifice having a predetermined effective area;



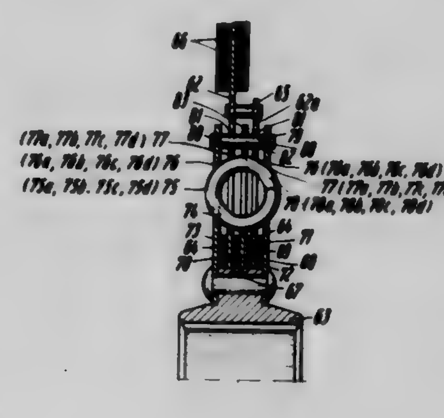
first and second conduits respectively connecting said vacuum source and said brake booster to said common passage on one side of said orifice;
third and fourth conduits respectively connecting said vacuum modulator and said throttle modulator to said common passage on the opposite side of said orifice
whereby said vacuum modulator operates to control the communication between said vacuum source and the atmosphere so that the pressure applied to said throttle modulator can be changed in response to the controlling conditions of said vacuum modulator.

4,381,051
TEMPERATURE-SENSITIVE FLUID COUPLER
Yasubee Kikuchi, Shizuoka, Japan, assignor to Usui Kokusai Sangyo Kabushiki Kaisha, Shizuoka, Japan
Filed Feb. 27, 1981, Ser. No. 238,677
Claims priority, application Japan, Mar. 11, 1980, 55-30674
Int. Cl.³ F16D *43/25, 35/00*
U.S. Cl. 192—82 T **11 Claims**



1. A temperature-sensitive fluid coupler comprising: a reservoir defined by one side of a partition and a cover; a first torque transmitting chamber defined by the other side of the partition and an inner casing; a second torque transmitting chamber defined by the inner casing and an outer casing; first and second rotors fixed to a drive shaft and rotatable within the first and second torque transmitting chambers, respectively; first and second fluid inlet ports formed in the partition for providing communication between the reservoir and the first torque transmitting chamber and between the reservoir and the second torque transmitting chamber, respectively; at least one temperature-sensitive element mounted on the outer side of the cover; a valve for each of the inlet ports; and means connecting the two valves to the temperature-sensitive element for consecutively opening and closing the valves in response to changes in temperature.

4,381,052
CLUTCH DISK ASSEMBLY
Paul Maucher, Sasbach, Fed. Rep. of Germany, assignor to LuK Lamellen und Kupplungsbau GmbH, Bühl, Fed. Rep. of Germany
Filed Dec. 11, 1980, Ser. No. 215,376
Claims priority, application Fed. Rep. of Germany, Jul. 27, 1974, 2436288
Int. Cl.³ F16D *43/24*
U.S. Cl. 192—106.2 **20 Claims**

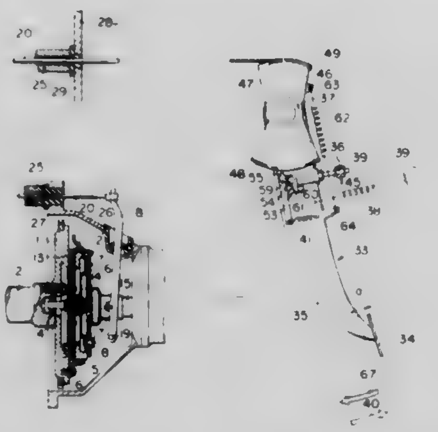


1. A clutch plate, particularly for use in the clutches of automotive vehicles, comprising a first component including a hub and a pair of axially spaced disk-shaped members non-rotatably secured to said hub; a second component rotatable with reference to said first component and including a clutch disk disposed between said disk-shaped members; and means for yieldably opposing rotation of said second component from a neutral position with reference to said first component, including a load friction device interposed between said disk-shaped members and arranged to oppose a second stage of rotation of said second component following a first stage of rotation from said neutral position, said load friction device comprising at least one load friction member and friction means effective during said second stage, said rotation opposing means further comprising a least one energy storing element interposed between said load friction member and said clutch disk on the one hand and at least one of said disk-shaped members on the other hand to be engaged by said clutch disk during said second stage of rotation of said second component, said clutch disk, said load friction member and said one disk-shaped member having window means for said energy storing element.

4,381,053
CABLE-TYPE CLUTCH RELEASE DEVICE FOR USUALLY CONTACTING-TYPE CLUTCH
Youichi Hyodo, Okazaki, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan
Filed Oct. 15, 1980, Ser. No. 197,148
Claims priority, application Japan, Oct. 26, 1979, 54-147630[U]; Nov. 26, 1979, 54-162736[U]; Jul. 16, 1980, 55-99326[U]
Int. Cl.³ F16D *13/75*
U.S. Cl. 192—111 A **11 Claims**

1. In a cable-type clutch release device for a usually contacting-type clutch, which includes; a clutch disc disposed between a fly wheel and a pressure plate; a diaphragm spring for urging the clutch disc against the fly wheel through the medium of the pressure plate; a release bearing normally contacting the diaphragm spring; a release fork for adjusting an axial position of the release bearing; and a cable connected at one end thereof to the release fork; the improvements comprising:

a first clutch pedal member pivotally supported and having a pedal pad at the lower end thereof;
a second clutch pedal member supported pivotally about the axis of rotation of said first clutch pedal member;
a first spring for biasing said first clutch pedal member in a direction of a return movement thereof;
a second spring for biasing said second clutch pedal member in a direction of the return movement thereof;
a stopper for limiting the return movements of said first and second clutch pedal members;
a ratchet member having ratchet teeth and supported pivotally movably about the axis of rotation of said first clutch pedal member, said ratchet member being connected to one end of the cable;

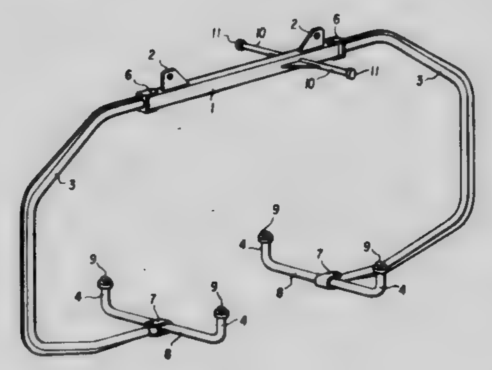


a pawl member having at one end thereof a pawl engageable with one of said ratchet teeth and pivotally supported on said second clutch pedal member;
a third spring for biasing said pawl member in a direction to disengage the pawl from the ratchet tooth of said ratchet teeth of said ratchet member; and
an engaging member provided on said first clutch pedal member and engageable with the other end of said pawl member.

4,381,054
MULTIDIRECTIONAL BOARD SUPPORT
Donald D. Rumpel, Kellogg, Id., assignor to Henwebcor, Incorporated, Colfax, Wash.
Filed Jan. 9, 1981, Ser. No. 223,936
Int. Cl.³ B65G *13/00*
U.S. Cl. 193—35 MD **9 Claims**

1. A multi-directional board support comprising:
an elongated base;
intersecting upright ribs on the base, having semicircular indentations centered at the points of intersection of the ribs, forming semi-spherical cradles;
cleanout holes formed through the base at the points of intersection of the ribs;
a spherical roller for each of the semi-spherical cradles, releasably receivable in said cradle for free rotation therein about its center;
a cover releasably received over the base and rollers, having circular openings formed therein corresponding with the respective cradles with each opening having a circular periphery with a diameter less than that of the rollers;
means for releasably mounting the cover to the base with a portion of each roller projecting through a corresponding circular cover opening without the periphery of the opening engaging the roller, to enable the roller to freely rotate about its center; and
spacer means between the cover and base for positioning the cover relative to the base to space the openings over the rollers and cover the ribs, with the opening peripheries spaced clear of the rollers and with the rollers projecting through the openings beyond the cover.

4,381,055
POLYVALENT SUSPENSION BALANCE FOR ASSEMBLY LINES FOR MANUFACTURED GOODS, ESPECIALLY MOTOR VEHICLES
Emile Picaud, Plaisir, France, assignor to Regie Nationale des Usines Renault, Boulogne-Billancourt, France
Filed Mar. 11, 1981, Ser. No. 242,673
Claims priority, application France, Apr. 2, 1980, 80 07463
Int. Cl.³ B65G *49/00*
U.S. Cl. 198—653 **2 Claims**

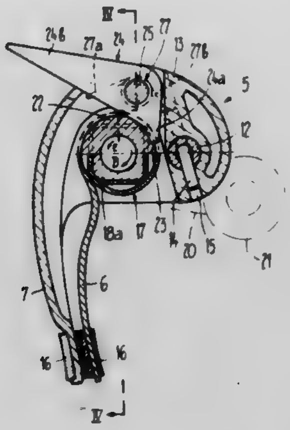


1. A polyvalent suspension structure for the assembly lines of manufactured goods, comprising:
an overhead support means supported and driven by a conveyor and having two ends;
a vertically oriented curved arm, having one end thereof pivotally connected about a vertical axis at each said end of said coupling means, said arms and coupling means forming a C shape; and
an anchoring member pivoted to the other end of each said arm, about said respective vertical axis of each said arm, said anchoring members being adapted for securement to the article to be manufactured, whereby each of said arms can pivot about said respective vertical axis to provide access to said article to be manufactured.

4,381,056
CONVEYOR APPARATUS, ESPECIALLY FOR PRINTED PRODUCTS
Jürg Eberle, Hinwil, Switzerland, assignor to Ferag AG, Hinwil, Switzerland
Filed Jan. 15, 1981, Ser. No. 225,420
Claims priority, application Switzerland, Feb. 8, 1980, 1020/80
Int. Cl.³ B65G *47/86*
U.S. Cl. 198—696 **12 Claims**

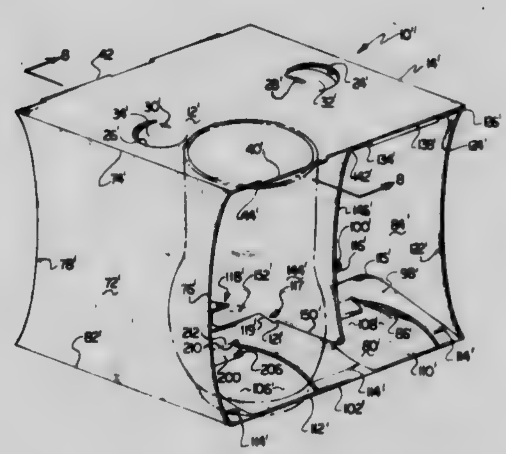
1. An article conveyor apparatus, especially for printed products, comprising:
a revolvingly driven traction element;
a plurality of gripper clamps anchored in spaced relationship and supported by said revolvingly driven traction element;
each of said gripper clamps having a movable clamp portion and a further clamp portion coacting therewith;
a stationary control device provided for said gripper clamps;
actuation means coacting with the stationary control device

for bringing the movable clamp portion into a closed position;
a releasable locking device for fixedly retaining the movable clamp portion in such closed position;
said locking device comprising a latching device having a defined latching position;
said latching device having a latchable element;



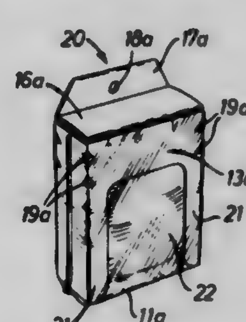
said actuation means being coupled with the latchable element of the latching device; and
a spring element which is tensioned when the related gripper clamp is closed and which is operatively connected with the actuation means and with the movable clamp portion of such gripper clamp.

4,381,057
DISPLAY CARRIERS FOR ARTICLES
Robert G. Carver, Ashland, Ohio, assignor to Don Coburn, Inc., Ashland, Ohio
Division of Ser. No. 220,752, Dec. 29, 1980, abandoned. This application Apr. 29, 1982, Ser. No. 372,968
Int. Cl.[3] **B65D** *5/04, 85/62*
U.S. Cl. 206—434 **6 Claims**



1. A carrier for retaining at least one pair of articles to be inserted therein, the articles each including two opposing end portions, where at least one of the articles' end portions is at least partially cylindrical, said carrier being formed of a flexible material and comprising:
top and bottom walls;
a pair of side walls, each side wall being hingedly attached to each of said top and bottom walls to form a carrier sleeve;
holding means joined to said top panel for holding one of the end portions of articles to be inserted into said carrier;
at least one flap extending from said bottom wall and folded to a position within said carrier proximate said bottom wall, each flap having at least one opening therein for receiving and engaging an at least partially cylindrical end portion of an article to be inserted into said carrier; and
a reinforcing wall disposed within said carrier opposed to said side walls and hingedly attached to said top and bottom walls, said reinforcing wall including receiving means proximate said bottom wall for receiving each said flap and further including foldable support means proximate and hingedly attached to said bottom wall for supporting said flap within said carrier, each said flap including on a transverse edge a notch straddling said reinforcing wall,
said foldable support means collapsing when said carrier is collapsed to a relatively flat form by hinging operation of said hinged attachments of said walls, said foldable support means folding away from supporting each said flap and each said notch being configured to allow passage of said reinforcing wall before, during and after collapsing of said carrier.

4,381,058
MATERIALS FOR FORMING COMPOSITE PACKAGES AND METHOD OF PRODUCING SUCH PACKAGES
Jean Chaussadas, Deols; Gisele Coudoin, Chateauroux; Claude Martin, Deols, and Andre Milliens, Etrechet, all of France, assignors to The Mead Corporation, Dayton, Ohio
Continuation of Ser. No. 127,096, Mar. 4, 1980, abandoned. This application Dec. 4, 1981, Ser. No. 327,285
Claims priority, application United Kingdom, Mar. 9, 1979, 7908469; Nov. 20, 1979, 7940128
Int. Cl.[3] **B65D** *71/08, 65/10*
U.S. Cl. 206—497 **4 Claims**



1. A reclosable package of composite material comprising in combination a top section (12) of paperboard and a bag (11) of heat shrinkable film material extending from said top section and adapted to accommodate a product, said top section comprising a tubular structure formed from angularly related walls and having a top closure and being open at the lower end thereof, said bag being of a length substantially greater than that of said top section from said lower end to said top closure so as to provide a major portion of said package, said top closure being formed from panels (15, 15, 16) hinged to the top edges of said walls and arranged to provide a reclosable opening, said bag being attached to the lower portion of said top section whereby the mouth of the bag overlaps adjacent outside portions of said walls so that the bag is held open by the top section which thereby provides access to said bag for filling or for removal of the content, said top section being provided with notches (19) at the junction between said walls and overlapping portions of said bag being locally deformed by heat shrinking to cooperate in tension with said notches so as to hold the bag and the top section connected together.

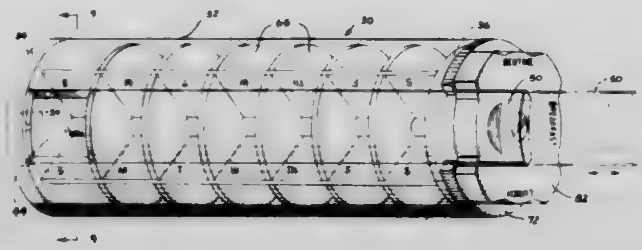
4,381,059
PUZZLE-LOCKING CONTAINER AND METHOD FOR STORING AND DISPENSING ARTICLES
Edwin A. Schurman, Arlington, Tex., assignor to Charles E. Schurman, Fort Worth, Tex.
Filed Oct. 31, 1979, Ser. No. 89,765
Int. Cl.[3] **B65D** *83/04*
U.S. Cl. 206—533 **31 Claims**

1. A cannular article storing and dispensing container having means for preventing access to the container contents by very young children through obscuring the mode of opening it comprising:
A. an elongated tubular shell having closed opposite ends and

aperture means opening through the shell side wall for loading of articles into the container and dispensing them therethrough;

B. closure means adapted to cover said aperture means, said closure means comprising slider means slideable axially of said container shell;

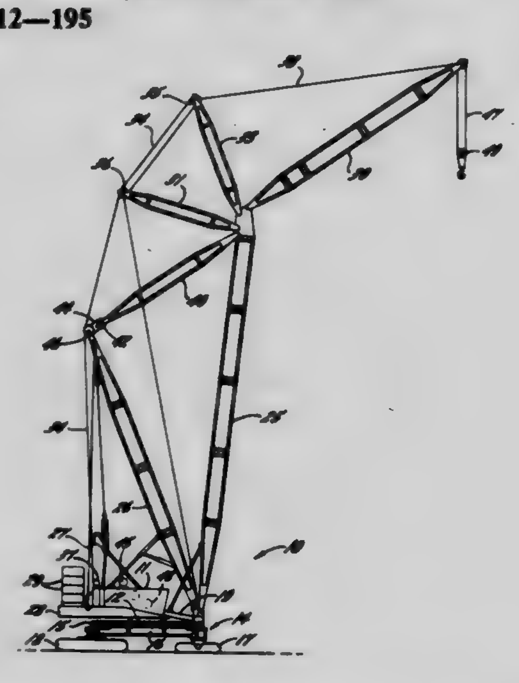
C. locking means operative at least at one end of said shell for preventing or permitting movement of said slideable



means so as to permit the closure means to block the aperture means closed when said slideable means is prevented from sliding or to permit opening of the aperture means when said slideable means is released for sliding action; and

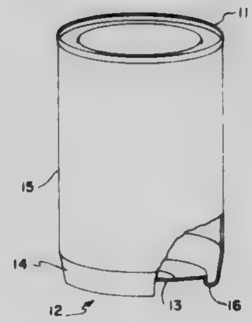
D. said locking means comprises flange means turnable circumferentially about the longitudinal axis of said tubular shell around substantially the entire perimeter thereof.

4,381,060
RING SUPPORTED MOBILE TOWER CRANE
James G. Morrow, Sr., and Michael C. Anderson, both of Manitowoc, Wis., assignors to The Manitowoc Company, Inc., Manitowoc, Wis.
Filed Jul. 9, 1980, Ser. No. 167,054
Int. Cl.[3] B66C *23/00*
U.S. Cl. 212—195 **8 Claims**



1. A ring supported mobile lift crane comprising in combination, lower works including a supporting frame and self-propelled transport means, a ring defining track mounted on said frame and transport means, upper works mounted above said frame for rotation with respect thereto, a load carrier extending from said upper works in riding contact on said ring, a counterweight carrier extending oppositely from said upper works in riding contact with said ring, a tower mounted on said load carrier for pivotal movement between generally horizontal and vertical positions, a boom pivoted to the outer end of said tower, a rearwardly inclined mast mounted on said load carrier and connected to said upper works and said counterweight carrier by rigging means, a tower backstay connected to the top of said tower and through tower hoist rigging to the top of said mast, a fixed boom strut connected at one end to the top of said tower and at the other end to a first fixed pendant secured to said load carrier so that said tower, said fixed boom strut and said first fixed pendant form a first fixed triangle, a movable boom strut connected at one end to the top of said tower and at the other end to a second fixed pendant secured to the outer end of said boom so that said boom, said movable boom strut and said second fixed pendant form a second fixed triangle, means including a boom hoist line interconnecting the outer ends of said fixed and movable boom struts for raising and lowering said boom, and means for changing the length of said tower hoist rigging for raising and lowering said tower, boom, boom struts and tower backstay as a unit.

4,381,061
NON-PANELING CONTAINER
Daryl D. Cerny, Greenville, Ohio, and Edwin J. Diebolt, Muncie, Ind., assignors to Ball Corporation, Muncie, Ind.
Filed May 26, 1981, Ser. No. 266,783
Int. Cl.[3] B65D *23/00*
U.S. Cl. 215—1 C **15 Claims**

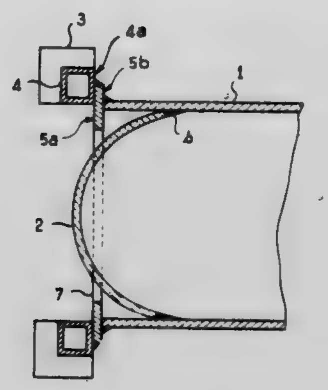


1. A thermoplastic container capable of being filled and sealed having a yieldable bottom endwall comprising a container having an opening at the upper extremity thereof for receiving a closure, a cylindrical sidewall and a bottom endwall integrally formed with the sidewall at the lower extremity thereof, said bottom endwall being displaceable inwardly, in preference to the sidewall, upon a relative reduction of pressure in the container, said bottom endwall comprising a frustoconical surface extending downwardly and inwardly from said sidewall toward the longitudinal axis of the container at an angle less than about 30°, a curvilinear base integrally connected with and extending downwardly from said frustoconical surface and providing a base for said container while resting on a supporting surface, said base defined by an outer curved portion having a major radius of curvature and an inner curved portion having a minor radius of curvature, the centers of said radii falling on a common line parallel to the longitudinal axis of the container and the radii intersecting one another tangentially, the ratio of said major to minor radii being about 2:1, an annular member extending downwardly and inwardly from said inner curved portion to the axis of the container, a hinge element interconnecting with said inner curved portion and said annular member, said hinge element defining a hinge radius substantially less than the minor radius, said hinge radius being tangent to the minor radius at a point falling on a horizontal line extending from the center of the minor radius, said hinge element being thinner than the sidewall, the wall thickness of hinge element being about 80 percent or less of the sidewall thickness, the height of said inner curved portion being less than one-half the height of said frustoconical surface, and a central panel connected to said annular member and being slightly above the supporting surface.

4,381,062
CONTAINER
Jean-Pierre Taquoi, Soissons, France, assignor to B.S.L. (Bignier Schmid-Laurent), France
Filed Mar. 27, 1981, Ser. No. 248,503
Claims priority, application France, Apr. 30, 1980, 80 09816
Int. Cl.[3] B65D *7/42, 87/00*
U.S. Cl. 220—71 **4 Claims**

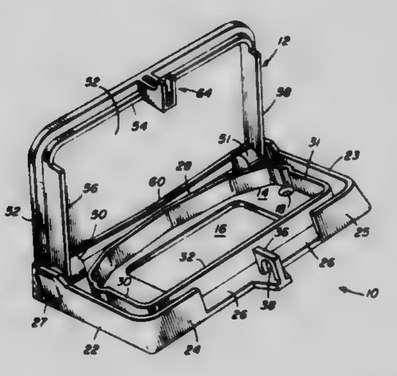
1. A container comprising a vessel having cylindrical side

walls and curved end walls each of which is, respectively, secured to the interior surface of the vessel near its ends to thereby close the interior of the vessel, the ends of the cylindrical side walls of the vessel extending beyond the region of contact of each of said curved end walls with the interior surfaces of the vessel, a supporting frame at each end of said vessel, and means connecting said vessel to said frame to form



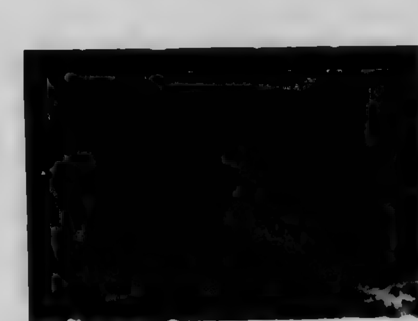
a unitary structure, said connecting means comprising a connecting plate positioned in a plane substantially transverse to said cylindrical side walls and having a first face and a second face opposite to said first face, said first face being in abutment against said supporting frame and welded thereto, said ends of the cylinder side walls being in abutment against the said second face and welded thereto.

4,381,063
WEATHERPROOF COVER ASSEMBLY FOR ELECTRICAL WIRING DEVICES
Henry Leong, Kendall Park, N.J., assignor to GTE Products Corporation, Stamford, Conn.
Continuation of Ser. No. 241,795, Mar. 9, 1981, abandoned. This application Feb. 25, 1982, Ser. No. 352,487
Int. Cl.[3] H02G *3/14*
U.S. Cl. 220—242 **26 Claims**



1. A weatherproof cover assembly for an electrical wiring device comprising:
  a housing including
    a base having at least one aperture therethrough for access to said wiring device,
    a plurality of interconnected outer walls extending frontwardly from said base and including a top outer wall and opposing side outer walls, each of said side outer walls having a front surface,
    a plurality of interconnected inner walls, extending frontwardly from said base, each having a front surface, said inner walls and said base defining a chamber;
  cover means pivotally attached to said side outer walls for enclosing said chamber when said cover means is closed and for providing access to said wiring device when cover means is open, said cover means including
    a plurality of interconnected flanges extending rearwardly from said cover means, said flanges being disposed between said inner and outer walls when said cover is closed; and
  means for pivotally attaching said cover means to said side outer walls, so that said cover means pivots about an axis of rotation,
  whereby, when said cover means is closed, said outer walls, said inner walls, said flanges, and said cover means together inhibit entry of moisture and dust into said chamber.

4,381,064
COATED SHEET MATERIAL AND CONTAINER THEREFROM
Narayan Das, Westmont, and Surya K. Misra, Naperville, both of Ill., assignors to National Can Corporation, Chicago, Ill.
Division of Ser. No. 11,169, Feb. 12, 1979, Pat. No. 4,285,223. This application Mar. 2, 1981, Ser. No. 239,326
Int. Cl.[3] B32B *5/00;* **B65D** *90/04*
U.S. Cl. 220—458 **8 Claims**



1. A stock material suitable for use in making a drawn and ironed container comprising a black plate base having a phosphate layer on at least one surface thereof and chemically bonded to said surface, the grain size in said phosphate layer being in the range of about 400 to about 2500 angstroms, said phosphate layer having a thickness equivalent to about 20–100 milligrams per square foot, said phosphate layer being applied to both surfaces of said black plate base and said phosphate layers each having the aforesaid range of thicknesses and said phosphate layers being substantially equal in thickness, and a layer of an organic ester lubricant on each of said phosphate layers but unreacted therewith so that a drawn and ironed container can be formed from said stock material.

3. A stock material suitable for use in making a drawn and ironed container comprising a black plate base having a phosphate layer on at least one surface thereof and chemically bonded to said surface, the grain size in said phosphate layer being in the range of about 400 to about 2500 angstroms, said phosphate layer having a thickness equivalent to about 20–100 milligrams per square foot, and a layer of an organic ester lubricant on the phosphate layer but unreacted therewith so that a drawn and ironed container can be formed from said stock material.

5. A seamless drawn and ironed container consisting of a black plate base material having an integral layer of insoluble crystalline phosphate chemically bonded to an outside surface of the side wall thereof which produces a corrosion-resistant layer for said surface of said black plate base material, said layer being totally reacted and having a thickness equivalent to less than about 50 milligrams per square foot, the inside surface of said container having an integral layer of water insoluble crystalline phosphate chemically bonded thereto and totally reacted and having a thickness equivalent to less than about 50 milligrams per square foot, each layer of said phosphate having a grain size in the range of about 400 to about 2500 angstroms.

4,381,065

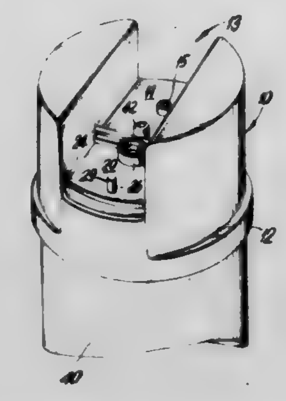
CONTINUOUS DISCHARGE AEROSOL ACTUATOR

Thomas Hayes, Westport, Conn., assignor to Precision Valve Corporation, Yonkers, N.Y.

Filed May 29, 1981, Ser. No. 268,262

Int. Cl.³ B65D *83/14*

U.S. Cl. 222—153 **3 Claims**



1. A one-piece integrally molded actuator for a pressurized aerosol dispenser comprising a generally cylindrical cap body having a generally horizontal surface portion which includes a central aperture through which the valve stem of the dispenser protrudes, an actuator tab integral with said horizontal surface portion and connected thereto at the inner end of the tab by a flexible hinge portion, said tab being detachably connected to the cap body near the outer end of the tab by a frangible web, a first side of said tab including a valve stem receiving socket for fitment upon the dispenser valve stem when the tab has been inverted by rotation about said hinge portion, said valve stem receiving socket being in communication with a discharge orifice located on the other side said tab, the first side of said tab also including detent means cooperative with detent means located on the horizontal surface portion of said cap body to retain the tab in the inverted position for latching the container valve open.

4,381,066

POLYMERIC FOAM CAULKING COMPOSITIONS

Edward H. Page, 1021 Hillcrest Rd., Ridgewood, N.J. 07450, and Frank Scotti, 450 Indian Rd., Wayne, N.J. 07470

Filed May 10, 1982, Ser. No. 376,570

Int. Cl.³ B65D *83/00*

U.S. Cl. 222—394 **33 Claims**

1. A composition suitable for preparing a stable, cellular foam adapted to be dispensed from an aerosol container and maintained under pressure in a container having a value member associated with the container adaptable for continuous dispensing of the contents of the container, the composition comprising an aqueous emulsion of one or more foamable polymers, filler, a propellent amount of dimethyl ether and a volatile organic liquid compound selected from the group consisting of a volatile hydrocarbon, a volatile halogenated hydrocarbon, and mixtures thereof, wherein the foamable polymers have glass transition temperatures of less than about 15° C. and wherein the foamable polymers are emulsified by a nonionic surfactant having an HLB value of greater than about 15; wherein the ratio of the weight percent of the dimethyl ether to the organic liquid compound is about 9-90:1, and wherein the foam is self-leveling, water resistant, and the volume of the foam is not greater than about six times the volume of said composition.

4,381,067

FEEDING DEVICE FOR PRE-STERILIZED OBJECTS CONTAINED IN INTERNALLY STERILE RECEPTACLES, FOR STERILE PACKING PLANTS

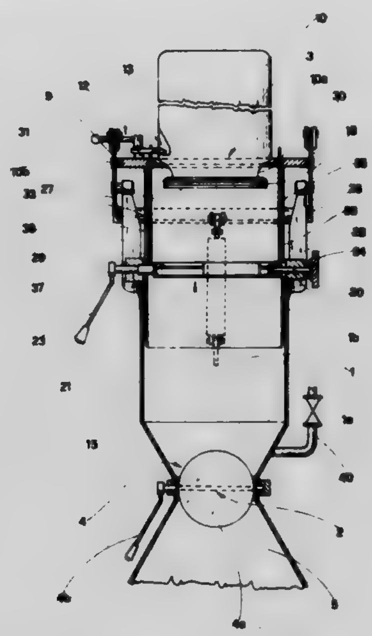
Camillo Catelli, Parma, Italy, assignor to Ing, Rossi & Catelli di Catelli & C. S.n.C, Parma, Italy

Filed Feb. 18, 1981, Ser. No. 235,740

Claims priority, application Italy, Feb. 29, 1980, 40014 A/80

Int. Cl.³ G01F *11/28*

U.S. Cl. 222—450 **8 Claims**



1. Feeding device for pre-sterilized objects contained in internally sterile receptacles, for sterile packing plants, comprising: a chamber (1) provided with two apertures, the first aperture (2) of which, connects, through an opening and closing mechanism operated from outside said chamber, the chamber itself with a sterile environment (5), and the second aperture (3) of which, is shaped in such a way that the mouth (10*b*) of a receptacle (10) containing the pre-sterilized objects enters it, blocking it completely; a first means for creating a sterile gas atmosphere within the chamber at a pressure slightly higher than atmospheric pressure; a locking means for securing said receptacle in the position in which its mouth occupies said second aperture; a second means operated from outside said chamber, for removing a lid (10*b*) of said receptacle when the latter is locked by said locking means; a diaphragm inserted between said first and second aperture, for greatly reducing the sectional area of flow of the gas contained in the chamber towards the outside, when said second aperture is free.

4,381,068

CONTINUOUS METHOD AND DEVICE FOR MAKING A SLEEVE WITH A TURNED BACK EDGE

Jean-Pierre Raisin, Troyes, and Jacques Pion, Saint Julien les Villas, both of France, assignors to Institut Textile de France and Agence Nationale de Valorisation la Recherche, both of Paris, France

Filed Feb. 9, 1981, Ser. No. 233,039

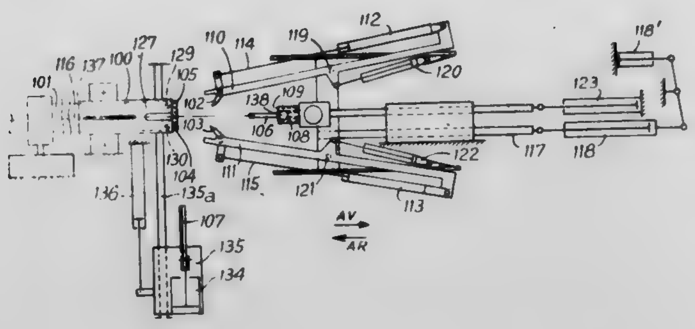
Claims priority, application France, Feb. 8, 1980, 80 02806

Int. Cl.³ A41H *43/02*

U.S. Cl. 223—2 **7 Claims**

1. Device for obtaining from a long length of tubular knitted element a sleeve with a turned back edge of predetermined length of the type comprising a tubular guide which defines an inner surface and an outer surface one of which is used to guide the tubular knitted element, means for turning back a part of the tubular knitted element which projects from the front end of the tubular guide, means for pulling forward the whole knitted element, and means for cutting across said knitted element, wherein the inner surface of the tubular guide is provided for guiding the tubular knitted element and in that the means for turning back a part of the said tubular knitted ele-

ment are adapted to turn the said part over the outer surface of the tubular guide wherein at least one nozzle producing a jet of



air is provided, which nozzle cooperates with the means for turning back the part of the knitted element which projects from the front end of the tubular guide.

4,381,069

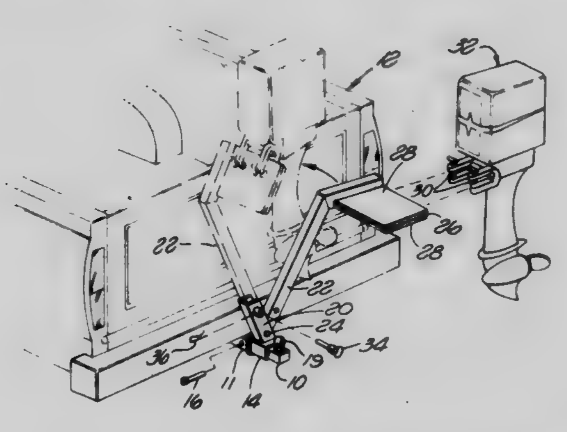
OUTBOARD MOTOR CARRIER FOR MOTOR VEHICLE

Steven C. Kreck, 709 N. Phillips, Carson City, Nev. 89701

Continuation of Ser. No. 189,516, Sep. 22, 1980, abandoned. This application May 13, 1982, Ser. No. 377,745

Int. Cl.[3] B60R *9/08*

U.S. Cl. 224—42.44 **3 Claims**



1. A mounting structure for transporting an outboard motor on a motor vehicle comprising:

a bracket means adapted to be securely attached to an external structure on a motor vehicle;

a rigid metal channel extending upwardly at an angle from said bracket means;

an elongated supporting arm mounted at its lower end to said channel with a lower portion above said lower end receivable into an upper opening in said channel to be supported in an upright position at said angle and a flat plate extending outwardly from its upper end to be engaged with the mounting clamps of an outboard motor; and,

locking means for securing said lower portion of said supporting arm in its upright position within said channel, said supporting arm having said upper end angled obtusely to said supporting arm so that the outboard motor clamped to said plate is held vertically with its center of gravity above the bracket means when said supporting arm is in said upright position, said flat plate extending in a plane at the same obtuse angle to said supporting arm as said upper end.

4,381,070

DEVICE FOR SECURING SURFBOARDS OR THE LIKE ON THE ROOF CARRIERS OF AUTOMOTIVE VEHICLES

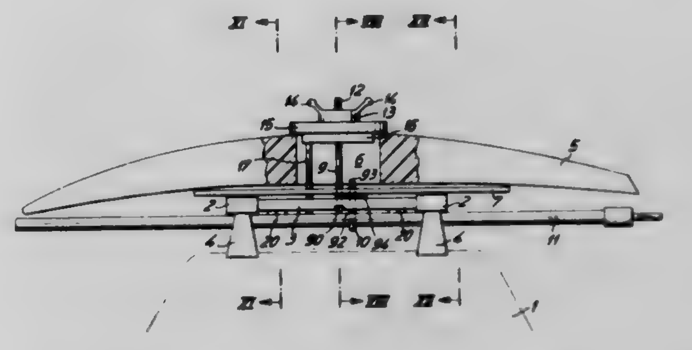
Josef Langbauer, Grabenstätt, Fed. Rep. of Germany, assignor to Heinrich Wunder GmbH & Co. KG, Dachau, Fed. Rep. of Germany

Filed Sep. 19, 1980, Ser. No. 188,926

Claims priority, application Fed. Rep. of Germany, Sep. 19, 1979, 2937850; Nov. 10, 1979, 2945479

Int. Cl.[3] B60R *9/08*

U.S. Cl. 224—321 **17 Claims**



1. A device for securing at least one component of a watercraft, such as a surfboard, which has an opening, on the roof of an automotive vehicle, comprising a roof carrier on the roof of the vehicle, said roof carrier including an arm having an aperture; a locking bar having an externally threaded upper portion and a lower portion, said locking bar being arranged to extend through the opening of the component when the latter is placed onto said roof carrier and through the aperture of said arm so that said lower portion of said locking bar is located at a level below said aperture, said locking bar being turnable between a first position in which said lower portion thereof engages with and a second position in which said lower portion thereof can be disengaged from said roof carrier; a threaded member movable into mesh with said upper portion while said locking bar extends through the opening of the component on said roof carrier to urge the component against the roof carrier; a tensioning member disposed between the commodity through which said locking bar extends and said threaded member, said tensioning member having a portion non-rotatably receivable in the opening of the component on said roof carrier and a portion extending into the aperture of said arm to hold said tensioning member against rotation relative to said arm; and means for releasably locking said threaded member in a position in which said threaded member holds said lower portion of said locking bar in engagement with said roof carrier in the first position of said locking bar.

4,381,071

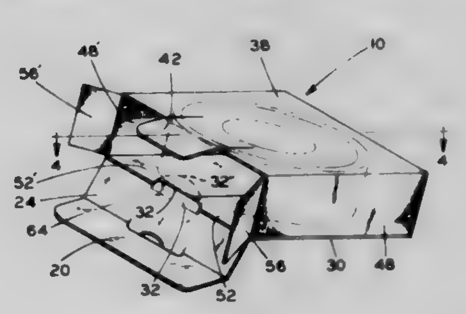
FOLDABLE BLANK BOX

Vern O. Vergiels, Temperance, Mich., assignor to Tecumseh Corrugated Box Company, Tecumseh, Mich.

Filed Jul. 2, 1981, Ser. No. 279,733

Int. Cl.[3] B65D *5/66, 5/18*

U.S. Cl. 229—16 R **9 Claims**



1. A container formed of sheet material comprising:

a. top, bottom, side and end panel means hingedly connected

together defining a hollow body portion closed at one end and open at the opposite end;

b. auxillary panel means lying adjacent a portion of the inner surface said bottom panel and having marginal edges aligned adjacent the open end of the said hollow body portion;

c. closure means extending from the end of bottom panel means for closing the open end of said hollow body portion; and

d. locking means struck from said closure means and said bottom panel means for engaging said aligned marginal edges of said hollow body portion when said closure means is bent away from said body portion whereby said body portion is held in an erected, open position by said locking means and supported in an inclined position by said closure means for permitting an article to be inserted into said container without grasping the outer surfaces of the sides thereof.

4,381,072

METHOD AND DEVICE FOR SEPARATELY COLLECTING COMPONENTS OF A LIQUID BY MEANS OF A CENTRIFUGAL ROTOR

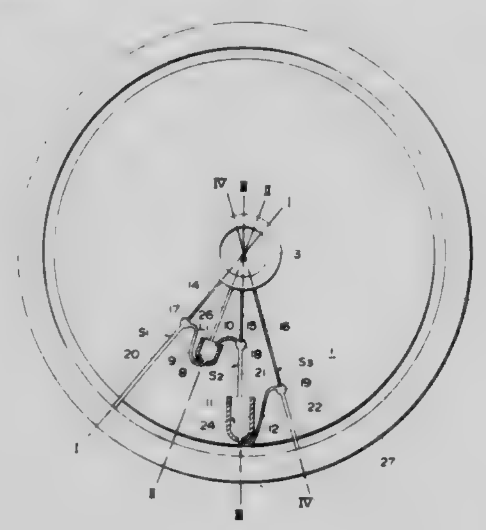
Tetsuo Matsumoto, Hyogo, and Akira Okumura, Takarazuka, both of Japan, assignors to Atto Corporation, Tokyo, Japan

Filed Apr. 9, 1981, Ser. No. 252,417

Claims priority, application Japan, Apr. 11, 1980, 55-48287

Int. Cl.³ B04B *7/00, 15/08*

U.S. Cl. 494—10 **9 Claims**



1. A device for separately collecting components of a liquid, comprising:

a rotor;

a first aspirator mounted on said rotor for rotation therewith, having a radially extending smaller diameter pipe, a radially extending larger diameter pipe disposed radially outwardly from the smaller diameter pipe, and first connecting means for connecting the smaller diameter pipe and the larger diameter pipe;

a first container mounted on said rotor for rotation therewith;

a first pipe communicating between said first container and said first connecting means, wherein fluid introduced into said first aspirator is subjected to increasing centrifugal force as it flows radially outwardly for creating suction at said connecting means and thereby in said first pipe; and

means for independently introducing liquids into said first aspirator and into said first container, wherein liquid may be selectively introduced into said first container for centrifuging, and wherein liquid in said first container may be selectively withdrawn through said first pipe by introducing liquid into said first aspirator.

4,381,073

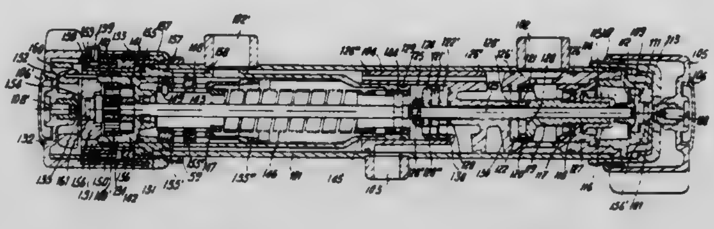
THERMOSTATICALLY CONTROLLED COLD AND HOT WATER MIXER

Roland Gloor, Gerbergasse, CH-5726 Unterkulm, Switzerland

Filed May 12, 1981, Ser. No. 262,960

Int. Cl.³ G05D *23/13*

U.S. Cl. 236—12 A **7 Claims**



1. An improved thermostatically controlled mixer of cold and hot water comprising an elongated housing with an elongated mixing chamber for mixing the cold and hot water, a cold water inlet for passing cold water to the chamber, a hot water inlet for passing hot water to the chamber, a mixed water outlet connected to the chamber for passing a flow of the mixed cold and hot water from the chamber, a first control cartridge mounted to the housing for regulating the flow of cold water into the mixed chamber and for regulating the flow of mixed water from the mixing chamber, wherein said first cartridge comprises a first pair of ceramic discs rotatably mounted relative to and sealingly against each other, each disc of said first pair of ceramic discs having a port extending therethrough to establish fluid communication from the cold water inlet to the mixing chamber upon alignment thereof, said first cartridge further including a second pair of ceramic discs rotatably mounted relative to and sealingly against each other, said second pair of ceramic discs being mounted between the mixing chamber and the mixed water outlet, each disc of said second pair of ceramic discs having a port extending therethrough to establish fluid communication from the mixing chamber to said mixed water outlet upon alignment thereof, and a second cartridge mounted to the housing including a thermally responsive element mounted in the mixing chamber and a slide valve connected to said thermally responsive element and slidably mounted in said second cartridge for regulating the flow of hot water from the hot water inlet to the mixing chamber responsive to the operation of said thermal element.

4,381,074

AIR-CONDITIONING METHOD AND SYSTEM FOR AN AUTOMOTIVE VEHICLE

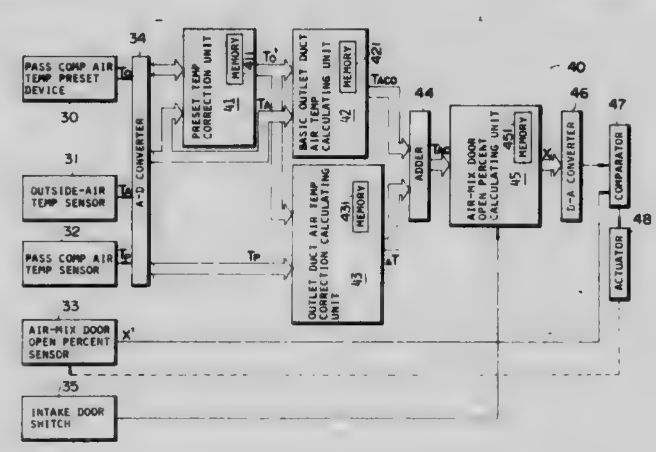
Tetsuya Iijima, Yamato, and Seiichi Takahashi, Tokyo, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Nov. 3, 1981, Ser. No. 317,865

Claims priority, application Japan, Nov. 4, 1980, 55-153718

Int. Cl.³ G05D *23/00;* **B60H** *3/00*

U.S. Cl. 236—13 **12 Claims**



1. An air conditioning method for an automotive vehicle

air-conditioning system in which the passenger compartment air temperature is maintained at a comfortable temperature according to the outside air temperature, which comprises the following steps of:

(a) detecting air temperature at a plurality of locations, including at least outside air temperature T_A and passenger compartment air temperature T_P;

(b) determining a desired passenger compartment air temperature T_O preset by a passenger compartment air temperature preset device;

(c) calculating a comfortable passenger compartment air temperature T_O' according to the outside air temperature T_A in accordance with a predetermined relationship between comfortable passenger compartment air temperature T_O' and detected outside-air temperature T_A;

(d) calculating a basic outlet duct air temperature T_{ACO} by substituting the current values of outside air temperature T_A, passenger compartment air temperature T_P, and comfortable passenger compartment air temperature T_O' into a predetermined first equation and solving the equation arithmetically for T_{ACO};

(e) calculating an outlet duct air temperature correction ΔT by substituting the current values of outside air temperature T_A and comfortable passenger compartment air temperature T_O' into a second predetermined equation and solving the equation arithmetically for ΔT;

(f) adding the calculated basic outlet duct air temperature T_{ACO} and the calculated outlet duct air temperature correction ΔT to obtain a required target outlet duct air temperature T_{AC};

(g) detecting whether air introduced into the air conditioner is from outside the vehicle or from within the passenger compartment, these two possibilities being referred to as air introduction modes;

(h) calculating an air mix door opening percentage X required to produce outlet duct air at the target temperature T_{AC} by comparing the current calculated value of target outlet duct air temperature T_{AC}, and the current detected value of passenger compartment temperature T_P, with stored characteristic curves of the predetermined relationships of outlet duct air temperature T_{AC}, air introduction mode and passenger compartment air temperature T_P to air mix door opening percentage X; and

(i) positioning the air mix door in accordance with the calculated value of X.

4,381,075

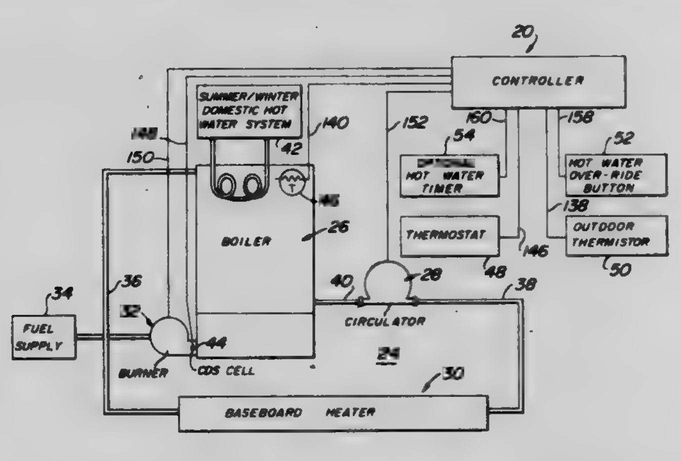
MICROPROCESSOR BASED CONTROLLER FOR HEATING SYSTEM

N. Allen Cargill, Warminister, and Theodore M. Bunten, Fort Washington, both of Pa., assignors to Thermonic Corp., Fort Washington, Pa.

Filed Dec. 17, 1981, Ser. No. 331,722

Int. Cl.[3] F24D *3/00*

U.S. Cl. 237—8 R **14 Claims**



1. An integrated primary, safety and limit control device for a building heating system, said system including a heat exchanger having a combustion side and a fluid side in which a fluid is heated, a gas or oil fired fuel burner coupled to said combustion side for heating said fluid when said fuel is ignited, heat radiating means coupled to said heat exchanger, circulating means for transporting said fluid between said heat exchanger and said heat rediating means, adjustable thermostat means for establishing a desired temperature within said building, first sensor means for providing a signal indicative of heat exchanger fluid side temperature, second sensor means for providing a signal indicative of outdoor temperature, said device comprising, limit control means for establishing high and low temperature limits for said system, lockout means for selectively disabling said burner and said circulating means in response to a lockout signal, temperature sensing means responsive to said first and second sensor means for providing control signals indicative of outdoor temperature and fluid side temperature and for providing control signals indicative of a failure of said first sensor means, microprocessor means responsive to said temperature sensing means, said thermostat means and said limit control means for providing said lockout signal in response to said control signal indicative of a failure of said first sensor means and for providing signals to said burner and said circulating means for controlling the operation thereof, whereupon said fluid side temperature is modulated by the operation of said burner as a function of said fluid side temperature and outdoor temperature and said circulating means is enabled to operate whether or not said burner is ignited as a function of said fluid side temperature and outdoor temperature to attain the indoor temperature as established by said thermostatic means, said microprocessor being responsive to said limit control means for disabling said burner to prevent fuel ignition if said fluid side temperature would exceed said high temperature limit and for enabling burner ignition when called upon to do so if the fluid side temperature drops below said low temperature limit.

4,381,076

DROPPED RAILROAD TIE FOR RAILWAY WITHOUT BALLAST

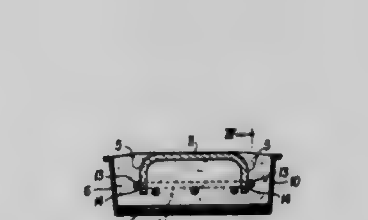
Rene Munier, Choisy Au Bac, France, assignor to Regie Nationale des Usines Renault, Boulogne-Billancourt, France

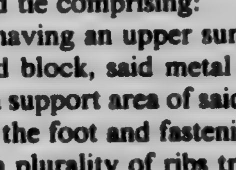
Filed Jun. 13, 1980, Ser. No. 159,341

Claims priority, application France, Jun. 15, 1979, 79 15391

Int. Cl.[3] E01B *3/40*

U.S. Cl. 238—115 **1 Claim**





1. A dropped railroad tie comprising:

a concrete tie block having an upper surface; and

a metal saddle in said block, said metal saddle including a tie-plate covering a support area of said upper surface and adapted to receive the foot and fastenings of a rail in said support area, and a plurality of ribs transversely fixed to

said tie plate and forming a first truss, said ribs extending into said tie block and being sealed in the concrete of said tie block,

wherein at least some of said ribs extend parallel to the length of said tie and decrease in height from said support area toward the ends of said ribs, whereby said saddle approximates an equal stress resistance beam,

whereby said saddle absorbs flexure stresses and transmits compressive stresses to said tie block,

wherein said saddle is formed of a cut steel plate shaped in a U section, the flanges of which form said ribs and wherein the outer frame of a round bar flat grill second truss wedgingly encloses said flanges within said tie,

whereby said outer frame of said second truss reinforces said saddle against bending stresses.

4,381,077

DIESEL FUEL INJECTION NOZZLE

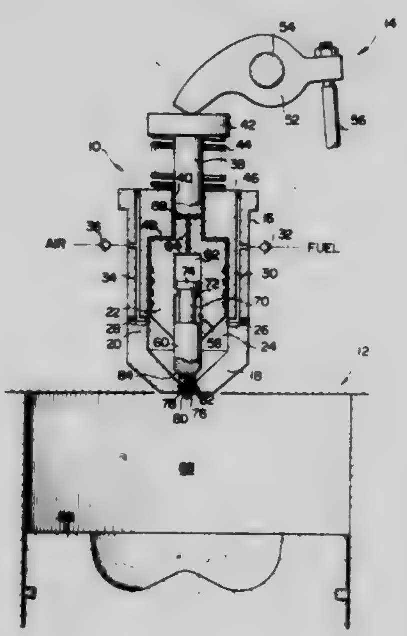
Yuzo Tsumura, and Masatoshi Iwata, both of Oyama, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed Jun. 4, 1981, Ser. No. 270,539

Claims priority, application Japan, Jun. 12, 1980, 55-80983[U]

Int. Cl.^{3} F02M *61/08*

U.S. Cl. 239—89 **5 Claims**



1. A nozzle assembly for the injection of premixed fuel and air into a diesel engine cylinder, comprising:

(a) a nozzle body;

(b) a piston reciprocably mounted in the nozzle body and defining a premixing chamber in combination therewith, the premixing chamber having a fuel inlet port and an air inlet port which are opened by the piston when the latter is in a first position, where the capacity of the premixing chamber is maximized, and which are closed by the piston upon its movement toward a second position where the capacity of the premixing chamber is reduced to a minimum, so that the piston compresses the fuel-air mixture trapped in the premixing chamber on its stroke from the first to the second position;

(c) a plunger also mounted in the nozzle body for reciprocation between a third and a fourth position, the plunger having a spray hole formed in one end which is retracted in the nozzle body for closing the premixing chamber against the diesel engine cylinder when the plunger is in the third position and which projects out of the nozzle body for spraying the compressed fuel-air mixture into the diesel engine cylinder from the premixing chamber when the plunger is in the fourth position, the plunger being operatively engaged with the piston in such a way that the piston when in the first position holds the plunger in the third position and moves the plunger to the fourth position only toward the end of its stroke from the first to the second position.

4,381,078

AGRICULTURAL SPRAY NOZZLE WITH FLUID OPERATED ORIFICE CLEANING MEMBER

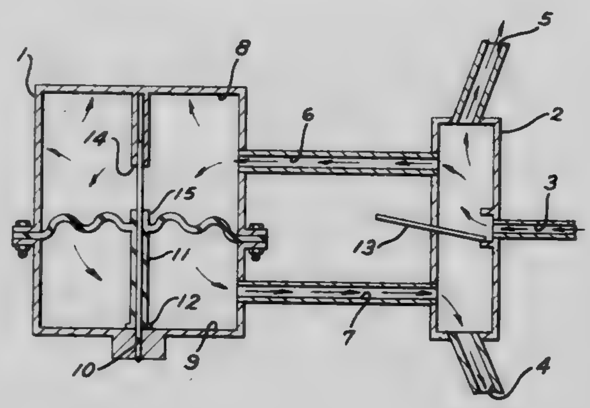
John B. Vessels, R1 Box 69, Webster, Ky. 40176

Filed Dec. 29, 1980, Ser. No. 220,501

The portion of the term of this patent subsequent to Feb. 3, 1998, has been disclaimed.

Int. Cl.^{3} B05B *15/02*

U.S. Cl. 239—118 **3 Claims**



1. In an agricultural spray device having an upper pressure chamber and a lower pressure chamber, said chambers being divided by a diaphragm, said lower pressure chamber including a nozzle having an outlet orifice; a source of spray material; a first conduit means connecting said source with said chambers; valve means in said first conduit means for controlling the flow of material to either the upper or the lower chamber; a second conduit means connecting said upper chamber with said source for allowing material to flow out of said upper chamber to said source when said valve means is directing spray material to said lower chamber; and a punch affixed to said diaphragm, said punch having a diameter slightly smaller than said orifice and being movable in and out of said orifice so as to punch out any dirt or foreign material tending to clog said orifice, said punch also minimizing dripping when in said orifice said punch being movable into the orifice when said valve means allows material to flow to said upper chamber, said punch being movable out of said orifice when said valve means allows flow of material to said lower chamber; the improvement comprising: a third conduit means connecting said lower chamber with said source of spray material for allowing said spray material to flow out of said lower chamber to said source of spray material when said valve means is directing spray material to the upper chamber.

4,381,079

ATOMIZING DEVICE MOTOR

Harold T. Allen, Brownsburg, Ind., assignor to Ransburg Corporation, Indianapolis, Ind.

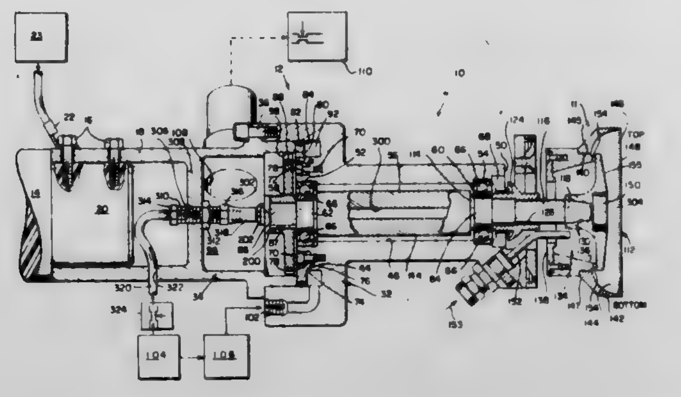
Filed Nov. 3, 1980, Ser. No. 203,519

Int. Cl.^{3} B05B *3/04, 3/10*

U.S. Cl. 239—214.13 **11 Claims**

1. In a gas turbine motor for driving a rotating atomizing device, the motor having a shaft, an atomizing device side from which the shaft projects for mounting the atomizing device, an interior divided into an inlet side and an exhaust side, a partition separating the inlet side from the exhaust side, the partition providing at least one gas-directing nozzle, a turbine wheel mounted on the shaft adjacent the partition and including means against which the gas impinges as it passes through the nozzle to spin the turbine wheel and shaft, the shaft including means providing a passageway extending longitudinally therethrough, means providing access to the passageway from a

point remote from the atomizing device mounting end of the shaft, and means providing an exhaust from the passageway at



the atomizing device-mounting end for exhausting motor driving gas therethrough.

4,381,080

SPREADING DEVICE FOR EFFECTING A UNIFORM DISTRIBUTION OF MATERIAL SUCH AS FERTILIZER

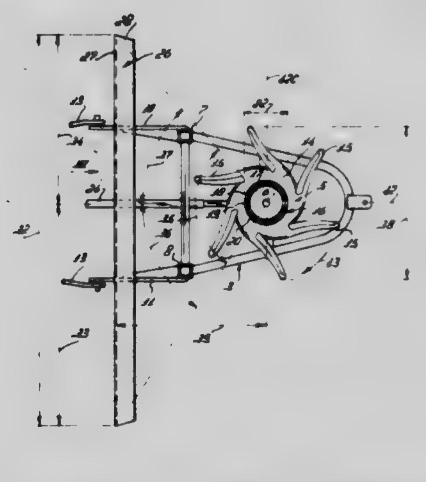
Ary van der Lely, Maasland, and Cornelis J. G. Bom, Rozenburg, both of Netherlands, assignors to C. Van der Lely N.V., Maasland, Netherlands

Filed Feb. 23, 1979, Ser. No. 14,643

Claims priority, application Netherlands, Feb. 24, 1978, 7802074

Int. Cl.³ A01C *17/00*

U.S. Cl. 239—666 **33 Claims**



1. A device for spreading material comprising material ejecting means which includes at least one distribution member adapted to rotate about a substantially vertical axis, material feeding means of such character that through which, during the operation of the device, material to be spread by said ejecting means is supplied substantially 360° around said axis to said distribution member and material is ejected substantially uniformly substantially 360° outwardly from said distribution member, and material deflector means which is substantially straight as seen in plan and located outwardly of the circumference of said distribution member, said deflector means being entirely spaced from a plane passing through said axis and being disposed at substantially a right angle to the intended direction of operative travel of the device and otherwise being so constructed and arranged that material from said ejecting means impinges on said deflector means and is received on the underlying surface in a substantially uniform density.

4,381,081

NOZZLE ASSEMBLY FOR SPRAY COATING SYSTEMS

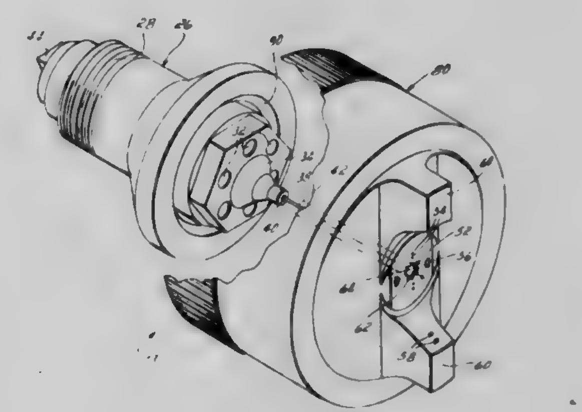
Donald R. Hastings, Elyria, Ohio, assignor to Nordson Corporation, Amherst, Ohio

Continuation-in-part of Ser. No. 971,514, Dec. 20, 1978, Pat. No. 4,273,293. This application Oct. 22, 1980, Ser. No. 199,487

The portion of the term of this patent subsequent to Jun. 16, 1998, has been disclaimed.

Int. Cl.³ B05B *5/02*

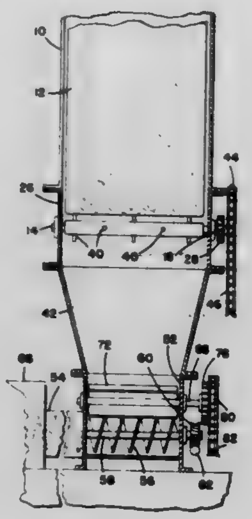
U.S. Cl. 239—707 **9 Claims**



1. In a system for the coating the articles with a liquid coating material supplied from a pressurized bulk coating source wherein said liquid coating material is emitted from a coating material spray device in the form of an atomized spray produced by impacting a central stream of liquid coating material under pressure with a pressurized gas stream encircling said central liquid stream and wherein the articles to be coated are spaced from said spray device, the combination comprising:

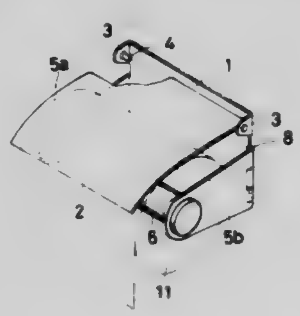
- a source of liquid coating material under pressure;
- a source of pressurized atomizing gas;
- a material spray device having a liquid conduit with flow control means therein adapted to be connected to said source of pressurized liquid coating material for providing relatively low liquid coating material flow rates in the approximate range of 1½–6 fluid ounces of material per minute, and having a gas conduit therein adapted to be connected to said source of pressurized atomizing gas; and
- a spray coating nozzle assembly made which is substantially constructed of non-conductive plastic material comprising a liquid tip communicating with said liquid conduit and having a nozzle portion through which said liquid coating material is emitted in a central stream at said relatively low flow rate, and an air cap communicating with said atomizing gas conduit through which gas is ejected for impinging and atomizing said central stream of liquid coating material emitted from said nozzle portion of said liquid tip, said air cap being positionably supported by said spray device only in the rear region of said air cap to effectively leave the forward region thereof positionably unsupported by said spray device, said air cap having a metal insert in the center thereof, said insert having a central bore and a plurality of uniformly dimensioned and circumferentially spaced axial gas flow passages with spaced, radially inwardly extending ribs therebetween, said ribs engaging the outside surface of said liquid coating tip nozzle portion to positively align the center axis of said liquid coating nozzle portion on said axis of said central bore to provide uniform atomizing gas flow around said liquid coating tip nozzle portion for producing at relatively low flow rate a finely atomized uniform spray pattern of said coating material emitted from said liquid tip.

4,381,082
PARTICULATE MATERIAL HANDLING MEANS
Donald Elliott, Trainer; Charles A. Gahres, Aston, and Dorsey C. Nelson, Springfield, all of Pa., assignors to FMC Corporation, Philadelphia, Pa.
Filed Dec. 19, 1980, Ser. No. 218,334
Int. Cl.^{3} B02C *13/286*
U.S. Cl. 241—186 A **2 Claims**



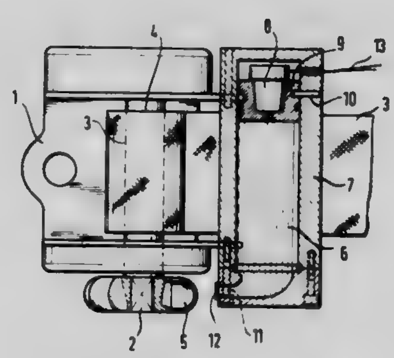
1. Apparatus for liberating particulate material from a bale thereof and feeding same to a processing apparatus comprising guide means for directing a bale into engagement with a plurality of rotatable shafts, said shafts having tines extending generally radially therefrom for engaging the bale and liberating the particulate material therefrom, means for rotating adjacent ones of said shafts in opposite directions, a horizontally extending screw conveyor for feeding the liberated particulate material to a processing apparatus, said screw conveyor comprising a screw rotatable within a cover member, said cover member having an opening in the upper portion therefor for admitting particulate material to enter into engagement with said screw, a guide section for directing the liberated material from the rotatable shafts to the opening in said cover member, compacting means for compacting the particulate material against the screw, said compacting means comprising a pair of counter rotatable shafts extending through said guide section parallel to said screw conveyor, and said shafts having longitudinally extending vanes whereby rotation of said shafts causes said vanes to force the liberated particulate material through the opening in the cover of said screw conveyor and into compact engagement with the screw.

4,381,083
TOILET PAPER HOLDER
Takaaki Tsunetsugu, 2-5, Tatsumi Kita, 4-chome, Ikuno-ku, Osaka, Japan
Filed Feb. 3, 1981, Ser. No. 231,067
Claims priority, application Japan, Jun. 9, 1980, 55-80776
Int. Cl.^{3} B65H *19/00*
U.S. Cl. 242—55.2 **5 Claims**



1. A toilet paper holder comprising:
a base plate mountable on a support surface;
a first side plate connected to a first edge of said base plate;
a second side plate rotatably mounted about an opposite edge of said base plate, said second side plate being metallic and having a shaft-engaging recess provided therein; and,
a non-removable paper roll-supporting shaft, said shaft having a first end connected to said first side plate, said shaft also having a second end with a magnet provided thereon, said second end of said shaft being adapted (1) to fit into said shaft-engaging recess of said second side plate when said second side plate is positioned for engagement with said shaft and (2) to extend from said first side plate in cantilever fashion when said second side plate is rotated away from said shaft so that paper rolls may be exchanged without moving said shaft.

4,381,084
RE-TIGHTENER WITH PYROTECHNIC PROPELLANT CHARGE FOR SAFETY BELT AUTOMATIC WIND-UP DEVICES
Artur Föhl, Schorndorf, Fed. Rep. of Germany, assignor to REPA Feinstanzwerk GmbH, Fed. Rep. of Germany
Continuation of Ser. No. 834,794, Sep. 19, 1977, abandoned. This application Mar. 5, 1980, Ser. No. 127,494
Int. Cl.^{3} A62B *35/00;* **B65H** *75/48*
U.S. Cl. 242—107 **16 Claims**

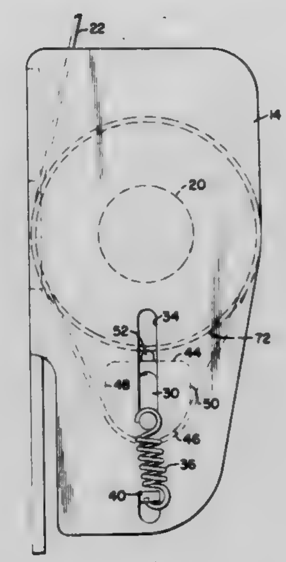


1. In a safety belt retractor system in which a shaft is mounted in a bearing block, a safety belt is wound about the shaft, a re-tightening element is connected to the shaft, and a pyrotechnic propellant charge is provided which when activated by firing the charge generates an explosive pressure on the re-tightening element to tighten the safety belt around the body of a motor vehicle passenger to be protected, the improvement comprising a liquid medium and a propulsion piston disposed intermediate the re-tightening element and the pyrotechnic propellant charge with the propulsion pistos disposed between the liquid medium and the pyrotechnic propellant charge so that the explosive pressure of the charge is applied against the piston and drives the liquid medium against the re-tightening element to tighten the safety belt around the body of the motor vehicle passenger.

4,381,085
SEAT BELT RETRACTOR WITH REDUCED SPOOLING
Robert L. Stephenson, Utica, and John W. Frankila, Sterling Heights, both of Mich., assignors to Allied Corporation, Morris Township, Morris County, N.J.
Filed Apr. 6, 1981, Ser. No. 251,614
Int. Cl.^{3} A62B *35/02;* **B65H** *75/48*
U.S. Cl. 242—107.3 **6 Claims**

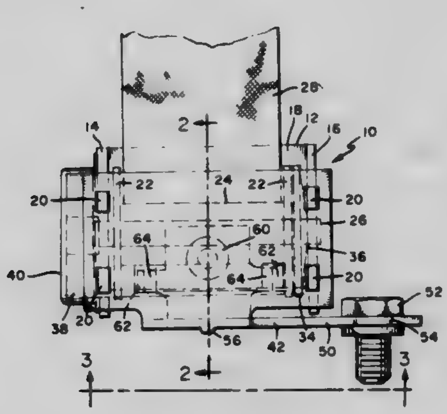
1. A seat belt retractor comprising:
a housing;
a spool rotatably mounted in said housing;
seat belt webbing wrapped about said spool in the form of a roll of webbing and adapted to be extended therefrom and retracted thereon;
locking means in said housing actuatable to prevent rotation of said spool;
clamp means movably disposed in said housing, said clamp means having at least one clamp surface adapted to

contact said roll of webbing on said spool to limit withdrawal of said webbing from said spool, said clamp means being movable towards said roll of webbing, said webbing extending from said roll of webbing on said spool about said clamp means and then out of said housing, forces acting on said webbing when said locking means is actuated resulting in movement of said clamp means towards said roll of webbing whereby said clamp surface comes



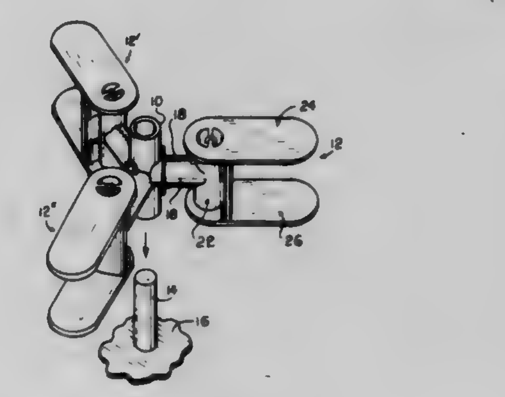
into contact with said roll of webbing; and means for maintaining said clamp surface of said clamp means in close proximity to said roll of webbing on said spool regardless of the amount of webbing extended from said spool, said maintaining means comprising at least one contact member extending from said clamp surface and biased toward said roll of webbing, said contact member being in contact with said roll of webbing.

4,381,086
SEAT BELT RETRACTOR STRUCTURE
Robert C. Pfeiffer, Sterling Heights, Mich., assignor to Allied Corporation, Morris Township, Morris County, N.J.
Filed Sep. 25, 1980, Ser. No. 190,784
Int. Cl.³ A62B *35/00;* B65H *75/48*
U.S. Cl. 242—107.4 R **3 Claims**



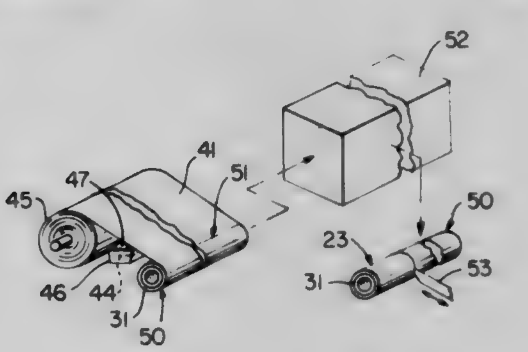
1. A seat belt retractor for installation in a vehicle having a longitudinally extending axis, comprising:
a substantially rigid frame;
winding means supported for movement in said frame in winding and unwinding directions and including a rotatable shaft;
locking means supported in said frame for locking said winding means against movement in said unwinding direction;
a retraint element connected to said winding means and movable towards and away from said frame as said winding means moves in its winding and unwinding directions, respectively; and
mounting means connected to said frame for mounting said frame to the vehicle, so that the axis of rotation of said shaft is substantially parallel to the longitudinal axis of the vehicle,
said mounting means having an area of less structural rigidity than said frame so that when crash forces which are generally parallel to the axis of rotation of said shaft are transmitted along said restraining means to said frame, said mounting means distorts and permits said frame to align itself toward the crash forces, whereby the structural integrity of said frame is maintained for higher crash forces.

4,381,087
ADJUSTABLE WIRE REEL
Loren J. Williams, 1951 Hurst Ave., San Jose, Calif. 95125
Filed Mar. 17, 1981, Ser. No. 244,607
Int. Cl.³ B65H *75/24*
U.S. Cl. 242—110 **9 Claims**



1. An adjustable wire reel comprising:
a tubular hub; and
a plurality of arm assemblies evenly spaced around said hub and radially extending therefrom, each arm assembly including
a first arm member attached to said hub,
a second arm member telescopically engaged with said first arm member,
an elongated rim means attached to said second member,
a first flange member engaged with a first end of said rim means,
a second flange member engaged with a second end of said rim means, and
spring means for biasing said second flange member towards said second end of said rim means.

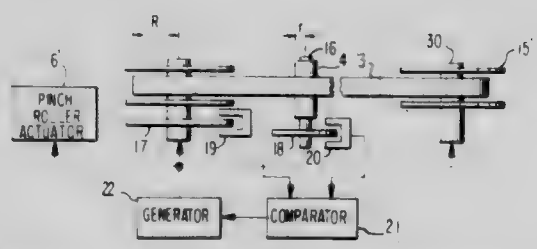
4,381,088
BOBBIN CORE
Randy E. Bryant, Alliance, Nebr., assignor to Dayco Corporation, Dayton, Ohio
Filed Oct. 1, 1980, Ser. No. 192,752
Int. Cl.³ B65H *75/14*
U.S. Cl. 242—118.7 **13 Claims**



7. In a tubular core for carrying yarn wound therearound to define a bobbin for a textile machine wherein said core has a load-carrying structure and an inside portion which is adapted to be engaged by a carrier shaft to provide substantially frictional holding of said core and bobbin on said shaft, the im-

provement wherein said inside portion comprises a sleeve made of a yieldable resilient polymeric material which is adapted to be yieldingly compressed between said structure and at least parts of said shaft to provide said frictional holding of said core in an improved manner, and said yieldable resilient material of said sleeve enables said core and bobbin to be driven on said shaft while keeping said core substantially intact as well as enabling damage-free removal thereof to thereby define a reusable core, said structure being made of paper, said paper being a wound paper strip having a plurality of turns, said paper strip having a first turn fastened to said sleeve and adhesive means fastening adjoining turns thereof.

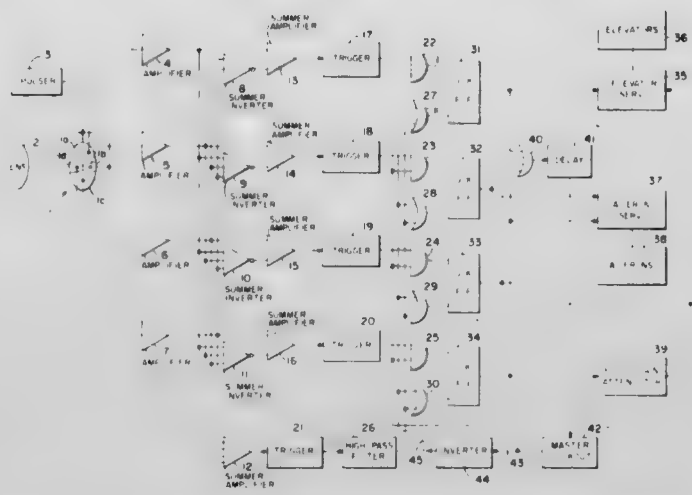
4,381,089
WOUND-TAPE RADIUS DETECTION SYSTEM FOR A TAPE RECORDER
Shigeyuki Kondo, Tokyo, Japan, assignor to Nippon Electric Industries, Co., Ltd., Tokyo, Japan
Filed Nov. 28, 1980, Ser. No. 211,155
Claims priority, application Japan, Nov. 27, 1979, 54-153296
Int. Cl.³ B65H *59/38;* **G03B** *1/02;* **G11B** *15/32*
U.S. Cl. 242—191 **6 Claims**



1. A wound-tape radius detection system for a tape apparatus, said apparatus of the type comprising a supply reel having a tape wound thereon, a take-up reel arranged to wind up said tape as passed thereto from said supply reel, a transducer provided on a tape transport path between said supply and take-up reels, and transporting means for transporting said tape, said detection system comprising:
means coupled with one of said supply and take-up reels for producing a first detection signal representing the speed of the rotation of said one reel;
freely rotatable roller means for rotating in response to transport of said tape;
means coupled with said freely rotatable roller means for producing a second detection signal representing the speed of transport of said tape; and
detecting means responsive to said first and second detection signals for detecting the radius of the tape wound on said one reel.

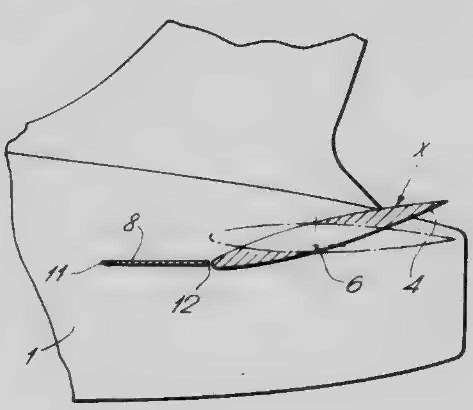
4,381,090
MISSILE STEERING SYSTEM USING A SEGMENTED TARGET DETECTOR AND STEERING BY ROLL AND PITCH MANEUVERS
William G. Garner, Grant, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Nov. 27, 1967, Ser. No. 687,924
Int. Cl.³ F41G *7/22;* **F42B** *15/02*
U.S. Cl. 244—3.16 **3 Claims**

1. A guidance system for a missile having deflectable steering surfaces including: segmented target detecting means comprising first and second roll segments, and first and second pitch segments; wherein said roll segments subtend small angular displacements with respect to said pitch segments, and said roll segments and said pitch segments are respectively centered around two orthogonal axes; connecting means between said target detecting means and a logic means; and control means



for said steering surfaces, said control means connected to said logic means.

4,381,091
CONTROL-EFFECT ENHANCEMENT OF TILTABLE AIRCRAFT STABILIZING MEMBER
Barry V. Pegram, Kingston-upon-Thames, England, assignor to British Aerospace Public Limited Company, Weybridge, England
Filed Aug. 5, 1980, Ser. No. 175,413
Claims priority, application United Kingdom, Aug. 8, 1979, 7927579
Int. Cl.³ B64C *5/16, 23/00*
U.S. Cl. 244—87 **2 Claims**



1. An aircraft including:
a fixed body;
a tail plane having a leading edge region, mounted on said body for tilting, control-effecting movement about a generally spanwise axis spaced from said leading edge region;
a control-enhancing member, having a trailing edge region, fixedly extending from said body ahead of said tail plane and having a span less than that of said tail plane, said trailing edge region of said control-enhancing member being shaped to match only a root portion of said tail plane leading edge region, said regions being positioned to lie in substantially continuous closely matching relationship only in a predetermined tilted position of said tail plane in which enhancement of the control effect of said tail plane is desired, said member having substantially no effect on either lift or drag in positions of said tail plane, e.g., in cruise flight, other than said pre-determined tilted position in which control enhancement is desired.

4,381,092

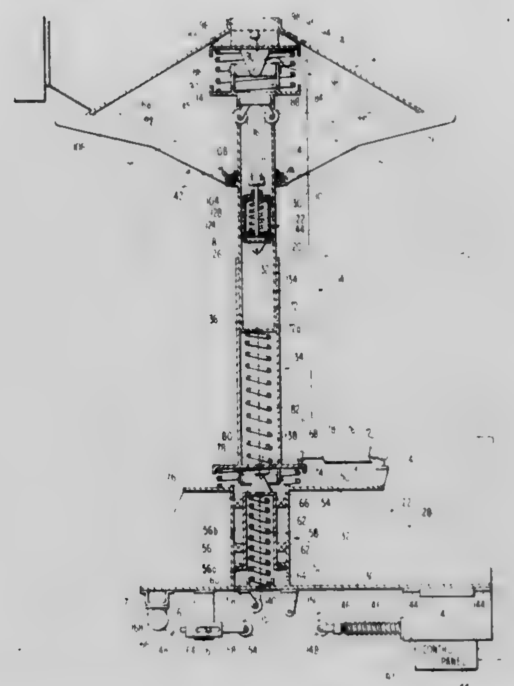
MAGNETIC DOCKING PROBE FOR SOFT DOCKING OF SPACE VEHICLES

Walter F. Barker, Denver, Colo., assignor to Martin Marietta Corporation, Bethesda, Md.

Filed May 1, 1981, Ser. No. 259,777

Int. Cl.[3] B64G *1/64*

U.S. Cl. 244—161 **13 Claims**



1. An improved magnetic soft docking probe for impact free docking of a docking space vehicle to a captive space vehicle, said captive space vehicle comprising:
  - a magnetic target member fixedly carried by captive space vehicle,
  - guide means surrounding said magnetic target member;
  - said docking space vehicle comprising:
  - a magnetic probe, said probe including;
  - an electromagnet,
  - an extendable and retractable boom, and
  - spring biased gimbals carried at respective ends of said boom and connected to said electromagnet and said docking space vehicle, respectively,
  - such that said spring biased gimbals function to uncage said probe yet act to guide the magnetic probe into contact with the magnetic target by magnetic attraction between said members, and to axially align said electromagnet, said boom and said docking space vehicle to provide proper pitch and yaw alignment between the docking space vehicle and the captive space vehicle, subsequent to said electromagnet contacting said magnetic target member.

4,381,093

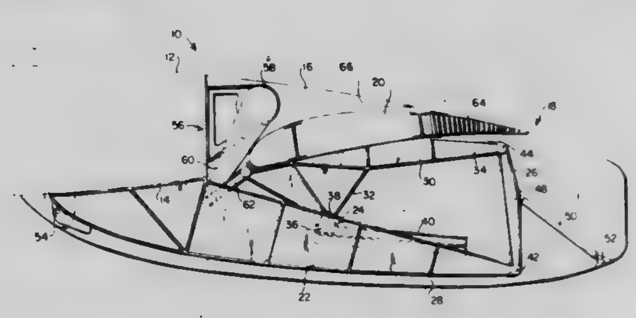
FLAP ASSEMBLY FOR AIRCRAFT WING

Peter K. C. Rudolph, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Oct. 7, 1980, Ser. No. 194,769

Int. Cl.[3] B64C *3/50*

U.S. Cl. 244—216 **6 Claims**



1. A flap assembly for an airfoil having upper and lower surfaces, a forward end and a rearward end, a longitudinal axis and a transverse axis, said flap assembly comprising: a mounting structure located at a first lower location at the rearward end of the airfoil; a flap member having a stowed first position above said mounting structure at the rearward end of said airfoil and movable rearwardly to a fully extended second position; a first link mounting means having a lower first pivot connecting means attached to said mounting structure at a first connecting location and an upper second pivot connecting means mounted to said flap member at an upper second connecting location; a track mounting means comprising track means and a third connecting means connected to said flap member and also operatively connected to said track means at a third connecting location positioned forwardly of said second connecting location; said track mounting means being characterized in that relative forward and rearward movement of said third connecting means is constrained to be along said track means on a forward and rearward first path of travel having a substantial longitudinal path component; said first link mounting means being characterized in that with said flap member in its stowed first position, initial rearward movement of said flap member causes said second pivot connecting means to move in a rearward path having a substantial longitudinal path component so as to provide substantial Fowler motion for said flap member, and further movement of said flap member to its fully extended position causes said flap member to deflect to a substantially downwardly and rearwardly extending position; a second flap having a third stowed position adjacent said flap member and movable rearwardly to a fourth fully deployed position, where said second flap is spaced from said flap member; said second flap being pivotally connected to said first link mounting means by fourth connecting means at a fourth connecting location, whereby rearward movement of said link mounting means moves said second flap toward its fourth position; and said fourth connecting location being spaced from said first connecting location at a distance greater than a distance which said second connecting location is spaced from said first connecting location, whereby rearward movement of said link mounting means moves said second flap rearwardly a greater distance than said flap member is moved.

4,381,094

APPARATUS FOR DETERMINING THE SIGNAL TERM TO BE TRANSMITTED TO A RAILROAD TRACTION VEHICLE

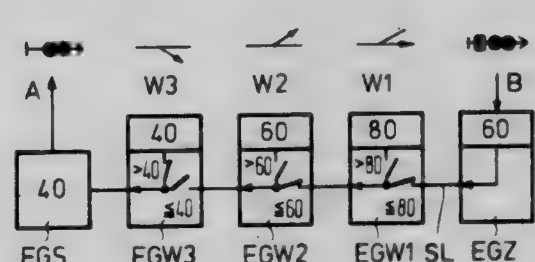
Horst-Guenter Gnest, Lehrte; Wolfgang-Dieter Granzow; Hans-Otto Hartkopf, both of Brunswick, and Adalbert Zillmer, Wolfenbuettel, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jan. 8, 1981, Ser. No. 223,271

Claims priority, application Fed. Rep. of Germany, Jan. 16, 1980, 3001440

Int. Cl.[3] B61L *3/18*

U.S. Cl. 246—182 R **4 Claims**



1. Apparatus for determining a signal term, representing the admissible speed, to be transmitted to a railroad traction vehicle which is to travel over a prescribed route which includes a start element, a destination element and at least one intermediate element, the destination and intermediate elements having maximum speeds assigned thereto, comprising:

respective storage means at the destination element and at each intermediate element storing the respective maximum speed;

destination element transmission means for transmitting a message including the assigned maximum speed back along the route to the next intermediate element;

comparison means at each respective intermediate element for comparing its respective assigned maximum speed with the maximum speed of an incoming message and devaluing the message in response to a message maximum speed which is greater than the respective assigned maximum speed;

intermediate element transmission means at each respective intermediate element for relaying the message, devalued as required, towards the start element; and

conversion means at the start element for receiving, converting and transmitting the received message as a signal term.

4,381,095

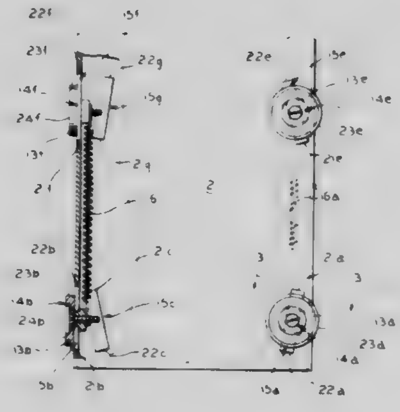
APPARATUS FOR SUPPORTING A WORK SURFACE

Victor J. Kritske, Sheboygan, Wis., assignor to Mayline Co., Inc., Sheboygan, Wis.

Filed Oct. 14, 1980, Ser. No. 196,746

Int. Cl.³ F16M *11/00*

U.S. Cl. 248—161 **8 Claims**



1. Apparatus for supporting a work surface, said apparatus comprising:

telescoping inner and outer column members,

each said column member having a top and bottom and including a plurality of planar side members that meet to form edges therebetween,

said inner column member having external cross-sectional dimensions sufficiently smaller than the internal cross-sectional dimension on said outer column member to thereby make it possible for said inner column member to freely fit and slide inside said outer column member;

each said column member having a generally uniform rectangular cross-section;

said inner column member being extendable by telescoping movement with respect to said outer column member;

a plurality of bearing block assemblies;

a stabilizer wheel rotatably attached to each said bearing block assembly to allow said wheel to rotate freely with respect to said bearing block assembly;

said inner column member having a plurality of angled slots formed in said planar side members;

said block assemblies being constrained to move along said angled slots,

said angled slots being positioned such that said wheels associated with said bearing block assemblies can be urged in and out of contact with said outer column by moving said block assemblies along said angled slots, whereby said bearing blocks enable said vertical extension by means of a sliding relationship with a minimum amount of horizontal movement while minimizing the force required for such telescoping extension.

4,381,096

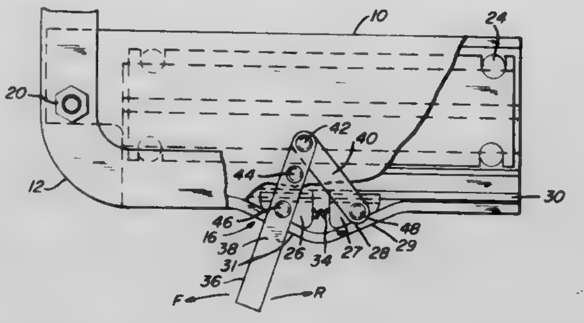
SEAT POSITIONER

Daniel W. Roper, Rochester, Mich., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed Jul. 30, 1980, Ser. No. 173,487

Int. Cl.³ F16M *13/00*

U.S. Cl. 248—429 **5 Claims**



1. A mechanism for adjusting the relative position of two components comprising:

a first member having a pair of flat converging surfaces of substantial length defining a path of movement between said components;

at least one locking member including a groove having converging side walls complementary with said flat converging surfaces of said first member and movable toward and away from said flat converging surfaces of said first member, means biasing said locking member toward said flat converging surfaces to wedge said flat converging surfaces of said first member into said groove to permit relative movement between said first member and said locking member;

means for moving said locking element away from said flat converging surfaces to permit movement of said components along said path; and

said groove having converging side walls complementary with said flat converging surfaces of said first member, there being two locking members, each of said locking members being movable toward and away from said flat converging surfaces of said first member and including a camming surface converging toward said path of movement, the slope of the camming surface of one of said locking members being opposite to the slope of the camming surface of the other said locking member, each of said camming surfaces being movable along a complementary surface converging toward said flat converging surfaces of said first member whereby the relative position of said two components may be adjusted in opposite directions along said path of movement.

4,381,097

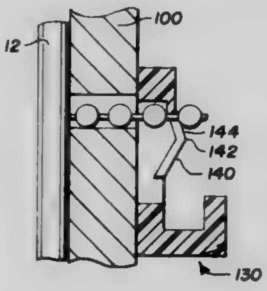
APPARATUS FOR AND METHOD OF SUSPENDING A LOAD

Daniel A. Moraca, 2020 N. 32 St. Apt. 209, Phoenix, Ariz. 85008

Filed Jan. 19, 1981, Ser. No. 226,003

Int. Cl.³ F16M *13/00*

U.S. Cl. 248—546 **12 Claims**



1. A wall attachment apparatus, comprising: backing means having an elongated rod member for contacting a first face of said wall; hook means for contacting a second face of said wall

and further for permitting support of a load; tension means connected to said elongated rod member at a place spaced from the ends thereof for biasing said wall between said backing means and said hook means; and said tension means comprising a convoluted cord member; said cord having at least a pivotally flexible coupling to said rod member; and said hook means having means for engaging a particular one of said convolutions.

4,381,098

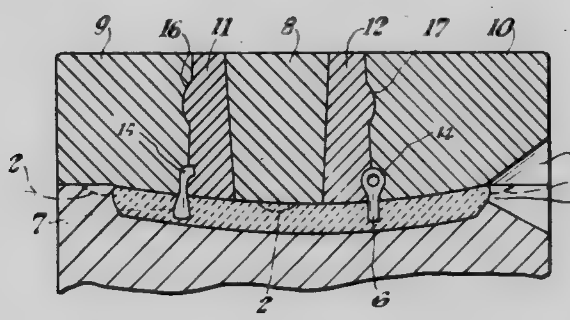
CERAMIC BELT BUCKLE AND THE METHOD OF MAKING

Nicholas A. Delfino, 2403 Antigua Cir., Coconut Creek, Fla. 33066

Filed Nov. 18, 1980, Ser. No. 207,967

Int. Cl.[3] B29C *6/00*

U.S. Cl. 249—94 **2 Claims**



1. A mold for forming a belt buckle having a ceramic bisque body in any desired shape and for integrally molding therein a metal harness connector and a metal belt buckle hook firmly embedded therein, said molding comprising:

a base mold segment having a cavity therein;

a plurality of upper mold segments forming the top half of the mold which fit together to form the upper half of the mold, said segments having abutting wall portions that include cavities for supporting said metal connectors and said metal hook, said upper mold wall segments being shaped relative to each other for sequential removal to prevent damage to said ceramic greenware formed therein.

4,381,099

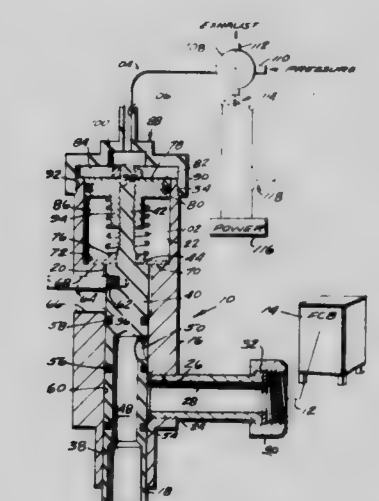
FAUCET FOR FROZEN CARBONATED BEVERAGE MACHINE

Omar S. Knedlik, Coffeyville, Kans., assignor to The Penmont Company, Baton Rouge, La.

Filed Apr. 28, 1981, Ser. No. 258,290

Int. Cl.[3] F16K *31/143, 31/122*

U.S. Cl. 251—14 **7 Claims**



1. A faucet for a frozen carbonated beverage machine which has an outlet conduit communicated in use to a supply of frozen carbonated beverage at an elevated, superatmospheric pressure,

said faucet comprising:

a barrel having means providing a longitudinal bore extending between two opposite ends thereof;

means providing an inlet port for said bore, communicating laterally through said barrel intermediate the ends thereof between the exterior of the barrel and said longitudinal bore;

means provided on said barrel and associated with said inlet port for connecting said inlet port to a said frozen carbonated beverage machine outlet conduit;

a piston/core assembly slidingly received in said longitudinal bore;

means providing an outlet port passageway in said piston/core assembly, including a laterally opening entrance disposed intermediate the axial extent of said assembly and an outlet spout located at one end of said piston/core assembly and communicating outwardly through one end of said barrel longitudinal bore;

means at the opposite end of said piston/core assembly defining a piston portion thereof;

keying means provided between the piston/core assembly and the barrel for maintaining the piston/core assembly so angularly oriented relative to the barrel that by axial movement of the piston/core assembly relative to the barrel, the outlet port passageway entrance may be brought into and out of communication with said inlet port in order to dispense and terminate dispensing of frozen carbonated beverage from the frozen carbonated beverage machine through the spout;

discrete means annularly slidingly sealing between the piston portion and the cylindrical cavity means of the barrel longitudinal bore, between the piston/core assembly and the barrel longitudinal bore while the outlet port passageway entrance is out of communication with the inlet port, at three levels: a first between the outlet port passageway entrance and said keying means, a second between said outlet port passageway entrance and said inlet port and a third between said inlet port and said one end of said barrel;

said keying means being further constructed and arranged to limit said axial movement in both directions between two extremes, at one of which said outlet port passageway entrance is communicated to said inlet port and at the other of which said outlet port passageway entrance is out of communication with said inlet port;

a cap removably closing the opposite end of said barrel longitudinal bore;

surface means in said barrel longitudinal bore adjacent said cap defining a cylinder cavity in the barrel;

said piston portion of said piston/core assembly being slidingly disposed in said cylinder;

said piston portion dividing said cylinder cavity into two chambers on axially opposite sides of said piston portion;

compression coil spring means effectively disposed axially between the barrel and the piston in one of said chambers for tending to axially move the piston/core assembly in a sense to bring the outlet port passageway entrance out of communication with the inlet port;

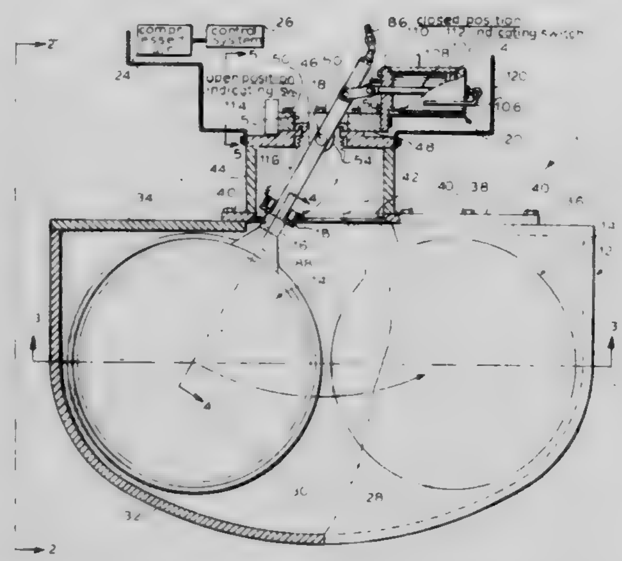
fluid pressure source conduit means communicated to the other one of said chambers, so that fluid pressure may be admitted to that chamber for axially moving the piston/core assembly in a sense to bring the outlet port passageway entrance into communication with the inlet port;

a valve interposed in said fluid pressure source conduit means, said valve including an exhaust port for venting pressure from said other chamber and being movable between two positions for selectively either communicating said other chamber to fluid pressure in one of said positions or venting said other chamber in the other of said positions;

said piston/core assembly including means for axially adjustably positioning said piston portion along the piston/core assembly correspondingly varying the volume of said other chamber and thus the amount that the piston/core assembly must be axially moved in order to bring the outlet port

passageway entrance into and out of communication with said inlet port.

4,381,100
VALVE AND VALVING APPARATUS
John Schoenberg, Redondo Beach, Calif., assignor to Fairchild Industries, Inc., Germantown, Md.
Filed Jan. 2, 1981, Ser. No. 222,147
Int. Cl.[3] F16K *3/00, 25/00*
U.S. Cl. 251—368 **3 Claims**

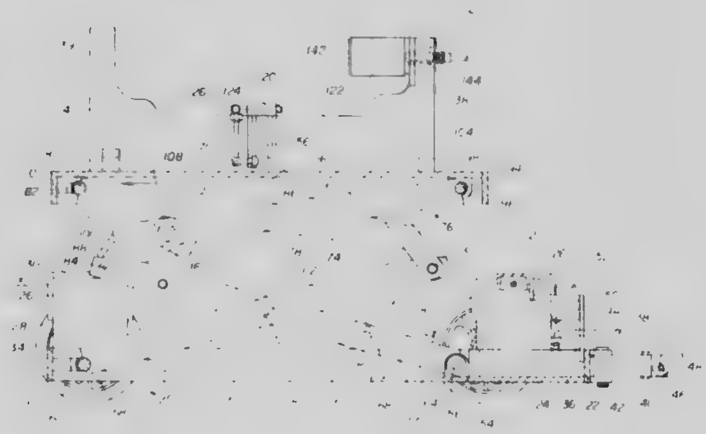


1. Apparatus for valving comprising a valve seat member having a circular valve seat having a generally circular flat bottom wall and a generally cylindrical side wall located immediately adjacent to the bottom wall, a valve closure member having a generally circular outer portion, and a noble metal coating covering at least a portion of the circular outer portion of said valve closure member, said generally circular outer portion having means for trapping a portion of said noble metal coating so that said trapped noble metal is plastically deformed to form a seal and is substantially void free as said valve closure member is moved to its seated position comprising two circular projections located on the generally circular outer portion of said valve closure member and a substantially smooth surface located between said circular projections, one of said projections being located to contact the side wall of said valve seat and the other projection being located to contact the bottom wall of said valve seat in order that said portion of the noble metal coating is plastically deformed and trapped between said projections and the side and bottom wall of said valve seat when said valve closure member is in its seated position, said generally circular outer portion of said valve closure member having an outer surface located at substantially a right angle to the smooth surface located between said circular projections and locatable adjacent to the bottom wall of said valve seat when said valve closure member is in its seated position.

4,381,101
DRAFT GEAR REMOVAL APPARATUS
Sam W. Herrin, Arlington, Tex., assignor to Halliburton Company, Duncan, Okla.
Filed Feb. 23, 1981, Ser. No. 236,947
Int. Cl.[3] B60P *1/48*
U.S. Cl. 254—9 R **11 Claims**

1. A draft gear removal apparatus for the removal of draft gear from the center sill of a railcar, wherein the draft gear removal apparatus comprises:

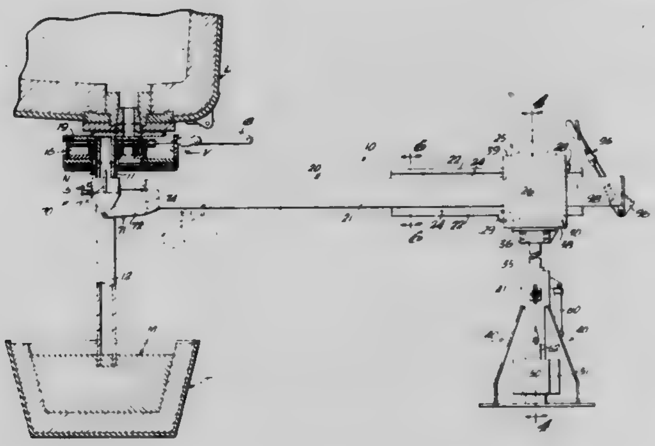
lifting apparatus means comprising:
- rectangular frame means;
- wheel means secured to the rectangular frame means about the periphery thereof and having a portion thereof extending above the rectangular frame means;
- a plurality of first lower arm means, each having one end thereof movably secured to the rectangular frame means;
- a plurality of second lower arm means, each having one end thereof movably secured to the rectangular frame means and movably secured to one of the plurality of first lower arm means;
- a plurality of first upper arm means, each having one end thereof movably secured to the other end of one of the plurality of second lower arm means;
- a plurality of second upper arm means, each having one end thereof movably secured to the other end of one of the plurality of the first lower arm means;
- table means having frame means and top means having a plurality of apertures therein, each of the plurality of second upper arms means having the other end thereof movably secured to the frame means of the table means and each of the plurality of the first upper arm means having the other end thereof movably secured to the rectangular frame means of the table means;
- hydraulic cylinder means having one end thereof secured to the plurality of first lower arm means and the other end thereof secured to the plurality of first upper arm means;
- pump means mounted on the rectangular frame means for supplying fluid under pressure to the hydraulic cylinder means;



- motor means mounted on the rectangular frame means for driving the pump means;
- handle means movably secured to the rectangular frame means;
- flow control means to control the flow of fluid to the hydraulic cylinder means from the pump means; and
- over-center valve means disposed between the pump means and hydraulic cylinder means; and

draft gear compression apparatus comprising:
- U-shaped frame means having a center portion, first arm portion connected to one end of the center portion, second arm portion connected to the other end of the center portion having aperture means therein and a plurality of feet means secured to the center portion, each having a pin means projecting therefrom which mates with an aperture of the plurality of apertures in the top of the table means;
- draft gear compression cylinder means detachably secured to the second arm portion of the U-shaped frame means; and
- hinged center sill press means movable on the center portion of the U-shaped frame means and having hydraulic cylinder means mounted thereon.

4,381,102
SHROUD SUPPORT AND METHOD FOR SHROUD ENGAGEMENT WITH TEEMING VALVE
Patrick D. King, Rantoul, Ill., assignor to Flo-Con Systems, Inc., Champaign, Ill.
Continuation-in-part of Ser. No. 89,577, Oct. 29, 1979, Pat. No. 4,313,596. This application Sep. 24, 1980, Ser. No. 190,429
The portion of the term of this patent subsequent to Feb. 2, 1999, has been disclaimed.
Int. Cl.³ C21C *7/10;* **B22D** *37/00*
U.S. Cl. 266—44 **5 Claims**



1. A shroud support for use with a bottom pour vessel having a sliding gate valve and pour nozzle comprising, in combination:

a fixed boom,

means for pivotally securing the fixed boom to a boom support assembly,

a trolley for sliding engagement along the fixed boom,

a secondary boom secured to said trolley,

a collar at the unsupported end of the secondary boom for the mounting of the shroud,

means for pivotally securing the mounted shroud at the end of the trolley boom with selective fixed non-pivotal alignment coaxial with the teeming opening in the vessel which the shroud engages,

a boom support for said fixed boom,

means for pivotally mounting the fixed boom for rotation about the support, and mounting means for the same permitting raising and lowering of the fixed boom,

dead weight means provided in the boom support for constantly urging the entire fixed boom, trolley and secondary boom assembly along with the shroud upwardly at a predetermined load,

means for opposing the dead weight raising of the boom to thereby lower the same,

and means for pivotally moving the shroud from its normal coaxially aligned relationship with the nozzle of the pour vessel for removal or replacement of the shroud.

5. The method of fixing a shroud in pouring relationship with the lower portion of a gate valve comprising the steps of:

securing the shroud by means of a cantilever support for positioning underneath the vessel,

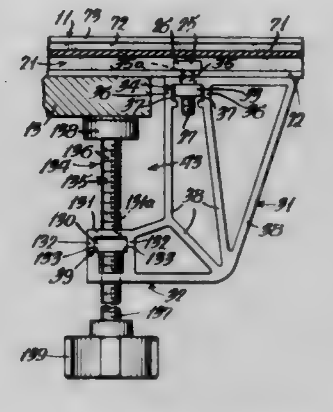
securing mounting the shroud in a non-pivotal relationship with the end of the cantilever support and locking the same in coaxial pouring relationship with the valve,

urging the shroud upper portion against the teeming valve by means of dead weights which are empirically determined to exert, above and beyond the tare weight of the shroud, a predetermined interfacial force between the shroud and the valve,

moving the mounted shroud in and out of engagement with the pouring valve for translation along an X axis, Y axis, and Z axis,

and telescoping said cantilever support between a fixed element and a movable element slidable on said fixed element.

4,381,103
STRAIGHT EDGE GUIDE
Irwin J. Ferdinand, Glencoe; Richard Sylvan, Glenview, and Michael Peterson, Evanston, all of Ill., assignors to Hirsh Company, Skokie, Ill.
Filed Feb. 19, 1981, Ser. No. 235,981
Int. Cl.³ B27B *9/04*
U.S. Cl. 269—1 **1 Claim**



1. An assembly presenting a straight edge with means for being secured to a work piece, the assembly comprising:

(a) a rail defining a straight edge and a clamping channel with a pair of opposed lips extending inwardly over the channel and defining therebetween a slot, the rail adapted to be positioned on a workpiece with the channel opening toward the workpiece and extending on either end of the rail beyond the workpiece;

(b) a clamp body adapted to be positioned at each end of the workpiece and mounted on the rail, each clamp body having a main body portion and a cantilevered body portion at one end of the main body portion extending laterally from the main body portion, the cantilevered body portion defining a first retaining cage for receiving and retaining a first nut therein, said clamp main body portion defining a second retaining cage for receiving and retaining a second nut therein;

(c) connector means for attaching the clamp body to the rail, the connector means having a threaded stem carried by the main body portion and a cross member attached to the stem, the cross member being received in the channel and extending across the slot for being retained by the lips of the channel with the stem extending through the slot;

(d) a first nut retained against rotation in the first retaining cage in the cantilevered body portion;

(e) a second nut retained against rotation in the second retaining cage and threadingly engaged with said connector means stem; and

(f) a clamp adjuster means for engaging the workpiece, the adjuster means including a threaded rod having a first end and a second end, said rod being threadingly engaged with the first nut within the first retaining cage and extending therefrom in the opposite direction at said second end whereby the threaded rod may be rotated relative to the first nut to cause the threaded rod first end to move toward the rail to thereby clamp the workpiece between the rod first end and the rail.

4,381,104
STRINGER CLAMP
Arnold Nelsen, Kirkland, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Sep. 29, 1980, Ser. No. 192,349
Int. Cl.³ B25B *1/20*
U.S. Cl. 269—43 **4 Claims**

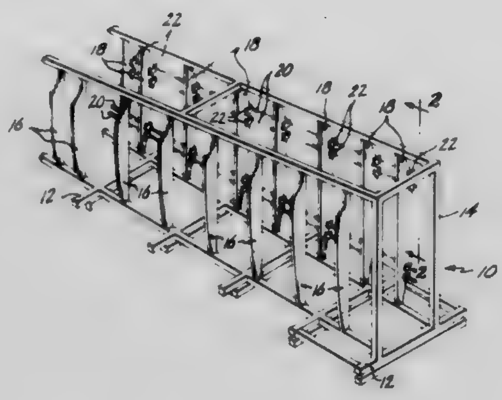
1. In an airplane wing panel jig including a plurality of headers, an improved clamp for clamping stringers to said headers comprising:

a clamp base and means for mounting said base to a header,

locator means having a rotational axis, a first clamping sur-

face oriented substantially parallel to said rotational axis thereof, and a second convexly arcuate clamping surface, said second clamping surface being a locus of lines generally perpendicular to said first clamping surface,

mounting means for mounting said locator means on said clamp base for rotational movement about said rotational axis, and



a J-shaped member having a shank terminating in a first end and having a curved portion terminating in a second end, said shank being mounted in said clamp base for rotational and sliding movement about the longitudinal axis of said shank, said J-shaped member being mounted and constructed so that said second end is selectively positionable adjacent the intersection of said first and second clamping surfaces.

4,381,105

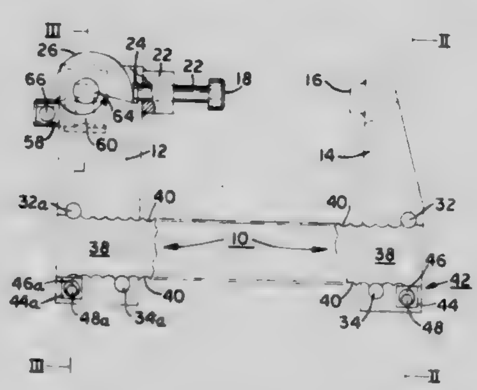
CLAMP

Otis W. Goff, Kalamazoo, and Melvin J. Goff, Wyoming, both of Mich., assignors to Gordon W. Hueschen, Kalamazoo, Mich.

Filed May 8, 1980, Ser. No. 147,931

Int. Cl.³ B25B *1/02*

U.S. Cl. 269—210 **2 Claims**



1. In a clamp in which a clamping arm which has a clamping face on one side thereof is slidable on a flat bar having wide parallel sides and narrow parallel edges, the combination for releasably affixing said arm to said bar, in which said arm comprises parallel plates spaced apart sufficiently to closely but slidably engage the sides of said bar with the ends thereof extending beyond the bottom edge of said bar and having

a first transverse spacing pin adjacent one side of said arm adapted to rest on one narrow edge of said bar;

a second transverse spacing pin adjacent the other side of said arm and adapted to engage said other narrow edge of said bar;

cam lock means adapted to engage said other narrow edge of said bar directly opposite said first transverse spacing pin; and,

actuating means for actuating said cam lock means to and from locking position, in which locking position said bar is jammed between said first transverse spacing pin and said cam lock means independently of said clamping face, in which at least the other of said narrow edges has serried detents therein which are complementary to the second transverse pin adapted to engage that edge and in which said cam lock means comprises a flat surface adapted to abut said other narrow edge and having a longitudinal span greater than that of any of said serried detents.

4,381,106

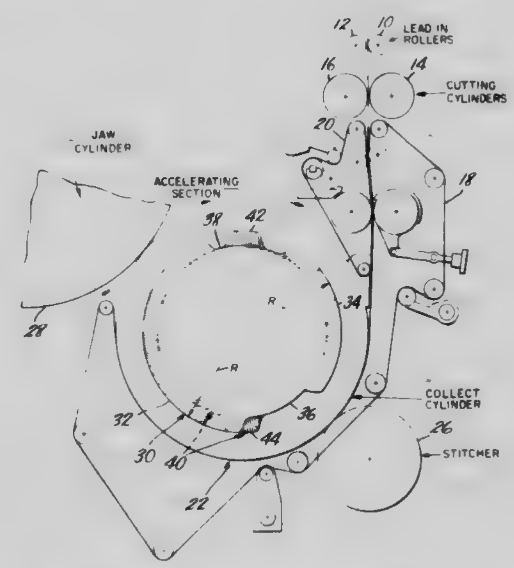
COLLECT CYLINDER FOR A ROTARY FOLDER

Michael H. Loebach, Red Lion, Pa., assignor to Motter Printing Press Co., York, Pa.

Filed Jun. 8, 1981, Ser. No. 271,407

Int. Cl.³ B42C *1/04*

U.S. Cl. 270—47 **6 Claims**



1. In a folder collect cylinder having a multiplicity of gripper mechanisms spaced equidistant apart circumferentially and each having a multiplicity of gripper fingers actuated by a gripper cam follower to open and close selectively to grip products delivered to the cylinder, a non-rotating gripper cam having arcuate holding surfaces of a radius "R" adapted to engage the gripper cam followers and maintain the gripper mechanisms in product-holding positions except at a taking zone and a releasing zone and having a taking surface adapted to control through the gripper cam followers the movements of the gripper mechanisms to open positions to take products at the taking zone and a releasing surface adapted to control through the gripper cam followers the movements of the gripper mechanisms to open positions to release gripped products at the releasing zone, a number of tucking mechanisms equal to the number of gripper mechanisms spaced equidistant apart circumferentially each having a tucker blade actuated by a tucker cam follower and adapted to tuck products selectively into jaws on a jaw cylinder at a selected tucking location, a non-rotating tucking cam having a retracting surface of a radius "X" adapted to maintan through the tucker cam followers the tucking mechanisms in a retracted mode except at the tucking location and having a tucking surface adapted to control through the tucker cam followers the extension of the tucker mechanisms to tuck products into jaws of the jaw cylinder at the tucking location, and a multiplicity of tapes wrapping a zone of the cylinder path traversed by the surface of the cylinder between the location where the products first meet the cylinder and a location proximate to the tucking position and adapted to hold the products on the collect cylinder between said locations, the improvement comprising a gripper masking cam mounted for rotation about an axis coincident with the axis of rotation of the collect cylinder and having a multiplicity of circumferentially spaced-apart arcuate masking surfaces of the same radius "R" as the holdinbg cam surfaces of the non-rotating gripper cam that are selectively engageable with a second gripper cam follower on each gripper mechanism, drive means for rotating the masking cam at a speed that is different from but is a function of the speed of rotation of the collect cylinder such that the second gripper cam followers of selected gripper mechanisms may selectively traverse one of the masking surfaces and remain radially stationary throughout

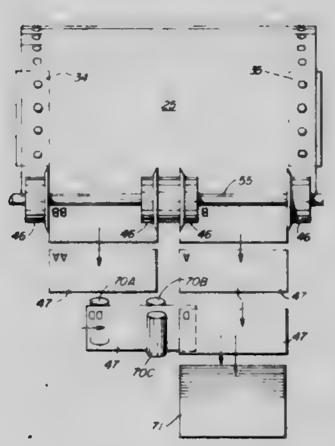
the releasing zone and thereby carry products past the tucking location and means for setting the circumferential position of the masking cam at a predetermined location relative to the circumferential positions of the gripper mechanisms and thereby establish a predetermined selected relationship between the masking cam phase and the gripper cam phase with reference to the gripper mechanisms for selection of at least non-collect and multiple collect without ever masking the taking surface of the non-rotating gripper cam during a taking phase of any gripper mechanism.

4,381,107

CUTTING AND COLLATING METHOD AND APPARATUS FOR TICKETS

John W. Armiger, 4110 W. Puget Ave., Phoenix, Ariz. 85021, assignor to John W. Armiger, Phoenix, Ariz.

Filed Jul. 28, 1980, Ser. No. 173,019
Int. Cl.³ B65H ***39/06***
U.S. Cl. 270—58 **23 Claims**



1. Apparatus for cutting parts from a preprinted strip of paper stock and collating the parts in a specific sequential order comprising:
 a track for guiding the strip of paper stock preprinted with a sequence of pairs of specifically identified parts arranged two abreast along a given path,
 means for moving the strip along said path at a given speed,
 cutter means for simultaneously separating each pair of the parts from the strip when the strip reaches a given area on said track,
 a camming surface for receiving the separated two abreast parts of each pair of the two abreast parts,
 a collecting means for receiving the parts, and
 means for sequentially moving a common one of each pair of the separated two abreast parts laterally of said path along said camming surface in a substantially vertical orientation to said collecting means,
 said camming surface guiding the other part of each pair of said two abreast parts downstream of the laterally displaced one of the parts of each pair to said collecting means in a properly sequenced stacked configuration.

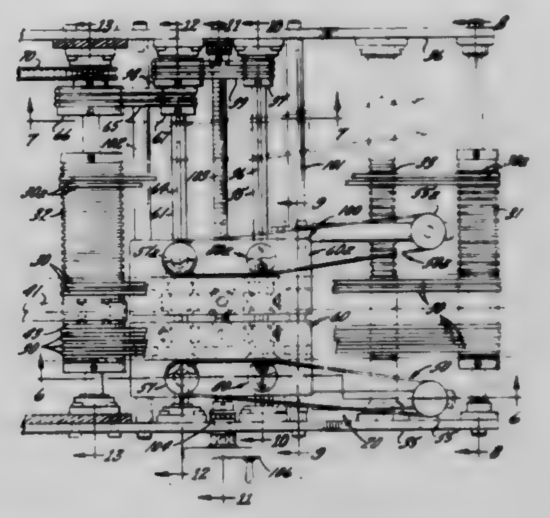
16. A method of cutting tickets from a strip of paper stock and collating the tickets in a specific order comprising the steps of:
 feeding a strip of preprinted ticket paper stock having pairs of tickets printed in two abreast arrangements laterally across the strip through a cutting means,
 feeding the separated two abreast pairs of tickets to a camming surface,
 sequentially moving a common one of each pair of said two abreast tickets laterally along said camming surface in a substantially vertical orientation to a collecting means,
 guiding the other of each pair of said two abreast tickets over said camming surface downstream of the laterally displaced one of said tickets of each pair to said collecting means in a specific stacked configuration.

4,381,108

DEVICE FOR ALIGNING SIGNATURES FED IN SHINGLED RELATION

John R. Newsome, R.R. #1, Box 58A, Shumway, Ill. 62461

Filed Jun. 29, 1981, Ser. No. 278,403
Int. Cl.³ B65H ***29/66, 31/38***
U.S. Cl. 271—198 **27 Claims**



27. In a device for aligning signatures fed in shingled relation prior to stacking them, which includes a frame, a horizontal delivery belt supported on the frame and carrying a stream of signatures in shingled relation, driving means for driving the belt for transportion of the signatures, a pair of upstanding guide members straddling the delivery belt and presenting opposed faces thereto, at least one of the guide members being in the form of a guide belt, the guide belt having an upstream sheave and a downstream sheave mounted in the frame on vertical shafts and coupled to the driving means for driving of the guide belt at the same speed as the delivery belt, the guide belt being convergently arranged with the downstream sheave thereof defining a discharge opening having the desired width of the stream in the aligned state, the upstream sheave being offset laterally with respect to the downstream sheave to define a funnel-like entryway adequate to accommodate entry of the stream in non-aligned condition with individual signatures irregularly displaced from the stream, and pulsating shifter means behind the presented face of the belt and coupled to the driving means for repetitively moving said face from a substantially planar reference position to a thrown position in which the belt is angularly bowed toward the stream thereby dividing the face into a convergent upstream portion and a downstream portion, the throw of the shifter means being such that the downstream portion in its thrown position is substantially parallel to the direction of movement of the stream for jogging the presented edge of the stream to insure a condition of alignment as the stream moves through the discharge opening.

4,381,109

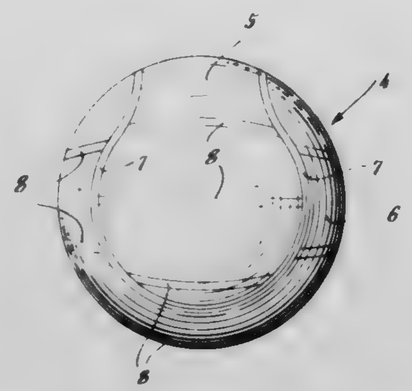
CONDUCTIVE BALL

Henry Von Kohorn, 22 Perkins Rd., Greenwich, Conn. 06830

Filed Jul. 29, 1981, Ser. No. 288,219
Int. Cl.³ A63B ***61/00***
U.S. Cl. 273—61 R **16 Claims**

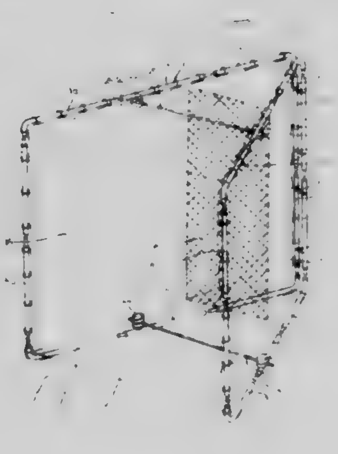
15. A ball for use in ball game indicating systems comprising spaced electric ground leads forming part of a circuit intended to be closed by an impacting ball have electrically conductive surface means, such ball having requisite electric conductivity and high visibility in flight, wherein
 a. at least 75% of the playing surface of the ball is light-colored, and
 b. electrically conductive means forming spaced electric leads have been provided on not more than 25% of the playing surface of the ball, said electric means
 i. comprising dark-colored, electrically conductive material,

ii. having a defined shape and a width of at least 2 millimeters,
iii. extending on essentially only the playing surface of the ball,
iv. not being electrically connected substantially below the playing surface of the ball,



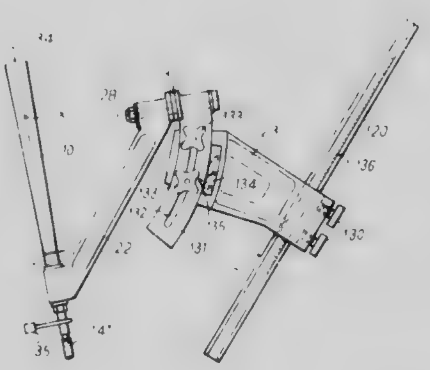
v. being spaced so that on the playing surface of the ball no lead is separated from the next nearest lead by more than 20 millimeters, and
vi. the electrically conductive means forming said leads having overall dimensions so that any one of said means on the playing surface of the ball will connect two ground leads upon contact of the partially flattened ball with the ground.

4,381,110
GOLF TRAINER DEVICE
Anton Balaz, Altmünster, Austria, assignor to Plaspack Kunststoff GmbH & Co., KG, Schwanenstadt, Austria
Filed Sep. 29, 1981, Ser. No. 306,657
Claims priority, application Fed. Rep. of Germany, Aug. 26, 1981, 8124914[U]
Int. Cl.³ A63B ***69/36***
U.S. Cl. 273—182 R **5 Claims**



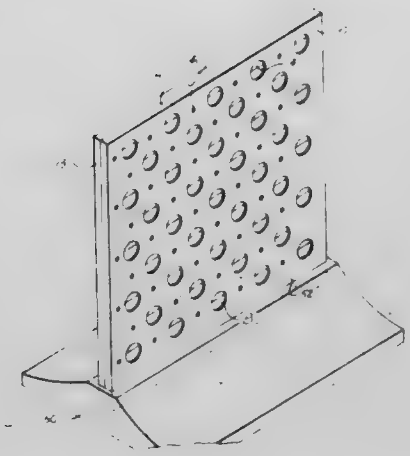
1. A golf trainer device comprising
a frame having first and second generally rectangular sections made of tubing,
each rectangular section having front and rear spaced vertical legs and upper and lower spaced horizontal legs,
means defining plugs interposed between adjacent ends of each vertical leg and each horizontal leg permitting each rectangular section to be folded relative to each other,
means defining transverse pins connecting the rear vertical legs in close proximity to each other,
means defining rods attaching the upper horizontal legs to each other and the lower horizontal legs to each other at a horizontal distance greater than the rear vertical legs are to each other whereby the frame defines a generally wedge configuration,
an upper horizontal flexible net attached to and extending across the space between the two upper horizontal legs, a lower horizontal flexible net attached to and extending across the space between the two lower horizontal legs,
a vertical flexible net for each rectangular section attached to and extending across the space defined by the two horizontal legs and the two vertical legs of each rectangular section,
a vertical flexible fabric sheet fixed to the upper and lower nets and to the two vertical side nets, said fabric sheet being located intermediately between the front and rear legs of the rectangular sections so as to present an impact area for a driven golf ball, and
means defining a removable connection for said means defining rods whereby said means defining rods are removably attached to said horizontal legs permitting the frame to be folded with the two rectangular sections disposed adjacent each other.

4,381,111
GOLF SWING SIMULATOR DEVICE
Ralph H. A. Richards, 20 Homestead Gardens, Frenchay, Bristol, BS16 1PH, England
Filed Aug. 3, 1981, Ser. No. 289,174
Claims priority, application United Kingdom, Aug. 6, 1980, 8025584
Int. Cl.³ A63B ***69/36***
U.S. Cl. 273—191 R **7 Claims**



1. An improved golf swing simulator device of the kind which comprises a handle or mounting for a handle representing that of a golf club, attachment means for mounting the device to a stationary support, and a linkage connecting the handle with the attachment means, the linkage comprising an arm pivotally mounted at one end to the attachment means about a first axis, the arm extending away from said axis so that on pivoting the other end of the arm describes a circle about said first pivot axis, a crank one end of which is connected with said other end of the arm through a pivotal connection having a second axis of rotation spaced from said first axis, and the other end of which is rotatably mounted to the handle about the longitudinal axis of the handle so that the handle projecting from the crank is spaced from said pivotal connection in line with said second axis, means for adjusting the effective length of the arm, means for adjustment of the angle that said first pivot axis makes with the horizontal, and means whereby the angle between said first and second axes can be adjusted; wherein the improvement is characterised in that the means whereby the angle between said first and second axes can be adjusted is adapted to act about a centre which is in the region of the handle.

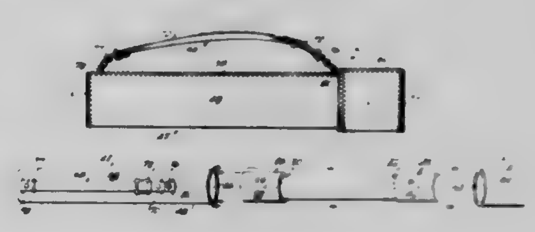
4,381,112
GAME APPARATUS
Stanley T. Dupuy, 79 Marie Dr., Gretna, La. 70053
Filed Jul. 15, 1981, Ser. No. 283,439
Int. Cl.³ A63F *3/00*; G09F *9/00*
U.S. Cl. 273—239 **11 Claims**



7. Game apparatus for playing a game comprising:
a game board wh'ch includes a first game playing face on one side and a second game playing face on an opposite side of said game board;
each of said first and second game playing faces having a plurality of windows arranged in a designed array according to which the game is played;
a plurality of game playing pieces;
individualized compartment means formed between said first and second faces of said game board for maintaining a pair of said playing pieces in captive form and retaining said pieces during playing in either a concealed or an exposed window position before one of said windows;
said pair of playing pieces being both concealed on a common side of said compartment means in said first position;
stop means carried by and separating adjacent compartment means for limiting the position of each said playing piece in each said compartment means between first and second limit positions therein;
said playing pieces being exposed before one of said windows in said second position and being normally concealed when in said first position;
said playing pieces including a first playing piece having a first color code and a second playing piece having a second color code different from said first color code, said pair consisting of one each of said playing pieces carried in each said compartment means;
means for manually moving said first and second pieces between said first and second positions from outside said compartment means and playing faces to fill a preselected window so as to establish a desired pattern of color coded windows in said design array to accomplish a winning pattern on said playing faces.

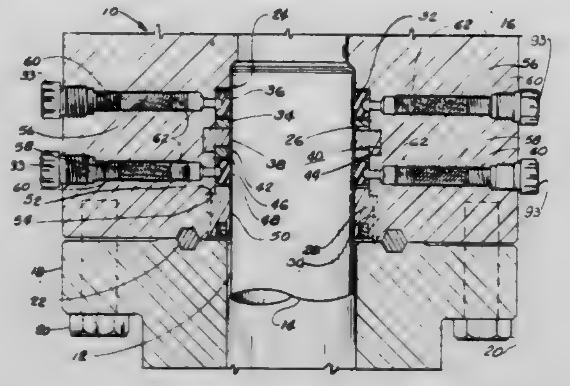
4,381,113
GAMEBOARD AND CARRYING CASE
Charles R. Simons, 307 Kensington, Ferndale, Mich. 48220
Continuation of Ser. No. 952,311, Oct. 18, 1978, Pat. No. 4,252,324, which is a continuation-in-part of Ser. No. 674,986, Apr. 8, 1976, abandoned, which is a continuation-in-part of Ser. No. 748,820, Dec. 9, 1976, abandoned. This application Feb. 23, 1981, Ser. No. 236,720
Int. Cl.³ A63F *3/02*
U.S. Cl. 273—286 **6 Claims**

1. In combination, a carrying case, a gameboard, a pair of die tossing cups, play pieces and a game pack for storing the play pieces,
said gameboard comprising a sheet of pliable material of uniform thickness having a first and a second pair of opposed right-angularly arranged margin edges spaced from one another a first and a second predetermined distance respectively, and each edge being of said uniform thickness, said gameboard being rolled into a roll and defining a bore of generally circular cross section through its length, said length being of a length equal to said first predetermined distance;
said pair of die tossing cups comprising a first and second end cap, said first end cap and said second end cap each having an open end and including a closed circular end wall and a cylindrical axially extending side wall of circular cross section of a predetermined inner diameter substantially equal to the diameter of said gameboard when rolled and each of said end caps including said side walls and end walls being of a common predetermined outer diameter, and each of said end caps being positioned on the ends of said rolled gameboard with the end wall of each cap being in abutting engagement with one of the margins of said gameboard along said second pair of opposed edges and captivated within said end caps and within said axially extending side walls of said end caps, each of said end caps being of an axial length substantially less than one-half the distance between said second pair of opposed edges; and
said carrying case comprising a longitudinally-extending tubular container of circular cross-section of an inner diameter substantially equal to but slightly greater than the outer diameter of the cylindrical side walls and end



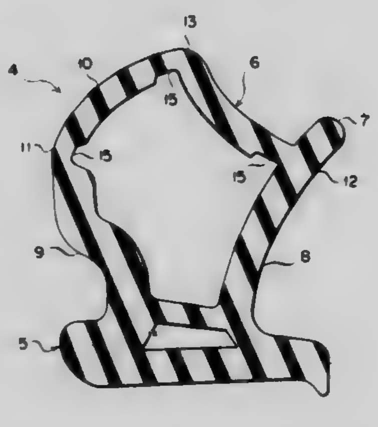
walls of the end caps, said case having a closed end and an open end, and said gameboard and end caps being in said container, said container snugly jacketing said gameboard and end caps, said container being of an axial length substantially equal to but slightly greater than the first predetermined length of said gameboard and the thickness of the end walls of said first and second end caps and said container having an outer uniform diameter said container being comprised of a formed sheet of pliable material of uniform thickness;
cap means for said open end of said tubular container, said cap means comprising a cup-shaped member of a diameter substantially equal to said outer diameter of said container and having an axially extending skirt sized to and snugly jacketing said container adjacent said open end and closing said open end of said container; and
said game pack comprising tubular container means being a rigid plastic sleeve of a generally uniform diameter and being of circular configuration throughout its axial length and, said game pack being sized, configured and nested within said bore and said game pack being of an overall axial length less than the axial length of said bore, and all of said play pieces being of non-interlocking configuration sized such that clearance exists between the nested game pieces and the tubular container thereby allowing said game pieces to move axially within said tubular container, the game pieces not being placed over a central mandrel and nested within said container means.

4,381,114
PACKOFF AND SEAL RING ASSEMBLY WITH INJECTED PLASTIC PACKING
Delbert E. Vanderford, Jr., Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.
Filed Nov. 23, 1981, Ser. No. 324,125
Int. Cl.³ F16J *15/46;* **F16L** *17/02*
U.S. Cl. 277—34.6 **28 Claims**



1. A packoff for sealing an annulus around a tubular member comprising
- an outer member having an annular recess on its inner surface,
- a seal ring assembly in the recess including a resilient ring having inner and outer surfaces and end surfaces and a pair of metal seal rings on said end surfaces with flanges extending on said inner surface, and
- means on the outer member for injecting plastic packing into said recess,
- said injecting means pressurizing the seal ring assembly in said recess sufficiently to ensure sealing engagement of said metal seal rings with said tubular member.

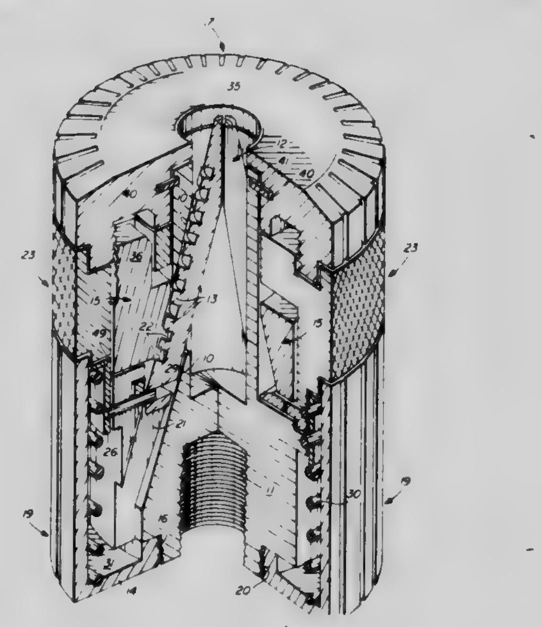
4,381,115
DOOR WEATHER-STRIP
Yoshimasa Ko, Hiroshima, Japan, assignor to Nishikawa Rubber Co., Ltd., Hiroshima, Japan
Filed Mar. 23, 1981, Ser. No. 246,152
Claims priority, application Japan, Mar. 31, 1980, 55/43733[U]; Nov. 27, 1980, 55/171781[U]
Int. Cl.³ E06B *7/23*
U.S. Cl. 277—207 R **3 Claims**



1. A weather-strip for an automobile door composed of an elastic rubber-like material and of a uniform cross sectional shape throughout its length and adapted to be mounted on an edge of the door and closely contact with a body of the automobile when the door is closed, said body having a first section parallel to the plane of the door opening and a second section generally perpendicular to said first section, said weather-strip comprising:
- a base section adapted to be mounted on the edge of the door; and
- a hollow seal section integrally formed with said base section;

said hollow seal section comprising:
- a first wall projecting from said base section and having a sealing surface formed thereon;
- a protrusion continually and integrally formed with said first wall, said protrusion having a sealing surface formed thereon;
- a second wall projecting from said base section; and
- a mountain-shaped top wall integrally formed with said first and second walls, said top wall having a ridge formed therein, said hollow seal section having first, second and third bends between said first wall and said top wall, said second wall and said top wall, and at the ridge of said top wall, respectively; wherein said seal section is adapted to collapse when the door is closed in such a way that the sealing surfaces of said first wall and said protrusion are brought into a press contact with the first section of said body and the ridge of said top wall is brought into a press contact with the second section of said body.

4,381,116
FUTTER CHUCK
Friedrich P. Futter, 8250 Via Paseo del Norte, Apt. D-206, Scottsdale, Ariz. 85258
Continuation-in-part of Ser. No. 36,501, May 7, 1979, Pat. No. 4,284,285. This application Dec. 29, 1980, Ser. No. 220,304
The portion of the term of this patent subsequent to Aug. 8, 1998, has been disclaimed.
Int. Cl.³ B23B *31/08, 31/19*
U.S. Cl. 279—62 **1 Claim**



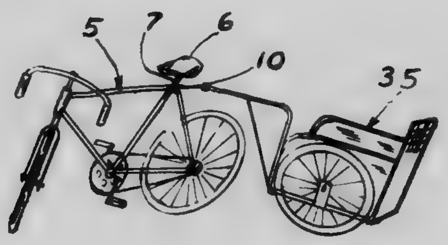
1. In a chuck for releasably holding an object such as a tool or work piece, including
- circumferentially spaced jaws for grasping said object which are
  - movable radially outwardly to an open position to permit insertion of said object therebetween, and
  - adapted to move radially inwardly to an object-grasping position,
  - and
- means for adjusting the radial position of said jaws to grasp objects of varying size,

the improvements comprising:
- (a) inclined key threads on said jaws;
- (b) a rotatable jaw-positioning collar around said jaws, including inclined, inwardly extending, circumferentially spaced key threads adapted to cooperatively engage and disengage the key threads on said jaws, which collar
  - (i) urges said jaws axially outwardly and radially inwardly to said object-grasping position when said collar is rotated to engage said key threads, and
  - (ii) permits free axial and radial movement of said jaws to said open position when said collar is rotated to disengage said key threads;

(c) collar rotating means positioned around said collar for engaging and rotating said collar to engage and disengage said key threads; and

(d) means for normally yieldably urging said jaws axially outwardly and radially inwardly when said key threads are disengaged.

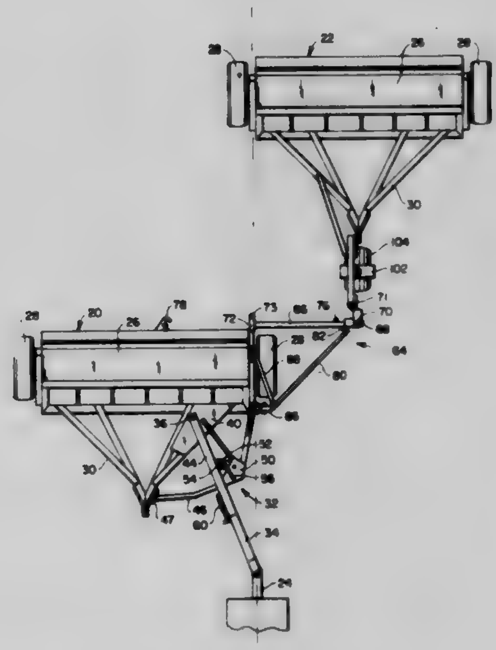
4,381,117
BICYCLE TOTE CART
David J. French, and Wayne L. Hirsch, both of Loveland, Colo., assignors to French-Hirsch, Inc., Loveland, Colo.
Filed Aug. 11, 1980, Ser. No. 177,082
Int. Cl.³ B60D *1/06*
U.S. Cl. 280—204 **1 Claim**



1. In combination, with a towing bicycle having a frame, a seat thereon, and a pivot ball with a reduced neck secured rearwardly from the frame or the seat post thereof, and a towed plural wheeled vehicle cart having a tow bar tongue, the combination therewith of a connector device, for attachment connection to and between said bicycle pivot ball and said tow bar of the towed cart, comprising, a shaft having a socket formed on the periphery and inwardly radially thereof adapted to receive said bicycle pivot ball therein for permitting said socket and ball to pivot with relation to each other, a sleeve member slidably on said shaft and having a notch formed at one of its peripheral ends and adapted to fit over the neck of the pivot ball for holding the ball pivotally in the shaft socket when the ball is inserted in the socket and when said sleeve is then slidably so positioned on the shaft with its notch over the ball neck, a peripheral groove formed externally on the shaft remote from the socket, a cotter spring tension ring member means removably positioned in the said shaft groove for a holding of the sleeve slidably over the shaft in pivot ball neck holding position, the shaft having an internally screw threaded opening formed at one of its ends longitudinally centrally thereof, an elongated stud headed screw bolt adapted to be screw inserted and held within the shaft threaded opening in longitudinal extension thereof, a slidable collar on said stud screw bolt, a spiral normally expandable tension spring on the stud screw bolt and positioned thereon and extending between said slidable collar on the bolt and the bolt head for normally spring tension resisting any sliding movement of the collar on that bolt toward said bolt head, said slidable collar on said bolt being slidably abutting the end of the shaft to which the bolt is secured and having a radial peripheral internal screw threaded opening formed therein, and bolt screw securement means on the tongue adapted for cooperating with said radial threaded opening of the collar for thereby removably securing the tongue to the slidable collar on the bolt.

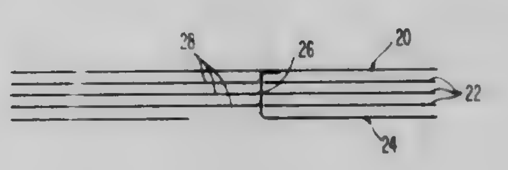
4,381,118
MULTI-HITCH APPARATUS FOR TANDEM TOWING OF FARM IMPLEMENTS
Harry D. Weeks, 7225 Kile Rd., Plain City, Ohio 43064
Filed Jan. 23, 1981, Ser. No. 227,983
Int. Cl.³ B60D *1/000*
U.S. Cl. 280—412 **6 Claims**

1. A multi-hitch arrangement for connecting a plurality of wheeled farm implements in a plurality of predetermined positions behind a towing vehicle comprising, in combination, a first wheeled farm implement provided with a first towing means adapted for connection to said towing vehicle and a second towing means adapted for connection to a second wheeled farm implement provided with a tongue portion; said first towing means including a forwardly extending tongue portion pivotally mounted at its rearward end to a frame portion of said first farm implement and having a hitching means on its front portion pivotally connected to a hitch member on said towing vehicle, said forwardly extending tongue portion being movable between at least a first and second releasably locked towing position; said second towing means mounted to a rear portion of said first implement and including a tow bar pivotally connected at one end to a support frame means mounted on said first implement and provided with a hitching means connected at its opposite end to the tongue portion



provided on said second farm implement, said tow bar and said support frame means being pivotally movable between a first and second releasably locked towing position responsive to the towing position of said tongue portion of said first towing means; said first towing position defining a single file relationship between the towed farm implements and said second towing position defining an offset relationship between said towed farm implements, the position of said hitch connection between said tongue portion of said first towing means and said towing vehicle being disposed substantially equidistant between the opposing outermost wheel of said first and second farm implement in either said first or second towing position to provide a substantially equal draft force upon said towed farm implements.

4,381,119
MULTIPART CONTINUOUS FORM
Lawrence J. Vosh, Glen Falls, N.Y., and Kenneth R. D'Angelo, Ellington, Conn., assignors to Burroughs Corporation, Detroit, Mich.
Filed Dec. 17, 1980, Ser. No. 217,295
Int. Cl.³ B41L *1/20, 1/32*
U.S. Cl. 282—11.5 A **5 Claims**



1. A multilayer continuous form comprising:

a first outer ply formed from a continuous web;

a plurality of inner plies consisting of continuous webs all located in vertical alignment with said first outer ply;

a second outer ply formed from a continuous web and lo-

cated in vertical alignment with said inner plies and oppositely placed from said first outer ply;

a plurality of locking tabs cut near the edge of each of said inner plies, located such that said locking tabs run in a row and are in vertical alignment, and such that said locking tabs can be flapped open exposing an opening of like dimension;

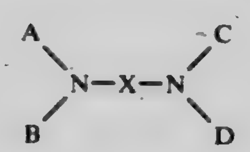
an adhesive strip running along the inner side of said first outer ply and in alignment with said locking tabs; and,

a plurality of connecting tabs cut near the edge of said second outer ply, being like dimensioned and vertically aligned with said locking tabs and oriented such that the forward edges of said connecting tabs point in the opposite direction to the forward edges of said locking tabs, said connecting tabs inserted through said locking tab openings, the ends of said locking tabs locking said connecting tabs in place, each said locking tab coplanar with its respective inner ply, the end of each said connecting tab being bent to be coplanar with said first outer ply and being affixed to the bottom of said first outer ply by means of said adhesive strip, assuring that said first outer ply, second outer ply, and inner plies are held in secure alignment.

4,381,120
DESENSITIZATION SYSTEM FOR CARBONLESS COPY PAPER

Ronald Golden, Mt. Prospect, Ill., assignor to Champion International Corporation, Stamford, Conn.
Continuation of Ser. No. 810,384, Jun. 27, 1977, abandoned, which is a continuation of Ser. No. 627,060, Oct. 30, 1975, abandoned. This application Apr. 22, 1981, Ser. No. 256,509
The portion of the term of this patent subsequent to Apr. 22, 1997, has been disclaimed.
Int. Cl.³ B41M *5/14, 5/16, 5/22*
U.S. Cl. 282—27.5 **14 Claims**

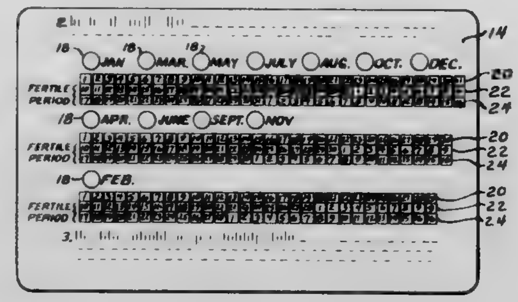
1. A manifold record system comprising a first substrate and a second substrate, said first substrate having a CB coating comprising an encapsulated substantially colorless, chromogenic material, said second substrate having a CF coating comprising an electron-accepting material, said first substrate being superposed over said second substrate with said CB coating adjacent said CF coating, said CF coating being partially desensitized over local areas thereof with a desensitizing agent comprising, in combination, two separate components, the first component being polyethylene glycol end capped by alkoxy groups containing from 1 to 5 carbon atoms, and the second component having the formula



wherein X is an alkylene radical of the formula $—CH_2CH_2—$ or $—CH_2CH_2CH_2—$, and A, B, C, and D are selected from the group consisting of:
hydrogen,
an aliphatic group,
a cycloaliphatic group,
$—CH_2COOH$, and
$—CH_2COOM$
where M is the alkali metal ion, sodium, potassium or lithium,
in amounts between about 10 and about 0.5 parts by weight of said first component per part by weight of said second component.

4,381,121
HUMAN REPRODUCTION INDEXING DEVICE

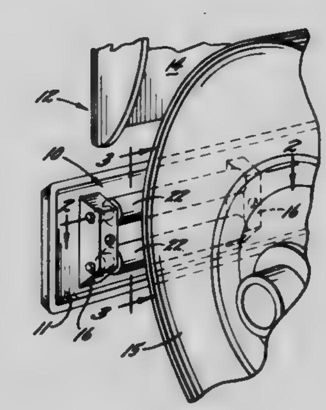
John P. Hanley, 625 Ivy Ct., Kenilworth, Ill. 60043
Filed Nov. 3, 1980, Ser. No. 203,698
Int. Cl.³ B42D *15/02*
U.S. Cl. 283—1 A **3 Claims**



1. An indexing device for maximizing the probability of conception comprises a member having indicia representing the calendar dates for the days of the months positioned in three separate calendar columns on the member and indicator-index columns aligned with and positioned adjacent each of said calendar columns, said indicator-index columns indicating the calendar dates for an eight day cycle starting ten days after the predetermined index date to provide the time interval during which the probability of conception is maximized.

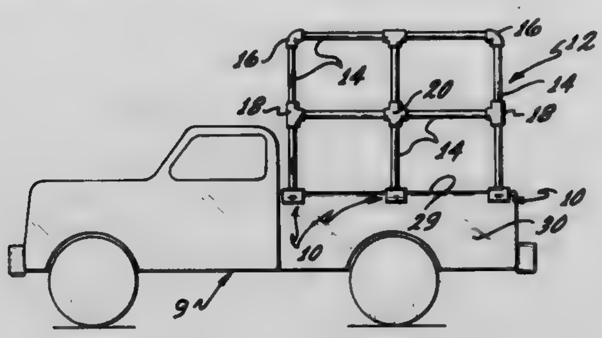
4,381,122
SAFETY ATTACHMENT FOR A FRONT VEHICLE BUMPER

James M. Kite, Rockford, Ill., assignor to Auburn Manufacturing Co., Inc., Rockford, Ill.
Filed Feb. 12, 1981, Ser. No. 233,621
Int. Cl.³ B60R *19/02*
U.S. Cl. 293—125 **11 Claims**



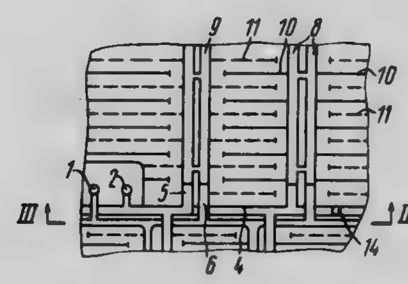
7. A vehicle having first and second laterally spaced and steerable front wheels and having a front bumper spaced forwardly from and extending laterally in front of said wheels, the improvement in said vehicle comprising, first and second pairs of substantially vertically spaced rollers located in front of and spaced forwardly from said first and second wheels, respectively, and means mounting said rollers on the rear side of said bumper for rotation about generally horizontal axes whereby the rollers will make rolling contact with said wheels if said vehicle is involved in a moving collision and said bumper is shoved rearwardly toward said wheels.

4,381,123
PICKUP TRUCK BED SIDEWALL ADAPTOR FOR A STAKE-FRAME ASSEMBLY
Byron D. Anderson, 9395 Harritt Rd., Sp. 246, Lakeside, Calif. 92040
Filed Jan. 9, 1981, Ser. No. 223,828
Int. Cl.³ B60P *7/06*
U.S. Cl. 296—43 **8 Claims**



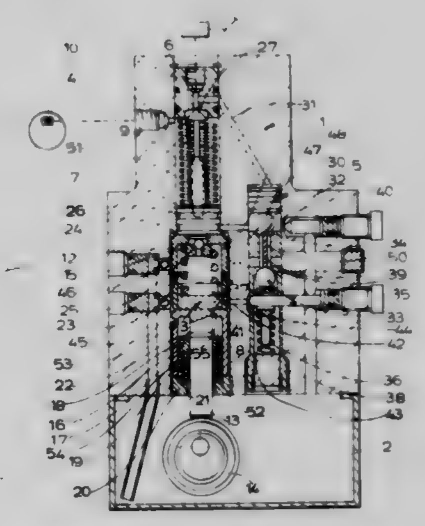
1. A pickup truck bed sidewall adapter for a stake-frame assembly comprising:
- a pickup truck sidewall coupling member having a top wall portion that in its operational position matingly rests on the horizontal top wall portion of a pickup truck bed sidewall, said top wall portion having a downwardly extending inside wall portion that matingly contacts the inside surface of the upper region of a pickup truck bed sidewall, said top wall portion also having a downwardly extending flange portion that matingly contacts the outside surface of a flange extending downwardly from the outer edge of the horizontal top wall portion of a pickup fruck bed sidewall, said downwardly extending flange having an inwardly extending lip portion connected to its lower end that functions to grip the bottom edge of the downwardly extending outside flange of a pickup truck bed sidewall; and
- a substantially vertically oriented telescoping member extending upwardly from the top surface of said top wall portion.

4,381,124
METHOD OF MINING AND OIL DEPOSIT
Vladimir G. Verty, poselok Yarega, ulitsa Kosmonavtov, 4, kv. 29; Pavel G. Voronin, poselok Yarega, ulitsa Mira, 4, kv. 6; Evgeny I. Gurov, poselok Yarega, ulitsa Mira, 2, kv. 3; Vitaly S. Zubkov, poselok Yarega, ulitsa Mira, 3, kv. 4; Alexandr I. Obrezkov, poselok Yarega, ulitsa Neftyanikov, 1, kv. 14, all of, Komi ASSR, Ukhta; Vladimir P. Tabakov, ulitsa Sofii Kovalevskoi, 4-A, kv. 125, Moscow; Boris B. Khvoschinsky, poselok Yarega, ulitsa Kosmonavtov, 5, kv. 17, Komi ASSR, Ukhta, and Vladimir N. Judin, ulitsa Oplesnina, 30, kv. 35, Komi ASSR, Ukhta, all of U.S.S.R.
Filed Jan. 9, 1981, Ser. No. 223,896
Int. Cl.³ E21C *41/10*
U.S. Cl. 299—2 **12 Claims**



1. A method of oil recovery by thermal mining from an oil deposit wherein a plurality of underground workings and recovery galleries are provided, comprising:
- drilling rows of recovery wells from said recovery galleries;
- providing inlet galleries each in the bed between two recovery galleries near the faces of said recovery wells;
- drilling inlet wells from said inlet galleries toward said recovery wells such that said inlet and recovery wells alternate in the oil-bearing portions between said inlet and said recovery galleries to form a uniform network of wells enveloping said oil-bearing bed;
- delivering a heat-carrier to said bed through said inlet wells;
- thereby heating said bed sufficiently to fluidize said oil therein and displace said oil towards said recovery wells; and
- extracting said oil from said recovery wells to said recovery galleries.

4,381,125
HYDRAULICALLY-OPERATED ANTI-SKID VEHICLE BRAKING SYSTEM WITH PUMP
Alexander J. Wilson, Sutton Coldfield, England, assignor to Lucas Industries Limited, Birmingham, England
Filed Feb. 4, 1981, Ser. No. 231,393
Claims priority, application United Kingdom, Feb. 7, 1980, 8004161
Int. Cl.³ B60T *8/02*
U.S. Cl. 303—116 **11 Claims**

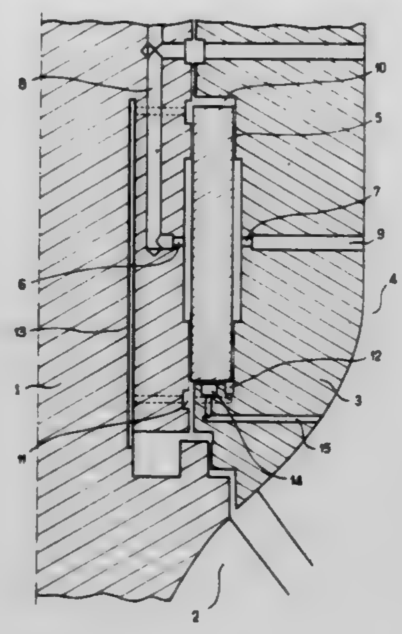


1. An hydraulically-operated anti-skid braking system for a vehicle comprising a brake for braking the wheel of the vehicle, a reservoir for hydraulic fluid, a pump for providing a supply of hydraulic fluid under pressure from said reservoir, first control means through which hydraulic fluid is delivered by said pump, an outlet port, said first control means including a first orifice through which fluid from said pump is passed to provide a pressure in response to which said brake is adapted to be applied by means of hydraulic fluid being delivered through said outlet port, an inlet port, second control means, and a master cylinder by means of which hydraulic fluid pressure is applied to said second control means through said inlet port, said second control means controlling operation of said pump in response to hydraulic fluid pressure applied to said second control means, wherein said pump is rotatable with rotation of said wheel to be braked whereby said wheel is automatically prevented from locking, and wherein said pump has substantially constant output flow at least throughout a wheelspeed range above a predetermined minimum.

4,381,126
HYDROSTATIC BEARING WITH ROTATING SLEEVE
Michel P. Drevet, Lyons, France, and Jean Trouillet, Fontaine-Valmont, Belgium, assignors to Jeumont Schneider Corporation, Puteaux, France
Filed Jun. 29, 1981, Ser. No. 278,632
Claims priority, application France, Jul. 7, 1980, 80 15046
Int. Cl.³ F16C *32/06*
U.S. Cl. 384—114 **6 Claims**

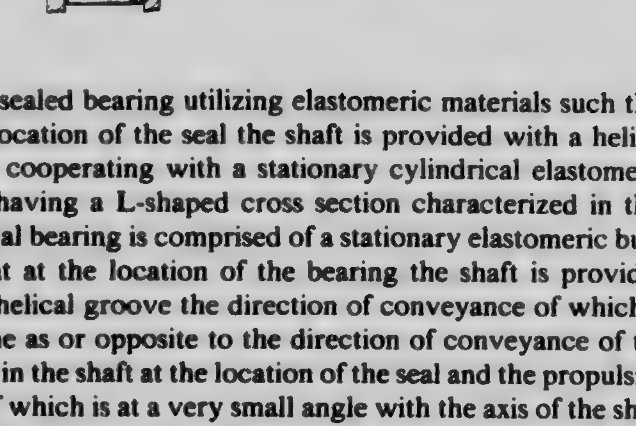
1. Hydrostatic bearing with fluid under pressure for a shaft

rotating at high speed in a fixed bed, unique in that a sleeve is arranged coaxially to the said shaft in a chamber created for this purpose between the said bed and the said shaft, with



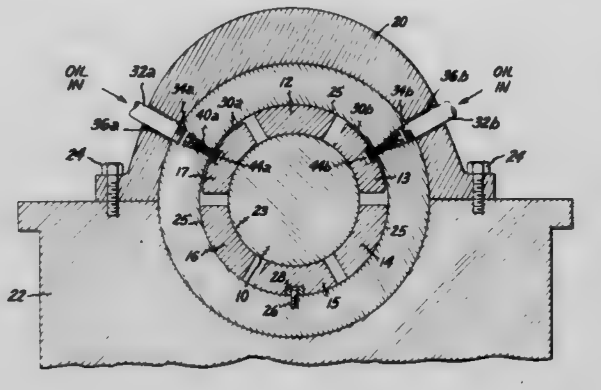
apertures supplied with fluid being disposed respectively in the said shaft and in the said bed, opposite the said sleeve on one side and the other, in such a way that a movement in rotation around its axis can be imparted to the said sleeve.

4,381,127
SEALED BEARING
Teunis Visser, Sliedrecht, Netherlands, assignor to IHC Holland N.V., Papendrecht, Netherlands
Filed Apr. 16, 1981, Ser. No. 254,984
Claims priority, application Netherlands, Apr. 18, 1980, 8002280
Int. Cl.³ F16C *33/74*
U.S. Cl. 384—151 **8 Claims**



1. A sealed bearing utilizing elastomeric materials such that at the location of the seal the shaft is provided with a helical groove cooperating with a stationary cylindrical elastomeric sleeve having a L-shaped cross section characterized in that the radial bearing is comprised of a stationary elastomeric bush and that at the location of the bearing the shaft is provided with a helical groove the direction of conveyance of which is the same as or opposite to the direction of conveyance of the groove in the shaft at the location of the seal and the propulsive flank of which is at a very small angle with the axis of the shaft and with the tangent to the circumference of the shaft, said bearing being supplied with liquid lubricant.

4,381,128
VIBRATION DAMPING TILTING PAD JOURNAL BEARING
John H. Vohr, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed Feb. 19, 1981, Ser. No. 236,008
Int. Cl.³ F16C *17/03*
U.S. Cl. 384—154 **3 Claims**

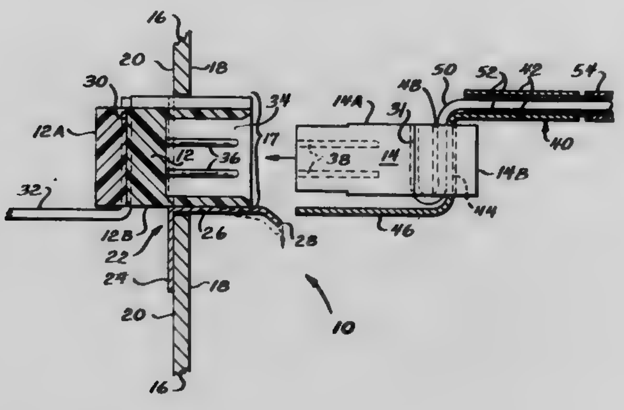


1. A vibration-damping, tilting pad journal bearing comprising:
a bearing casing including means for receiving hydraulic fluid under pressure;
a plurality of tilting pads retained within the casing in an encompassing relationship to an associated journal, at least one of said pads being positioned to carry a lesser load from the journaal than the other pads of said plurality of pads, said one pad having a radially outer surface adjacent said casing which is in substantial geometrical conformance with said casing to define an interstice between said outer surface and said casing;
a hydraulic fluid receiving chamber being defined by an opening in said outer surface and by a hardened bushing mounted within said opening;
an anti-rotation pin having one end affixed to the casing and the other end projecting into said bushing to prevent circumferential dislocation of said one pad, said other end further defining an annular space between said bushing and said pin, and said pin having an axial orifice therethrough which provides for fluid communication between said receiving means and said chamber; and
said one pad being preloaded against said journal by hydraulic fluid supplied under pressure through said receiving means and said axial orifice to said chamber and the discharge of said fluid from said chamber through said annular space into said interstice, and said interstice limiting a rapid outflow of hydraulic fluid therefrom to prevent rapid movement of said one pad such that said journal is substantially restrained from vibrating.

4,381,129
GROUNDED, MULTI-PIN CONNECTOR FOR SHIELDED FLAT CABLE
Horst M. Krenz, St. Joseph, Mich., assignor to Zenith Radio Corporation, Glenview, Ill.
Filed Jul. 13, 1981, Ser. No. 282,634
Int. Cl.³ H01R *4/66*
U.S. Cl. 339—14 R **16 Claims**

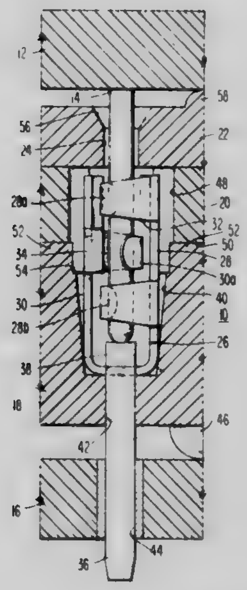
1. A grounded multi-pin connector mounted in an aperture in a grounded panel and electrically coupling first and second sections of a multi-conductor, flat cable wherein said second section is enclosed in a conductive shield, said connector comprising:
a first housing connected to said first cable section, said first housing including a recessed portion wherein are located a plurality of conductive pins in a fixed planar array;
a second housing with a slot therein and having a plurality of conductive receptacles connected to said second cable section and arranged in a fixed planar array such that when said second housing is inserted in the recessed por-

tion of said first housing, electrical connection between said first and second cable sections is established;
first conductive means having first and second sections;
means for mounting said first conductive means between said first housing and said panel such that the first section of said first conductive means is electrically grounded, with the second section thereof extending through said aperture adjacent said first housing; and



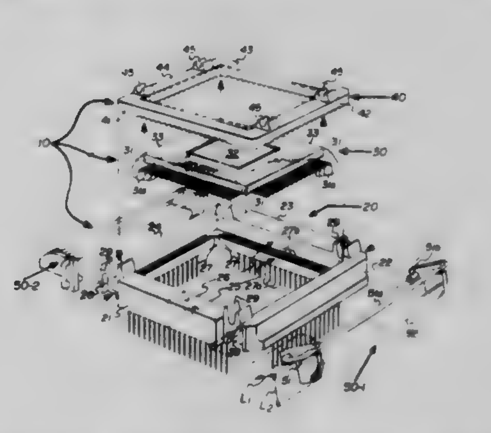
second conductive means adapted to be positioned in said slot and in electrical contact with said shield, said second conductive means extending in a generally parallel direction to said second housing and in close proximity thereto for contacting the second section of said first conductive means when said first and second housings are mated thereby grounding said shield.

4,381,130
ZERO INSERTION FORCE CONNECTOR FOR INTEGRATED CIRCUIT PACKAGES
George J. Sprenkle, Phoenixville, Pa., assignor to Burroughs Corporation, Detroit, Mich.
Filed Sep. 29, 1980, Ser. No. 192,429
Int. Cl.[3] H01R *13/62*
U.S. Cl. 339—74 R 10 Claims



1. A zero insertion force connector for receiving the interface pins of an integrated circuit package comprising:
a plurality of electrical contacts, each of said contacts being comprised of a pair of opposing cantilever beam-type members joined at one end to form a common extremity, each of said last mentioned members having at least one finger extension contoured to engage the surface of an interface pin during operation of the integrated circuit package, the finger extensions of the respective beam-type members defining a pin-receiving area therebetween,
a base having a plurality of cavities for receiving respectively said plurality of electrical contacts, said cavities having a pair of opposing tapered walls, said electrical contacts being formed such that upon installation in said cavities, said beam-type members tend to move respectively toward said tapered walls, causing the finger extensions to move toward each other and to restrict said pin-receiving area,
at least one contact release plate having a plurality of cam-like apertures, means for slidably mounting said contact release plate within said base, said cam-like apertures encompassing respectively said plurality of electrical contacts, the movement of said contact release plate to an "open" position causing the opposite surfaces at one extremity of each of said cam-like apertures to contact the respective beam-type members of a contact and to squeeze them toward each other, thereby causing said finger extensions to move apart, said finger extensions substantially encompassing an interface pin inserted within said pin-receiving area, movement of said contact release plate to a "closed" position permitting said beam-type members to move away from each other without contacting the opposite surfaces at the other extremity of each of said cam-like apertures, thereby causing said finger extensions to move toward each other and to grip the surface of said interface pin,
a cover member disposed over said contact release plate and affixed to said base in a manner to prevent its movement relative thereto, said cover member having a plurality of apertures homologously positioned with respect to the longitudinal center lines of the pin-receiving area of said contacts, the dimensions of each of said apertures providing an exact fit with respect to the cross sectional dimensions of said interface pin, said last mentioned apertures directing each of said interface pins to enter the central portion of said pin-receiving area when said integrated circuit package is mounted in said connector.

4,381,131
LEVERED SYSTEM CONNECTOR FOR AN INTEGRATED CIRCUIT PACKAGE
Eugene F. Demnianiuk, San Diego, Calif., assignor to Burroughs Corporation, Detroit, Mich.
Filed May 4, 1981, Ser. No. 260,268
Int. Cl.[3] H01R *23/72*
U.S. Cl. 339—75 M 6 Claims



1. A double-pivot levered system connector for use with an integrated circuit package, said system connector comprising:
a frame containing a plurality of electrical conductors and a pair of grooved tracks;
said frame being adapted to receive said integrated circuit package with said electrical conductors being aligned with corresponding electrical conductors in said integrated circuit package;
a lid which lies on the electrical conductors of said integrated circuit package while they are in alignment with the electrical conductors in said frame;
a pivotal member having ends that respectively fit into said tracks on said frame;
said pivotal member having a central portion that moves to contact said lid when said central portion is pivoted in one direction about said ends while said ends stay at a first position in said tracks;

said tracks being shaped such that when said ends are pivoted about said central portion in another direction opposite to said one direction while said central portion is on said lid at the point where said contact is made, said ends move in said tracks away from said first position to pull said lid and frame together with said aligned conductors lying therebetween;

said pivotal member further including a lever portion that pivots said ends about said central portion in said another direction with a mechanical advantage.

4,381,132

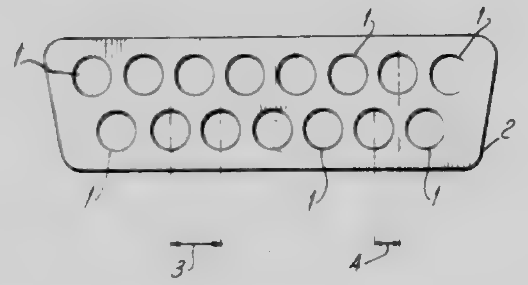
FLAT CABLE CONNECTOR

Gilles F. A. Tournier, Leguevin, France, assignor to ITT, New York, N.Y.

Filed Sep. 10, 1980, Ser. No. 185,793

Int. Cl.³ H01R *13/38*

U.S. Cl. 339—99 R **3 Claims**



1. A flat cable connector comprising:

a connector housing containing a row of contact cavities, each cavity receiving a terminal having an insulation piercing fork;

the center-to-center spacing of said terminals differing from the spacing of the conductors of the flat cable to be connected;

the plane of the slot **(14)** between the tines of the fork of each terminal being offset from the center axis **(16)** of said terminal and from the coincident central axis of its corresponding contact cavity;

all of the forks of the terminals in said row of cavities being offset to the same side of the said coincident central axes;

said forks being oriented so that the planes passing through the slots between the tines of said forks are disposed at a predetermined angle (α) with respect to the lateral plane **(15)** passing through the vertical axis of the connector housing;

said angle being such that conductors of the flat cable to be connected will be aligned with the slots between said tines of the forks of said terminals when the cable is disposed at said angle with respect to the connector;

a cable clamp for effecting simultaneously the insulation piercing and the connection of all of the conductors of the cable, said clamp having a cover for relieving the connections from stresses due to pulling exercised on the cable;

said cable clamp being traversed by guide channels corresponding in number, diameter and spacing to the conductors of the flat cable;

said guide channels being parallel to each other and situated in a plane perpendicular to the cutting edges of said fork tines;

the longitudinal axes of said guide channels extending at an angle with respect to said lateral plane of said connector housing the same as said predetermined angle, whereby the flat cable will exit from the housing at a slant;

the side of said cable clamp opposite to said connector housing having a roughly "U"-shaped cutout of a width corresponding to the width of the flat cable to be connected; and

a pyramid type ramp in said cutout having a base merging with one side of said cutout with its apex extending to the opposite side of said cutout.

4,381,133

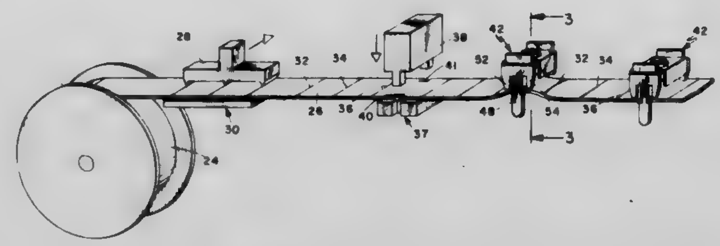
VARIABLE CENTER DISTANCE TERMINAL STRIP AND METHOD OF MAKING SAME

Rodger T. Lovrenich, Santa Teresa, N. Mex., assignor to Cooper Industries, Inc., Houston, Tex.

Filed Apr. 2, 1981, Ser. No. 250,295

Int. Cl.³ H01R *9/10*

U.S. Cl. 339—198 R **7 Claims**



1. Variable center distance electrical terminal strip means, comprising:

a substantially flat ribbon of flexible electrical insulating material folded at intervals on fold areas thereon for providing upwardly extending barrier means; and

a plurality of electrical terminal means for connection to said ribbon between said barrier means and having connection means above said ribbon for making a first connection, and pin means extending below said ribbon for making a second connection;

said ribbon being adjustable lengthwise for establishing the center distance between said terminal means.

4,381,134

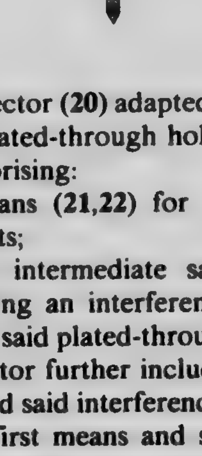
ELECTRICAL CONNECTOR FOR PLATED-THROUGH HOLES

Donald R. Anselmo, Glen Ellyn, Ill., and Thomas G. Grau, Mendham Township, Morris County, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 13, 1981, Ser. No. 243,439

Int. Cl.³ H01R *4/10*

U.S. Cl. 339—220 R **9 Claims**



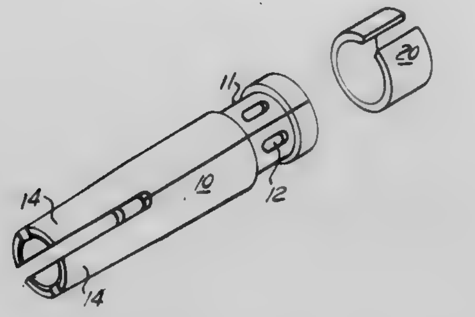
1. An electrical connector **(20)** adapted for engagement with an inner surface of a plated-through hole **(13)** in an electrical circuit board **(10)** comprising:

first and second means **(21,22)** for receiving electrically conductive elements;

means **(23,24,25,26)**, intermediate said first and second means, for providing an interference coupling between said connector and said plated-through hole characterized in that said connector further includes

means **(30)**, juxtaposed said interference coupling means and intermediate said first means and said interference coupling means, for conditioning a particular portion of the inner surface of said plated-through hole prior to engagement of said interference coupling means with the same particular portion of the inner surface of said plated-through hole.

4,381,135
SOCKET TYPE CONTACT ASSEMBLY
Valentine J. Hemmer, and R. Amelia Piscitelli, both of Sidney, N.Y., assignors to The Bendix Corporation, Southfield, Mich.
Filed Jan. 26, 1981, Ser. No. 228,493
Int. Cl.[3] H01R *4/10*
U.S. Cl. 339—258 R **4 Claims**

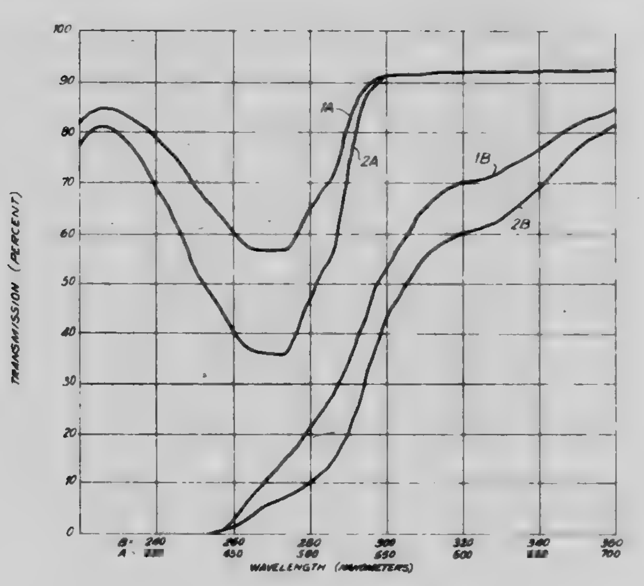


1. In combination with a contact of the type having: a one-piece inner sleeve having a forward mating portion, a rear wire receiving portion having a plurality of elongated slots therein and a middle portion; a rear sleeve telescopically mounted to the rear portion of the inner sleeve; and a forward sleeve telescopically mounted to the forward portion of said inner sleeve, the improvement comprising:

a groove in the rear wire receiving portion of said inner sleeve with said elongated slots located in said groove; and

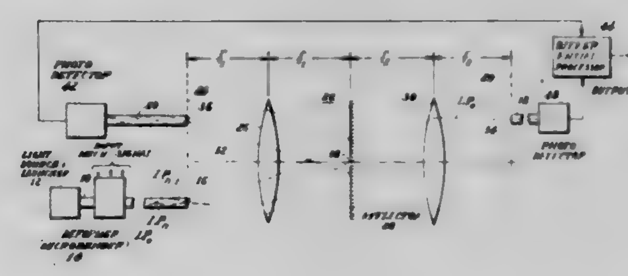
a ferrule located in said groove.

4,381,136
METHOD FOR COVERING ULTRAVIOLET SOURCES
Ludwig Hosch, Darmstadt, and Guenther Ittmann, Gross-Umstadt, both of Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany
Filed Mar. 3, 1981, Ser. No. 239,910
Claims priority, application Fed. Rep. of Germany, Mar. 5, 1980, 3008364
Int. Cl.[3] G02B *5/22*
U.S. Cl. 350—1.1 **15 Claims**



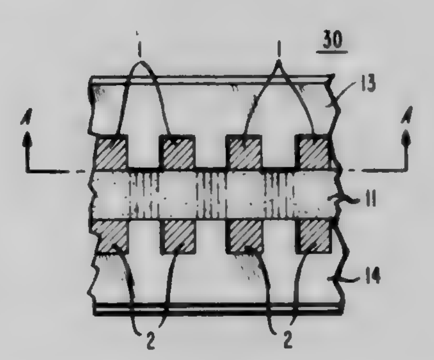
1. A method for covering a source emitting ultraviolet radiation which comprises covering said source with an acrylic glass colored with a coloring agent which absorbs in the visible region of the spectrum between 400 nanometers and 550 nanometers and exhibits an absorption of at least 2 percent for a wavelength within this region, and which agent concurrently has an average degree of transmission in the A- and B-region of the ultraviolet spectrum which is not below 55 percent and is not less than 10 percent at any wavelength in this region, said agent being present at a concentration equivalent to 0.0005 to 0.3 percent by weight in a layer, one millimeter thick, of a radiation absorbing matrix.

4,381,137
OPTICAL FIBER MODE SEPARATION SYSTEMS
David M. Berg, and Kenneth J. Teegarden, both of Rochester, N.Y., assignors to Hydroacoustics Inc., Rochester, N.Y.
Filed Mar. 5, 1981, Ser. No. 240,634
Int. Cl.[3] G02B *5/14*
U.S. Cl. 350—96.18 **23 Claims**



19. An optical system comprising an input optical fiber, a pair of output fibers, means for deforming said input fiber to change the modes of transmission of light in said input fiber, and optical means for separating groups of modes transmitted in said input fiber and directing light propagating in said input fiber in one of said groups including lower order modes to one of said output fibers and another of said groups including higher order modes to the other of said output fibers, said optical means comprising means for providing a spatial Fourier transform of light in the path between said input and output fibers, and a spatial filter in said plane.

4,381,138
ELECTROOPTIC DEVICES
Lawrence L. Buhl, New Monmouth, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Aug. 25, 1980, Ser. No. 181,148
Int. Cl.[3] G02B *5/14*
U.S. Cl. 350—96.14 **6 Claims**



1. An electrooptic device (30, 60)

at least one optical waveguiding region (11, 50) embedded in a substrate (12, 52) of electrooptic material of lower refractive index;

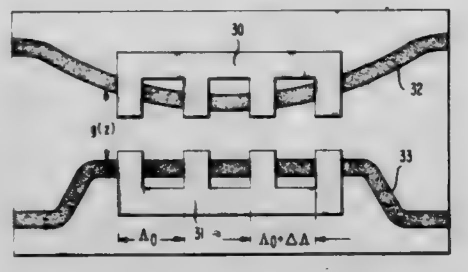
means for providing periodic regions of electric field within said substrate longitudinally distributed along the length of said waveguiding region including:

a pair of comb electrodes (13-14, 53-54) having fingers (13-1, 13-2 . . . 14-1, 14-2 . . . , 53-1, 53-2 . . . 54-1, 54-2) whose ends are disposed opposite each other along said length;

CHARACTERIZED IN THAT

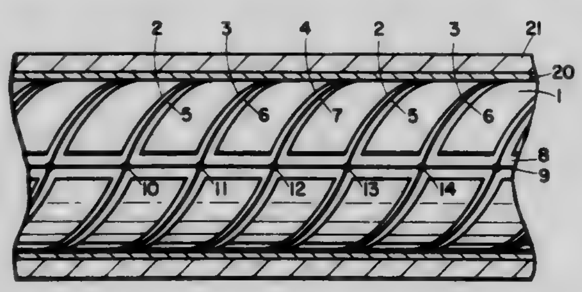
portions (1, 2, 3) of the substrate between adjacent fingers are removed so as to minimize fringing of the electric field between pairs of opposing fingers (13-1, 14-1; 13-2, 14-2 . . . ; 53-1, 54-1; 53-2, 54-2 . . .).

4,381,139
VELOCITY MISMATCHED MODULATOR
Rodney C. Alferness, Holmdel, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Aug. 29, 1980, Ser. No. 182,432
Int. Cl.³ G02B *5/14*
U.S. Cl. 350—96.14 **9 Claims**



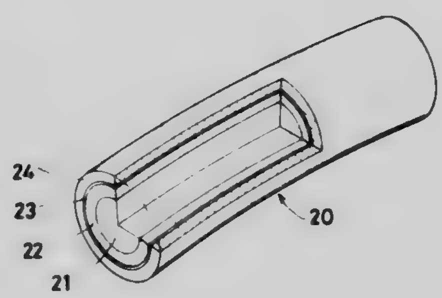
1. A modulator (**10**) comprising:
a pair of substantially identical optical waveguides (**11, 12**) embedded in a substrate (**13**) of electrooptic material of lower refractive index;
said optical waveguides being in coupling relationship over a distance L;
and modulating means (**14, 15**), supportive of a traveling wave, for locally changing the propagation constants (β_1, β_2) of at least one of said waveguide (**11, 12**) at longitudinally spaced intervals (**14-1, 15-1; 14-2, 15-2; . . . 14-n; 15-n**) therealong.

4,381,140
OPTICAL FIBER CABLE
Willem van der Hoek, and Hermanus N. Tuin, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Sep. 18, 1980, Ser. No. 188,195
Claims priority, application Netherlands, Oct. 8, 1979, 7907433
Int. Cl.³ G02B *5/14*
U.S. Cl. 350—96.23 **11 Claims**



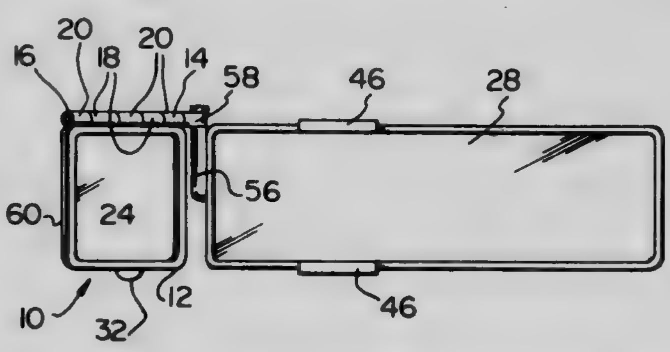
1. An optical fiber cable comprising:
a longitudinally extending cylindrical body having an outer surface with a helical groove therein;
an optical fiber in the helical groove; and
means for fixing the fiber in the groove at periodically spaced locations, said means preventing the fiber from moving in the groove along the length of the cable.

4,381,141
INFRARED OPTICAL FIBER AND METHOD FOR MANUFACTURE THEREOF
Shiro Sakuragi, and Haruo Kotani, both of Kisshoinmiya-no-Higashimachi, Japan, assignors to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, both of Tokyo, Japan
Filed Jan. 16, 1981, Ser. No. 225,743
Claims priority, application Japan, Jan. 22, 1980, 55/5315
Int. Cl.³ G02B *5/14*
U.S. Cl. 350—96.34 **12 Claims**



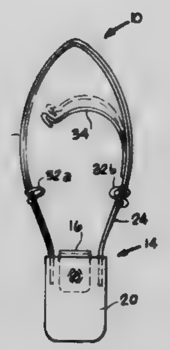
1. An infrared optical fiber, comprising a core made of an infrared transmitting substance, a clad around said core made of a infrared transmitting substance having a lower index of refraction then said core, a layer of lubricant on the outer surface of said clad, and a metal pipe enveloping said layer of lubricant.

4,381,142
REAR VIEW MIRROR ATTACHMENT
Christopher McColgan, P.O. Box 249, Quyon, Quebec, Canada (J0X 2V0)
Filed Nov. 12, 1980, Ser. No. 206,079
Claims priority, application Canada, Oct. 14, 1980, 362106
Int. Cl.³ B60R *1/08*
U.S. Cl. 350—304 **13 Claims**



1. A vehicle supported apparatus for providing a rear view comprising a flat mirror device having a front and back mirror surface, a hinge member extending along one edge of said mirror device, means for pivotably mounting said mirror device on said hinge member whereby said mirror device can be pivoted from a first position where said front mirror surface is viewed to a second position where said back mirror surface is viewed, means for connecting said hinge member to said vehicle including a clamping mechanism adapted to clamp onto a rearview mirror in said vehicle, and an opaque panel member rigidly connected to said hinge member and covering said back surface when said mirror device is in said first position.

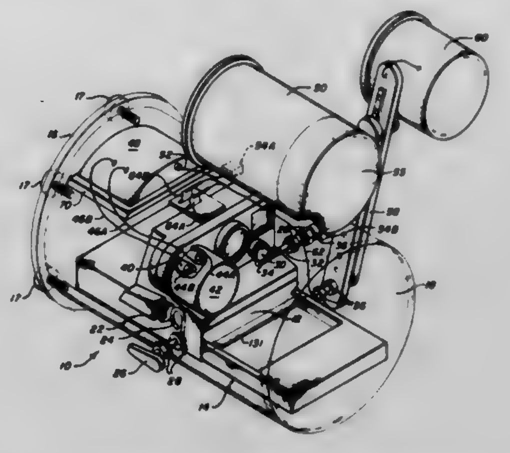
4,381,143
OPHTHALMIC TEST LENS HOLDER
Paul F. Bommarito, 10684 Martinwood Way, Cupertino, Calif. 95014
Continuation of Ser. No. 6,340, Jan. 25, 1979, abandoned. This application Aug. 20, 1980, Ser. No. 179,807
Int. Cl.³ A61B *3/04*
U.S. Cl. 351—230 **11 Claims**



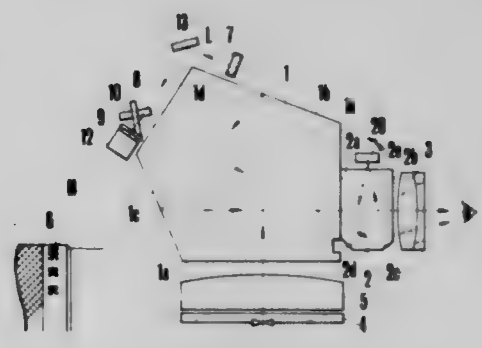
1. An ophthalmic test lens holder for use with spectacle frames comprising,
an elongated first clamping member defining a first aperture therein,
an elongated second clamping member, generally the same size as the first clamping member and defining a second aperture therein, said second clamping member facing said first clamping member and spaced therefrom a distance accommodating a spectacle frame therebetween, with said first aperture and said second aperture aligned to transmit light therethrough, said first and second clamping members being elongated and having an extended tip with a clamping member length substantially greater than a lens socket in the spectacle frame intended to be placed between said clamping members such that the clamping members may adjustably be disposed across and contact opposed sides of a lens socket of said spectacle frame, spanning the dimension of the socket, the first of said clamping members having a plurality of parallel lateral rulings thereon, for referencing an aperture relative to the socket, the number and extent of lateral rulings being sufficient to reference the position of a test lens held over an aperture with respect to said socket,
spring means connected to said first and second clamping members for resiliently biasing said first clamping member toward said second clamping member, and
bracket means attached to one of said clamping members for removably holding a test lens over said second aperture.

4,381,144
UNDERWATER CAMERA ENCLOSURE INCLUDING SONAR RANGE FINDING DEVICE
Lloyd Breslau, 23 Bobwhite Trail, Gales Ferry, Conn. 06335
Filed Jul. 15, 1981, Ser. No. 283,557
Int. Cl.³ G03B *17/08;* **G01S** *15/08*
U.S. Cl. 354—64 **20 Claims**

13. A transponder to operate distance controlled apparatus designed for operation in a first medium, in a second medium and to provide a distance-related signal to adjust said distance controlled apparatus according to a distance between said controlled apparatus and a selected subject in said second medium, said transponder comprising:
a second medium range determining device including a sonar device providing a first signal relating a distance between said transponder and said selected subject;
a conversion means to relate said first signal to said distance controlled apparatus as a converted distance signal,
wherein said second medium sonar device receives an initiate signal in response to said distance controlled apparatus and produces said first signal thereafter, said conversion means further comprising:
a timing circuit to measure the elapsed time between said initiate signal and said first signal to produce a second medium delay signal; and
a time scaler to adjust the second medium delay signal according to a differing rate of propagation of an acoustic signal through the first medium and the propagation of an acoustic signal through said second medium producing a simulated air-echo electrical signal.



4,381,145
SINGLE LENS REFLEX CAMERA
Kikuo Momiyama, Yokohama, and Kenichi Kumazawa, Machida, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 97,833, Nov. 26, 1979, Pat. No. 4,295,723. This application Oct. 14, 1981, Ser. No. 311,345
Claims priority, application Japan, Nov. 24, 1978, 53-145114
Int. Cl.³ G03B *17/20, 19/12*
U.S. Cl. 354—155 **1 Claim**



1. A single lens reflex camera, comprising:
a focusing plate;
an objective lens for forming an image of an object on the focusing plate and on a plane at which a photosensitive surface is to be placed;
a viewfinder system for viewing the object image formed on the focusing plate and photographic data indicated on parts of the single lens reflex camera;
said viewfinder system including a pentagonal roof prism having a non-reflecting front surface, an eyepiece, a sub-prism having at least two reflecting surfaces, and a variable reflecting member having at least one reflecting surface;
said sub-prism being arranged between the pentagonal roof prism and the eyepiece;
said pentagonal roof prism being arranged so that when light from photographic data is introduced at the non-reflecting surface of the pentagonal roof prism into the inside thereof, the light is reflected by one of the reflecting surfaces of the sub-prism, projected to the exterior toward the reflecting member, reflected by the reflecting surface of the reflecting member so as to be introduced into the

inside of the sub-prism, reflected by the outer reflecting surface of the sub-prism toward the eyepiece;

said viewfinder system further including a view field frame, said light reflected by the other reflecting surface of the sub-prism being directed toward the eyepiece to indicate the photographic data around the photographic view field frame;

the photographic data indicated around the frame being extinguishable or reproducible by varying the reflecting member.

4,381,146

PIEZOELECTRIC APERTURE SIZE CONTROL DEVICE

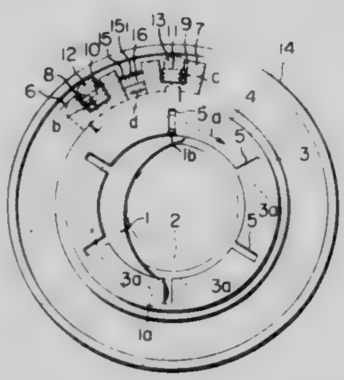
Tsunemi Yoshino, Ibaraki, and Hiroshi Iwata, Nara, both of Japan, assignors to West Electric Co., Ltd., Osaka, Japan

Filed Jun. 10, 1981, Ser. No. 272,167

Claims priority, application Japan, Jun. 17, 1980, 55-82650

Int. Cl.³ G03B *9/02*

U.S. Cl. 354—271 **4 Claims**



1. A piezoelectric aperture size control device responsive to control signals comprising:

(a) first support means having an opening which defines a maximum aperture size,

(b) movable aperture-setting means on said first support means and movable relative thereto so as to close the opening thereof, thereby setting a desired aperture size,

(c) control means in proximity to said movable aperture-setting means for controlling the movements thereof,

(d) second support means for supporting said first support means and aperture-setting means including the said control means,

(e) first driving means slidably disposed between said first and second support means and adapted to respond to a first control signal so as to become arrested therebetween,

(f) second driving means connected to said control means and slidably disposed between said first and second support means and adapted to respond to a second control signal so as to become arrested therebetween,

(g) connection-and-expansion driving means interconnecting said first and second driving means and adapted to respond to a third control signal to expand and contract in response thereto to move the said first and second driving means when neither is arrested,

the said control signals being time related to cause the said driving means to move in a pre-determined direction so as to control the aperture size accordingly.

4,381,147

APPARATUS FOR FORMING PLURAL IMAGES FROM A LATENT IMAGE

Toshirou Kasamura, c/o Canon Kabushiki Kaisha, 30-2, 3-chome, Shimomaruko, Ohta-ku, Tokyo, Japan

Filed Sep. 26, 1980, Ser. No. 191,002

Int. Cl.³ G03G *15/00*

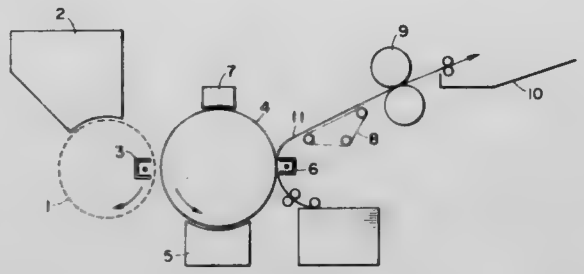
U.S. Cl. 355—14 R **5 Claims**

1. An image forming apparatus for forming plural images from a single latent image formed on a latent image bearing member, comprising:

a latent image bearing member;

means for forming a latent image on said latent image bearing member;

means for forming images on other members by means of said latent image formed on said latent image bearing member; and



means for measuring a period of interruption of the formation of plural images on said other members; and means for controlling the remaining image formations, after said interruption, to be conducted with or without reformation of a new latent image on said latent image bearing member depending respectively on whether or not the period measured by said period measuring means exceeds a predetermined time limit of duration of said latent image.

4,381,148

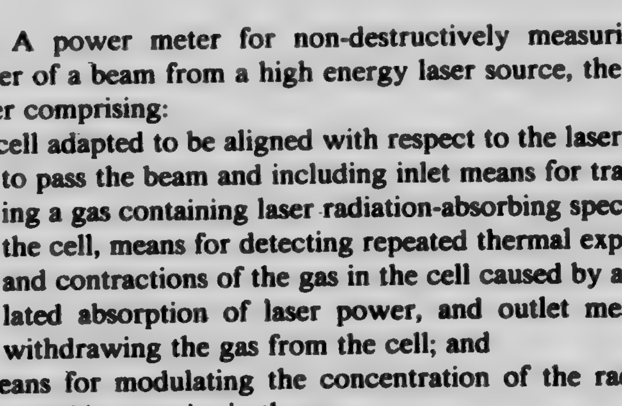
POWER METER FOR HIGH ENERGY LASERS

Peter B. Ulrich, Oxon Hill, Md.; Gary L. Trusty, and Daniel H. Leslie, both of Alexandria, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 23, 1981, Ser. No. 246,350

Int. Cl.³ G01J *1/04, 1/42;* **G01K** *17/00*

U.S. Cl. 356—213 **10 Claims**

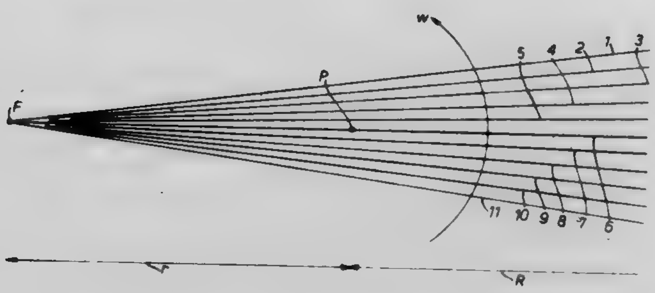


1. A power meter for non-destructively measuring the power of a beam from a high energy laser source, the power meter comprising:

a cell adapted to be aligned with respect to the laser source to pass the beam and including inlet means for transporting a gas containing laser radiation-absorbing species into the cell, means for detecting repeated thermal expansions and contractions of the gas in the cell caused by a modulated absorption of laser power, and outlet means for withdrawing the gas from the cell; and

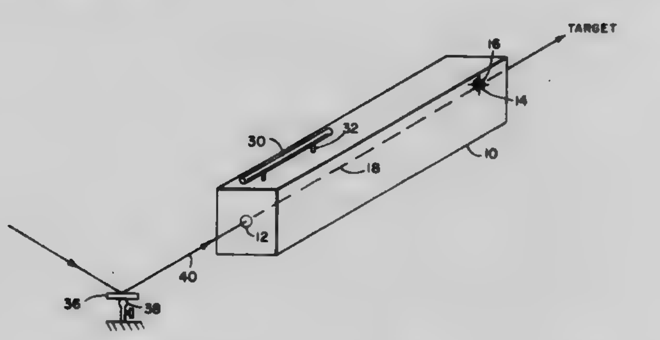
means for modulating the concentration of the radiation-absorbing species in the gas.

4,381,149
RANGE RESPONSIVE APPARATUS
Thomas Hair, Chelmsford, and Ivor R. Baxter, Brentwood, both of England, assignors to The Marconi Co. Ltd., Chelmsford, England
Filed Feb. 13, 1975, Ser. No. 548,727
Claims priority, application United Kingdom, Feb. 19, 1974, 7557/74
Int. Cl.[3] G01C *3/08*
U.S. Cl. 356—4 **22 Claims**



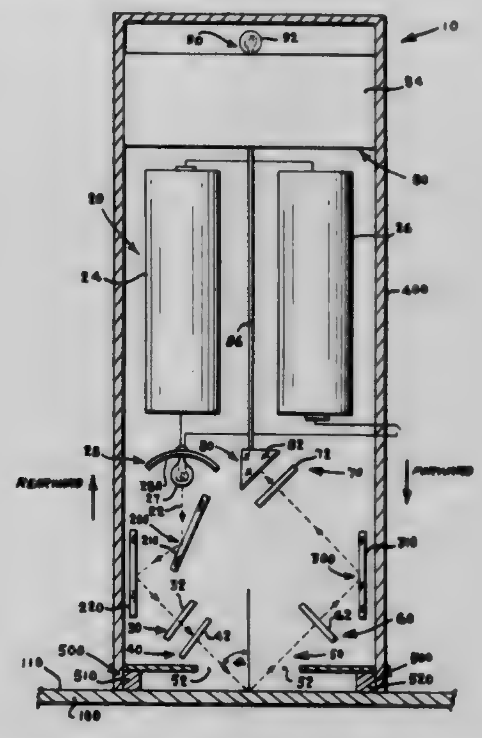
1. A range responsive apparatus comprising energy sensitive means arranged to receive electro-magnetic energy from a target simultaneously from different spaced portions of a field of view and being capable of producing an electrical output, and means for rotating said field of view about an axis of rotation to cause said field of view to sweep across a target, lines bounding the different portions of the field converging toward a point located remote from said target, and said axis of rotation being between said target and said point whereby, in operation, the electrical output of said energy sensitive means includes a frequency component which is dependent upon the range of said target.

4,381,150
LASER BEAM POINTING AID
Richard A. Curtis, Huntsville, Ala., assignor to The United States of America as represented by the Scretary of the Army, Washington, D.C.
Filed Mar. 27, 1981, Ser. No. 248,376
Int. Cl.[3] G01B *11/27*
U.S. Cl. 356—247 **3 Claims**



1. A device for pointing a laser beam to a remote target comprising an elongated housing having an adjustable iris as an input aperture at one end and an output aperture at an opposite end, a center line axis through said housing and said input and output apertures, an unobstructed path through said housing along said center line axis of said housing for passing a laser beam therethrough, a telescope, means mounting said telescope relative to said housing, a center line axis through said telescope, and said means mounting said telescope being such to allow one to boresight said telescope and align the center line axis of the telescope with the center line axis of said housing.

4,381,151
HAND-HOLDABLE CONTAMINATION TESTER
Tennyson Smith, Thousand Oaks, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Oct. 23, 1980, Ser. No. 200,225
Int. Cl.[3] G01N *21/21*
U.S. Cl. 356—369 **2 Claims**



1. A hand-holdable contamination tester, comprising:
a. means for emitting a beam of light, wherein this means includes: a source of electrical power; a light bulb in electrical connection with said source of electrical power, with said bulb emitting light; and means for collimating said emitted light, such that a beam of light is formed, wherein this means includes a concave reflector disposed physically rearward of said light bulb;
b. means for plane polarizing said beam of light, wherein this means is disposed in optical alignment with and physically forward of said light beam emitting means, and wherein this means includes a Glan-Thompson prism;
c. means, in optical alignment with said emitted beam of light and physically disposed between said means for emitting a beam of light and said means for plane polarizing said beam of light, for shortening the geometric distance of an optical path between said light emitting means and said plane polarizing means, wherein this means for shortening said geometric distance includes a first mirror and a second mirror physically disposed between said light emitting means and said plane polarizing means, such that said emitted light beam impinges upon said first mirror, is reflected therefrom to said second mirror, and is further reflected therefrom to said polarizing means;
d. compensator means disposed in optical alignment with and physically forward of said means for plane polarizing said beam of light, wherein said compensator means includes a quarter-wave plate;
e. means for causing said plane polarized, compensated, emitted beam of light to impinge at a predetermined angle of incidence upon a light-reflective surface which is being tested for contamination, with this means disposed in optical alignment with and physically forward of said compensator means;
f. analyzer means disposed in optical alignment with and physically rearward of said light impingement causing means, wherein said analyzer means includes a Glan-Thompson prism;
g. means for permitting transmission of only a preselected constituent wavelength of said beam of light, with the light transmitted having an intensity, wherein this means includes a monochromatic filter, and wherein this means is

disposed in optical alignment with and physically rearward of said analyzer means;

h. means, in optical alignment with said analyzer means and physically disposed between said analyzer means and said means for permitting transmission of only a preselected constituent wavelength of said emitted beam of light, for shortening the geometric distance of an optical path between said analyzer means and said light transmitting means, wherein this means for shortening said geometric distance includes a third mirror physically disposed between said analyzer means and said light transmission means, such that light transmitted by said analyzer means impinges upon said third mirror and is reflected therefrom to said light transmission means;

i. means for detecting the light and the intensity of the light transmitted by said means for permitting transmission of only a preselected constituent wavelength of said beam of light, wherein said light and light intensity detecting means includes a photodetector and is disposed in optical alignment with and physically rearward of said means for permitting transmission of only a preselected constituent wavelength of said beam of light;

j. means for indicating if said intensity of said detected light exceeds a predetermined threshold of intensity of light, wherein this means includes a visual indicating means, and wherein this means is operatively associated with said means for detecting said light and said intensity of said light;

k. a container common to, and housing, all of said foregoing components, wherein said container has a forward end in which is located an opening; and

l. means, external of and connected to said container, for abutting said light-reflective surface and for permitting a spaced-apart relationship between said forward end of said container and said light-reflective surface, wherein this means includes at least two spaced-apart feet members connected to said forward end of said container, with at least one said foot member on one side of said container opening, and with at least another foot member on the other side of said container opening;

whereby, if said intensity of said detected light does exceed said predetermined threshold, then said light-reflective surface, which is being tested, is contaminated.

4,381,152
DIMENSION MEASURING APPARATUS

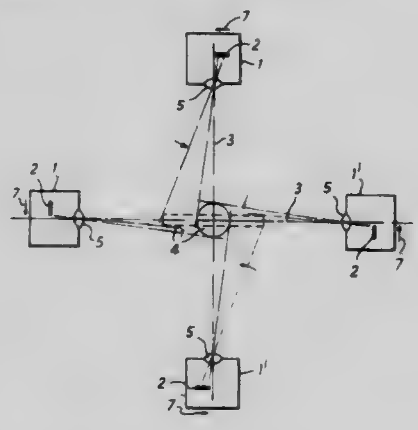
Volker Riech, and Dietrich Sorgenicht, both of Leverkusen, Fed. Rep. of Germany, assignors to Daystrom Limited, Gloucester, England

Filed May 20, 1980, Ser. No. 152,008

Claims priority, application Fed. Rep. of Germany, May 21, 1979, 2920530; May 21, 1979, 2920531

Int. Cl.³ G01B *11/10*

U.S. Cl. 356—385 **4 Claims**



1. Apparatus for measuring the distance between two opposite edges of a luminous object, the apparatus comprising first and second cameras arranged to be disposed, in use, on opposite sides of the object with their optical axes substantially aligned and substantially perpendicular to the distance to be measured, each camera containing a respective row of photosensitive devices on which the camera produces, in use, an image of a respective one of said edges, the rows of devices being symmetrically disposed on each side of the common optical axis, and each row of devices being associated with scanning means capable of scanning the devices from the end of the row remote from the common optical axis to the end of the row nearer to the common optical axis, to determine the position therealong of said image and thereby determine the position of the corresponding edge of the object.

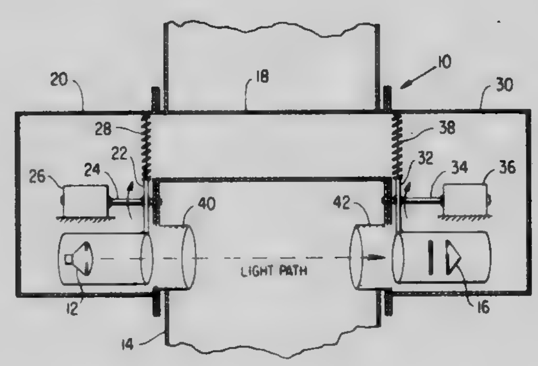
4,381,153
OPACITY MONITOR

Thomas L. Bohl, Madison; George R. Hall, Jr., Euclid, and Sharon L. Zimmerlin, Chagrin Falls, all of Ohio, assignors to The Babcock & Wilcox Company, New Orleans, La.

Filed Aug. 28, 1980, Ser. No. 182,203

Int. Cl.³ G01N *21/01*

U.S. Cl. 356—437 **5 Claims**



1. In an opacity monitoring system comprising a light source mounted on one side of a duct, a detector mounted on the opposite side of the duct, and means defining an open light path across said duct between said light source and said detector, a calibration tube extending across said duct and closed to the interior of said duct, means mounting said light source for rotation about a first axis substantially perpendicular to the direction of flow through said duct, means mounting said detector for rotation about a second axis substantially perpendicular to the direction of flow through said duct, means for rotating said light source about said first axis from a first position aligned with said calibration tube, means for rotating said detector about said second axis from a first position aligned with said light path to a second position aligned with said calibration tube, first motor means for rotating said light source about said first axis, second motor means for rotating said detector about said second axis, and control means electrically connected to said first and second motor means and operable to energize said first and second motor means to rotate said light source and said detector in unison.

4,381,154
METHOD OF AND APPARATUS FOR NONDESTRUCTIVELY DETERMINING THE COMPOSITION OF AN UNKNOWN MATERIAL SAMPLE

Ogden H. Hammond, III, Winchester, Mass., assignor to The Hetra Corporation, Newport, R.I.

Filed Sep. 26, 1980, Ser. No. 191,087

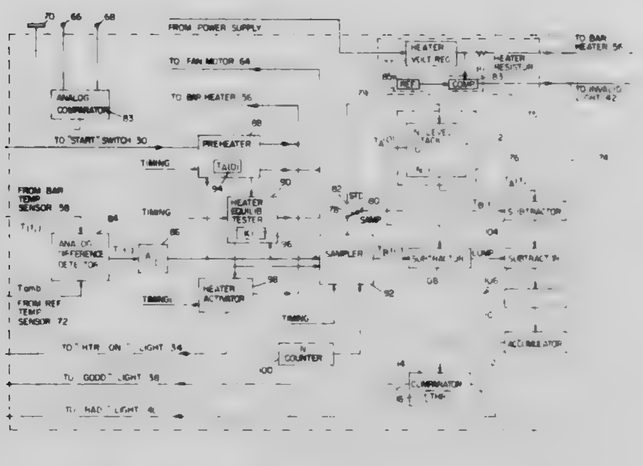
Int. Cl.³ G01N *25/00*

U.S. Cl. 374—43 **23 Claims**

1. In a system for determining the thermal characteristics of a sample and for comparing them to the corresponding thermal characteristics of a standard, said system including a heater for applying a heat pulse of finite duration to said sample or said standard and a sensor for measuring the temperature response of said sample or said standard at a plurality of successive

instants of time, t_i, following the application of said heat pulse, that improvement comprising:

initial temperature compensation means for determining a compensation factor, Comp, representative of the difference, if any, between the temperature of said standard at the time of applying said heat pulse thereto and the temperature of said sample at the time of applying said heat pulse thereto, and means for determining the difference, Diff. (t_i), between said responses according to the formula



$$T_A(t_i) - T_B(t_i) - Comp = Diff.(t_i)$$

where $T_A(t_i)$ is the sensed temperature of the standard at a time t_i seconds after said heat pulse is applied thereto and $T_B(t_i)$ is the sensed temperature of the sample t_i seconds after said heat pulse is applied thereto.

4,381,155

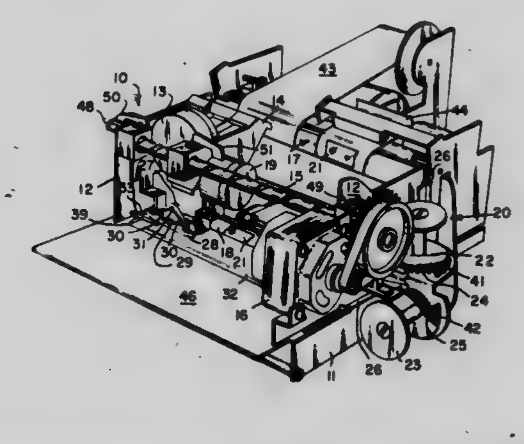
INKED RIBBON ADVANCE AND REVERSE MECHANISM

Nicholas Kondur, Jr., Westminster, Colo., assignor to C. Itoh Electronics, Inc., Los Angeles, Calif.

Filed Nov. 5, 1980, Ser. No. 199,115

Int. Cl.³ B41J *33/48, 33/40*

U.S. Cl. 400—220.1 **3 Claims**



1. An improved inked ribbon advance and reverse mechanism for use in a multiple print station printing apparatus, which includes a frame having a base, a first side plate and a second side plate, which are parallelly and oppositely disposed, a drive shaft horizontally disposed between said first and second side plates and rotatably journaled in said sides plates, a movable carrier mechanically coupled to said drive shaft, a print head pivotally coupled to said movable carrier and a pair of platens which are disposed parallel to said drive shaft and each having a print surface of which is in a plane which is substantially orthogonal to the other plane, comprising:

a. a first ribbon spool onto which an inked ribbon is wound;

b. a first ratchet wheel the axis of which is orthogonally disposed to said base of said frame and which is axially aligned and fixedly coupled to said first ribbon spool so that said first ribbon spool and said first ratchet wheel rotate together, said first ratchet wheel being rotatably journaled in said frame adjacent to said first side plate;

c. a second ribbon spool from which an inked ribbon is unwound;

d. a second ratchet wheel the axis of which is parallelly disposed to said base of said frame and which is axially aligned and fixedly coupled to said second ribbon spool so that said second ribbon spool and said second ratchet wheel rotate together, said second ratchet wheel being rotatably journaled in said frame adjacent to said first side plate and being disposed orthogonally adjacent, but spaced, to said first ratchet wheel;

e. a sliding member which is a first elongated member having a first flange and a second flange and which is slidably coupled to said frame so that said sliding member slides bi-directionally toward said first and second side plates along said base of said frame;

f. an elongated pawl member having a first end and a second end and which is fixedly coupled at said first end to said second flange with said pawl member and said sliding member being disposed parallel to each other, a pawl element at said second end and having a first tooth which may engage one of said teeth of said first ratchet wheel and a second tooth being disposed orthogonally adjacent, but contiguous to said first tooth which may engage one of said teeth of said second ratchet wheel;

g. a mounting member which is fixedly coupled to said movable carrier;

h. a pivot pin which is fixedly coupled to said mounting member;

i. a lever arm, which is an elongated member having a first end and a second end and a first groove and a second groove which are spaced apart from the center of said elongated member so that one of said first and second grooves may be pivotally coupled to said pivot pin in order that one of said first and second ends of said lever arm may push against one or the other of said first and second flanges of said sliding member, respectively causing said first and second ratchet wheels to rotate, respectively;

j. resiliently coupling means for resiliently coupling said lever arm to said mounting member; and

k. a spring which resiliently couples said first side plate to said pawl member in order to resiliently bias said sliding member so that said sliding member is biased toward a substantially mid position of its entire movable distance.

4,381,156

TAB SETTING DEVICE OF TYPEWRITER

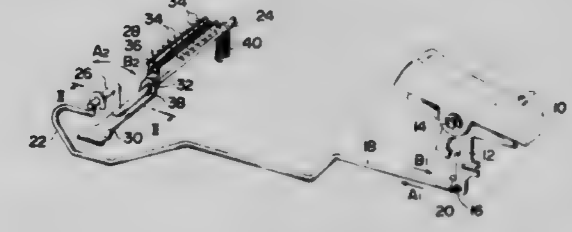
Gian P. Barozzi, and Giancarlo Horeschi, both of Tokyo, Japan, assignors to Tokyo Juki Industrial Co., Ltd., Tokyo, Japan

Filed Jun. 30, 1981, Ser. No. 279,032

Claims priority, application Japan, Jul. 11, 1980, 55-94938

Int. Cl.³ B41J *21/04*

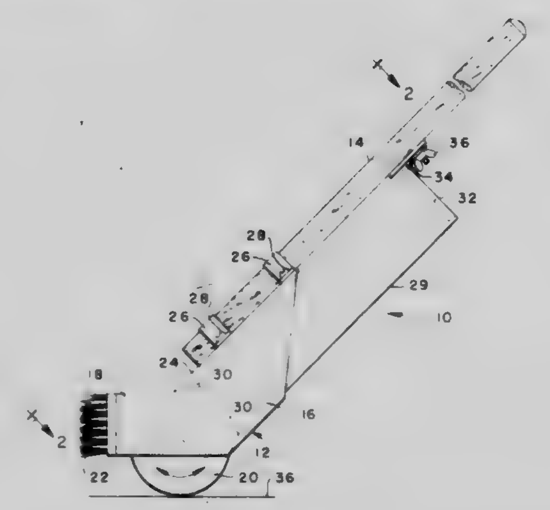
U.S. Cl. 400—296.1 **3 Claims**



1. A tab setting device of a typewriter, wherein a plurality of tab pins are oriented transversely to and slidably inserted into a tab bracket and a tab pin at each position where a carriage is to be stopped is projected into a carriage moving path to stop the carriage, characterized in that a hole shaped such that the tab bracket can rock in the hole is formed in a typewriter frame, said hole having a bottom surface, the tab bracket being supported by a pair of projections formed on said bottom

surface, and one of said pair of the projections serving as a fulcrum for rocking of the tab bracket when a tab pin is projected, and the other of said pair of projections serving as a fulcrum for rocking of the tab bracket when a projected tab pin is retracted.

4,381,157
RUG CLEANER
Robert S. Brown, Spartanburg, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.
Filed Oct. 30, 1978, Ser. No. 956,028
Int. Cl.³ B05C *17/02;* **A47L** *11/32*
U.S. Cl. 401—21 **3 Claims**



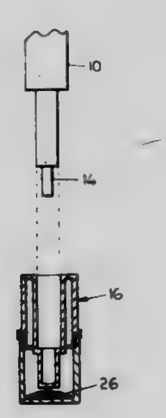
1. A device for applying a substantially dry cleaning powder on a surface to be cleaned, such as a carpet comprising: a hollow container having a first section and a second section at an angle to said first section, a cylindrical powder transfer element rotatably mounted in said hollow container, said first section having a wall member which is substantially perpendicular to the surface to be cleaned when such surface is contacted by said cylindrical powder transfer element, a brush member mounted on said wall member having the bristles thereof substantially perpendicular thereto, means mounting a disposable powder container in said second section in communication with said cylindrical powder transfer element to supply cleaning powder thereto and a handle means connected to the outside of said hollow container to aid in moving said hollow container over the surface to be cleaned.

4,381,158
WRITING INSTRUMENT
Richard S. Garganese, North Kingston, R.I., assignor to Dino L. Garganese
Filed Dec. 29, 1980, Ser. No. 220,988
Int. Cl.³ B43K *24/04*
U.S. Cl. 401—111 **4 Claims**

1. A writing instrument, comprising a rigid barrel defined by a rigid tubular lower barrel portion having an open lower end and a rigid tubular upper barrel portion removably mounted on said lower barrel portion and having a closed upper end, a rigid elongated ink cartridge located in said barrel and having a writing point that is extendible through the open lower end of said lower barrel portion, operating means located in said barrel for alternately urging said cartridge downwardly and upwardly to propel the writing point through the open end of said lower barrel portion to an exposed writing position thereof and to retract said cartridge for moving the writing point to an inactive position thereof, wherein said writing point is withdrawn within the open lower end of said lower barrel portion, a pair of openings formed in said lower barrel portion in opposed relation, said operating means including an actuating member located in said lower barrel portion and underlying said openings therein, said actuating member having a pair of opposed arms which are rearwardly tapered on the inner surfaces thereof, and a rearwardly tapered rigid driver member rigidly connected to said cartridge and located adjacent to said actuating member in alignment with said openings, the rearward tapers of the inner surfaces of said arms corresponding to the tapered configuration of said driver member, wherein an inward pressure on said actuating member by a force directed thereto through said openings causes relative sliding movement between said actuating member and said driver member with the inner surfaces of said actuating member traveling along the outer surface of said driver member as a result of the tapered configurations thereof to thereby cause said actuating member in cooperation with said operating means to exert a longitudinal force on said driver member to move said driver

member and said cartridge with which it is interengaged in a longitudinal direction to cause direct positive movement of the writing point of said instrument through the open end of said lower barrel portion to the exposed writing position thereof, or to retract the writing point to the inactive position thereof, said actuating member having an upper tubular portion to which are joined said downwardly extending opposed arms on the outer surfaces of which pads are located, said arms being free at the lower ends thereof and having flexing movement relative to said upper tubular portion, and said pads being received in the openings in said lower barrel portion, wherein an inward force on said pads causes said arms to flex inwardly against said tapered driver member to force the driver member in the longitudinal direction thereof.

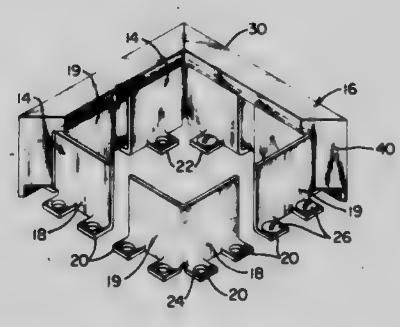
4,381,159
MAGNETIC FINGERPRINT DUSTING BRUSH
John M. Payne, Maxey, England, assignor to Sirchie Fingerprint Laboratories, Inc., Raleigh, N.C.
Filed Nov. 12, 1980, Ser. No. 206,304
Int. Cl.³ A61B *5/10*
U.S. Cl. 401—118 **7 Claims**



1. A magnetic fingerprint dusting brush comprising:
(a) a handle which incorporates a magnet portion projecting at one end thereof;

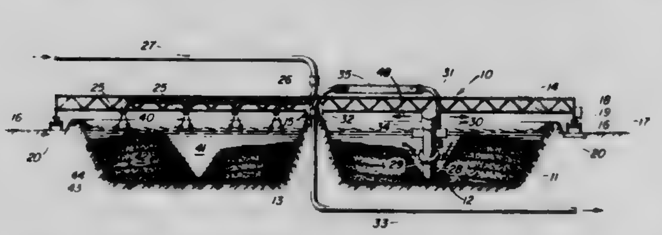
(b) a non-magnetic shroud adapted to be assembled with the handle closely to shroud the projecting magnet portion;
(c) said shroud including an inner blind sleeve for closely shrouding the magnet portion and an outer sleeve to which a cover is adapted to be detachably secured;
(d) said inner sleeve having a first portion of greater cross-section for assembly with the handle and a coaxial second portion of lesser cross-section connected to the first portion through a shoulder for closely shrouding the magnet portion;
(e) a cover detachably securable to the handle/shroud assembly to form in its secured position an enclosed powder reservoir around the shrouded magnet portion;
(f) said shroud and cover constituting a powder cartridge for assembly with the handle; and
(g) a mixture of ferrous and dusting powder in the reservoir.

4,381,160
POST SUPPORT BRACKET ASSEMBLY
William G. Grimm, 29974 Paint Brush Dr., Evergreen, Colo. 80439, and Ronald W. Pott, 730 Crescent La., Lakewood, Colo. 80215
Filed Aug. 28, 1981, Ser. No. 297,493
Int. Cl.³ B25G *3/00;* F16B *7/08, 9/00*
U.S. Cl. 403—230 **14 Claims**



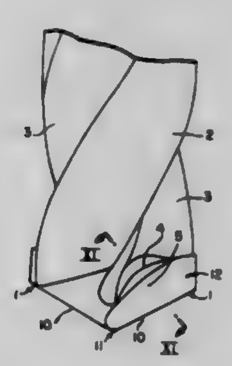
1. A corner bracket adapted for anchoring one member in flush abutting relation to another member comprising:
a pair of upstanding plates joined in mutually perpendicular relation to one another, oppositely directed, horizontal flanges disposed for extension from lower edges of said plates, and fastener means for fastening said flanges to the other member.

4,381,161
SLURRY RECOVERY FROM A CIRCULAR SUMP
Richard E. Doerr, Morgantown, W. Va.; Hilbert D. Dahl, McMurray, Pa., and Ronald W. Umphrey, Fairmont, W. Va., assignors to Conoco Inc., Ponca City, Okla.
Filed Oct. 31, 1980, Ser. No. 202,550
Int. Cl.³ B65G *53/40*
U.S. Cl. 406—109 **6 Claims**



1. A slurry recovery sump apparatus comprising:
(a) a substantially vertical sidewall and a substantially circular horizontal cross-section defining a vertical axis;
(b) a bottom means;
(c) support means extending diametrically across said sump and above said sump;
(d) material input means mounted between the sidewall and the vertical axis of said sump and mounted to and distributed along said support means;
(e) pipe communication means connected from a remote location to said vertical axis through a pivotal coupler to said material input means;
(f) slurry removal means having an output, said slurry removal means mounted to said support between said sidewall and said sump vertical axis and mounted to said support means on the opposite side from said material input means;
(g) slurry transportation pipe means connected from said slurry removal means output through a pivotal coupler to a remote location; and
(h) means for rotating said support means about the vertical axis of said sump.

4,381,162
DRILL HAVING CUTTING EDGES WITH THE GREATEST CURVATURE AT THE CENTRAL PORTION THEREOF
Ryosuke Hosoi, 5-9-10, Kami-minami, Hirano-ku, Osaka, Japan
Division of Ser. No. 961,810, Nov. 17, 1978, Pat. No. 4,222,690. This application Feb. 22, 1980, Ser. No. 123,615
Claims priority, application Japan, Dec. 3, 1977, 52-145587; Dec. 3, 1977, 52-145588; Dec. 3, 1977, 52-145589; Jan. 31, 1978, 53-10136
Int. Cl.³ B23B *51/02*
U.S. Cl. 408—1 R **5 Claims**

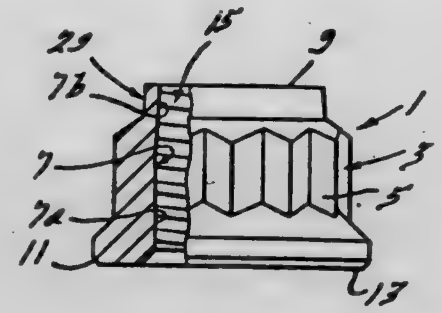


1. A method of drilling a bore utilizing a drill having helical grooves and a pair of cutting edges having a rake face, comprising the steps of providing a projection on said rake face where said rake face joins said helical groove, utilizing said projection to define a curling portion, curling the leading edge of said chip on said curling portion and thereby forming leading rounded edges on said chip, engaging said leading rounded edges of said chip with the bore defining surface without fusing nor damage to said bore defining surface, breaking said chip by said engagement thereby producing relatively small fragmented chips with rounded edges, and removing said relatively small fragmented chips with rounded edges in succession through said helical grooves.

4,381,163
SELF-LOCKING NUT
Erwin C. Witte, Placentia, and William D. Myers, Fullerton, both of Calif., assignors to Microdot Inc., Darien, Conn.
Continuation of Ser. No. 959,520, Nov. 13, 1978, abandoned. This application Oct. 6, 1980, Ser. No. 194,136
Int. Cl.³ F16B *39/30*
U.S. Cl. 411—311 **1 Claim**

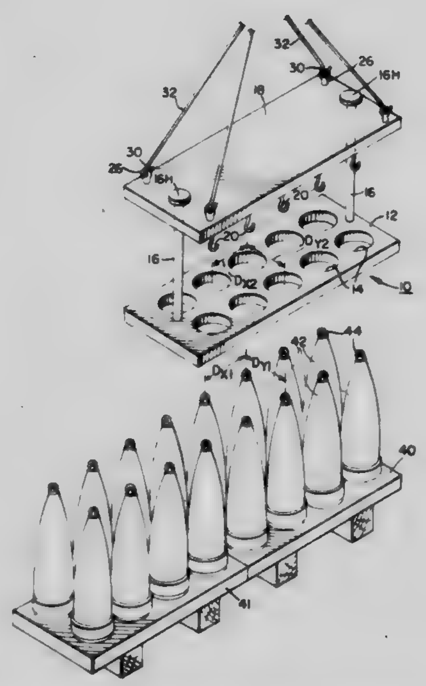
1. A nut of the prevailing torque type comprising a body having a through aperture and an outer wrenching periphery coaxial with the aperture, said body having a top at one end of the aperture and a bottom at the other end of the aperture including a bearing surface, said aperture including a uniform right circular cylindrical internal wall portion extending from said bearing surface to an intermediate axial level of said body and a tapered internal wall portion extending from the uniform portion toward the top of said body, said tapered portion having internal diameters decreasing in the direction away from said bearing surface in substantially uniform relation to

distance from said bearing surface, said body being internally threaded along the length of both the uniform and tapered portions of said aperture with wedge ramp root type threads, the wedge ramp roots of the threads in said aperture converging toward the bearing surface of said body, said wedge ramp roots in said uniform portion extending at angles of about 30° with respect to the axis of the aperture and in said tapered



portion extending at angles less than 30° with respect to said axis, the crests of the external threads on said male member being initially engageable with the wedge ramps on the tapered portion of said aperture at the top of said nut so as to place substantially the entire portion of said male member within the aperture of said nut in tension when a load is placed on the bearing surface thereof.

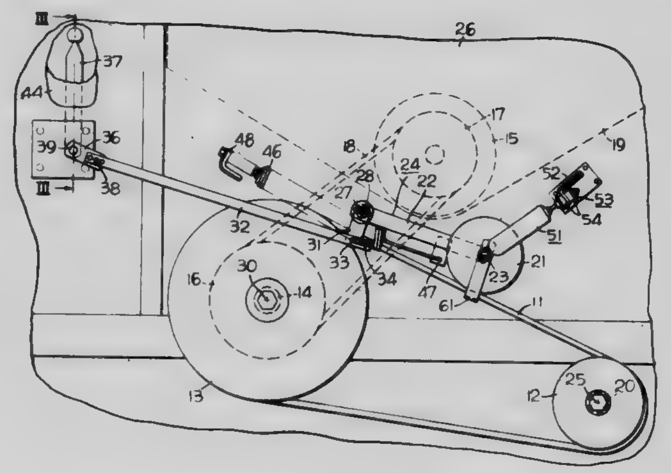
4,381,164
AMMUNITION TRANSFER SLING AND METHOD OF USING
Richard A. Koster, and James S. Hoffman, both of York, Pa., assignors to Harsco Corporation, Del.
Filed Aug. 6, 1981, Ser. No. 290,581
Int. Cl.³ B66C *1/16*
U.S. Cl. 414—416 18 Claims



1. A hoist for lifting a plurality of like articles comprising:
(a) an upper support plate having an upper surface and a lower surface,
(b) a lower guide plate,
(c) a first connector securing said lower guide plate to said upper support plate, said first connector allowing movement of said lower guide plate relative to said upper support plate in a direction normal to said lower guide plate,
(d) a plurality of holes extending through said lower guide plate adapted to accommodate articles to be lifted, and
(e) a plurality of fasteners mounted on the lower surface of said upper support plate, each fastener adapted to be secured to a catch on articles to be lifted,

whereby each one of said fasteners may be secured to a catch on an article to be lifted such that the article is raised by the upper support plate by way of the fastener and the article extends through one of said holes in said lower guide plate.

4,381,165
CLUTCH FOR BELT DRIVE WITH MEANS FOR LIMITING START-UP TORQUE
Mark C. James, and Ronald G. Borushaski, both of Independence, Mo., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Dec. 1, 1980, Ser. No. 212,020
Int. Cl.³ F16H *7/12*
U.S. Cl. 414—526 2 Claims

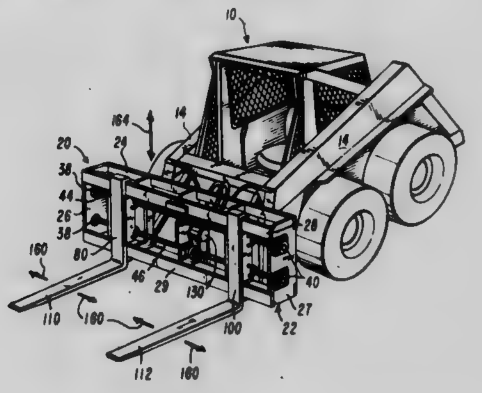


1. In a combine having a grain storage bin, the combination comprising:
an unloading mechanism for unloading the grain from said bin including an auger,
a belt drive for driving said auger including drive and driven pulleys rotatably mounted on said combine on spaced parallel axes and a belt reeved about said pulleys,
an idler arm pivotally mounted on said combine for swinging movement toward and away from the plane defined by said parallel axes between drive establishing and drive disestablishing positions,
a clutching idler pulley operatively engaging said belt at a location between said drive and driven pulleys,
a shaft rotatably mounting said idler pulley on said idler arm,
spring means operatively interposed between said combine and idler arm urging the latter toward its drive establishing position,
control means connected to said idler arm selectively operable to shift said idler arm from its drive establishing position to its drive disestablishing position; and
a linear acting dampener having one end connected to said combine and its other end connected to said shaft, said dampener being operative to retard movement of said idler arm from its drive disestablishing position to its drive establishing position whereby the start-up torque delivered to said driven pulley is effectively limited.

4,381,166
FORK UNIT HAVING ADJUSTABLE FORKS
Robert L. Smart, 11670 Fields Rd., New Carlisle, Ohio 45344
Filed Oct. 27, 1980, Ser. No. 200,961
Int. Cl.³ B60P *1/50;* B66F *9/14*
U.S. Cl. 414—685 3 Claims

1. A lift unit for support by a tractor or the like provided with movable support arms, comprising an elongate carriage attachable to the arms for movement thereby, the carriage being adapted to be positioned at the front portion of the tractor and extending substantially the width of the tractor, the carriage being provided with back support members, a pair of spaced-apart end frame members, front frame members, and an intermediate frame member, the intermediate frame member being attached to the back frame members between the front

and back frame members and between the pair of spaced-apart end frame members, a pair of elongate threaded parallel rods rotatably supported by the end frame members and extending therebetween, a pair of sprocket wheels, there being a sprocket wheel secured to each of the threaded rods adjacent the intermediate frame member, a rotary motor supported by the intermediate frame member, a drive shaft extending from the rotary motor, a drive sprocket wheel attached to the drive shaft for rotation therewith, a chain encompassing the drive sprocket wheel and the spocket wheels which are secured to the threaded rods and in meshed relationship therewith, a plurality of nuts, there being two nuts threadedly attached to each of the



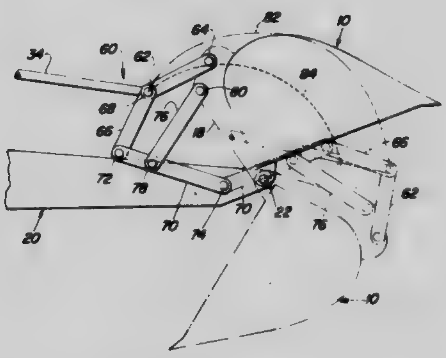
threaded rods, with a nut being between the intermediate frame member and each of the end frame members, so that a pair of nuts is positioned between each end frame member and the intermediate frame member, a pair of carriers, there being a carrier supported by each pair of nuts and retaining the nuts against rotation, so that rotative movement of the threaded rods causes axial movement of the nuts and the carriers along the threaded rods, a pair of forks, means joining each fork to one of the carriers for movement therewith, operation of the rotary motor thus moving the forks with respect to the carriage for lifting an object with movement of the carriage by positioning the forks under the object or on opposite portions of the object.

4,381,167
EXCAVATOR BUCKET LINKAGE

Mark A. Baty, Dubuque, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Apr. 27, 1981, Ser. No. 258,100
Int. Cl.³ E02F *3/58*

U.S. Cl. 414—697 **1 Claim**



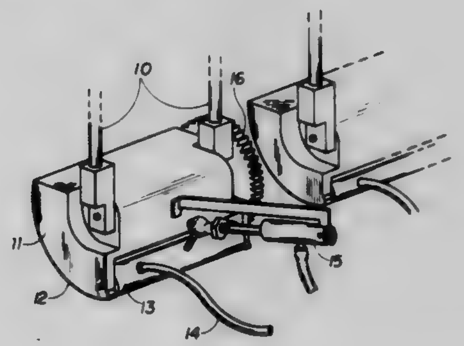
1. In an excavator dipper stick and bucket assembly wherein the bucket is pivotally connected to one end of the dipper stick for movement about a first axis, a bucket linkage connected between the dipper stick and the bucket, and an extensible and retractable hydraulic actuator connected between the dipper stick and the linkage for effecting pivotal movement of the bucket upon extension or retraction of the actuator, the improvement residing in the linkage and comprising: a first link having an end pivotally connected to the bucket for movement about a second axis which is parallel to and spaced from the first axis; a second link having an end pivotally connected to a second end of the first link and to an end of the actuator, a third link having its opposite ends pivotally connected to a second end of the second link and to the dipper stick at a location spaced from the first axis; and a fourth link having opposite ends respectively pivotally connected to the third link and the bucket.

4,381,168
METHOD AND APPARATUS FOR SEPARATING A LAYER OF FLEXIBLE MATERIAL FROM A SURFACE

Wayne S. Johnson, La Habra, and Vincent C. Tangherlini, Costa Mesa, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Filed Jan. 16, 1981, Ser. No. 225,830
Int. Cl.³ B65H *29/08;* B29C *7/00*

U.S. Cl. 414—737 **2 Claims**



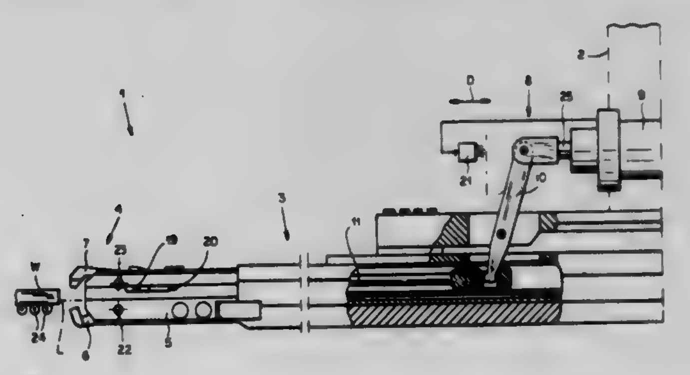
1. A device for separating a layer of flexible material from a substantially flat surface comprising:
a removal head mounted adjacent said surface for relative movement with respect thereto;
said removal head including a curvilinear face on at least a portion of said removal head;
a vacuum manifold rotatably mounted on said removal head adjacent to said curvilinear face;
means for moving said curved removal head and said flexible material away from said surface;
and whereby, when said removal head is moved away from said surface and said vacuum head is rotated, said layer is separated from said removal head.

4,381,169
MANIPULATOR

Richard Muhr, Attendorn, and Karl Steinhoff, Lennestadt, both of Fed. Rep. of Germany, assignors to Muhr und Bender, Attendorn, Fed. Rep. of Germany

Filed Nov. 14, 1980, Ser. No. 208,499
Claims priority, application Fed. Rep. of Germany, Nov. 17, 1979, 2946469
Int. Cl.³ B25J *15/00;* B66F *9/00*

U.S. Cl. 414—753 **10 Claims**



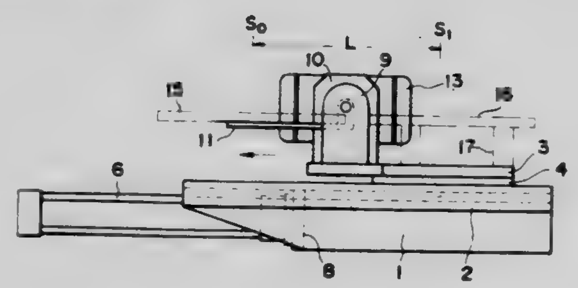
1. A manipulator for heavy objects, said manipulator comprising:
a support carriage;

a manipulator body fixed on and displaceable with said carriage;

an upper jaw and a lower jaw pivotal on said body about respective superposed upper and lower parallel axes, said upper jaw being formed with a downwardly directed actuation face and said lower jaw being formed with a generally upwardly directed and flat actuation face; and

actuator means including an actuator head having an arcuate and generally upwardly directed operating face engageable with said downwardly directed face of said upper jaw and a generally downwardly directed and flat actuation face flatly engageable with said upwardly directed face of said lower jaw for displacing same between an open position in which said jaws are pivoted apart from each other and a closed position in which said jaws are pivoted together, the faces being so spaced and oriented that on displacement from said open to said closed position said lower jaw is pivoted up into said closed position before said upper jaw is pivoted down into said closed position.

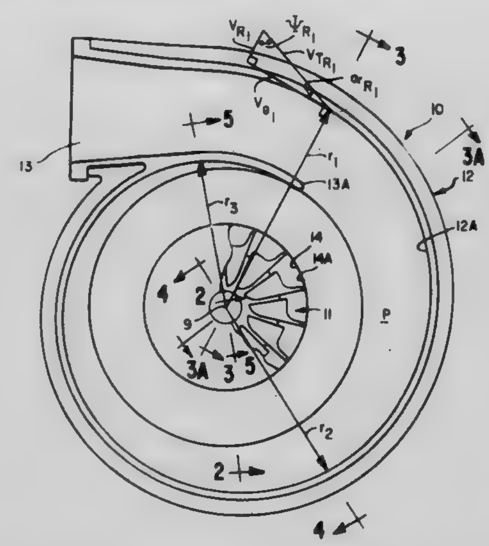
4,381,170
REVERSING DEVICE FOR PRESS WORKED GOODS
Masaru Orii, Machida, Japan, assignor to Kabushiki Kaisha Orii Jidoki Seisakusho, Tokyo, Japan
Filed Aug. 17, 1981, Ser. No. 293,183
Int. Cl.^{3} B65G *47/24*
U.S. Cl. 414—758 **1 Claim**



1. A reversing device for press worked goods, comprising in combination a slide base having sliding guides along the feed direction of press worked goods, a slider attached to said slide base movably guided by said sliding guides, a reversing plate provided on the front end of said slider and rotatably supported around a central axis of rotation at right angle to the feed direction of press worked goods, a reversing drive means for reciprocatively rotating said reversing plate by 180°, and a straightway drive means for reciprocative movement of said slider along said sliding guides by a distance necessary for restoring the position of press worked goods changed by the reversing due to said reversing plate.

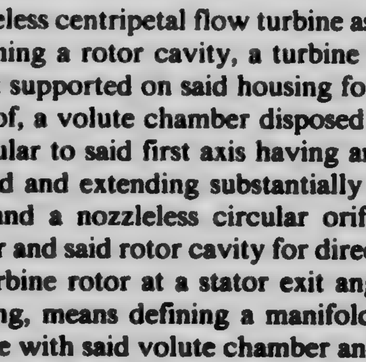
4,381,171
CASTING FOR A TURBINE WHEEL
Paul M. Chapple, Columbus, Ind., assignor to Cummins Engine Company, Inc., Columbus, Ind.
Continuation of Ser. No. 953,101, Oct. 20, 1978, abandoned. This application Jan. 23, 1981, Ser. No. 228,163
Int. Cl.^{3} F01D *1/08, 25/24*
U.S. Cl. 415—204 **9 Claims**

1. A nozzleless centered vortex fixed geometry turbine housing surrounding the periphery of a turbine wheel having an axis of rotation, said housing including at least one elongated substantially spiral compressible fluid passageway having an external inlet and an internal outlet for encompassing said wheel periphery, the said passageway being defined by a pair of opposed axisymmetrical side walls extending circumferentially around at least 360 arc degrees of said axis and having inner diameters proximate the periphery of said turbine wheel, said axisymmetry resulting in a predetermined constant distance between said opposing side walls at a given radius from said turbine wheel axis, said distance measured parallel to said turbine wheel axis and varying only as a function of radial distance and not as a function of arc degrees, and a peripheral wall extending between said side walls in a direction parallel to the axis of said turbine wheel, said peripheral wall coextensive with said axisymmetrical side walls around at least 360 arc degrees of said axis, the radial distance of said peripheral wall from said turbine wheel axis being defined by the path prescribed by the direction of said fluid flow in a free vortex concentric with said turbine wheel axis and constrained by said



axisymmetrical side walls, the angle between a tangent to said peripheral wall at a given location and a radial line from the wheel axis to said location, measured in a plane perpendicular to the wheel axis of rotation, varying as a function of the radial and tangential components of the fluid velocity at that location, whereby there are no resolved wall pressure components, except for the effects of friction, which interact with the fluid tangential velocity as said fluid moves inwards from said inlet to said outlet.

4,381,172
CENTRIPETAL FLOW GAS TURBINE
Mason K. Yu, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Jun. 29, 1981, Ser. No. 278,746
Int. Cl.^{3} F01D *9/02*
U.S. Cl. 415—205 **3 Claims**



1. In a nozzleless centripetal flow turbine assembly including a housing defining a rotor cavity, a turbine rotor disposed in said cavity and supported on said housing for rotation about a first axis thereof, a volute chamber disposed in a plane generally perpendicular to said first axis having an inlet for motive fluid at one end and extending substantially 360° around said rotor cavity, and a nozzleless circular orifice between said volute chamber and said rotor cavity for directing motive fluid against said turbine rotor at a stator exit angle, the improvement comprising, means defining a manifold chamber generally coextensive with said volute chamber and having a closed end and an open end adapted to receive said motive fluid, and louver means connecting said manifold chamber and said volute chamber operative to effect injection of at least one stream of motive fluid from said manifold chamber into the flow of

motive fluid in said volute chamber thereby to alter said stator exit angle of said motive fluid for improvement of overall turbine efficiency.

4,381,173

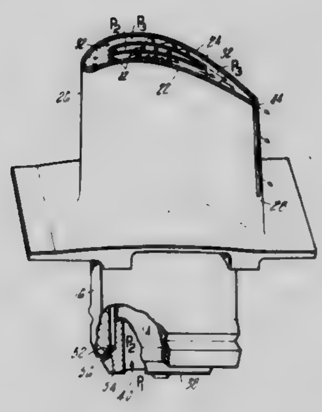
COOLABLE ROTOR BLADE ASSEMBLY FOR AN AXIAL FLOW ROTARY MACHINE

Melvin Freling, West Hartford, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Aug. 25, 1980, Ser. No. 181,031

Int. Cl.³ F01D *5/18*

U.S. Cl. 416—96 A **3 Claims**



1. For a gas turbine engine, a coolable rotor blade assembly of the type formed of a hollow rotor blade having an inwardly facing wall and having a base which is adapted by an opening in the base surrounded by an inwardly facing seat to receive an impingement tube, the impingement tube being adapted by a face to conform to the seat, being spaced from the blade to form a cavity therebetween, and in fluid communication at a second pressure with a source for cooling fluid at a first pressure and with the wall of the blade through a plurality of holes and the cavity at a third pressure, the improvement which comprises:

a fiber metal seal disposed between the seat of the blade and the face of the tube wherein the seal blocks the leakage of the cooling fluid between the tube and the blade to maintain the requisite pressure gradient across the tube to the wall for impingement cooling.

4,381,174

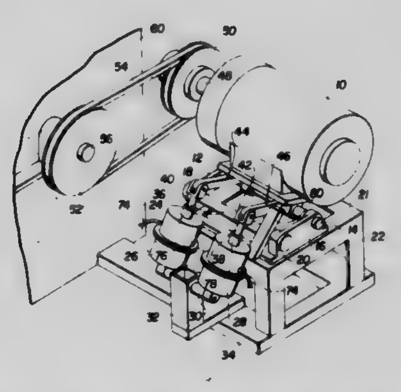
VARIABLE SPEED DRIVE

Henry D. Obler, Lanham, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Feb. 27, 1981, Ser. No. 238,786

Int. Cl.³ F04B *49/00*

U.S. Cl. 417—15 **15 Claims**



1. A variable speed drive for a rotary device (58) powered from a prime mover (10), comprising:

fixed pulley means (52/98) located on the shaft (56) of said rotary device;

variable pulley means (50/82, 84) located on and driven by the shaft (48) of said prime mover (10), said variable pulley means and said prime mover being pivoted about an axis (14/90);

means (54/102) coupling said fixed pulley means (52/98) to said variable pulley means (50/82, 84);

a base member (12) supporting said prime mover (10), pivoted about said axis;

means including a fluid damper motor (26, 28) having a pivotally mounted pneumatic motor and an air operated piston (36, 38) connected to an extensible and a retractable rod member (36, 38) coupled to said base member, operable to impart an arcuate motion to both said prime mover and said variable pulley means in response to a fluid control signal coupled to said fluid motor means (26, 28) whereby the ratio of the pitch diameters of said fixed and variable pulley means are varied to impart a speed variation to said rotary device (58);

fluid circuit means (68) operable in response to fluid input signals corresponding to the desired and actual speed of said rotary device (58) to provide a fluid feedback control signal; and

means (74) coupling said fluid control signal to said fluid motor means (26, 28).

4,381,175

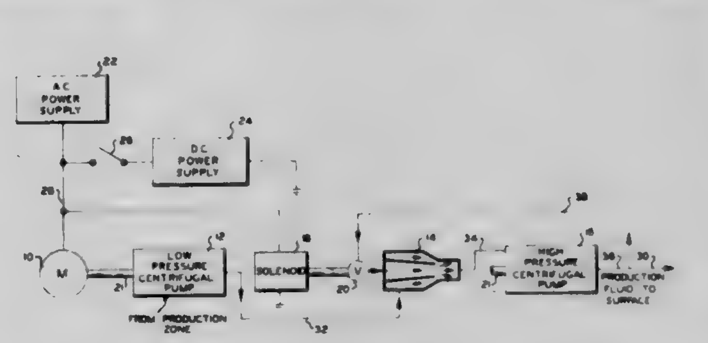
JET ELECTRIC PUMP

John W. Erickson, Huntington Beach, Calif., assignor to Kobe, Inc., Huntington Park, Calif.

Filed Sep. 11, 1980, Ser. No. 185,824

Int. Cl.³ F04B *23/08*

U.S. Cl. 417—80 **3 Claims**



1. An electrically controlled jet pump assembly adapted for downhole residence in a well comprising: an electric motor; electrical conduits extending from a wellhead to said electric motor; a centrifugal pump driven by said electric motor and having an outlet directed to a production string and an inlet; a jet pump having an inlet for aspirated fluid, an inlet for power fluid, and an outlet for the combined output of the aspirated and power fluids; means for providing well fluid to said jet pump inlet for aspirated fluid; means connecting said outlet of said jet pump to said inlet of said centrifugal pump; means providing a recirculation path for a portion of the output of said centrifugal pump to said inlet for power fluid of said jet pump; variable flow valve means in said recirculation path, whereby the amount of recirculation fluid can be controlled; and electrical means including said electrical conduits for controlling said variable flow valve means from the well head.

4,381,176

DESTROKING START VALVE FOR VARIABLE DISPLACEMENT PUMP

Herbert H. Kouns, Camarillo, and Richard A. Clark, Oxnard, both of Calif., assignors to Abex Corporation, New York, N.Y.

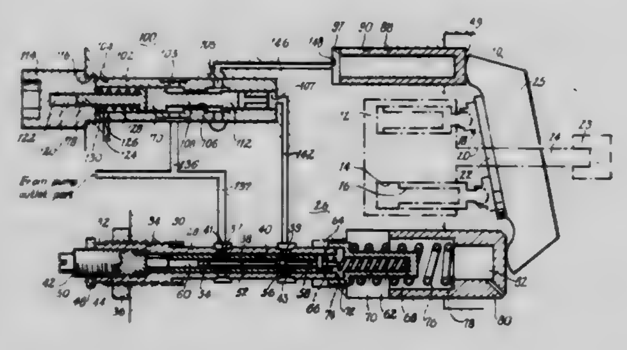
Filed Aug. 13, 1981, Ser. No. 292,461

Int. Cl.³ F04B *1/26*

U.S. Cl. 417—222 **3 Claims**

1. A control for a variable displacement pump driven by a prime mover comprising a thrust plate, means for pivotally mounting the thrust plate such that it is movable between a position of minimum fluid displacement and a position of maximum fluid displacement, a fluid inlet and a fluid outlet, means

for biasing the thrust plate towards the maximum fluid displacement position, a stroke control piston, means for guiding the stroke control piston to engage the thrust plate, first valve means alternatively movable between an open position in which pressure fluid from the fluid outlet is supplied to the stroke control piston to move the thrust plate towards the minimum fluid displacement position and a closed position in which the supply of outlet pressure fluid to the stroke control piston is interrupted, means in the first valve means for setting the maximum allowable pressure of the fluid in the outlet, wherein the first valve means is moved to the open position if the pressure of the fluid in the outlet exceeds the set maximum fluid pressure, second valve means alternatively movable between an open position in which pressure fluid from the fluid



outlet is supplied to the stroke control piston to move the thrust plate towards the minimum fluid displacement position, and a closed position in which the supply of outlet pressure fluid to the stroke control piston is interrupted, means in the second valve means for setting a minimum fluid pressure in the fluid outlet to which the second valve means responds and means for moving the second valve means from the open position to the closed position to disable the second valve means when the pressure of the fluid in the fluid outlet reaches the set minimum, wherein the second valve means is in the open position when the prime mover is started to thereby reduce the load on the prime mover and is moved to the closed position after the prime mover has reached its rated operating speed.

4,381,177

SONIC PRESSURE WAVE SURFACE OPERATED PUMP

Arthur P. Bentley, P.O. Box 1952, Roswell, N. Mex. 88201

Continuation-in-part of Ser. No. 160,934, Jun. 19, 1980, Pat. No. 4,341,505, which is a continuation-in-part of Ser. No. 958,552, Nov. 8, 1978, Pat. No. 4,259,799. This application Apr. 13, 1981, Ser. No. 253,317

Int. Cl.[3] **F04F** *7/00*

U.S. Cl. 417—240 **19 Claims**

1. A sonic pressure wave surface operated single tube pump for pumping liquid from an underground level to a ground level, said pump containing a column of liquid and comprising:

(a) a sonic pressure wave generator at the ground surface and including,

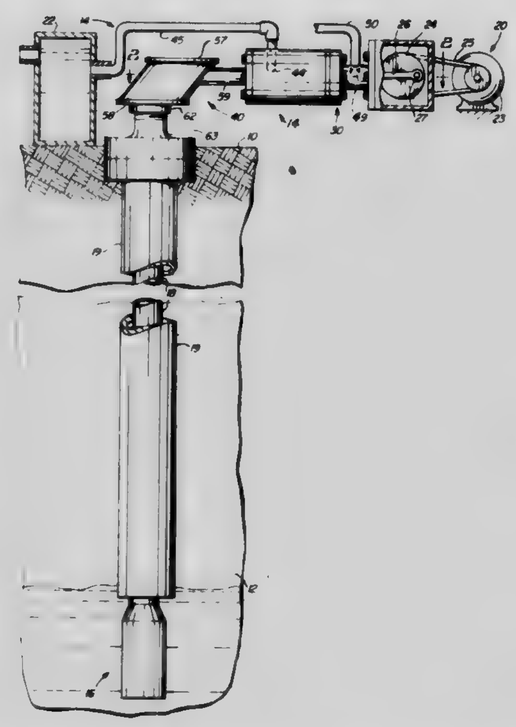
I. a cylinder having a bore and a liquid delivery port extending radially from said bore,

II. a piston reciprocal in said cylinder and movable to open and close said delivery port, said piston having an end face with a central recess therein for reciprocally impacting the column of liquid to produce sonic pressure waves which move through the column of liquid adjacent the periphery thereof;

(b) a sonic pressure wave swirl chamber defining a bore and having a tangential port opening into that bore adjacent one end thereof, said tangential port being in communication with the bore of said cylinder for receiving the sonic pressure waves therefrom and directing them into the bore of said swirl chamber;

(c) an elongated metallic tube connected to said swirl chamber so that its bore is in communication with the other end of the bore of said swirl chamber for receiving the sonic pressure waves therefrom, said tube having its longitudinal axis disposed in angular relationship with respect to the longitudinal axis of said cylinder, said tube extending through the ground formation to the underground level;

(d) said bore of said swirl chamber being of oblique cylindrical configuration for angularly altering the movement path of the sonic pressure waves from being coaxial with said cylinder to being coaxial with said tube; and



(e) pumping mechanism means connected to the extending end of said tube and in communication with the underground liquid to be pumped, said pumping mechanism means including a reciprocally operable plunger for impingingly receiving the sonic pressure waves from said tube and reflecting them into a centrally and upwardly moving column which carries the liquid to be pumped to the ground surface.

4,381,178

SWASH-PLATE TYPE COMPRESSOR

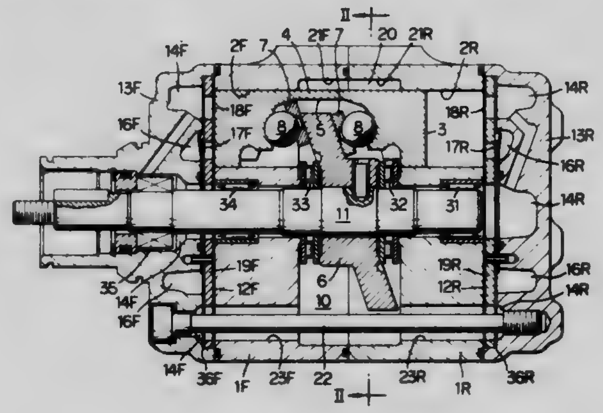
Shozo Nakayama; Kimio Kato, both of Kariya; Nobuyuki Araki, Nagoya, and Kenji Takenaka, Kariya, all of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Aichi, Japan

Filed Jul. 22, 1980, Ser. No. 171,045

Claims priority, application Japan, Aug. 6, 1979, 54-99995

Int. Cl.[3] **F04B** *1/16, 1/18*

U.S. Cl. 417—269 **8 Claims**



1. A swash-plate type compressor comprising:

a rotary shaft;

a swash-plate secured to said rotary shaft;

a cylinder block rotatably supporting said rotary shaft, and consisting of two halves each having a plurality of circumferentially spaced cylinder bores which extend axially of said rotary shaft and have the centers on a circle whose center is located on the axis of said rotary shaft, said two

halves being assembled in abutment with each other such that said cylinder bores in said respective two halves are in alignment with each other, said cylinder block having a swash-plate chamber rotatably accommodating said swash-plate and constituting a passage for sucked refrigerant gas; and

a plurality of pistons slidably received in said cylinder bores and each having an engaging recess engaging said swash-plate,

said cylinder block further having

an inlet passage through which a stream of refrigerant gas is sucked therein,

a continuously annular passage communicated with said inlet passage, concentric with said circle and open to said swash-plate chamber, said annular passage being formed circumferentially in a radially inward portion of the cylindrical wall of said cylinder block, having a diameter larger than that of a common circumcircle of said cylinder bores, and functioning as a by-pass for said sucked refrigerant gas flowing through said swash-plate chamber, and

a plurality of circumferentially spaced, axially extending, holes communicated with said swash-plate chamber, said annular passage and said cylinder bores, and accommodating fixing bolts for clamping said two halves, said holes having a diameter larger than that of said fixing bolts so that an annular space formed between the inner surface of said holes and the outer surface of said bolts serves as a communicating passage to said cylinder bores, said diameter of said holes increasing with an angular distance of said holes as measured from a junction of said inlet passage and said annular passage, whereby the sucked refrigerant gas is evenly delivered to said plurality of pistons and a portion of each of said pistons adjacent to said engaging recess is cooled evenly on both radially inward and outward sides thereof.

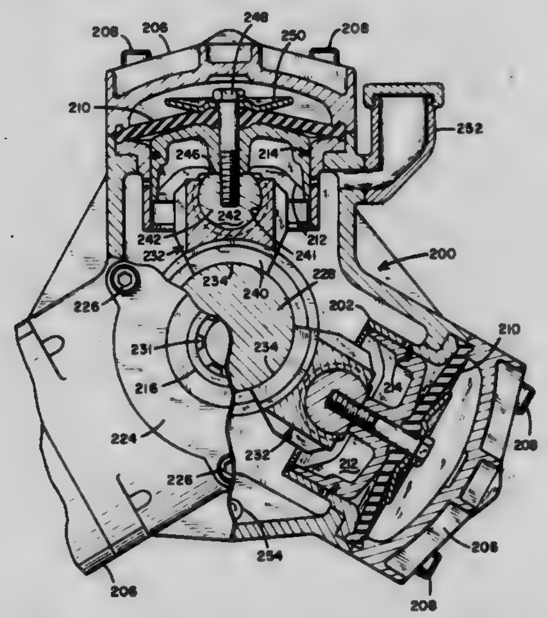
4,381,179
PUMPS WITH FLOATING WRIST PINS

Ramon Pareja, Edina, Minn., assignor to Lear Siegler, Inc., Santa Monica, Calif.

Continuation-in-part of Ser. No. 202,463, Oct. 31, 1980, abandoned. This application Jun. 12, 1981, Ser. No. 272,989

Int. Cl.³ F04B *9/04;* **F16H** *21/08;* **F16J** *1/10;* **F04B** *1/04*

U.S. Cl. 417—273 **16 Claims**



1. In a fluid handling pump of the type having a crankshaft with at least one portion thereof eccentrically offset from the axis of rotation of said crankshaft and plunger means disposed in a cylinder bore for reciprocatory movement therein, the improvement comprising:

(a) single piece connecting rod means of a predetermined thickness dimension having a first bore passing through said thickness dimension for encompassing said one portion of said crankshaft and a second bore of a predetermined radius formed through said thickness dimension at a location displaced inwardly of an end edge of said connecting rod means by a distance less than said predetermined radius to define an arcuate recess in said end edge;

(b) a generally cylindrical wrist pin means having an outside diameter slightly less than two times said predetermined radius and a flattened lateral surface such that said wrist pin is insertable in and rotatably held in said second bore; and

(c) means for attaching said plunger means to said flattened surface of said wrist pin.

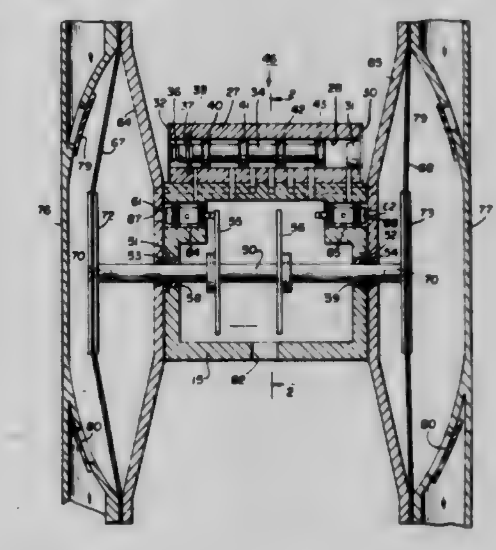
4,381,180
DOUBLE DIAPHRAGM PUMP WITH CONTROLLING SLIDE VALVE AND ADJUSTABLE STROKE

John R. Sell, 1633 Marconi Rd., Wall, N.J. 07719

Filed Jul. 13, 1981, Ser. No. 282,933

Int. Cl.³ F04B *17/00*

U.S. Cl. 417—393 **22 Claims**



1. A double-acting, pressurized fluid-actuated double diaphragm pump for fluids and the like, said pump including:

(a) a main pump housing support adapted for mounting to a support means;

(b) a first pump housing means attachable to said main pump housing support, the first housing means including inner and outer diaphragm housing members with the outer members having inlet and outlet valve means providing one-way flow control of the pumped fluid;

(c) a first diaphragm interposed between said inner and outer housing members and means for securing the diaphragm at its outer periphery in a fluid tight manner;

(d) a second pump housing means attachable to said main pump housing support, said second housing means including inner and outer diaphragm housing members with the outer member having inlet and outlet valve means providing one-way flow control of the pumped fluid;

(e) a second diaphragm interposed between the inner and outer diaphragm housing members and means for securing said second diaphragm at its outer periphery in a fluid tight manner;

(f) a reciprocable rod connecting the central portion of the first and second diaphragms and as one diaphragm is moved outwardly to provide an expelling actuation the other diaphragm is moved inwardly to provide an intake actuation, said rod secured at its ends to central portions of the diaphragms and with the rod carried in and by bearing means provided in the main pump housing;

(g) a pressurized fluid inlet connecting means adapted to receive the pressurized fluid from an external source and deliver said fluid to a control system including conduit means;

(h) a slide valve associated with the main pump housing and including a housing and a spindle reciprocable to two limits of movement in a finished bore of regular diameter

formed in said housing, said spindle having reduced diameter areas interposed between four seal ring areas, each ring area adapted to restrict flow of pressurized fluid along said bore;

(i) means for sealing the ends of the finished bore so that pressurized fluid does not escape from said bore as the spindle is moved therein;

(j) a pair of arm member means carried on and movably secured to the reciprocable rod as it is cycled;

(k) a pair of pilot valves each carried in a bore in a boss portion provided within the main pump housing, each of said pilot valves arranges as a mirror pair and having a shaft within said pilot valve and with an extending end disposed to be engaged and moved by an arm member means, each of said valves having a bias means adapted to urge the shaft toward the central portion of the main housing, said pilot valves additionally having a pair of spaced disk portions adapted to alternately engage rib portions disposed between inwardly facing portions carried by the shaft of the pilot valve and with these disk portions adapted to be alternately brought into engagement with the rib faces so as to shut off fluid flow to and from the interior of the pilot valve and with each pilot valve providing conduit means disposed between the ribs;

(l) a conduit from the inner side of the diaphragm chamber and to a position adjacent the inlet of pressurized fluid from the source and to the spindle reduced area;

(m) a conduit from the diaphragm chamber and through the pilot valve and to the conduit means between the ribs of a pilot valve, and

(n) a discharge conduit from the main pump housing, whereby pressurized fluid is fed to the inlet thence to the reduced area of the spindle intermediate its ends and between the second and third seal ring areas and with the spindle at its left position the pressurized fluid between the second and third seal ring areas flows therefrom to the inner side of the first diaphragm to provide a pumping actuation, and the first pilot valve is closed to pressurized fluid flow from the first diaphragm chamber and pressurized fluid flows from the reduced area of the spindle between the third and fourth seals and exterior of the fourth seal to and through the second pilot valve and from this pilot valve to and through the discharge conduit in the main pump housing, and when the first pilot valve is actuated by the first arm member pressurized fluid flow is reversed as to the first pilot valve and pressurized fluid from the diaphragm chamber and the first pilot valve is caused to flow into the closed bore exterior of the first seal to move the spindle to the other limit of motion to uncover a passageway to the second diaphragm and pressurized fluid enters the second diaphragm chamber and moves the diaphragm to a pumping actuation and this actuation is reciprocably and alternately made in response to actuations of the pilot valves and their actuation by said arm members.

4,381,181

SOLENOID-ACTUATED CENTRIFUGAL PUMP AND METHOD

Warren P. Clegg, 630 Augusta, Houston, Tex. 77057

Continuation of Ser. No. 914,411, Jun. 12, 1978, abandoned. This application Aug. 11, 1980, Ser. No. 177,139

Int. Cl.³ F04B *17/04*

U.S. Cl. 417—423 R **6 Claims**

1. A centrifugal pump comprising:

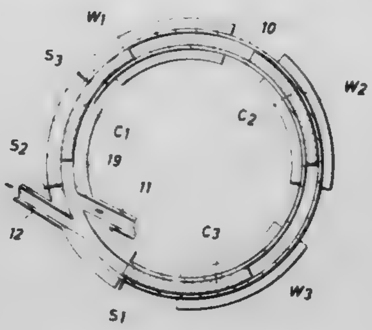
a circular closed loop conduit;

a fluid outlet intersecting said conduit and providing an outlet path exterior of a circle defined by the conduit;

a fluid inlet intersecting said conduit means and being displaced from said outlet in a first direction of travel along an arc defined by said conduit, said inlet directing fluid into said conduit means from a direction interior of the circle defined by the conduit;

an impeller within said conduit and including at least first and second ferromagnetic core members angularly displaced therefrom;

electromagnetic means in surrounding relationship to said conduit, said electromagnetic means including at least first and second windings angularly displaced with respect to



spacing between said at least first and second ferromagnetic core members for inducing unidirectional rotation of said impeller in response to energization of said windings in a preselected sequence; and

means for energizing said windings in the preselected sequence.

4,381,182

FUEL INJECTION PUMP

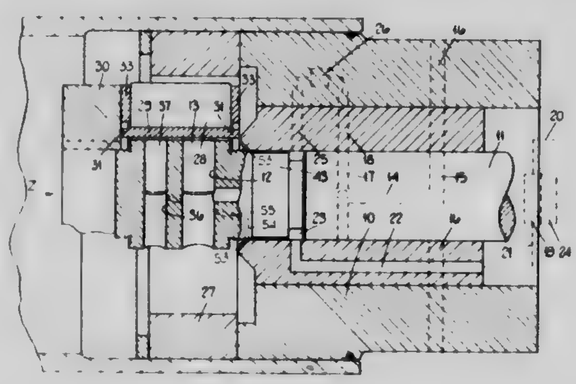
Brian E. Broadwith, Hadleigh, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Jul. 9, 1980, Ser. No. 167,384

Claims priority, application United Kingdom, Jul. 27, 1979, 7926294

Int. Cl.³ F04B *39/00, 27/08, 19/22*

U.S. Cl. 417—435 **1 Claim**



1. A fuel injection pump for use with an internal combustion engine comprising a body part, a rotary distributor member housed in said body part, a fuel delivery passage in said rotary part, a plurality of fuel inlet passages defined in said rotary part to periodically fluidly connect said delivery passage with fuel inlet passages defined in said body part and to disconnect such passages at other times as said rotary part rotates, a main pumping chamber formed within said distributor member housing a main plunger, an auxiliary pumping chamber formed within said distributor member housing an auxiliary plunger, the pumping plungers being operable to pressurize charges of fuel in the chambers to a pressure suitable for delivery to the associated engine, valve means operable upon the attainment of a predetermined engine speed to disable the auxiliary pumping chamber so that the supply of fuel to the engine is from the main chamber only, means for supplying fuel to the pumping chambers, a spill passage means formed in said rotary distributor member and having an inlet end thereof fluidly connected with said auxiliary pumping chamber and an outlet end thereof fluidly connected with any one of a plurality of spill ports formed in said body part, said spill passage means being located in said distributor member and said spill ports being located in said body part so that said distributor located outer end is in fluid communication with one of said body located spill ports when said inlet and fuel delivery passages are in fluid commu-

nication with each other and are out of fluid communication with each other when said fuel delivery passages are out of communication with each other, so that said spill means outlet end and one of said spill ports are brought into fluid communication with each other during essentially the entire time fuel is being supplied to said auxiliary chamber.

4,381,183

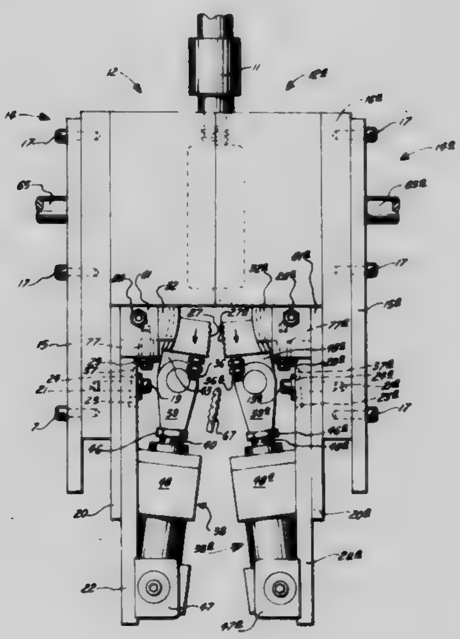
APPARATUS FOR REMOVING WASTE MATERIAL FROM A PLASTIC ARTICLE

Kenneth E. Bowers, Prairie Village, Kans., and Charles E. Markley, Kansas City, Mo., assignors to Ethyl Development Corporation, Richmond, Va.

Filed Oct. 22, 1981, Ser. No. 314,007

Int. Cl.³ B29C *17/07, 17/12*

U.S. Cl. 425—182 **15 Claims**



1. In an apparatus for blow molding a hollow, plastic article from a tubular plastic parison in which said apparatus includes, a split blow mold having two halves, two individual mold support means, one of each support means being attached to one of each mold half and extending below a bottom forming end of each respective mold half, power means to move each individual support means and each associated mold half to open and close said split blow mold and in which said hollow plastic article, while being enclosed and supported by said mold halves, has a tail attached thereto which depends from the bottom forming ends of said mold halves; an improved tail grasping assembly for removing said tail from said hollow article, which assembly comprises:

a. first and second assembly support frames, said first assembly support frame being adjustably attached to one of said two mold support means and said second assembly support frame being adjustably attached to the other of said mold support means, said first and second assembly support frames being positioned below said bottom-forming ends of said mold halves;

b. first and second power means, said first power means being attached to said first assembly support frame and said second power means being attached to said second support frame, said first and second power means each having a connecting rod extending therefrom towards said bottom-forming ends of said mold halves; and

c. first and second gripping means, said first gripping arm being attached to said first power means and said second gripping means being attached to said second power means, said first and second gripping means being pivotably mounted to said first and second assembly support frames respectively, each pivotal mounting being about a point which is laterally offset from its respective gripping means and in a horizontal plane in which lies that portion of the respective gripping means which is closest to said bottom forming ends of said mold halves, said first and second gripping means being located immediately adjacent to the bottom-forming end of said mold halves and together adapted to engage between them the depending tail for removal from said hollow article upon actuation of said first and second power means.

4,381,184

EXTRUDER APPARATUS

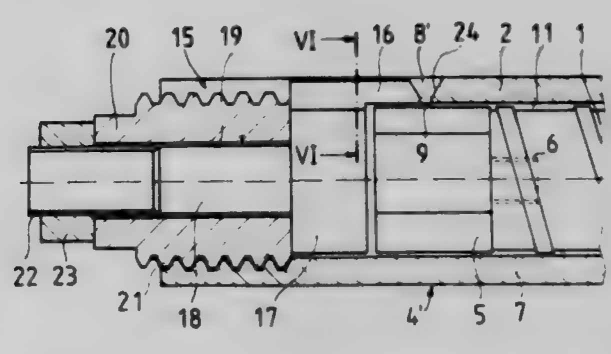
Samuel Hurni, Aeschstrasse 89b, CH 4202 Duggingen, and Hans R. Weber, Hinterberg 24, CH 9014 St. Gallen, both of Switzerland

Filed Jul. 7, 1980, Ser. No. 166,025

Claims priority, application Switzerland, Jul. 19, 1979, 6721/79

Int. Cl.³ B29F *3/04*

U.S. Cl. 425—202 **15 Claims**



1. Apparatus for extruding pieces of an extrudable stock, comprising:

(a) a housing having a nozzle head;

(b) a tubular bore in said housing;

(c) a rotatable worm mounted in said bore having an outlet end located at said nozzle head;

(d) an interrupter mounted on said worm at said outlet end for rotation therewith;

(e) at least one nozzle in said nozzle head;

(f) at least one recess in said interrupter, formed and positioned to provide intermittent communication between said worm and said nozzle during rotation of said worm and interrupter;

(g) said interrupter further having a sealing face adjacent each recess to intermittently close said nozzle during rotation of said worm and interrupter, said recess and sealing face being so arranged as to alternately open and close said nozzler once per rotation of said worm and interrupter; and

(h) a nozzle construction wherein an axially extending slot is formed in the nozzle head and has a base surface at an end thereof, said nozzle construction having an axially moveable wedge with an end surface positioned within the slot, and means for firmly and adjustably holding the wedge in the slot at a selected distance from the base surface of the slot, said nozzle being formed between the end surface of said wedge and the base surface of said slot, said selected distance determining the nozzle size and being adjustable to vary the latter;

(i) said wedge being attached to the periphery of a piston that is axially displaceable in the tubular bore, said piston having a piston rod extending in a direction away from said worm, wherein the piston rod extends through an axial bore of a threaded ring which is threaded into the bore of said housing, and wherein means are provided to prevent movement of said rod relative to said threaded ring, said ring being axially adjustable to permit positioning of said wedge in said slot.

4,381,185

WATER-FAST PRINTING WITH WATER-SOLUBLE DYES

Sally A. Swanson, San Jose; Ned M. Weinshenker, Palo Alto; Robert E. Wingard, Jr., Mountain View, and Daniel J. Dawson, Los Altos, all of Calif., assignors to Dynapol, Palo Alto, Calif.

Filed Jun. 9, 1981, Ser. No. 271,912

Int. Cl.[3] C09B *69/10*

U.S. Cl. 8—506 **13 Claims**

1. A process for the water-fast printing of paper using a true solution containing one or more water-soluble polymeric dyes which comprises the steps of

a. selecting a paper stock characterized as containing not less than 250 parts per million by weight, basis paper weight, of polyvalent metal cation,

b. applying to said paper stock effective printing amounts of a colorant solution that comprises an aqueous solvent having dissolved therein at least about 500 parts per million by weight, basis solution, of a polymeric colorant or colorants characterized as nonchromophoric groups linking a plurality of units of chromophore, as containing anionic groups, and from 2 to 30% basis total solution of a water-soluble oxygen-containing organic paper-penetrating aid selected from three to eight carbon atom alkanols, glycols, glycol ethers and lactones thereby forming an unfinished print, and

c. removing said solvent from said unfinished print.

4,381,186

PROCESS FOR DYEING POLYAMIDIC TEXTILE MATERIALS, IN PARTICULAR HIGH DYEING SPEED POLYAMIDES WITH ACID DYES AND ALKALINE REACTANTS

Eugenio Magni, Busto Arsizio, and Claudio Pernetti, Milan, both of Italy, assignors to Snia Viscosa Societa' Nazionale Industria Applicazioni Viscosa SpA, Milan, Italy

Filed Mar. 18, 1981, Ser. No. 244,923

Claims priority, application Italy, Mar. 19, 1980, 20782 A/80

Int. Cl.[3] D06P *3/06, 1/67*

U.S. Cl. 8—620 **17 Claims**

1. A process for dyeing quick dyeing synthetic polyamides consisting essentially of dyeing said polyamides in a bath containing acid dyes, an ammonium salt and an alkali metal hydroxide, and having an initial pH between 8 and 9.5, and heating said bath to a final temperature of 60° C., said alkali metal hydroxide and said ammonium salt being added in an amount sufficient to lower the pH of the bath, at the final temperature by 0.5-0.9.

4,381,187

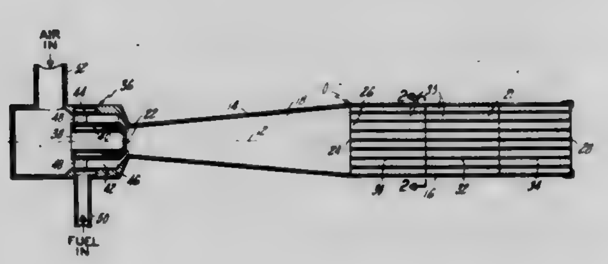
PROCESS FOR GASIFYING LIQUID HYDROCARBON FUELS

Richard A. Sederquist, Newington, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Continuation of Ser. No. 132,760, Mar. 24, 1980, abandoned. This application Nov. 27, 1981, Ser. No. 325,413

Int. Cl.[3] C10G *11/28;* **C01B** *2/16*

U.S. Cl. 48—212 **7 Claims**



1. A process for gasifying, at an overall fuel/air equivalence ratio ϕ_o of greater than 3.0 and without significant soot formation, a liquid heavy hydrocarbon fuel having an end boiling point of 650° F. or greater, comprising the steps of:

introducing the liquid fuel and heated air at ϕ_o greater than 3 into a prevaporization and mixing zone and vaporizing in said zone less than 50% of the liquid fuel using only sensible heat in said air forming a mixture of air, vaporized fuel, and unvaporized fuel;

passing the entire mixture from said prevaporization and mixing zone through a catalyst zone disposed immediately downstream of said prevaporization and mixing zone said catalyst zone including a catalyst monolith consisting essentially of a ceramic or metal substrate having catalytic wall surfaces, said catalytic wall surfaces extending in a downstream direction defining a plurality of parallel cells with a cell dimension of between 0.05 and 0.50 inch said catalyst having been initially preheated sufficiently to initiate catalytic combustion of the vaporized fuel and air upon start-up of the process;

the catalyst, the length of the catalyst zone, the catalyst cell dimension, and the fuel flow rate having been preselected such that continuous vaporization and gasification of unvaporized liquid fuel is sustained within the catalyst zone after start-up using only the heat generated by the reactions within the catalyst zone and no significant soot is formed.

4,381,188

GRINDING DISK

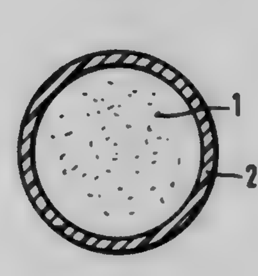
Walter Waizer, Innsbruck; Harald Helletsberger, Wattens; Christof Kriegshaber, Schwaz, and Volker Selgrad, Innsbruck, all of Austria, assignors to Tyrolit-Schleifmittelwerke Swarovski KG, Schwaz, Austria

Filed Jan. 29, 1981, Ser. No. 229,671

Claims priority, application Austria, Apr. 1, 1980, 1753/80

Int. Cl.[3] B24D *3/04, 3/28*

U.S. Cl. 51—298 **23 Claims**



1. An abrasive article comprising abrasive grains, a bonding agent and pellets, wherein said pellets comprise (1) a bonding agent, (2) a matrix of at least one stable pulverulent filler resistant to water and air and to temperatures below the abrasive article manufacturing temperature, selected from the group consisting of graphite, pyrite, potassium, fluoborate, zinc sulfide, cryolite, calcium fluoride and sodium chiolite, and (3) at least one active filler imbedded in said matrix, selected from the group consisting of an alkali metal halogenide, an alkaline earth metal halogenide, elemental sulfur, ferric chloride, zinc chloride, tin chloride, manganese chloride, $AlCl_3$, $CoCl_3$, $CrCl_3$, $FeCl_2$ and NH_4Cl.

4,381,189

PRESSURE SWING ADSORPTION PROCESS AND SYSTEM

Andrija Fuderer, Antwerp, Belgium, assignor to Union Carbide Corporation, Danbury, Conn.

Filed Oct. 27, 1981, Ser. No. 315,418

Int. Cl.[3] B01D *53/04*

U.S. Cl. 55—26 **41 Claims**

1. In an adiabatic pressure swing adsorption process for selectively adsorbing at least one gas component from a feed gas mixture in a main multiple adsorption bed system in which each main bed undergoes the processing cycle of (a) introduction of feed gas to the bed inlet end at a superatmospheric

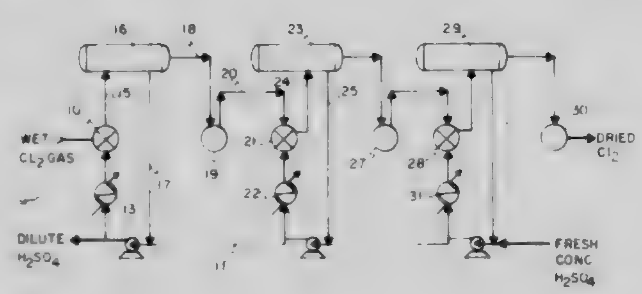
adsorption pressure with discharge of unadsorbed effluent from the discharge end thereof; (b) partial cocurrent depressurization of said bed with release of void space gas from the discharge end of the bed; (c) introduction of the released void space gas to the discharge end of an adsorption bed(s), initially at lower pressure to equalize the pressure therebetween; (d) release of gas from the inlet end of the bed partially depressurized during said cocurrent depressurization step (b) above for countercurrent blowdown to its desorption pressure; (e) repressurization of the purged bed to the adsorption pressure; and (f) repetition of the cycle of steps (a)-(e) with additional quantities of feed gas, the improvement comprising terminating said cocurrent depressurization at an intermediate pressure such that the ratio of adsorption pressure/intermediate pressure is less than about 5/1, and

(i) releasing void space gas from the inlet end of said main bed for partial countercurrent depressurization thereof prior to said countercurrent blowdown of step (d) above;
(ii) introducing the released void space gas of step (i) above to the inlet end of a satellite bed at about said intermediate pressure, said satellite bed being one of a satellite group of adsorption beds containing a lesser number and smaller beds than in said main bed system; and
(iii) releasing gas from the discharge end of said satellite bed,

whereby main bed utilization is enhanced, thus enabling reduced bed volume and less adsorbent to be employed, while product recovery is also enhanced.

4,381,190
PROCESS FOR DRYING AND COMPRESSING CHLORINE GAS

Mark S. Carron, Spring Valley, N.Y., and Desmond C. McCarthy, Weston, Conn., assignors to Stauffer Chemical Company, Westport, Conn.
Filed Sep. 18, 1981, Ser. No. 306,983
Int. Cl.³ B01D *53/26*
U.S. Cl. 55—30 **11 Claims**

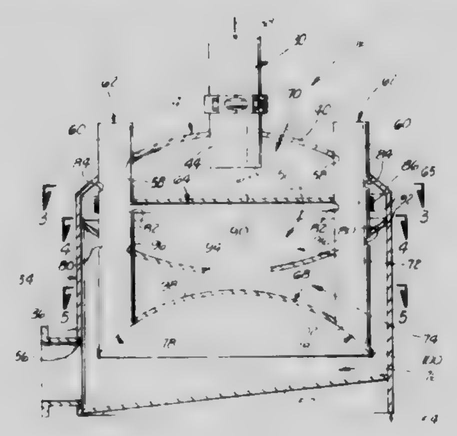


1. A method of drying and compressing wet chlorine gas which comprises: passing the chlorine gas to be dried and compressed into at least one compression stage comprising a liquid ring compressor using sulfuric acid as the liquid medium and a second mechanical compressor.

4,381,191
DRILLING MUD DEGASSER

LaVoice B. Brand, 117 Ruskin, Chickasha, Okla. 73018, and Robert L. Brand, P.O. Box 135, Alex, Okla. 73002
Filed Jun. 24, 1981, Ser. No. 277,019
Int. Cl.³ B01D *19/00*
U.S. Cl. 55—193 **6 Claims**

1. An apparatus for degassing drilling mud, comprising:
a tank having an upper end and a lower end, wherein a mud inlet is formed in central portions of the upper end of the tank and a mud outlet is formed in lower portions of the tank;
a plurality of partitions mounted in the tank between the mud inlet and the mud outlet so as to form a plurality of vertically stacked compartments between the upper and lower ends of the tank, wherein alternate partitions are characterized as alternatively having a peripheral edge spaced from the inner surface of the wall of the tank and a central aperture formed therethrough, the uppermost partition being of the type having a peripheral edge spaced from the wall of the tank;
pumping means for directing a jet of the drilling mud to be degassed against central portions of said uppermost partition via said mud inlet, the pumping means comrpising:
a mud input conduit having a discharge opening disposed above the uppermost partition, the mud input conduit extending through the mud inlet, across a portion of the upper end of the tank and downwardly along side the tank to a mud pit wherein said drilling mud to be degassed is disposed;
a submersible pump disposed in said mud pit and connected to the mud input conduit for forcing drilling mud from the mud pit into the mud input conduit; and

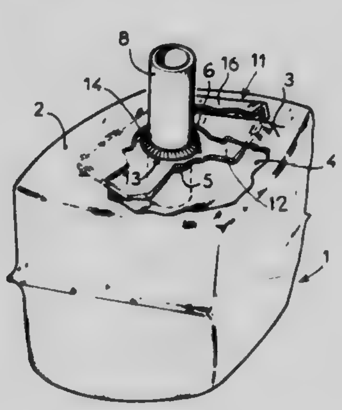


means for driving the submersible pump; and
means for discharging gas evolved from said drilling mud from said tank

wherein the tank is characterized as having a cover portion attached to said wall and extending across the upper end of the tank; wherein the mud inlet is formed in central portions of said cover portion; wherein a plurality of apertures are formed through said cover portion of the tank adjacent the wall thereof; and wherein the means for discharging gas from the tank comprises a plurality of tubes extending through said apertures in the cover portion, said tubes having means fluidly communicating the interiors thereof with the interior of the tank and said tubes having open upper ends disposed above the tank.

4,381,192
FILTER BAG FOR VACUUM CLEANER

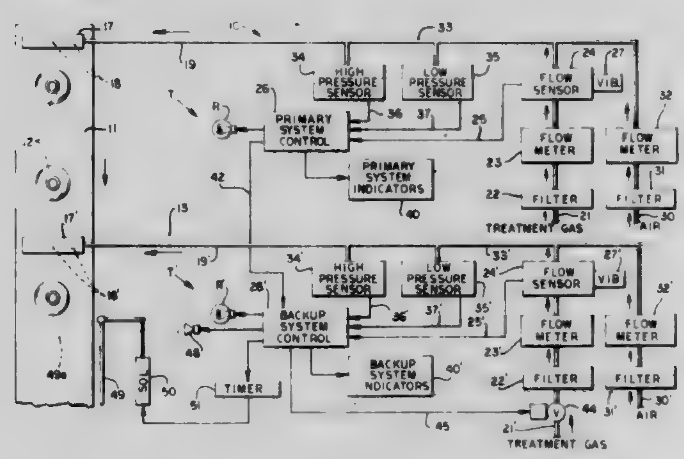
Jean P. Grimard, 9, rue du 11 Novembre, Saint-Genis-Laval, France (69230)
Filed Apr. 28, 1981, Ser. No. 258,316
Claims priority, application France, Apr. 30, 1980, 80 10128
Int. Cl.³ B01D *46/02*
U.S. Cl. 55—376 **10 Claims**



1. In a vacuum cleaner, the combination comprising:
(a) a filter bag made of filtering material, said bag defined by superposed inner and outer layers that are separated from each other to provide a space between said layers;

(b) means for providing access to said space between said layers;
(c) an inlet pipe connected with said vacuum cleaner and said filter bag;
(d) said inner and outer layers provided with concentric openings which receive said inlet pipe for conveying fluid to be filtered to the interior of the filter bag;
(e) a rigid base member removably attached to the vacuum cleaner and having at least a first part thereof received in said accessible space and extending through said means for providing access to said space;
(f) said base member including another part which constitutes a support element for engaging the vacuum cleaner and supporting said bag within the vacuum cleaner;
(g) each part of said base member including an opening located substantially in alignment with said concentric bag openings;
(h) flexible seal means connected to the periphery of at least one of said openings and extending circumferentially inwardly from said periphery; whereby, said seal means extends in sealing engagement with said inlet pipe when said inlet pipe is received into said aligned openings.

4,381,193
INTERNAL TREATMENT SYSTEM FOR GLASSWARE
Wayne A. Wallding, Horseheads, and Leland Sills, Bath, both of N.Y., assignors to Thatcher Glass Corporation, Greenwich, Conn.
Filed Mar. 15, 1982, Ser. No. 358,252
Int. Cl.³ C03B *35/00*
U.S. Cl. 65—158 **7 Claims**



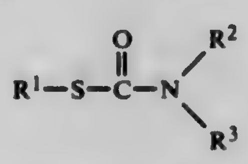
1. Apparatus for treating glassware, comprising:
primary means operative to apply a fluid treatment to the glassware;
secondary means selectably operative to apply said fluid treatment to the glassware, said secondary means being normally nonoperative,
means responsive to the failure of said primary means to initiate operation of said secondary means; and
means responsive to failure of said secondary means to reject the glassware untreated by either the primary or secondary means.

4,381,194
ALKALI LIGNIN BASED PESTICIDE PHYTOTOXICITY REDUCING COMPOSITION
Humbert T. DelliColli, Hanahan; Thomas F. McPartland, Charleston Heights, and Walter A. Bauer, Johns Island, all of S.C., assignors to Westvaco Corporation, New York, N.Y.
Filed Feb. 9, 1981, Ser. No. 232,647
Int. Cl.³ A01N *25/12*
U.S. Cl. 71—65 **29 Claims**

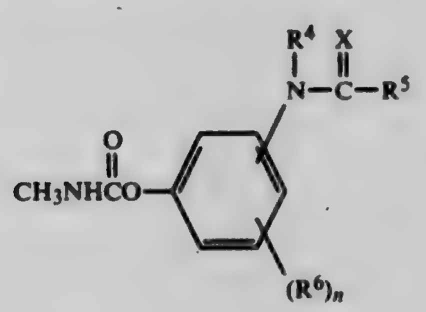
1. In a method of protecting crops from injury caused by application to the crops of one or more pesticides selected from the group consisting of herbicides and fungicides, in combination with a lignin, the improvement of forming the combination by
(a) forming a pseudoplastic aqueous suspension concentrate of a water-insoluble alkali lignin containing minor amounts of at least one surfactant selected from the group consisting of humectants, wetting agents, dispersing agents and anti-freeze agents wherein the lignin has a mean particle size of from 0.5 to 5 microns in diameter, and
(b) combining a phytotoxicity reducing amount of the lignin suspension concentrate with the pesticide prior to the application.

4,381,195
N-METHYLCARBAMOYLOXY ANILIDES AS HERBICIDE EXTENDERS
Daniel L. Hyzak, Saratoga, Calif., assignor to Stauffer Chemical Company, Westport, Conn.
Filed Apr. 20, 1981, Ser. No. 255,590
Int. Cl.³ A01N *25/22*
U.S. Cl. 71—100 **15 Claims**

1. An herbicidal composition of extended soil life comprising
(a) an herbicidally effective amount of a thiolcarbamate having the formula



in which R^1, R^2, and R^3 are independently C_2–C_4 alkyl; and
(b) an amount of N-methylcarbamoyloxy anilide sufficient to extend the soil life of said thiolcarbamate, said N-methylcarbamoyloxy anilide having the formula

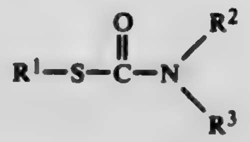


in which
R^4 is selected from the group consisting of hydrogen and carbethoxymethyl,
R^5 is selected from the group consisting of C_1–C_6 alkyl, halogenated C_1–C_6 alkyl, C_1–C_6 alkoxy, C_3–C_6 cycloalkyl, C_3–C_5 alkanoylmethyl, C_1–C_3 alkylamino, C_1–C_3 dialkyl-amino, carbamylthiomethyl, and C_2–C_4 carbalkoxyamino, R^6 is selected from the group consisting of C_1–C_3 alkyl, C_2–C_4 alkanoylamino, and halogen,
X is selected from the group consisting of oxygen and sulfur, and
n is zero or one,
wherein the weight ratio of (a) to (b) ranges from about 1:1 to about 5:1, and
(c) an inert diluent carrier.

4,381,196
O-(SUBSTITUTED PHENYL) N-METHYLCARBAMATES AS HERBICIDE EXTENDERS
Daniel L. Hyzak, Saratoga, Calif., assignor to Stauffer Chemical Company, Westport, Conn.
Filed Apr. 20, 1981, Ser. No. 255,924
Int. Cl.³ A01N *25/22*
U.S. Cl. 71—100 **15 Claims**

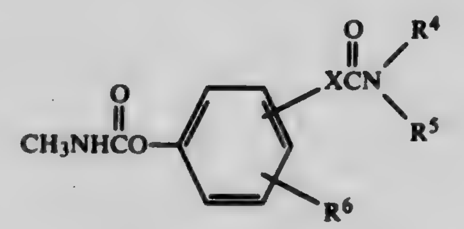
1. An herbicidal composition of extended soil life comprising

(a) an herbicidally effective amount of a thiolcarbamate having the formula



in which R^1, R^2, and R^3 are independently C_2–C_4 alkyl; and

(b) an amount of an O-(substituted phenyl) N-methylcarbamate sufficient to extend the soil life of said thiolcarbamate, said O-(substituted phenyl) N-methylcarbamate having the formula



in which

R^4 is selected from the group consisting of hydrogen and C_1–C_3 alkyl,

R^5 is C_1–C_3 alkyl,

R^6 is selected from the group consisting of hydrogen, formyl, C_1–C_3 alkoxy, and N-methylcarbamoyloxy, and

X is selected from the group consisting of oxygen and sulfur.

4,381,197

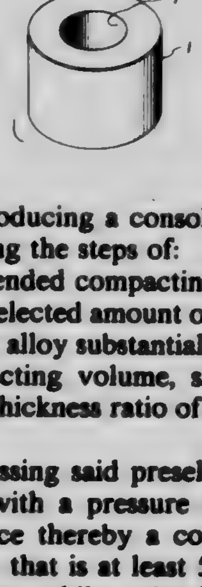
WARM CONSOLIDATION OF GLASSY METALLIC ALLOY FILAMENTS

Howard H. Liebermann, Gloversville, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jul. 24, 1980, Ser. No. 171,714

Int. Cl.³ B22F *3/00*

U.S. Cl. 419—24 **17 Claims**



1. The method of producing a consolidated dense discrete metallic body comprising the steps of:

(a) defining an open-ended compacting volume;

(b) distributing a preselected amount of intertwined filamentary glassy metallic alloy substantially uniformly into said open-ended compacting volume, said filamentary alloy having a width-to-thickness ratio of less than about 600:1; and

(c) uniaxially compressing said preselected amount of said filamentary alloy with a pressure for a period of time sufficient to produce thereby a consolidated dense discrete metallic body that is at least 50% glassy, with any remainder crystalline, while maintaining said filamentary alloy at a substantially uniform temperature throughout of at least its plastic transition temperature, but less than its crystallization temperature.

4,381,198

CERAMIC METALLIZING INK

Masaru Kondo; Hisaharu Shiromizu, and Yoshio Ieda, all of Aichi, Japan, assignors to NGK Spark Plug Co., Ltd., Nagoya, Japan

Filed Jun. 14, 1982, Ser. No. 388,368

Claims priority, application Japan, Jun. 12, 1981, 56-91015

Int. Cl.³ C23C *3/00*

U.S. Cl. 106—1.12 **4 Claims**

1. A ceramic metallizing ink for forming low resistance conductors, said ink comprising a metal powder component comprising tungsten, molybdenum or a combination thereof as the main ingredient, and (i) from about 0.03 to about 5.00% by weight nickel, (ii) from about 0.03 to about 5.00% by weight of nickel and from about 0.02 to about 0.90% by weight of copper, or (iii) from about 0.03 to about 5.00% by weight of nickel and from about 0.02 to about 0.70% by weight of cobalt, which are contained in the ink in a sate of soluble salts thereof, together with an organic binder and a solvent.

4,381,199

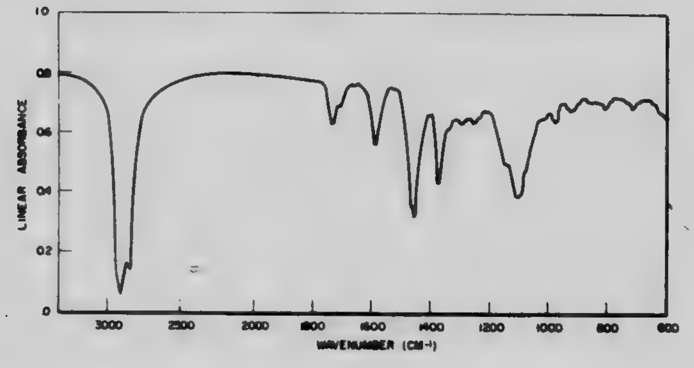
AQUEOUS DISPERSION OF GLASS FIBERS AND METHOD AND COMPOSITION FOR PRODUCING SAME

Roy R. Graham, Lexington, N.C., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 221,741, Dec. 31, 1980. This application Oct. 16, 1981, Ser. No. 312,013

Int. Cl.³ C04B *43/02;* D21F *11/00;* C08L *91/00*

U.S. Cl. 106—186 **15 Claims**



1. Glass fibers having filament diameters larger than around 13 microns that are readily dispersible in aqueous solutions having thereon an aqueous sizing composition, comprising:

a. about 0.1 to about 50 weight percent of a blend of alkyl sulfate quaternary of an alkyl amino fatty acid amine or amide and a liquid mineral oil-inorganic silica defoaming agent made water dispersible with a compatible surfactant, where the amount of the quaternary material is in the range of about 50 to about 95 weight percent of the blend and the amount of the defoaming agent is around 5 to about 50 weight percent of the blend;

b. a glass fiber lubricant; and

c. water.

4,381,200

GLASS INSULATION WITH AN INSOLUBILIZED ASPHALT BINDER

Charles E. Bolen, Heath; Edward R. Harrington, Newark; Alfred Marzocchi, Newark, and Michael G. Roberts, Newark, all of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Mar. 30, 1981, Ser. No. 249,037

Int. Cl.³ C08L *95/00*

U.S. Cl. 106—282 **5 Claims**

1. In a process for forming an acoustical or thermal insulating fibrous glass product comprising spraying a binder onto a downwardly flowing stream of glass fibers, collecting said sprayed fibers on a conveyor in the form of a blanket, and heating said blanket so as to bind the fibers with said binder, the improvement wherein said binder is a rubber-free, non-chemically modified asphalt emulsion and said heating comprises heating said asphalt for a sufficient period of time to bind said fibers and to convert said asphalt to a substantially insolubilized form, wherein said heating is done at a temperature of at least about 140° C. for a period of time of at least about 50 hours.

4,381,201

METHOD FOR PRODUCTION OF SEMICONDUCTOR DEVICES

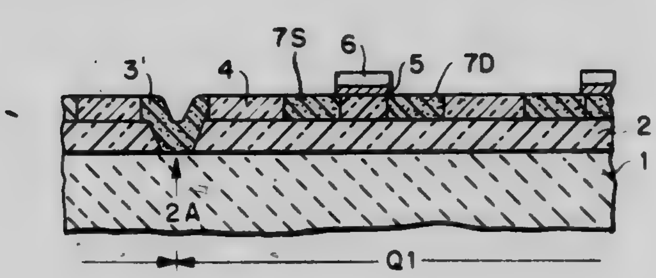
Junji Sakurai, Tokyo, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

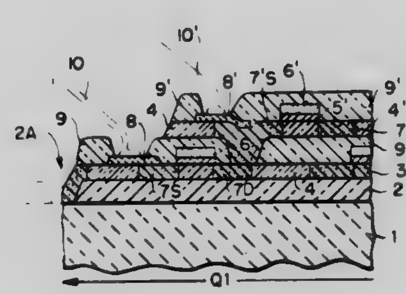
Filed Mar. 3, 1981, Ser. No. 240,130

Claims priority, application Japan, Mar. 11, 1980, 55-30623; Mar. 11, 1980, 55-30624; Apr. 10, 1980, 55-47346; Apr. 11, 1980, 55-47656

Int. Cl.³ H01L *21/263;* B05D *3/06*

U.S. Cl. 148—1.5 **20 Claims**





1. A method for production of a semiconductor device comprising the steps of:

(a) forming an insulating layer on the top surface of a semiconductor substrate;

(b) forming a window in the insulating layer along a linear area defining crystal nuclei and a scribe line;

(c) growing a non-single crystalline semiconductor layer on the top surface of the insulating layer;

(d) irradiating the non-single crystalline semiconductor layer with an energy ray selected from a group including a photon beam, an ion beam and an electron beam, to form a single crystalline silicon layer in contact with the substrate at the crystal nuclei; and

(e) forming semiconductor elements on the single crystalline silicon layer.

4,381,202

SELECTIVE EPITAXY BY BEAM ENERGY AND DEVICES THEREON

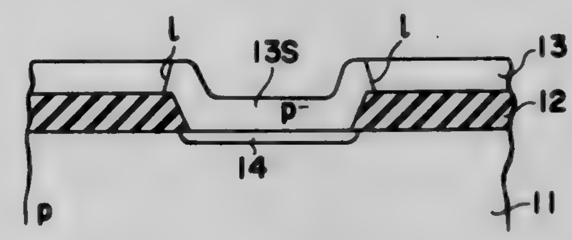
Haruhisa Mori, Yokohama; Tsutomu Ogawa, Tokyo, and Takashi Matsumoto, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

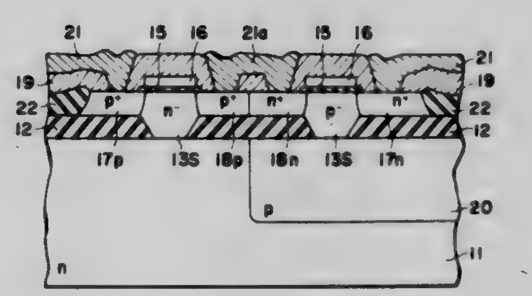
Filed Mar. 25, 1981, Ser. No. 247,376

Claims priority, application Japan, Mar. 27, 1980, 55-39288

Int. Cl.³ H01L *21/263, 21/265*

U.S. Cl. 148—1.5 **5 Claims**





1. A method for the manufacture of a semiconductor device comprising the steps of:

forming an insulating film on the surface of a semiconductor substrate having a predetermined conductivity type, the insulating film being selectively removed to form therein a window at a predetermined position;

forming a semiconductor layer on the insulating film and the semiconductor substrate exposed through the window; melting the portion of the semiconductor layer corresponding to the window and the portion of the semiconductor substrate corresponding to the window by irradiation with an energy beam to a predetermined depth, by which an impurity in the semiconductor substrate is diffused into the semiconductor layer to impart thereto a predetermined conductivity type of relatively low impurity concentration and, at the same time, make monocrystalline at least that portion of the semiconductor layer corresponding to the window; and

in the substrate is diffused into the semiconductor layer portion and the molten semiconductor layer portion is rendered to single crystalline.

4,381,203

COATING SOLUTIONS FOR ZINC SURFACES

Earl R. Reinbold, Levittown, Pa., assignor to Amchem Products, Inc., Ambler, Pa.

Filed Nov. 27, 1981, Ser. No. 325,565

Int. Cl.³ C23C *1/10*

U.S. Cl. 148—6.14 R **32 Claims**

1. An aqueous solution for applying a conversion coating to a zinc or zinc alloy surface consisting essentially of:

(a) a coating accelerating quantity of at least one of the following anions—bromate, nitrite, persulfate, and hypochlorite;

(b) at least about 0.01 grams per liter of at least one of the following metals in the form of a cation—cobalt, nickel, iron, and tin;

(c) a complexing agent present in an amount sufficient to hold the cation in (b) above in solution; and

(d) sufficient alkaline material to produce a pH of at least 10.5 in the solution.

4,381,204
ADHESION OF RUBBER TO BRASS
David E. Erickson, Stow, Ohio, assignor to The General Tire & Rubber Company, Akron, Ohio
Division of Ser. No. 152,235, May 22, 1980, Pat. No. 4,333,787. This application Dec. 7, 1981, Ser. No. 328,050
Int. Cl.^{3} A23F *5/00*
U.S. Cl. 148—6.31 **4 Claims**

1. The method which comprises treating brass plated steel cord in an aqueous ammonia solution containing from about 0.2 to 5% by weight of ammonia for a time and at a temperature sufficient to remove at least a substantial amount of the corrosion products on the outer surface layers of said cord, rinsing said cord and drying the same treating said aqueous ammonia treated, rinsed and dried cord with H_2S gas for a time and at a temperature sufficient to provide a thin sulfide layer on the surface of said cord and storing said treated cord in an inert or dry atmosphere.

4,381,205
METAL QUENCHING PROCESS
Joseph F. Warchol, West Norriton, Pa., assignor to E. F. Houghton & Company, Valley Forge, Pa.
Filed Apr. 5, 1982, Ser. No. 365,531
Int. Cl.^{3} C21D *1/56*
U.S. Cl. 148—18 **7 Claims**

1. In a process of quenching which is useful in the heat treatment of metals wherein a metal is heated to an elevated temperature and said heated metal is then quenched in a bath comprising a liquid quenching medium to effect desirable metallurgical changes in the metal, the improvement which comprises using as said quenching medium an aqueous solution containing from about 0.5% to about 50%, by weight, based on the total weight of the quenching medium, of a liquid, water-soluble or water-dispersible capped polyether polyol obtained by reacting ethylene oxide and at least one lower alkylene oxide having 3 to 4 carbon atoms with an active hydrogen compound to prepare a heteric or block copolymer having a molecular weight of from about 7,000 to about 15,000, and further reacting said copolymer with an alpha olefin oxide.

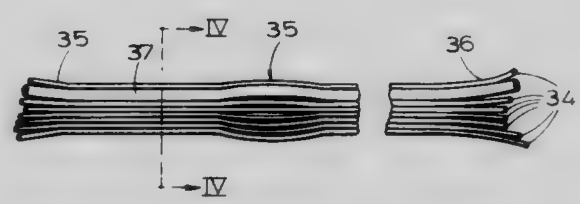
4,381,206
ADVANCED SOLID REACTANTS FOR H_2/D_2 GENERATION
Louis R. Grant, Los Angeles, and Joseph E. Flanagan, Woodland Hills, both of Calif., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Jul. 20, 1981, Ser. No. 285,163
Int. Cl.^{3} C06B *43/00*
U.S. Cl. 149—22 **1 Claim**

1. An all amine borane gas generating system consisting of hydrazine bis-borane or its deuterated derivative and diborane diammoniate or its deuterated derivative in the form of a compacted solid propellant pellet for producing high purity hydrogen or deuterium in high yield from a self-sustaining reaction after said reaction is initiated by a heat source sufficient to initiate said reaction, said hydrazine bis-borane being an ignition source for said all amine borane gas generating system by serving as a thermal stimulus for decomposition of itself and additionally as a thermal stimulus for decomposition of said diborane diammoniate or its deuterated derivative, said ignition source being present in said compacted solid propellant pellet in an amount from about 60 to about 40 weight percent while said diborane diammoniate is present in an amount from about 40 to about 60 weight percent in said compacted solid propellant pellet for producing a high yield of hydrogen or deuterium in the range from about 15 weight percent to about 17 weight percent and of a purity in the range of about 99 percent or greater.

4,381,207
PYROTECHNIC COMPOSITION
Donald E. Olander, Huntington Beach, and Donald W. Petersen, Tehachapi, both of Calif., assignors to Hi-Shear Corporation, Torrance, Calif.
Filed Nov. 20, 1981, Ser. No. 323,437
Int. Cl.^{3} C06B *33/12*
U.S. Cl. 149—40 **8 Claims**

1. A pyrotechnic product produced by mixing fully divided aluminum metal, calcium sulfate, magnesium sulfate, and water, the weight ratio of aluminum to calcium sulfate hemihydrate being between about 15%/85% to about 60%/40%, the magnesium sulfate being in the molar ratio relative to calcium sulfate of about 1/2, and about 6 moles of water per mole of magnesium sulfate, all of the foregoing ratios being based upon anhydrous sulfates, the calcium sulfate being calculated as hemihydrate.

4,381,208
METHOD OF MAKING A RIBBON CABLE
John R. Baverstock, Stoke-on-Trent, England, assignor to Lucas Industries Limited, Birmingham, England
Filed Aug. 13, 1979, Ser. No. 65,854
Claims priority, application United Kingdom, Aug. 15, 1978, 33340/78
Int. Cl.^{3} H01B *13/06*
U.S. Cl. 156—52 **10 Claims**



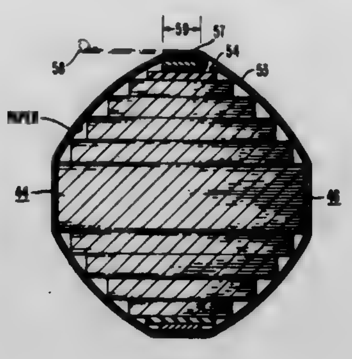
1. A method of manufacturing multi-core cable of the kind in which a plurality of leads, each including a conductive core in an insulating sheath, are held in parallel and side-by-side relation, the method including the steps of arranging individual separate leads in parallel and side-by-side relation, retaining said leads in said relation, and, while so retained, continuously applying heat to bond by fusion the insulating sheaths of a plurality of leads each to its neighbour or to a backing strip on at least one side of the cable throughout major portions of the lengths of said leads, and stopping the application of heat at intervals to interrupt the bonding of the leads at predetermined intervals along the length of the cable to produce regions which separate the said major portions of said cable, and which regions are short compared to said major portions and at which regions the sheaths are not bonded either to each other or to a backing strip.

4,381,209
METHOD OF CURING A NON-METALLIC BAND
Angelo A. DeLaurentis, South Pymatuning, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Division of Ser. No. 216,213, Dec. 12, 1980, Pat. No. 4,345,232, which is a continuation of Ser. No. 22,126, Mar. 20, 1979, abandoned. This application Apr. 5, 1982, Ser. No. 365,437
Int. Cl.^{3} B65H *8/00*
U.S. Cl. 156—162 **5 Claims**

1. A method of curing a resin impregnated non-metallic band

such that the band retains a degree of flexibility, comprising the steps of:

tensioning the band to a predetermined tension;



subjecting the band to a predetermined vacuum while spraying the band with oil maintained at a predetermined temperature for a predetermined length of time.

4,381,210

PROCESS FOR PRODUCING POLYIMIDE TUBES

Takashi Ishizuka; Yasuhiro Moriyama, and Masao Nakamura, all of Ibaraki, Japan, assignors to Nitto Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 25, 1981, Ser. No. 238,270

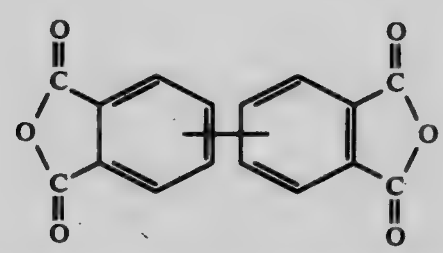
Claims priority, application Japan, Feb. 25, 1980, 55/23017

Int. Cl.[3] B65H *81/00;* **C09J** *5/00*

U.S. Cl. 156—195 **7 Claims**

1. A process for producing a polyimide tube which comprises

applying a solution of polyamide acid obtained by reacting a biphenyltetracarboxylic acid dianhydride represented by the general formula



with an aromatic diamine in an organic polar solvent to at least one surface of a polyimide film,

drying thereafter the film with heating to convert a part of said polyamide acid into the imide form while controlling the volatile material content to about 5 to 50% by weight, by which a compound film having a heat-fusible layer composed of a polyimide precursor is obtained,

winding said compound film on a heat resistant core material,

heating to unify the compound film by said heat-fusible layer, and removing the heat resistant core material to obtain said polyimide tube.

4,381,211

WEB TRANSPORT SYSTEM WITH ELECTRO-OPTICAL LABEL DETECTION

Jacek A. Nechay, Northboro, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass.

Filed Dec. 11, 1981, Ser. No. 329,841

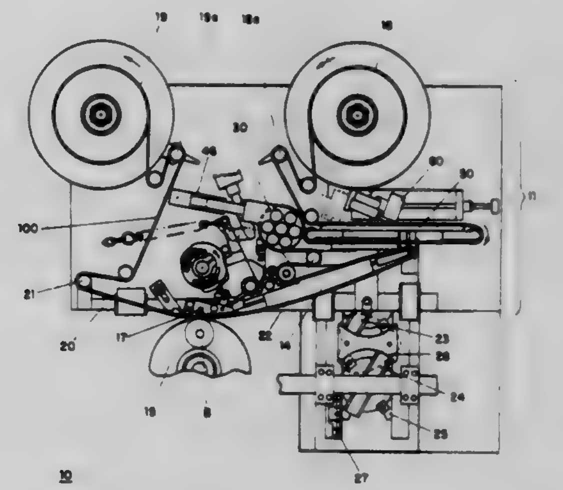
Int. Cl.[3] B32B *31/00*

U.S. Cl. 156—361 **7 Claims**

1. An improved label transfer machine of the type including a web bearing a plurality of labels; means for routing the web through a transport path sequentially including a web source, a rotatable metering roll for controlling web advance, a labelling site and means for collecting the web; shuttle rolls straddling the labelling site for regulating web advance at the labelling site; means for transferring labels onto articles at the labelling site; and a cyclical drive source for providing a periodic mechanical input for the shuttle rolls and other moving parts of the label transfer machine, wherein the improvement comprises means for controlling the routing of the web comprising:

electro-optical registration means for generating a timing signal in response to a predetermined optical contrast within a label;

means for generating an enabling signal at a first point within each drive cycle;



means for generating a disabling signal at a second point within each drive cycle;

means for starting the rotation of the metering roll in response to a given disabling signal; and

means for halting the rotation of the metering roll in response to a given timing signal, subsequent to an enabling signal but prior to the next disabling signal.

4,381,212

FINGERLESS SINGLE FACER

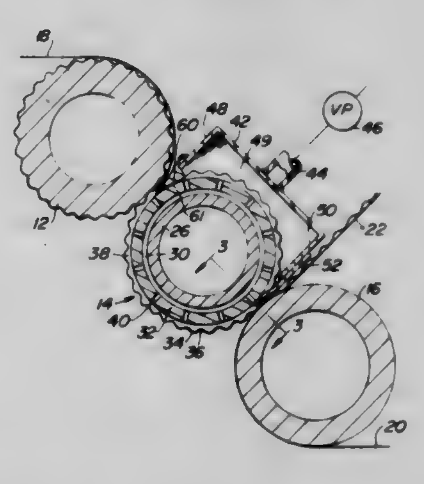
Webster C. Roberts, Cherry Hill, N.J., assignor to Molins Machine Company, Inc., Cherry Hill, N.J.

Continuation of Ser. No. 122,924, Feb. 20, 1980, abandoned.

This application Oct. 2, 1980, Ser. No. 193,515

Int. Cl.[3] B31F *1/28*

U.S. Cl. 156—473 **11 Claims**



1. In a single facer machine having first and second corrugating rolls provided with longitudinally extending meshing flutes for corrugating a web of material passing therebetween, and suction means for retaining the corrugated web on approximately one-half the perimeter of said second roll, the improvement comprising:

(a) said second roll having a central hollow core for receiving a heated fluid, the outer periphery of said hollow core having a plurality of circumferential grooves at spaced locations therealong;

(b) a sleeve surrounding and secured to said hollow core, said sleeve having a plurality of spaced annular slots in the perimeter thereof, the longitudinally extending flutes of

the second roll being on the perimeter of said sleeve, said sleeve having a plurality of passages extending radially from the inner periphery of each of said annular slots to the interior of said sleeve;

(c) means for applying suction to said second corrugating roll by way of said grooves and slots to hold the corrugated web on a portion thereof, including a housing disposed diametrically opposite said one-half perimeter, said housing having strippers, each stripper being disposed in one of said slots for stripping the corrugated web from said flutes in said second corrugating roll.

4,381,213

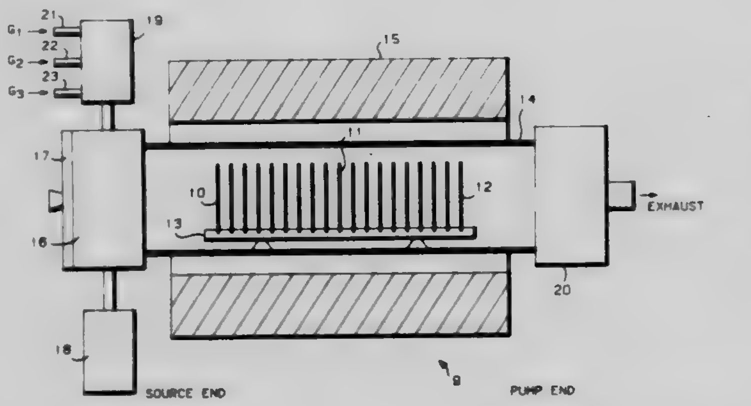
PARTIAL VACUUM BORON DIFFUSION PROCESS

Dervin L. Flowers, Scottsdale, and Sylvia B. Thompson, Phoenix, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 15, 1980, Ser. No. 216,873

Int. Cl.³ C30B *25/02*

U.S. Cl. 156—606 15 Claims



1. A method for substantially uniformly and reproducibly boron doping a silicon body within a reaction chamber comprising the steps of:

forming a protective layer on said silicon body to resist etching by gases present in said reaction chamber during subsequent steps;

introducing a composite gas mixture which comprises a boron containing gas and a first oxidant gas of proportions differing from stoichiometric proportions for production of substantially pure boron oxide by a predetermined mole fraction Δ in the range -3 to -0.03 or 0.06 to 6;

forming a boron source layer on said silicon body by reacting said composite gas mixture in the presence of said silicon body;

maintaining throughout the two preceeding steps a total gas pressure around said silicon body of less than 10 Torr (1.3 kPa);

heating thereafter said silicon body and boron source layer in a controlled atmosphere to achieve a specified redistribution of boron and its incorporation within said silicon body to a desired depth.

4,381,214

PROCESS FOR GROWING CRYSTALS

Ian R. A. Christie, Middlesex; Derek F. Croxall, London, and Brian J. Isherwood, Middlesex, all of United Kingdom, assignors to The General Electric Company Limited, London, England

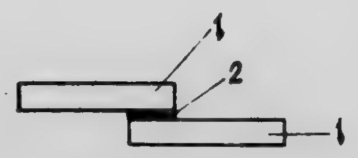
Filed Jun. 12, 1981, Ser. No. 273,263

Claims priority, application United Kingdom, Jun. 26, 1980, 8021023

Int. Cl.³ C30B *7/10*

U.S. Cl. 456—623 Q 10 Claims

1. A process for forming a crystal of a substance from a solution capable of depositing said substance, utilizing at least two seed crystals of said substance, the seed crystals defining crystallographic axes and being provided with respective flat surfaces, the orientations of the said surfaces with respect to the associated said axes being such that at least one pair of seed crystals may be interfaced at their said surfaces with a zero mutual crystallographic orientation; said process comprising the steps of mutually aligning said pair of seed crystals into said orientation, directly bonding their said flat surfaces together



with an inert bonding material to form a seed crystal composite of locally uniform crystallographic orientation having at least one registering surface region, and depositing said substance from said solution on to said composite so as to substantially enclose said registering surface region.

4,381,215

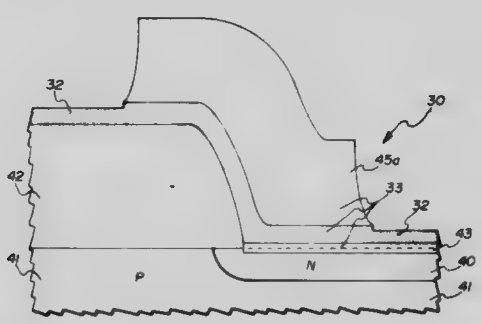
METHOD OF FABRICATING A MISALIGNED, COMPOSITE ELECTRICAL CONTACT ON A SEMICONDUCTOR SUBSTRATE

Paul D. Reynolds, Cardiff, and Norman W. Jones, Poway, both of Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed May 27, 1980, Ser. No. 153,090

Int. Cl.³ H01L *21/283, 21/308, 21/316*

U.S. Cl. 156—643 12 Claims



10. In a method of fabricating an electrical contact to a region which lies at the surface of a semiconductor substrate and is exposed through a rectangular opening in an insulating layer that overlies said surface; the improvement comprising the steps of forming a silicide of a noble metal throughout the exposed surface of said region; thereafter forming a layer of a barrier metal over said silicide and said insulating layer; thereafter forming a patterned conductor on a portion of said barrier metal layer, said patterned conductor being of substantially the same width as said opening and in misalignment with it as to cover only part of said exposed region and an adjacent portion of said insulating layer; and thereafter oxidizing at least a portion of said barrier metal layer which is not covered by said patterned conductor.

4,381,216

METHOD OF ETCHING TO FORM CATIONICALLY-CONDUCTIVE CERAMIC BODY

Raj N. Singh, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

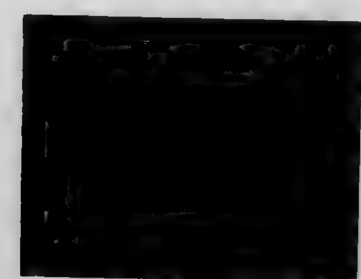
Filed Aug. 3, 1981, Ser. No. 289,579

Int. Cl.³ C23F *1/00*

U.S. Cl. 156—667 8 Claims

1. A process for producing a cationically-conductive ceramic body having an etched surface and a specific resistivity at its surface portion which is at least not significantly different from its specific intrinsic resistivity which comprises providing a cationically-conductive ceramic body having a specific resistivity at its surface portion significantly higher than its specific intrinsic resistivity, said ceramic body ranging in composition from an alkali metal beta-alumina phase to an alkali metal

beta″-alumina phase including all combinations of said alkali metal beta-alumina phase and said alkali metal beta″-alumina phase, said alkali metal being selected from the group consisting of sodium, potassium, lithium, mixtures thereof and alloys thereof, and etching the surface portion of said ceramic body



with phosphoric acid to produce said cationically-conductive ceramic body with a specific resistivity at its surface portion which is at least not significantly different from its specific intrinsic resistivity, said phosphoric acid having a concentration of P_2O_5 which etches said ceramic body, said etching having no significant deleterious effect on said ceramic body.

4,381,217

METHOD OF INCREASING THE TEMPERATURE OF SHOWER WATER USED IN A WOOD GRINDING PROCESS

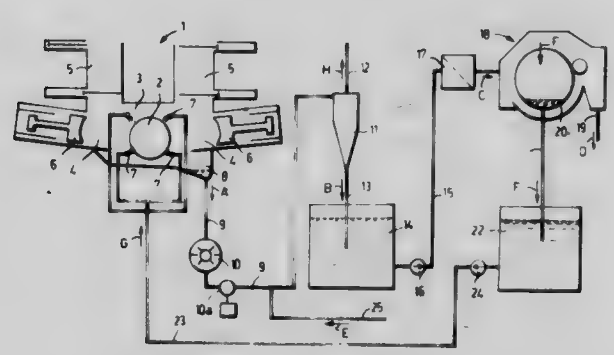
Erkki Turkia, Inkeroinen, Finland, assignor to Oy. Tampella AB, Tampere, Finland

Filed Nov. 2, 1981, Ser. No. 317,637

Claims priority, application Finland, Nov. 18, 1980, 803601

Int. Cl.³ D21B *1/24*

U.S. Cl. 162—23 **1 Claim**



1. In a method of increasing the temperature of shower water used in a wood grinding process,

grinding wood by a rotating grinding member (2) in a grinding space (3) under a pressure exceeding atmospheric pressure,

spraying warm shower water (G) into the grinding space,

conveying groundwood pulp (A) from the grinding sapce through a groundwood pit (8) and a pipe (9) into a steam separator (11) wherein the heat energy of the ground wood pulp is released as steam (H), and

adding replacement water (E) to compensate for losses of shower water, the improvement comprising conveying the groundwood pulp from the steam separator into a thickener (18) from which the released water is fed back into the grinding space (3) as shower water and feeding said replacement water (E) having a temperature lower than the temperature of said shower water to the groundwood pulp (A) at a point in said pipe (9) located after said groundwood pit (8) but before the steam separator (11).

4,381,218

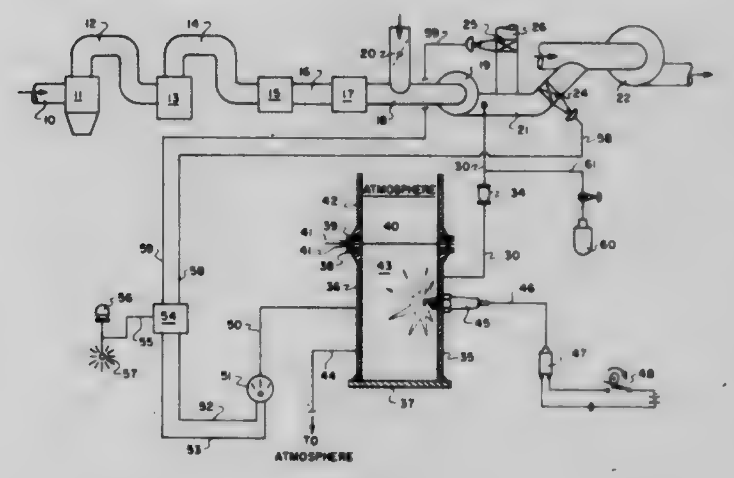
APPARATUS FOR TESTING COMBUSTIBILITY OF WOOD PULP BLOW GASES

Nicholas T. Kern, Covington, Va., assignor to Westvaco Corporation, New York, N.Y.

Filed Apr. 20, 1979, Ser. No. 32,023

Int. Cl.³ D21C *7/16, 11/08;* G01L *23/08*

U.S. Cl. 162—252 **2 Claims**



1. The combination of:

A. A wood pulping digester blow tank having means to substantially isolate vaporous constituents from the liquid and solid constituents of a blow charge of cooked wood pulp;

B. Means to substantially isolate non-condensible gases from said vaporous constituents within a primary flow stream carrier duct;

C. Means to combine said non-condensible gases with firebox draft for a heating appliance;

D. First conduit means connecting combustion chamber means with said carrier duct to continuously draw a sample flow of said gas from said primary flow stream into said combustion chamber;

E. Second conduit means for continuously venting said combustion chamber;

F. Intermittent Ignition means within said combustion chamber to ignite combustible portions of said gas;

G. Pressure responsive means connected to said combustion chamber for emitting control signals when pressures within said combustion chamber exceed a first predetermined magnitude; and,

H. Means to divert said primary flow stream away from said firebox draft in response to said control signals.

4,381,219

HEADBOX ARRANGEMENT FOR A PAPERMAKING MACHINE

Alfred Bubik; Werner Seider, both of Ravensburg, and Josef Hefter, Fenken, all of Fed. Rep. of Germany, assignors to Escher Wyss GmbH, Ravensburg, Fed. Rep. of Germany

Filed Apr. 16, 1682, Ser. No. 368,909

Claims priority, application Switzerland, May 14, 1981, 3137/81

Int. Cl.³ D21F *1/02, 11/04*

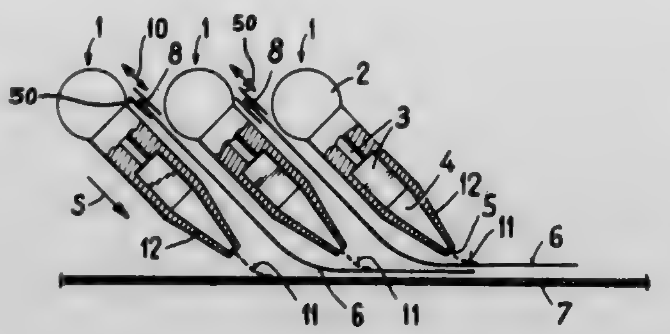
U.S. Cl. 162—299 **9 Claims**

1. A headbox arrangement for a papermaking machine for forming multi-ply paper webs upon a moved water impervious web forming member, comprising:

at least two independent headboxes forming a group;

each of said headboxes being provided with stock infeed means for a stock suspension, stock guide means, a nozzle channel and an outlet slice located at an end of said nozzle channel;

a flexible divider member located between each two neighboring headboxes; and



said flexible divider member extending past the outlet slice of a neighboring headbox.

4,381,220

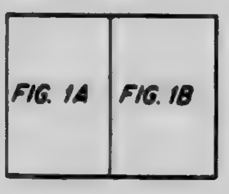
PRODUCTION OF CONCENTRATED ALCOHOL AND DISTILLERY SLOP

Ferris C. Standiford, Greenbank, Wash., assignor to Resources Conservation Company, Seattle, Wash.

Division of Ser. No. 206,170, Nov. 12, 1980, Pat. No. 4,328,074. This application Dec. 16, 1981, Ser. No. 331,205

Int. Cl.³ B01D *1/26, 1/28, 3/02, 3/14*

U.S. Cl. 202—154 **7 Claims**



1. A system for producing concentrated alcohol and distillery slop from fermented beer with a reduced amount of energy comprising:

(a) a beer still;
(b) means for feeding said beer to said still;
(c) means for feeding a portion of a water vapor, withdrawn from evaporating means (f) hereinbelow, to said still;
(d) means for withdrawing an alcohol-rich vapor as the overhead from said still;
(e) means for withdrawing an alcohol-poor distillery slop as the bottom stream from said still;
(f) evaporator means for concentrating said slop by evaporating water vapor therefrom;
(g) means for passing said slop from said still to said evaporator means;
(h) means for passing said vapor from said overhead of said still to said evaporator means into indirect heat exchange contact with said slop to condense a portion of said vapor and form a condensate;
(i) condensate stripper means for separating said condensate into an alcohol-rich overhead stream and an alcohol-poor bottom stream;
(j) means for passing said condensate from said evaporator means to condensate stripper means;
(k) means for feeding a portion of said water vapor withdrawn from said evaporator means to said stripper means;
(l) rectifier means for separating uncondensed vapor from said evaporator means into a concentrated alcohol overhead stream and an alcohol-containing mixture as a bottom stream;
(m) means for passing the uncondensed vapor from said evaporator means to said rectifier means;
(n) means for passing said alcohol-containing mixture from said rectifier means to said stripper means for admixture with said condensate from said evaporator;
(o) compressor means for forming a compressed vapor;
(p) means for passing at least a portion of at least one of said water vapor from said evaporator means and said vapor from said still to said compressor means; and
(q) means for withdrawing said concentrated slop from said evaporator means.

4,381,221

PROCESS FOR RECOVERING A REACTION PRODUCT WHILE PREVENTING DECOMPOSITION OF THE CATALYST

Tomiya Isshiki, Tokyo; Hisashi Yoshino, Matsudo, and Kaoru Tsuyuki, Tokyo, all of Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Continuation of Ser. No. 136,484, Apr. 2, 1980, abandoned. This application Aug. 14, 1981, Ser. No. 292,924

Claims priority, application Japan, Apr. 3, 1979, 54-39920

Int. Cl.³ B01D *3/34*

U.S. Cl. 203—6 **4 Claims**

1. In a process for recovering an aliphatic carboxylic acid and/or an ester thereof by distilling a liquid mixture containing the aliphatic carboxylic acid and/or the ester thereof and a catalyst of a metal of Group VIII of the periodic table of elements, the improvement wherein carbon monoxide is introduced into the distillation system to carry out the distillation in the presence of carbon monoxide at a partial pressure of at least 0.05 kg/cm^2 (absolute) in the distillation system to prevent the decomposition of said catalyst, there being no catalyst removed from said liquid mixture to be distilled, the amount of said catalyst in said liquid mixture to be distilled being 10^{-4} to 10^{-1} mole per liter of the total of the starting material and solvent used to obtain said liquid mixture.

4,381,222

PROCESS FOR THE DISTILLATIVE SEPARATION OF TERTIARY ALKYL HYDROPEROXIDES AND DITERTIARY ALKYL PEROXIDES

Gottfried Brossmann, Höllriegelskreuth, and Fritz Diem, Munich, both of Fed. Rep. of Germany, assignors to Peroxide-Chemie GmbH, Höllriegelskreuth, Fed. Rep. of Germany

Continuation of Ser. No. 138,782, Apr. 10, 1980, abandoned. This application Oct. 27, 1981, Ser. No. 315,389

Claims priority, application Fed. Rep. of Germany, Apr. 24, 1979, 2916572

Int. Cl.³ B01D *3/34*

U.S. Cl. 203—33 **10 Claims**

1. Process for the production of tertiary alkyl hydroperoxides of the formula

R—OOH

wherein

R is a tertiary alkyl group with 4 to 6 carbon atoms, which process comprises reacting the corresponding tertiary alkyl alcohol with the hydrogen peroxide to obtain the desired tertiary alkyl hydroperoxide including dialkylperoxide impurities, neutralizing the reaction mixture, subjecting same to vacuum distillation in the presence of water at a temperature of less than about 45° C., and recovering, as a bottoms product, the purified tertiary alkyl hydroperoxide in a yield of at least about 83.5%.

4,381,223

PROCESS FOR THE TREATMENT OF ORGANIC AMINE COMPOSITIONS

Charles A. Gibson; Moinuddin Ahmed, and Michael Habenschuss, all of South Charleston, W. Va., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Sep. 30, 1981, Ser. No. 307,223

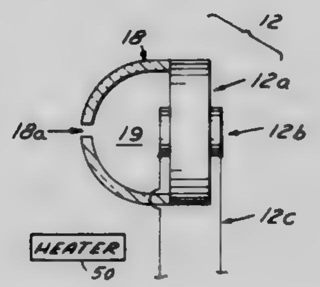
Int. Cl.³ B01D *3/00*

U.S. Cl. 203—91 **6 Claims**

1. A process for the treatment of organic amine compositions which are under such temperature and pressure that with time at least a portion of the components thereof can undergo

molecular chemical change and which can change desirable components and undesirable components, the desirable component being more volatile than the undesirable component, which process comprises arresting such molecular chemical change by subjecting such amine composition to a component separation at a pressure and temperature at which such more volatile component becomes, during separation, a supercritical fluid and the amine composition is converted into a multi-phase system, forming from such separation two enriched streams, one which is more enriched in the more volatile amine components of such amine composition than is such amine composition, and the other of which is less rich in such more volatile amine components than is said other stream and such amine composition but more enriched in the less volatile components of the amine composition than is said other stream and the amine composition.

4,381,224
STEP FUNCTION LEAN BURN OXYGEN SENSOR
William A. Fate, Ann Arbor, and Robert E. Hetrick, Dearborn Heights, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Apr. 27, 1981, Ser. No. 258,185
Int. Cl.[3] G01N *27/46*
U.S. Cl. 204—1 T 13 Claims



1. An electrochemical apparatus for making a measurement of oxygen partial pressure in an ambient environment including other gaseous materials, said electrochemical apparatus including:

a single solid electrochemical pump cell formed of a platelet of solid ionic conductors capable of conducting oxygen ions and including two electrode layers attached to opposing faces of said platelet, and lead wires attached to each of said electrodes for providing electrical coupling to said pump cell;

a leaky structure coupled to said electrochemical pump cell having an enclosed casing defining an enclosed volume and a leak orifice coupling the enclosed volume to the ambient;

an external circuit means coupled to said pump cell for applying a current to said pump cell so that oxygen can be withdrawn from the enclosed volume thereby providing an electrical output indicative of oxygen partial pressure;

said external circuit means including:

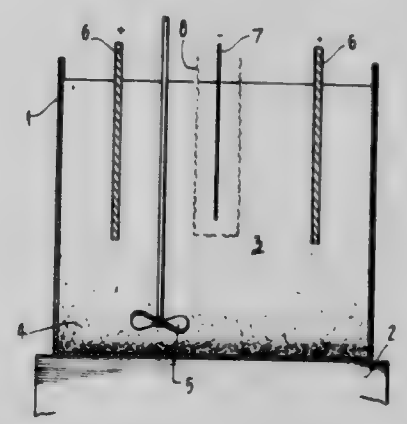
a constant current source means coupled to said electrochemical pump cell thereby generating said electrical output wherein a voltage, V, is a function of the oxygen partial pressure;

a first reference voltage means coupled to said constant current source means for producing a first step voltage output with the step occurring at a first output voltage related to a first oxygen partial pressure;

a second reference voltage means coupled to said constant current means for producing a second step voltage output with the step occurring at a second output voltage related to a second oxygen partial pressure;

an output means coupled to said first and second reference voltage means for generating a voltage step output having at least three voltage levels with steps occurring at said first and second partial pressure of oxygen thus indicating the relative magnitude of the oxygen partial pressure with respect to said first and second oxygen partial pressures.

4,381,225
PRODUCTION OF LEAD FROM ORES AND CONCENTRATES
Peter K. Everett, Chatswood, Australia, assignor to Dextec Metallurgical Pty. Ltd., North Sydney, Australia
PCT No. PCT/AU80/00001, § 371 Date Dec. 9, 1980, § 102(e) Date Dec. 8, 1980, PCT Pub. No. WO80/02164, PCT Pub. Date Oct. 16, 1980
PCT Filed Apr. 2, 1980, Ser. No. 220,031
Claims priority, application Australia, Apr. 9, 1979, PD8329
Int. Cl.[3] C25C *1/18*
U.S. Cl. 204—117 21 Claims



1. A process for selectively recovering lead from a lead bearing ore or concentrate also containing base metal sulphides other than lead sulphides in an electrolytic cell including at least one anode and one cathode, said process including

(1) contacting the ore or concentrate with an electrolyte containing chloride ions,

(2) agitating the electrolyte and ore or concentrate wherein the agitation of said electrolyte and ore or concentrate is controlled to minimize the amount of said ore or concentrate in close proximity to said at least one anode so that the base metal of such sulphides other than lead existing in the ore or concentrate remains substantially undissolved,

(3) maintaining the electrolyte at a temperature ranging up to the boiling point of the electrolyte and at a pH of up to 7 while applying a low anode current density and employing low oxidation conditions, whereby sulphur present in the ore or concentrate is substantially converted to elemental form and lead is taken into solution and cathodically selectively recovering said lead.

4,381,226
ELECTROCHEMICAL TREATMENT OF ALUMINUM IN NON-AQUEOUS POLYMERIC POLYBASIC ORGANIC ACID CONTAINING ELECTROLYTES
Thomas N. Gillich, Readington Township, Hunterdon County, and John E. Walls, Annandale, both of N.J., assignors to American Hoechst Corporation, Somerville, N.J.
Filed Dec. 23, 1981, Ser. No. 333,585
Int. Cl.[3] C25D *9/02, 9/06*
U.S. Cl. 204—14 N 11 Claims

1. A process for treating an aluminum containing sheet substrate which comprises electrolyzing said substrate as an anode in a non-aqueous electrolyte comprising a solvent having a dipole moment of at least 1.5 and a compatible polymeric polybasic organic acid, wherein said electrolysis is conducted at a voltage of from about 5 to about 120 volts, with a charge application of from about 1 to about 150 coulombs per square decimeter of substrate, in an electrolyte maintained at a temperature of from about -5° to about 60° C., with a cathode to anode distance of from about 1 to about 25 centimeters.

4,381,227

PROCESS FOR THE MANUFACTURE OF ABRASIVE-COATED TOOLS

Harold Narcus, Worcester, Mass., assignor to Norton Company, Worcester, Mass.

Division of Ser. No. 174,076, Jul. 31, 1980, abandoned. This application Oct. 8, 1981, Ser. No. 309,668

Int. Cl.^{3} C25D *5/12, 5/54, 15/00*

U.S. Cl. 204—16 **1 Claim**

1. A flexible coated abrasive product comprising a non-conductive polymer film, a first conductive layer applied to one side of said film, a second, electrolytically applied, layer on said conductive layer, a third layer on said second layer, said third layer containing electrolytically applied nickel and, holding diamond abrasive particles to said second layer, a fourth layer electrolessly applied with electrolytic assistance of at least 50 amperes per square foot and containing, in addition to nickel, a combined element selected from the group consisting of boron and phosphorous and combinations thereof, said third and fourth layers amounting to 20 to 50% of the height of the diamond particles perpendicular to the plane of the backing.

4,381,228

PROCESS AND COMPOSITION FOR THE ELECTRODEPOSITION OF TIN AND TIN ALLOYS

Robert J. Teichmann, Belleville, and Linda J. Mayer, Denville, both of N.J., assignors to Occidental Chemical Corporation, Warren, Mich.

Filed Jun. 16, 1981, Ser. No. 274,084

Int. Cl.^{3} C25D *3/32, 3/60*

U.S. Cl. 204—44 **14 Claims**

1. An aqueous electroplating bath for the electrodeposition of bright, metallic tin or alloys of tin with copper or rhodium which comprises from 5 to 50 g/l of a bath soluble di-valent tin compound, sulfuric acid in an amount sufficient to maintain the bath pH not in excess of about 2.0, 0.01 to 10 g/l of a perfluoroalkyl sulfonate wetting agent, 0.3 to 15 cc/l of an aromatic amine brightener, 0.1 to 20 g/l of a non-ionic surfactant, and 0.5 to 30 g/l of an aromatic sulfonic acid, said bath being substantially free of other sulfur components.

4,381,229

PROCESS FOR ELECTROCHEMICAL REDUCTION OF TEREPHTHALIC ACID

John A. Donohue, Elmhurst, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 201,139, Oct. 27, 1980, abandoned. This application Nov. 9, 1981, Ser. No. 319,120

Int. Cl.^{3} C25B *3/00*

U.S. Cl. 204—75 **23 Claims**

1. A process for the preparation of p-hydroxymethylbenzoic acid which comprises electrochemical reduction of terephthalic acid in an electrolysis cell wherein (a) the cathode is solid and metal, said solid, metal cathode having an overlay surface of an amalgam of mercury, said metal of said cathode having a hydrogen overvoltage which is greater than the potential for the reduction of terephthalic acid to p-hydroxymethylbenzoic acid, and (b) sufficient mercury is added therein as a mercury compound to maintain said process.

4,381,230

OPERATION AND REGENERATION OF PERMSELECTIVE ION-EXCHANGE MEMBRANES IN BRINE ELECTROLYSIS CELLS

Harry S. Burney, Jr., Clute, and Gary R. Gantt, Brazoria, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

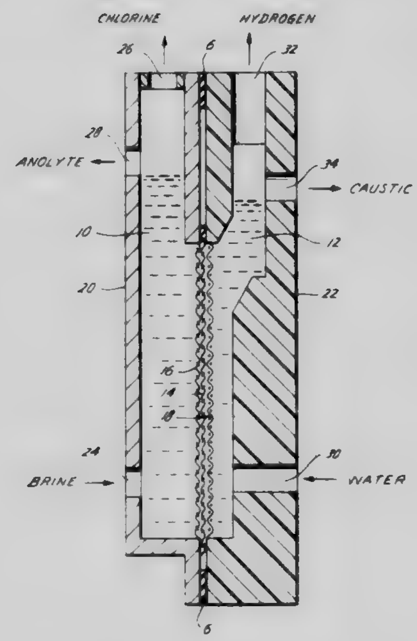
Filed Jun. 22, 1981, Ser. No. 276,095

Int. Cl.^{3} C25B *1/34*

U.S. Cl. 204—98 **20 Claims**

1. A method of operating and regenerating an electrolysis cell which electrolyzes an aqueous alkali metal halide solution (brine) to a halogen at the cell's anode and an alkali metal hydroxide at the cell's cathode, which cell contains a permselective cation exchange membrane disposed between the anode and cathode to form an anolyte and catholyte compartment so as to separate the cell's anolyte from its catholyte, which method comprises the combination of steps of:

A. during at least 50% of the cell's normal electrolysis operation, feeding to and electrolyzing in said cell a brine which, at least at the time immediately prior to the brine's becoming part of the anolyte, contains no more than about 5 ppm hardness (expressed as ppm calcium) and no more than about 70 ppm "carbon oxide" (expressed as ppm CO_2);



B. regenerating the membrane (after it has become fouled with compounds of multivalent cations accumulated from the brine fed to the cell during the normal cell electrolysis step of Step (A) above) by contacting the membrane on at least one of its sides with a solution capable of dissolving the multivalent cation compounds fouling the membrane for a time sufficient to dissolve a substantial amount of said compounds fouling said membrane, said solution having a pH lower than the pH of the electrolyte which contacted that side of the membrane during the normal cell electrolysis step, Step (A) above.

4,381,231

DC ETCHING OF ALUMINUM ELECTROLYTIC CAPACITOR FOIL

Mulk R. Arora, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Filed Nov. 16, 1981, Ser. No. 321,510

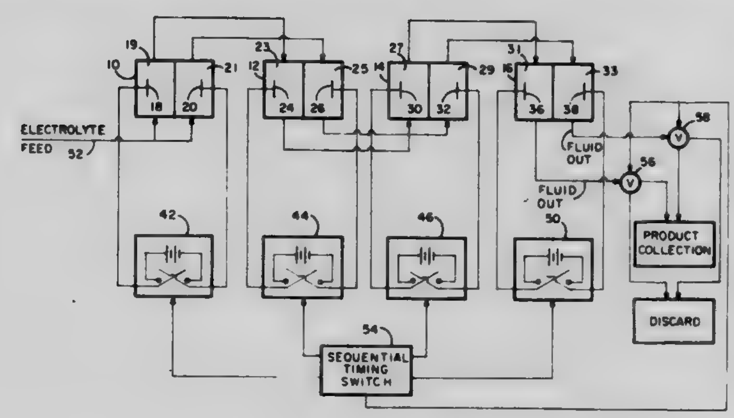
Int. Cl.^{3} C25F *3/04*

U.S. Cl. 204—129.75 **5 Claims**

1. A process for etching aluminum electrolytic capacitor foil comprising passing the foil through an electrolyte bath containing substantially 2.5 moles/liter of sodium chloride and a compound selected from the group consisting of boric acid and citrate ion source, wherein the concentration of said compound is 0.08 up to 0.48 moles/liter of boric acid and 0.05 to

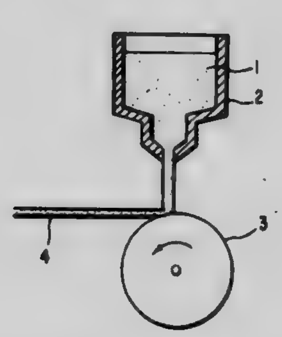
0.07 moles/liter of citrate ion source under the influence of direct current at a temperature of 90° to 95° C. and a charge passed of 500 to 540 coulombs to provide an etched foil with a central metallic core.

4,381,232
MULTI-STAGE ELECTRODIALYSIS STACK ELECTRODE REVERSAL SYSTEM AND METHOD OF OPERATION
Douglas R. Brown, Arlington, Mass., assignor to Ionics, Incorporated, Watertown, Mass.
Filed Aug. 24, 1981, Ser. No. 295,412
Int. Cl.³ B01D *57/02*
U.S. Cl. 204—180 P **7 Claims**



1. In a multi-stage electrodialysis fluid treatment system comprised of a plurality of series connected stages, each stage arranged to further desalt the dilute product stream output of the previous stage, each stage composed of an anode and a cathode separated by at least one cell pair of salt diluting and salt concentrating chambers defined by alternating anion and cation permselective membranes, each stage connected to its associate stages by fluid passage means for each of the dilute and concentrated product streams generated by said stages, each stage further having polarity reversing means for periodically changing the polarity of said electrodes, said system further having fluid passage control means for directing the flow of said dilute and concentrated product streams, the improvement which comprises switching means for sequentially activating said polarity reversing means stage by stage on a time staggered basis in order of the dilute product salt content.

4,381,233
PHOTOELECTROLYZER
Toshio Adachi, and Tatsumi Arakawa, both of Fuji, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
Filed May 13, 1981, Ser. No. 263,055
Claims priority, application Japan, May 19, 1980, 55-65288; Jun. 26, 1980, 55-85873
Int. Cl.³ C25B *1/00, 1/02, 9/00*
U.S. Cl. 204—242 **16 Claims**

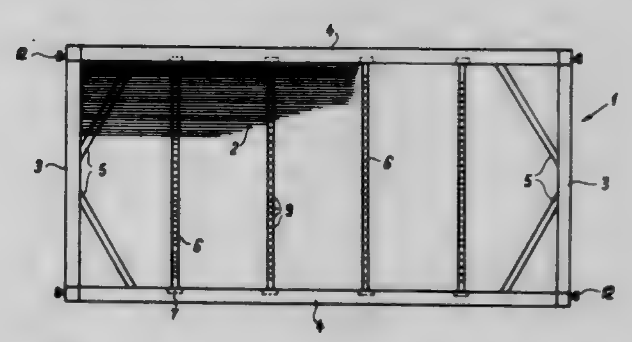


1. A photoelectrolyzer comprising a number of minute solar cell elements suspended in an electrolyte, each solar cell element comprising at least one layer which is constituted by at least a first thin film composed of intrinsic amorphous silicon, having a carrier life of 10^{-7} sec or longer, an average localized state density in the forbidden gap of not more than $10^{17}/cm^3$ and an active region in which carrier mobility is $10^{-1}cm^2/V.sec$ or more, or N-type amorphous silicon prepared by doping said intrinsic amorphous silicon with an N-type impurity, or both thereof, and a second thin film which is formed on one surface of the active region of said first thin film, thereby forming a potential barrier therewith, said second thin film being light transmissive.

4,381,234
SOLVENT EXTRACTION PRODUCTION OF LUBE OIL FRACTIONS
Costandi A. Audeh; Israel J. Heilweil; James R. White, all of Princeton, N.J., and Tsoung Y. Yan, Philadelphia, Pa., assignors to Mobil Oil Corporation, New York, N.Y.
Division of Ser. No. 37,967, May 11, 1979, Pat. No. 4,273,645. This application Nov. 21, 1980, Ser. No. 208,905
Int. Cl.³ C10G *21/10, 21/16*
U.S. Cl. 208—327 **8 Claims**

1. In an improved method for producing lubricating oils by solvent extraction which comprises contacting a lube oil-containing hydrocarbon charge under conditions of solvent selectivity to permit the recovery of a raffinate phase which upon dewaxing will provide a lube oil product, the improvement whereby there is present in the extraction system from about 0.002% to about 0.2% by weight of the solvent of a metal or ammonium alkylbenzene sulfonate to facilitate phase separation and to increase raffinate yield, the solvent being selected from the group consisting of furfural, phenol, cresilic acid and sulfur dioxide, wherein the metal is selected from sodium and Group IIB of the Period Table, and the ammonium group has the formula R'_4N^+, wherein R' is hydrogen or a C_1–C_6 alkyl group.

4,381,235
SCREENING APPARATUS
Lee Mallaghan, Maynooth, Ireland, assignor to Powerscreen Limited, Maynooth, Ireland
Filed Nov. 20, 1980, Ser. No. 208,777
Int. Cl.³ B07B *1/12*
U.S. Cl. 209—400 **11 Claims**



1. A screening apparatus comprising a rectangular screening frame, a multiplicity of parallel laterally spaced wires releasably fixed to and tensioned between two oppositely disposed frame ends so as to extend across the screening frame, a plurality of support bars extending between side members of the frame and transversely with respect to the wires, said support bars having spaced guide slots releasably receiving and guiding the individual tensioned wires but otherwise not connected with or contacting said wires, said wires contacting only part of the peripheral surfaces of said support bars, and releasable fixing means releasably securing said support bars to said screening frame so as to permit removal and replacement of one or more of said support bars without disassembling said screening frame.

4,381,236

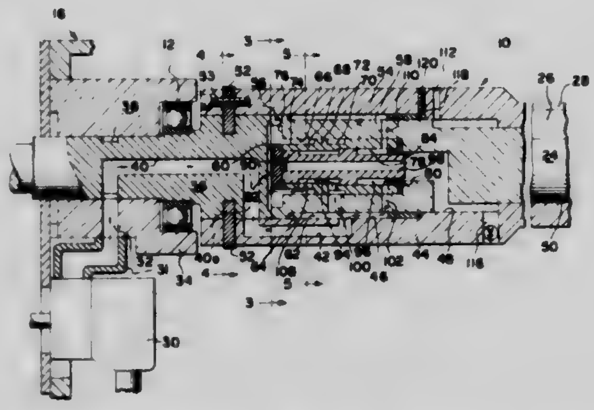
HIGH PRESSURE ROTARY CENTRIFUGAL SEPARATOR HAVING APPARATUS FOR AUTOMATICALLY CYCLICALLY RECIPROCATING A COROTATING SEPARATOR BASKET SCRAPER

Bradley G. Cox, Saginaw, Mich., assignor to Baker Perkins Inc., Saginaw, Mich.

Filed Feb. 19, 1981, Ser. No. 236,033

Int. Cl.[3] **B01D** *33/02, 45/14*

U.S. Cl. 210—112 **17 Claims**



1. In a centrifugal separator assembly or the like wherein an element is mounted upon a rotary shaft means to be driven by said shaft means simultaneously in both rotation and axial reciprocation; the improvement wherein said rotary shaft means has a first chamber closed at one end and a bore extending coaxially from the other end of said first chamber, said first chamber having an internal diameter greater than that of said bore, a piston having a head section sealingly slidably received in said first chamber and a guide section sealingly slidably received in said bore, said piston being axially reciprocable within said shaft means between a first end limit wherein said head section is adjacent said one end of said first chamber and a second end limit wherein said head section is adjacent said other end of said first chamber, a source of hydraulic fluid under pressure, inlet passage means in said shaft means for conducting fluid under pressure from said source to said other end of said first chamber to bias said piston toward its first end limit, a pilot valve slidably mounted within a main valve chamber within said piston for reciprocatory movement within said piston between first and second end limits, first passage means in said piston and said valve operable when said valve is at its first end limit to conduct fluid under pressure from said other end of said first chamber through said head section to said one end of said first chamber to drive said piston to its second end limit, second passage means in said piston and said valve operable when said piston is at its first end limit to conduct fluid under pressure from said inlet passage means to a portion of said main valve chamber to bias said valve to its first end limit, third passage means in said piston and said shaft means for venting said portion of said main valve chamber upon arrival of said piston at its second end limit to allow said valve to move to its second end limit, and fourth passage means in said valve, said piston and said shaft means operable when said valve is at its second end limit for venting said one end of said first chamber to allow the bias of fluid under pressure in said other end of said first chamber to restore said piston to its first end limit; said main valve chamber being closed at one end, means defining a first axial section of said main valve chamber of a first diameter extending from said closed end of said main valve chamber and terminating at a first location intermediate the ends of said main valve chamber and, a second axial section of said main valve chamber of a diameter greater than that of said first section extending from said first location to the opposite end of said main valve chamber, means defining a coaxial guide bore extending from said opposite end of said main valve chamber, said guide bore having a diameter less than that of said second axial section, a valve body having a first annular land at one end thereof received in sliding sealed engagement with the wall of said first axial section, a second annular land on said valve body received in sliding sealed engagement with the wall of said second axial section, and an end section on said valve body received in sliding sealed engagement within said guide bore, said first and second lands defining a first annular valve chamber therebetween and said second land defining a second annular valve chamber with said opposite end of said main valve chamber, said first annular valve chamber constituting a portion of said first passage means and said second annular valve chamber constituting the terminus of said second passage means.

4,381,237

SLUDGE ROBOT

Tord Svensson, Dammgatan 8, S-552 76 Jönköping, Sweden

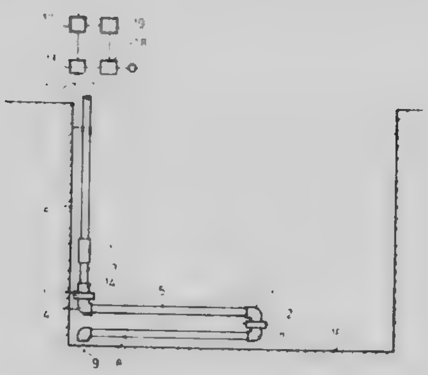
PCT No. PCT/SE80/00260, § 371 Date Jul. 17, 1981, § 102(e) Date Jul. 17, 1981, PCT Pub. No. WO81/01372, PCT Pub. Date May 28, 1981

PCT Filed Oct. 28, 1980, Ser. No. 285,107

Claims priority, application Sweden, Nov. 20, 1979, 7909592

Int. Cl.[3] **B01D** *21/20*

U.S. Cl. 210—138 **9 Claims**



1. A sludge robot for removal of sludge and sedimental particles from a sedimentation tank or the like and comprising a rising tube and at least two tube arms of which one is rotatably connected to the rising tube at its one end and the second tube arm is rotatably connected to the other end of said one tube arm and at its one end and has a suction inlet at its other, free end, characterized by the provision of motor couplings, which interconnect said one tube arm with the rising tube on one hand and the second tube arm on the other hand, for rotating the two tube arms which are provided in the lower portion of the tank, adjacent to its bottom according to a predetermined program, and control means for steering the motor couplings in such a way that the suction inlet moves in a predetermined movement pattern over substantially the whole bottom of the tank.

4,381,238

CLAMPING DEVICE

William T. Maxant, P.O. Box 454, Ayer, Mass. 04132

Filed Jul. 31, 1981, Ser. No. 288,802

Int. Cl.[3] **B04B** *3/00*

U.S. Cl. 210—231 **7 Claims**

1. In combination,

an open reel type centrifuge for extracting honey from a honeycomb frame which may be mounted therein, said centrifuge including a reel supported for rotation therein, said reel having an axel and first and second wheel sections mounted for rotation with said axel in axially spaced apart relationship, and each wheel section aligned generally perpendicular to the axis of said axel and said reel having transverse supports fixed to and extending between said wheel sections to provide structural support for said reel and to provide hangers for said honeycomb frames; and,

a clamp for retaining honeycomb frames between said first and second wheels and against said transverse supports of said open reel type centrifuge to hold said honeycomb

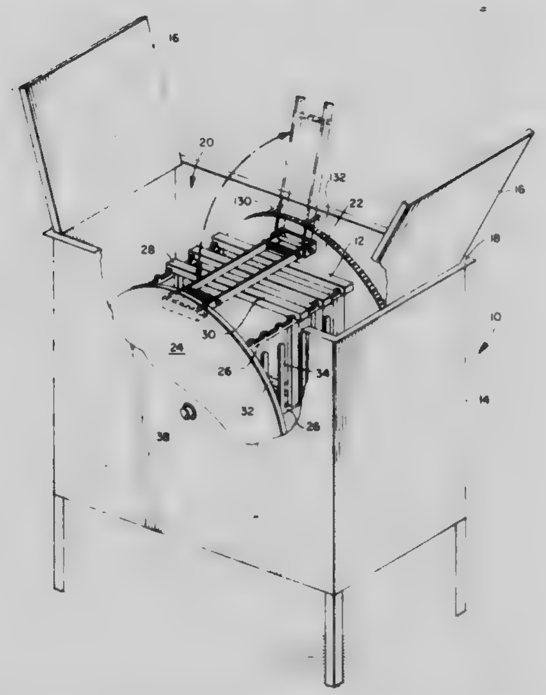
frames in position against the centrifugal force developed when said reel rotates, said clamp comprising:

first and second clamp bars extending between the wheels of said open reel;

a plurality of spring pins extending between said clamp bars and spaced longitudinally along said clamp bars at points removed from the ends of said clamp bars;

springs disposed about each of said spring pins and biasing said clamp bars apart;

means for pivotably attaching one end of said first and second clamp bars to said first wheel adjacent the circumference thereof so that said clamp may be pivoted out of the way to permit honeycomb frames to be loaded into said reel;



means fixed to said second wheel adjacent the circumference thereof for removebly engaging the other end of said first and second clamp bars whereby said clamp bars may be moved together against the bias force of said springs and pivoted into position against said honeycomb frames and then said clamp bars may be released to engage said other end of said first and second clamp bars with said engagement means to securely hold said honeycomb frames in said reel against the influence of the centrifugal force developed when said reel rotates in said centrifuge.

4,381,239

METHOD FOR REDUCING THE PYROGEN CONTENT OF OR REMOVING PYROGENS FROM SUBSTANCES CONTAMINATED THEREWITH

Ichiro Chibata, Suita; Tetsuya Tosa, Kyoto; Tadashi Sato, Takatsuki; Taizo Watanabe, Nagaokakyo, and Satoshi Minobe, Osaka, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

Filed Jan. 27, 1982, Ser. No. 343,269

Claims priority, application United Kingdom, Feb. 10, 1981, 8103972

Int. Cl.^{3} B01D *15/00*

U.S. Cl. 210—679 **15 Claims**

1. A method for removing a pyrogen from a pyrogen-containing solution comprising contacting the solution with an adsorbent to adsorb the pyrogen, which is characterized in that the adsorbent comprises a water-insoluble carrier and a nitrogen-containing heterocyclic compound of the formula:

$$R—A—X \quad (I)$$

wherein R is a nitrogen-containing heterocyclic group; A is single bond, alkylene or alkenylene; X is hydrogen or functional group; and the heterocyclic group and alkylene may be optionally substituted by one or more substituents, and the compound (I) being bonded to the carrier directly or through a spacer.

4,381,240

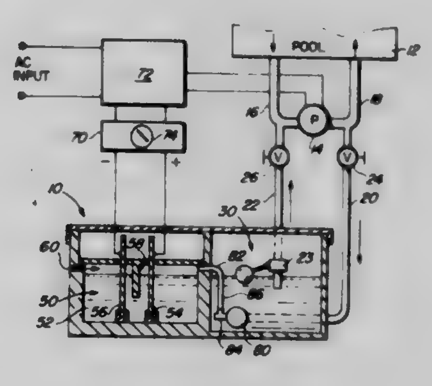
SWIMMING POOL WATER CONDITIONING SYSTEM

Thomas V. Russell, Mesa, Ariz., assignor to Harry M. Weiss, Scottsdale, Ariz.

Filed May 5, 1981, Ser. No. 260,681

Int. Cl.^{3} C02F *1/76*

U.S. Cl. 210—746 **2 Claims**



1. In a swimming pool, a water conditioning system, comprising:

means for circulating a flow of pool water into a first chamber;

a second chamber adjoining said first chamber and having a vented upper- and enclosed lower- volume portions in communication;

hydrochloric acid filling said lower volume portion;

electrode means having an anode and a cathode in said lower volume portion for conducting a current through said hydrochloric acid so that chlorine gas is freed thereby;

manifold means having a venturi in communication with said upper portion and with said means for circulating for drawing said chlorine gas into said first chamber and mixing said chlorine gas with said pool water; means for terminating the operation of said electrode means; and

control means for sustaining operation of said means for circulating after terminating operation of said electrode means so that said chlorine gas is purged from said upper volume portion when said system is turned off.

2. A method of safely conditioning water in a swimming pool comprising the steps of:

circulating a flow of pool water into a first chamber;

providing a second chamber adjoining said first chamber, said second chamber having vented upper and enclosed lower volume portions in communication;

filling said lower volume portion with hydrochloric acid;

conducting a current through said hydrochloric acid by the use of electrode means having an anode and a cathode located in said lower volume portion so that chlorine gas is freed thereby;

providing manifold means having a venturi in communication with said upper portion and with said pool water circulated into said first chamber for drawing said chlorine gas into said first chamber and mixing said chlorine gas with said pool water;

terminating the operation of said electrode means; and

providing control means for sustaining the operation of circulating said flow of pool water after terminating the operation of said electrode means so that said chlorine gas is purged from said upper volume portion.

4,381,241
INVERT EMULSIONS FOR WELL-DRILLING COMPRISING A POLYDIORGANOSILOXANE AND METHOD THEREFOR
David J. Romenesko, and Harry M. Schiefer, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.
Filed Feb. 23, 1981, Ser. No. 236,968
Int. Cl.³ C09K *7/06;* **E21B** *43/00*
U.S. Cl. 252—8.5 P **20 Claims**

1. An emulsion composition to be used in well-drilling and comprising
(A) 1 to 75 parts by volume of a brine as a discontinuous phase,
(B) 25 to 99 parts by volume of a liquid hydrocarbon selected from the group consisting of kerosene, diesel oil, crude oil, turbine fuel, mineral oil, gas oil and paraffins having a flash point of at least 100° F. as a continuous phase, and
(C) 0.05 to 15 parts by weight, for every 100 parts by weight of brine plus liquid hydrocarbon, of a polydiorganosiloxane having the formula

$$Z_3SiO\{(CH_3)_2SiO\}_x\{(CH_3)(R)SiO\}_y\{(CH_3)(Q)SiO\}_zSiZ_3$$

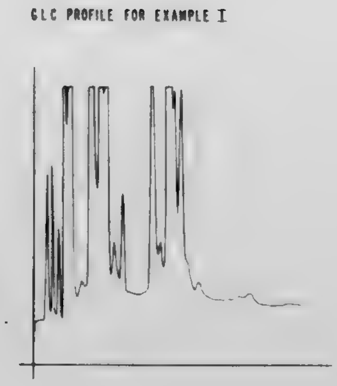
wherein
Q denotes a polyoxyalkylene radical having the formula

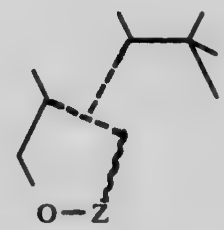
$$—R'(OCH_2CH_2)_p(OCH_2CHCH_3)_qOR'',$$

R denotes a monovalent hydrocarbon radical having from 6 to 18 carbon atoms, inclusive,
R' denotes a divalent radical bonded to a silicon atom by a silicon-carbon bond,
R'' denotes a monovalent radical selected from the group consisting of hydrogen, alkyl, cycloaliphatic, aryl, arylalkyl and acyl radicals,
Z denotes a monovalent hydrocarbon radical having from 1 to 5 carbon atoms, inclusive, or a Q radical, or an R radical,
x has an average value of from 0 to 400,
y has an average value of from 0 to 400,
z has an average value of from 0 to 5,
x+y+z has an average value of from 30 to 400,
p has an average value equal to or greater than the average value of q and
p+q has an average value sufficient to provide a formula weight of from 600 to 3500 for the $—(OCH_2CH_2)_p(OCH_2CHCH_3)_q—$ portion of the Q radical, there being an average of at least one Q radical and an average of at least one R radical per molecule of the polydiorganosiloxane.

4,381,242
ORGANOLEPTIC USE OF PRINS REACTION PRODUCTS OF DIISOAMYLENE, DERIVATIVES THEREOF, ORGANOLEPTIC USES THEREOF AND PROCESSES FOR PREPARING SAME
Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.
Division of Ser. No. 267,850, May 28, 1981, Pat. No. 4,359,412. This application Jun. 24, 1982, Ser. No. 391,597
Int. Cl.³ D06M *13/16, 13/18*
U.S. Cl. 252—8.6 **1 Claim**

1. A process for augmenting or enhancing the aroma of a fabric softener article or fabric softener composition comprising the step of adding to a fabric softener article component or a fabric softener composition, an aroma augmenting or enhancing quantity of at least one compound defined according to the structure:

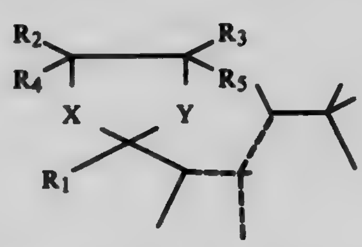




wherein one of the dashed lines is a carbon-carbon double bond and each of the other of the dashed lines is a carbon-carbon single bond; wherein the wavy line: ∿∿∿ is a carbon-carbon single bond or no bond at all; wherein Z represents hydrogen, $—CH_2—$, or C_2–C_4 acyl; with the proviso that when the wavy line: ∿∿∿ is no bond at all, Z represents hydrogen or C_2–C_4 acyl and when the wavy line: ∿∿∿ is a carbon-carbon single bond, then Z represents $—CH_2—$.

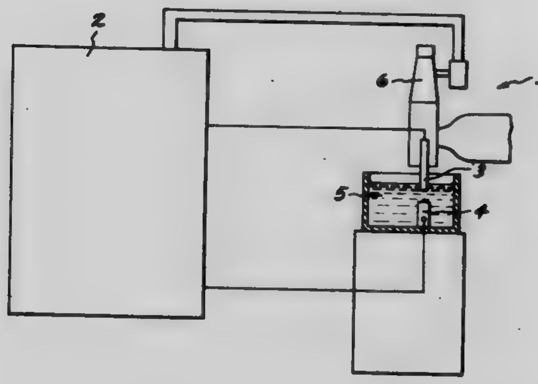
4,381,243
ALIPHATIC BRANCHED OLEFIN DIOXOLANES, DITHIOLANES, AND OXATHIOLANES AND USES THEREOF IN AUGMENTING OR ENHANCING THE AROMA AND/OR TASTE OF CONSUMABLE MATERIALS
Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.
Continuation-in-part of Ser. No. 212,993, Dec. 4, 1980, Pat. No. 4,315,952. This application Nov. 19, 1981, Ser. No. 322,871
Int. Cl.³ D06M *13/18*
U.S. Cl. 252—8.9 **5 Claims**

1. A process for augmenting or enhancing the aroma of a fabric softener composition or fabric softener article comprising the step of intimately admixing with a fabric softener composition or a component of a fabric softener article, an aroma augmenting or enhancing quantity of at least one dioxolane, oxathiolane or dithiolane compound defined according to the structure:



wherein R_1 represents C_1–C_4 lower alkyl; R_2, R_3, R_4 and R_5 represent hydrogen or C_1–C_3 lower alkyl; X and Y are the same or different and each represents oxygen or sulfur and wherein one of the dashed lines represents a carbon-carbon double bond and each of the other of the dashed lines represent carbon-carbon single bonds.

4,381,244
FERROFLUID
Ami E. Berkowitz, and John L. Walter, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.
Division of Ser. No. 133,587, Mar. 24, 1980, abandoned. This application Aug. 13, 1981, Ser. No. 292,569
Int. Cl.³ C09K *5/00*
U.S. Cl. 252—62.52 **10 Claims**



1. A ferrofluid consisting essentially of a carrier fluid having in indefinite suspension therein composite particles consisting essentially of magnetic metallic particles adherently enmeshed in organic polymer, said polymer being in a fibrous or filamentary form, said composite particles being in the form of filamentary rafts or membranes of a size and density which maintains them in indefinite suspension in said carrier fluid.

4,381,245
SUPERCOOLING INHIBITOR AND PROCESS FOR PREPARING THE SAME
Takahiro Wada; Shoichi Ishihara, both of Katano, and Ryoichi Yamamoto, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Oct. 27, 1981, Ser. No. 315,456
Claims priority, application Japan, Oct. 27, 1980, 55-150517; Mar. 17, 1981, 56-38969
Int. Cl.³ C09K *3/18;* **C01B** *25/42*
U.S. Cl. 252—70 **3 Claims**

1. A supercooling inhibitor comprising:

a supercooling inhibitor base comprising at least one member selected from the group consisting of sodium pyrophosphate ($Na_4P_2O_7$), trisodium monohydrogen phosphate ($Na_3HP_2O_7$), disodium dihydrogen phosphate ($Na_2H_2P_2O_7$), monosodium trihydrogen pyrophosphate ($NaH_3P_2O_7$), sodium pyrophosphate decahydrate ($Na_4P_2O_7.10H_2O$) and disodium dihydrogen pyrophosphate hexahydrate ($Na_2H_2P_2O_7.6H_2O$); and

a heat regenerating material utilizing heat of fusion comprising sodium acetate trihydrate ($CH_3COONa.3H_2O$), the surface of said supercooling inhibitor base being at least partially coated with said heat regenerating material.

4,381,246
NON-FOGGING PREMOISTENED WIPER
Ralph L. Anderson, Boothwyn, Pa., assignor to Scott Paper Company, Philadelphia, Pa.
Filed Sep. 28, 1981, Ser. No. 306,006
Int. Cl.³ C11D *17/00*
U.S. Cl. 252—91 **3 Claims**

1. A fibrous web for cleaning and rendering surfaces nonfogging comprising a fibrous web bonded with a latex selected from the group consisting of natural rubber, butadiene rubber and styrene-butadiene rubber and impregnated with an aqueous cleaning solution comprising 0.2-1.0% by weight zinc chloride.

4,381,247
ENZYME-CONTAINING BLEACHING COMPOSITION
Yunosuke Nakagawa, Soka, and Shoichiro Aramatsu, Ichikawa, both of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan
Filed Oct. 20, 1981, Ser. No. 313,129
Claims priority, application Japan, Oct. 24, 1980, 55/149138
Int. Cl.³ C11D *7/10, 7/18, 7/42;* **D06L** *3/16*
U.S. Cl. 252—95 **7 Claims**

1. A dry, powder, enzyme-containing, bleaching composition comprising from 5 to 98 percent by weight of an inorganic peroxide effective for bleaching fabrics; from 0.01 to 5 percent by weight of one or more enzymes capable of functioning in a bleaching composition for the removal of organic stains from fabrics; and from 0.1 to 20 percent by weight of at least one anhydrous salt selected from the group consisting of anhydrous sodium citrate, anhydrous magnesium sulfate, anhydrous calcium chloride and anhydrous zinc sulfate.

4,381,248
COMPOSITION FOR REMOVING CYANOACRYLATE ADHESIVES FROM SURFACES
Warren G. Lazar, 8401 N. Rancho Catalina Dr., Tucson, Ariz. 85704
Filed Aug. 18, 1981, Ser. No. 293,872
Int. Cl.³ C11D *7/12, 7/32, 7/50;* **C23D** *17/00*
U.S. Cl. 252—118 **1 Claim**

1. A composition consisting essentially of from 150-160 parts by weight of a mixture, formed by mixing 60 parts by weight of acetonitrile with 40 parts by weight of water and 1-2 parts by weight of synthetic surfactant until a homogeneous mixture is obtained, with 40 parts by weight of a compound selected from the group consisting of sodium bicarbonate and sodium carbonate and from 40-50 parts by weight of a filler selected from the group consisting of ethyl cellulose, bentonite montmorillonite clay, sodium stearate, sodium oleate, silica, starch and aluminum octonoate.

4,381,249
RUST REMOVING AND METAL SURFACE PROTECTING COMPOSITION
Joseph O. Bouffard, 77, rue Hebert, Granby, Quebec, Canada (J2G 7V7)
Filed May 14, 1979, Ser. No. 38,825
Int. Cl.³ C11D *1/44;* **C23F** *9/02;* **C23G** *1/06, 1/08*
U.S. Cl. 252—136 **9 Claims**

1. A rust removing and metal surface protecting composition, which consists essentially of about 99.5% by weight of phosphoric acid at 85% concentration, from 0.11 to 0.14% by weight of 1,3-dibutyl thiourea, from 0.09 to 0.11% by weight of 1,3-diethyl thiourea, about 0.025% by weight of a non-ionic surface active agent, from 0.10 to 0.20% by weight of a lower monohydric alcohol, and from 0.08 to 0.18% by weight of an amine selected from the group consisting of polyoxyethylene fatty alkyl amines containing 2 to 15 moles of ethylene oxide, the fatty alkyl group of which being derived from fatty acids containing 12 to 18 carbon atoms.

4,381,250
CURING OF TETRABASIC LEAD PASTED BATTERY ELECTRODES
John F. Rittenhouse, Lafayette Hill, Pa., assignor to Allied Corporation, Toledo, Ohio
Division of Ser. No. 212,480, Dec. 3, 1980, Pat. No. 4,338,163. This application Feb. 2, 1982, Ser. No. 344,911
Int. Cl.³ H01M *4/58, 4/20*
U.S. Cl. 252—182.1 **4 Claims**

1. A paste for coating at least one electrode for fabricating a plate of a lead acid battery, comprising water, tetrabasic lead sulfate and an effective amount of ammonium carbonate.

4,381,251
OXIDATION INHIBITOR
Minoru Kitayama, and Hisao Odashima, both of Himeji, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan
Filed Jun. 21, 1977, Ser. No. 808,668
Claims priority, application Japan, Jun. 29, 1976, 51-76878; Sep. 10, 1976, 51-108591
Int. Cl.[2] **C09K** *15/32*
U.S. Cl. 252—400 R **2 Claims**

1. An oxidation inhibitor comprising:
(A) 10 to 200 parts by weight of at least one selected from the group consisting of
Silica powder
Kaoline
Magnesia powder
$MgO-Cr_2O_3$ refractories
$Mg-SiO_2$ refractories, and
Mica
(B) 10 to 200 parts by weight of silicic anhydride (SiO_2),
(C) 10 to 200 parts by weight of at least one selected from the group consisting of Cr, V, Al, Ti, Nb, Ni and Cu in the powder form,
(D) 5 to 50 parts by weight of at least one selected from the group consisting of colloidal silica and alumina sol, and
(E) 1 to 20 parts by weight of water-soluble resin,
wherein the ratio of the metal powder to the total solid components is within a range defined by the following formula:

$$\frac{\text{Weight of metal powder}}{\text{Weight of total solid components}} \times 100 = 20\text{–}50\%$$

(the total solid components is the sum of (A)+(B)+(C)+-(solid component of D)+(E)).

4,381,252
CATALYST FOR PRODUCING POLYOLEFINS
Hisaya Sakurai; Yoshihiko Katayama; Tadashi Ikegami, and Masayasu Furusato, all of Kurashiki, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
Continuation-in-part of Ser. No. 231,183, Jan. 29, 1981, abandoned, which is a continuation of Ser. No. 91,326, Nov. 5, 1979, abandoned. This application Jun. 1, 1981, Ser. No. 269,240
Int. Cl.[3] **C08F** *4/64*
U.S. Cl. 252—429 B **30 Claims**

1. A catalyst suitable for polymerizing an α-olefin, comprising a solid catalyst component (A) and an organocompound selected from the group consisting of an organometal, organoboron and organosilicon compound (B), the solid catalyst component (A) being prepared by reacting an organomagnesium compound (1) soluble in a hydrocarbon medium and represented by the general formula,
$MgR_p^1R_q^2X_rZ_s$
wherein
R^1 is a hydrocarbon group having 2 to 3 carbon atoms;
R^2 is a hydrocarbon group having 4 to 20 carbon atoms and the difference in number of carbon atoms between R^1 and R^2 is at least 2;
X is an electronegative group having an oxygen atom, a nitrogen atom or a sulfur atom;
Z is an organocompound of aluminum, boron, beryllium, zinc, silicon or lithium;
p and q each is a number above 0 to 1;
r is a number from 0 to 1;
$p+q+r=2$; and
s is a number from 0.02 to 0.09
with a titanium and/or vanadium compound (2) having at least one halogen atom directly connected to the titanium and/or vanadium.

4,381,253
ULTRA HIGH EFFICIENCY CATALYST FOR POLYMERIZING OLEFINS
Randall S. Shipley, Alvin, Tex., assignor to The Dow Chemical Company, Midland, Mich.
Filed Oct. 22, 1981, Ser. No. 313,542
Int. Cl.[3] **C08F** *4/64*
U.S. Cl. 252—431 C **15 Claims**

1. A reaction product or complex formed from the admixture of
(a) a reaction product or complex formed from a mixture of
(i) at least one transition metal compound represented by the empirical formulae $Tm(OR)_yX_{x-y}$, $TmOX_{x-2}$ or $Tm(OR)_{x-2}O$ wherein Tm is a transition metal selected from groups IVB, VB or VIB; each R is independently a hydrocarbyl group having from 1 to about 20 carbon atoms; each X is independently a halogen; x has a value equal to the valence of Tm and y has a value from 1 to the valence of Tm; and
(ii) at least one non-metallic oxygen-containing compound selected from the group consisting of molecular oxygen, alcohols, ketones, aldehydes, carboxylic acids, esters of carboxylic acids, peroxides, water and mixtures thereof; and
(b) an essentially non-reducing alkylating agent represented by the empirical formula R_2Zn or RZnX wherein X is a halogen and each R is independently an alkyl group having from 1 to about 20 carbon atoms;
and wherein components (a) and (b) are mixed in proportions such that the atomic ratio of Zn:Tm is from about 0.1:1 to about 10:1 and the atomic ratio of O:Tm is from about 0.1:1 to about 4:1 and wherein such admixture is evidenced by a color change.

4,381,254
METHOD FOR PREPARING CATALYSTS FOR PRODUCTION MALEIC ANHYDRIDE
James T. Wrobleski, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.
Filed Dec. 28, 1981, Ser. No. 335,311
Int. Cl.[3] **B01J** *27/14;* **F25D** *25/00, 17/02*
U.S. Cl. 252—437 **7 Claims**

1. In a method for the preparation of a phosphorus-vanadium-oxygen-containing complex catalyst comprising:
(a) contacting vanadium and phosphorus compounds under conditions which will provide catalyst precursor wherein greater than 50 atom % of the vanadium is in the tetravalent state;
(b) recovering the catalyst precursor;
(c) forming the catalyst precursor into agglomerates; and
(d) calcining the catalyst precursor agglomerations at a temperature between about 300° C. and 600° C.
the improvement wherein the catalyst precursor is subjected and reduced to temperatures less than about −78° C. before calcinating.

4,381,255
BINDERLESS ZEOLITE EXTRUDATES AND METHOD OF PRODUCING
Richard J. Nozemack, Reisterstown; Chang W. Chi, Columbia, and John J. Schwoeke, Brooklandville, all of Md., assignors to W. R. Grace & Co., New York, N.Y.
Filed Jan. 14, 1981, Ser. No. 225,075
Int. Cl.[3] **B01J** *21/16, 29/06, 37/00*
U.S. Cl. 252—455 Z **9 Claims**

1. Process of producing binderless zeolite sieve extrudates containing at least Type A Zeolite from clay and a synthetic zeolite, said extrudates having a higher adsorption capacity, a faster adsorption rate, improved selectivity, and improved attrition resistance, said process comprising
(a) forming an extrudable mixture of
(i) a synthetic zeolite,

(ii) metakaolin clay,
(iii) sodium hydroxide solution said clay comprising about 40–60% by weight of the total weight of the clay and the zeolite on a dry basis and the amount of sodium hydroxide being in the range of about 90–120% of the stoichiometric amount to convert the clay to a zeolite;
(b) extruding the mixture of step (a) to form extrudates;
(c) aging the extrudates;
(d) treating the extrudates with a dilute solution of sodium hydroxide at an elevated temperature to complete the crystallization of the aged extrudates;
(e) washing the extrudates; and
(f) recovering the washed extrudates and dry calcining them whereby they can be used as selected adsorbents.

3. The process of claim 1, wherein the amount of sodium hydroxide in step (a) is 110% of the stoichiometric amount.

4,381,256
METHOD OF PRODUCING BINDERLESS ZEOLITE EXTRUDATES
Darrell E. Hildebrandt, Baltimore, Md., assignor to W. R. Grace & Co., New York, N.Y.
Filed Jan. 14, 1981, Ser. No. 225,076
Int. Cl.[3] B01J *21/16, 29/06, 37/00*
U.S. Cl. 252—455 Z **8 Claims**

1. In a process of producing binderless zeolite sieve extrudates containing at least Type A Zeolite from clay and a synthetic zeolite, said extrudates having a higher adsorption capacity, a faster adsorption rate, improved selectivity, and improved attrition resistance, said process comprising
(a) forming an extrudable mixture of
(i) a synthetic zeolite,
(ii) metakaolin clay,
(iii) sodium hydroxide solution
said clay comprising about 40–60% by weight of the total weight of the clay and the zeolite on a dry basis and the amount of sodium hydroxide being in the range of about 90–120% of the stoichiometric amount to convert the clay to a zeolite;
(b) extruding the mixture of step (a) to form extrudates;
(c) aging the extrudates;
(d) treating the extrudates with a dilute solution of sodium hydroxide at an elevated temperature to complete the crystallization of the aged extrudates;
(e) washing the extrudates; and
(f) recovering the washed extrudates and dry calcining them whereby they can be used as selective adsorbents;
the improvement comprising aging the extrudates in step (c) under dry, bulk storage in a container whereby autogenous heat develops to crystallize a substantial portion of the clay.

3. The process of claim 1, wherein the amount of sodium hydroxide in step (a) is 110% of the stoichiometric amount.

4,381,257
NONACIDIC MULTIMETALLIC CATALYTIC COMPOSITE FOR HYDROCARBON DEHYDROGENATION
George J. Antos, Bartlett, Ill., assignor to UOP Inc., Des Plaines, Ill.
Division of Ser. No. 203,016, Nov. 3, 1980, Pat. No. 4,304,950, which is a division of Ser. No. 130,675, Mar. 17, 1980, Pat. No. 4,268,706, which is a continuation-in-part of Ser. No. 905,907, May 15, 1978, Pat. No. 4,199,438. This application Sep. 11, 1981, Ser. No. 301,069
The portion of the term of this patent subsequent to Nov. 18, 1997, has been disclaimed.
Int. Cl.[3] B01J *23/58*
U.S. Cl. 252—466 B **8 Claims**

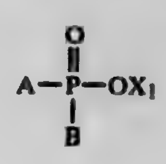
1. A nonacidic catalytic composite comprising a porous carrier material containing, on an elemental basis, about 0.01 to about 2 wt.% platinum group component, about 0.05 to about 5 wt.% cobalt component, and 0.01 to about 5 wt.% tantalum component, and about 0.1 to about 5 wt.% alkali or alkaline earth component; wherein the platinum group, catalytically available cobalt, tantalum and alkali or alkaline earth components are uniformly dispersed throughout the porous carrier material; wherein substantially all of the platinum group component is present in the elemental metallic state; wherein substantially all of the catalytically available cobalt component is present in the elemental metallic state or in a state which is reducible to the elemental metallic state under hydrocarbon dehydrogenation conditions or in a mixture of these states; wherein substantially all of the tantalum component is present in a positive oxidation state; and wherein substantially all of the alkali or alkaline earth component is present in a positive oxidation state.

4,381,258
ELECTRONIC CELL WITH A NON-AQUEOUS ELECTROLYTE
Alain Le Mehaute, Gif sur Yvette; Jean Rouxel, Nantes, and Annie Le Blanc-Soreau, La Chapelle sur Erdre, all of France, assignors to Societe Anonyme dite Compagnie Generale d'Electricite, Paris, France
Division of Ser. No. 175,327, Aug. 4, 1980. This application Nov. 13, 1981, Ser. No. 321,074
Claims priority, application France, Sep. 11, 1979, 79 22643
Int. Cl.[3] H01B *1/06*
U.S. Cl. 252—519 **2 Claims**

1. A method of manufacturing a positive electrode for an electric cell having a negative electrode, whose active material includes an alkali metal, and an electrolyte, said positive electrode including at least one compound chosen from the group consisting of Fe_2SiS_4, Fe_2GeS_4, $Cu_2Fe_2SnS_4$, Fe_2SnS_4, Cu_2MnSnS_4, Cu_4SnS_4 and mixtures thereof, wherein the method comprises, in sequence:
preparing said compound in powdered form;
dispersing said powdered compound in a polytetrafluoroethylene emulsion in the proportion of 15 to 5% of emulsion for 85 to 95% of powdered compound, by weight,
adding alcohol to the dispersion of powdered compound in the emulsion to form a consolidated compound; and
compressing said consolidated compound onto a conductive support.

4,381,259
SHAMPOO COMPOSITION EMPLOYING ANIONIC PHOSPHORIC ACID ESTER SURFACTANT AND CATIONIC POLYMER
Itomi Homma, and Noriko Okada, both of Funabashi, Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan
Filed Nov. 19, 1980, Ser. No. 208,466
Claims priority, application Japan, Dec. 28, 1979, 54/173440
Int. Cl.[3] C11D *3/36, 1/14*
U.S. Cl. 252—542 **9 Claims**

1. A shampoo composition, consisting essentially of
(A) from 0.1 to 2.5% by weight of at least one anionic phosphoric acid ester having the formula



wherein A is

$$RO\!\leftarrow\!\underset{\substack{|\\R_1}}{CH_2CHO}\!\rightarrow_m \text{ or } RCONH\!\leftarrow\!\underset{\substack{|\\R_1}}{CH_2CHO}\!\rightarrow_n;$$

R is alkyl having an average carbon atom number of 8 to 18 or alkenyl having an average carbon atom number of 8 to 18; R_1 is hydrogen or methyl; m is from 0 to 8; n is from 1 to 8; B is $—OX_2$ or —A; and X_1 and X_2, which can be

the same or different, are hydrogen, alkali metal, alkyl (C_1-C_3)-substituted ammonium or hydroxyalkyl (C_1-C_3)-substituted ammonium;

(B) from 0.05 to 2.5% by weight of at least one cationic polymer effective for conditioning hair selected from the group consisting of

(i) copolymers of quaternized vinylpyrrolidone and aminoethyl methacrylate,

(ii) copolymers of adipic acid and dimethylaminohydroxypropylene diethylenetriamine,

(iii) poly-(N,N-dimethyl-3,5-methylenepiperidinium chloride),

(iv) copolymers of N,N-dimethyl-3,5-methylenepiperidinium chloride and acrylamide,

(v) copolymers of acrylamide and β-methacryloxyethyl trimethyl ammonium,

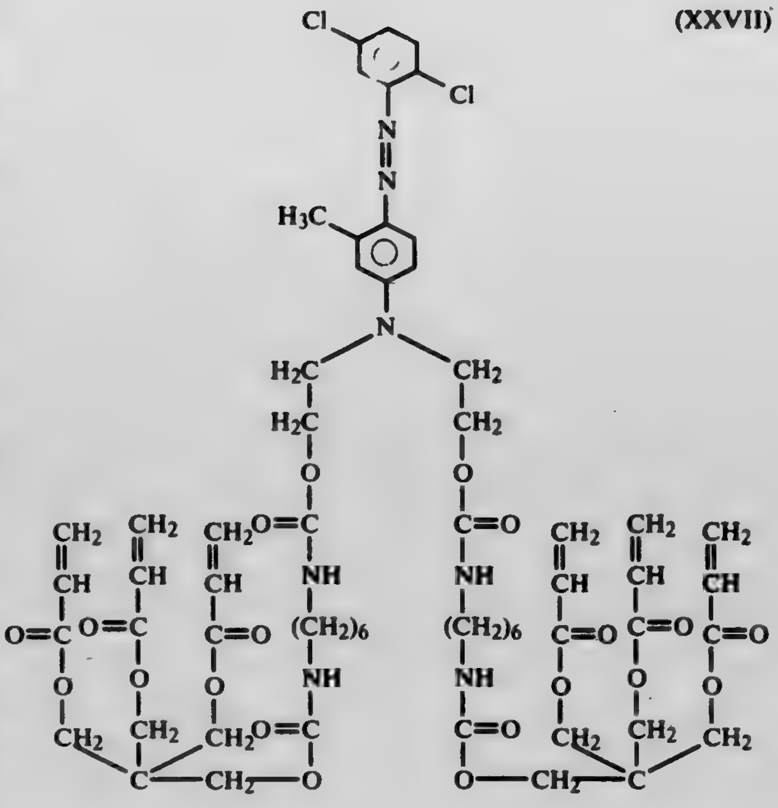
(vi) polyethyleneimines,

(vii) cationized cellulose, and

(viii) condensates of polyamines and polyglycols;

(C) from 1 to 30% by weight of at least one member selected from the group consisting of water-soluble anionic organic surfactant effective for washing hair and different from said anionic phosphoric acid ester, water-soluble nonionic organic surfactant effective for washing hair and water-soluble amphoteric organic surfactant effective for washing hair; and

(D) the balance is essentially water, said shampoo composition having a pH of 4 to 8.



(XXVII)

4,381,260

AROMATIC CHROMOPHORIC SUBSTITUTED POLYSILOXANE DYES

Nan S. Chu, Hartsdale, and Lawrence Marlin, Yorktown Heights, both of N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Jul. 17, 1981, Ser. No. 284,388

Int. Cl.[3] C09B *5/42, 39/00;* A23L *1/27;* A61K *47/00*

U.S. Cl. 260—144 9 Claims

1. A polymeric dye of the formula:

$$(CH_3)_3SiO\ \ [(CH_3)\underset{\substack{|\\ L-\text{Chromo}}}{Si}O]_x\ \ [(CH_3)_2SiO]_y\ \ Si(CH_3)$$

wherein x ranges from 2 to 100, y ranges from 20 to 300, the ratio of x:y is at least 1:10, L is a divalent unsaturated aliphatic linkage which connects the silicon atom to Chromo by non-hydrolyzable covalent bonds, and Chromo is an aromatic chromophoric radical derived from either azo or anthrone dyes and wherein the molecular weight of the polymeric dye is from 200 to 50,000.

4,381,261

STRUCTURALLY COLORED CROSS-LINKABLE COMPOUNDS, THEIR PREPARATION AND THEIR UTILIZATION IN COATING COMPOSITIONS

Evelyne J. M. Bonnet, Amfreville-sous-les-Monts, France, assignor to PCUK Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Filed Nov. 14, 1979, Ser. No. 94,143

Claims priority, application France, Nov. 21, 1978, 78 32738

Int. Cl.[3] C09B *29/22*

U.S. Cl. 260—162 7 Claims

1. A structurally colored compound of the formula:

4,381,262

WATER-INSOLUBLE AZO DYESTUFFS, THEIR MANUFACTURE AND THEIR USE

Ulrich Bühler, Schöneck; Dieter Cornelius, Darmstadt; Rudolf Löwenfeld, Dreieich; Uwe Kosubek, Büttelborn; Reinhard Hähnle, Königstein, and Rudolf Schickfluss, Kelkheim, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt am Main Fechenheim, Fed. Rep. of Germany

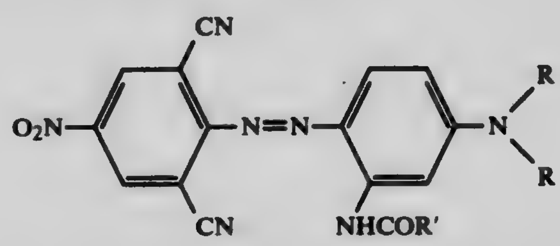
Continuation of Ser. No. 241,586, Mar. 9, 1981. This application Feb. 17, 1982, Ser. No. 349,574

Claims priority, application Fed. Rep. of Germany, Mar. 13, 1980, 3009635

Int. Cl.[3] C09B *29/08*

U.S. Cl. 260—207.1 4 Claims

1. An azo dyestuff of the formula



wherein R is a linear alkyl having 2 to 4 carbon atoms and R' is a linear alkyl having 3 to 5 carbon atoms or isopropyl.

4,381,263

PROCESS FOR THE PREPARATION OF PENICILLANIC ACID ESTERS

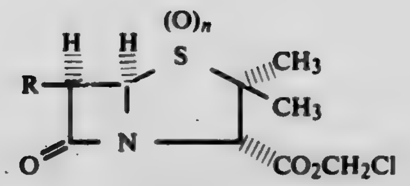
Vytautas J. Jasys, New London, Conn., assignor to Pfizer Inc., New York, N.Y.

Continuation-in-part of Ser. No. 246,482, Mar. 23, 1981, abandoned. This application Jan. 25, 1982, Ser. No. 341,081

Int. Cl.[3] C07D *499/08*

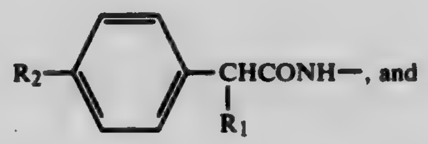
U.S. Cl. 260—239.1 20 Claims

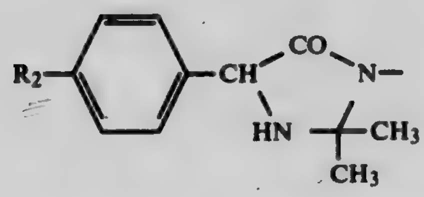
1. A process for the preparation of a compound selected from those of the formula



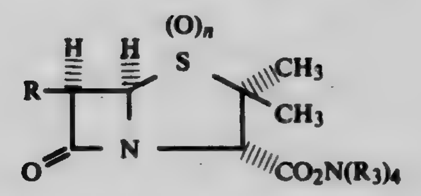
wherein n is an integer of 0 or 2, R is selected from the group consisting of

(a) hydrogen,

(b) 

(c) 

wherein R_2 is selected from the group consisting of hydrogen and hydroxy and R_1 is selected from the group consisting of azido, amino, carbobenzyloxyamino and 1-methoxycarbonylpropen-2-ylamino, which comprises contacting one mole of a compound of the formula



wherein R_3 is alkyl having from one to four carbon atoms, with at least one mole of a solvent selected from the group consisting of bromochloromethane and iodochloromethane at from about $-20°$ C. to about 25° C. with the proviso that when n is 2, R is hydrogen.

4,381,264

PROCESS FOR THE CONJUGATION OF THE DOUBLE BONDS OF POLYUNSATURATED FATTY ACIDS AND FATTY ACID MIXTURES

Alfred Struve, Hilden, Fed. Rep. of Germany, assignor to Henkel Kommanditgesellschaft Auf Aktien, Dusseldorf-Holthausen, Fed. Rep. of Germany

Filed May 20, 1981, Ser. No. 265,541

Claims priority, application Fed. Rep. of Germany, May 24, 1980, 3019963

Int. Cl.[3] **C09F** *7/08*

U.S. Cl. 260—405.6 **11 Claims**

1. A process for the conjugation of the double bonds of polyunsaturated fatty acids consisting essentially of treating an acidic material consisting essentially of polyunsaturated fatty acids or mixtures of fatty acids containing polyunsaturated fatty acids with SO_2 in the presence of a substoichiometric amount of at least one soap-forming base at a temperature range of from 170° C. to 260° C., and recovering conjugated double bond polyunsaturated fatty acids, wherein said treating step is performed in the presence of from 0.5 to 25 mol %, based on said acidic material of SO_2; from 0.5 to 25 mol %, based on said acidic material of at least one soap-forming base selected from the group consisting of alkali metal compounds and alkaline earth metal compounds; and from 0.05 to 2% by weight, based on said acidic material, of water.

4,381,265

AROMATIC NITRILE-CONTAINING COMPOUNDS USEFUL AS DYESTUFF INTERMEDIATES

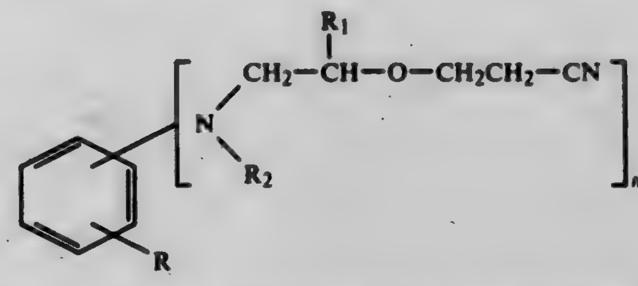
Edward W. Kluger, Pauline, and Joe T. Burchette, Mayo, both of S.C., assignors to Milliken Research Corporation, Spartanburg, S.C.

Filed Jul. 27, 1981, Ser. No. 286,731

Int. Cl.[3] **C07C** *121/78*

U.S. Cl. 260—465 E **11 Claims**

1. Aromatic nitrile-containing compounds of the formula:



where n is 1 or 2; R is selected from H, Cl, Br, NO_2, a lower alkyl group containing from 1 to about 4 carbon atoms, and a lower alkoxy group containing from 1 to about 4 carbon atoms; R_1 is selected from H and CH_3; and R_2 is selected from CH_2CH_2CN, and:

$$CH_2-\underset{}{\overset{R_1}{\overset{|}{C}}}H-O-CH_2CH_2CN$$

where R_1 has the value given above.

4,381,266

(N-SUBSTITUTED BENZOYL)HALOBENZOIC ACID ANHYDRIDES

Robert Garner, Bury, and Michael J. Whitehead, Failsworth, both of England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

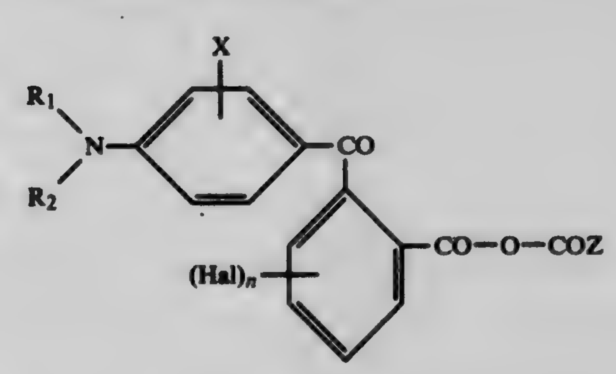
Division of Ser. No. 38,024, May 10, 1979, Pat. No. 4,277,400. This application Dec. 22, 1980, Ser. No. 219,201

Claims priority, application United Kingdom, May 18, 1978, 20456/78; Apr. 3, 1979, 7911660

Int. Cl.[3] **C07C** *51/56;* **C07D** *295/06*

U.S. Cl. 260—546 **6 Claims**

1. A compound of the formula



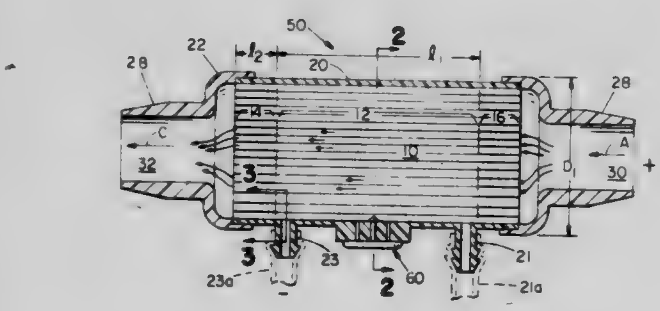
wherein

R_1 and R_2 are each independently hydrogen, C_1–C_{12}-alkyl, C_2–C_{12}-alkenyl, cyclopentyl, cyclohexyl, phenyl, benzyl, halophenyl, halobenzyl, nitrophenyl, nitrobenzyl, lower alkylphenyl, lower alkylbenzyl, lower alkoxybenzyl or lower alkoxybenzyl, or R_1 and R_2, together with the nitrogen atom to which they are attached are pyrrolidino, piperidino, pipecolino, morpholino, thiomorpholino or piperazino;

X is one or more of halo, nitro, $-NR_1(R_2)$, hydrogen, C_1–C_{12}-alkyl, C_2–C_{12}-alkenyl, cyclopentyl, cyclohexyl, phenyl, benzyl, halophenyl, halobenzyl, nitrophenyl, nitrobenzyl, lower alkylphenyl, lower alkylbenzyl, lower alkoxyphenyl or lower alkoxybenzyl;

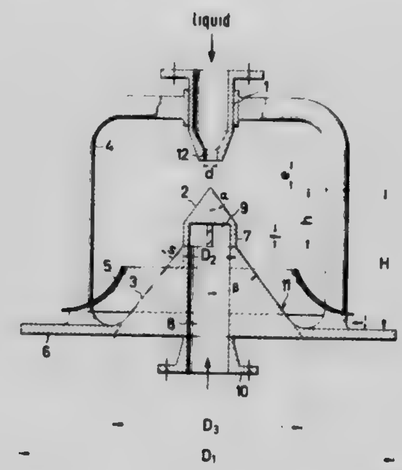
Hal is halo;
Z is hydrogen, C_1-C_4-alkyl, phenyl, halophenyl, methylphenyl, methoxyphenyl, ethoxyphenyl, lower alkylamino or di-lower alkylamino; and
n is 1 to 4.

4,381,267
AIRWAY HUMIDIFIER FOR THE RESPIRATORY TRACT
Richard R. Jackson, One Atlantic Ave., Swampscott, Mass. 01907
Continuation-in-part of Ser. No. 46,943, Jun. 8, 1979, abandoned, which is a continuation-in-part of Ser. No. 923,905, Jul. 12, 1978, abandoned. This application May 28, 1981, Ser. No. 267,867
Int. Cl.³ A61M *15/00*
U.S. Cl. 261—104 **16 Claims**



1. An airway humidifier for directly humidifying the air flow requirement of a respiratory tract of a living being breathing directly through the humidifier during the inspiration phase of a breathing cycle,
said humidifier comprising a nest comprising a large multiplicity of relatively large bore, thin-walled-air-transmitting elongated hollow fibers terminating at an output end that is adapted to communicate the merged flow through a tube to the respiratory tract,
said fibers having an internal diameter of the order of 0.050 inch, up to about 0.080 inch, and being present in sufficient number and length to enable the peak air flow rate of said air flow requirement to proceed through said nest with a characteristic pressure drop of less than 5 centimeters of water,
a water chamber surrounding said fibers and having sufficient rigidity to resist collapse when subjected to negative operational water pressure,
a water source for water heated to about 105° F.,
and a water pump connected to exhaust said chamber, said water chamber connected to said water source whereby said pump is adapted to maintain said chamber filled with water under negative pressure by drawing water through said chamber from said source,
said fibers incorporating a wetting agent whereby the walls of said fibers having a wettable surface and under said negative pressure water conditions being permeable to water vapor and impermeable to liquid water, and the aggregate wetted surface area of said fibers being sufficient to humidify the peak flow rate of said air flow requirement of said respiratory tract, whereby pulsing air flow into the respiratory tract can be humidified by a compact, closely-located unit.

4,381,268
DEVICE FOR GASSING LIQUIDS OR SUSPENSIONS
Gerhard Müller, Kelkheim, and Günther Sell, Hattersheim am Main, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany
Filed Jul. 15, 1981, Ser. No. 283,659
Claims priority, application Fed. Rep. of Germany, Jul. 17, 1980, 3027035
Int. Cl.³ B01F *3/04*
U.S. Cl. 261—109 **5 Claims**

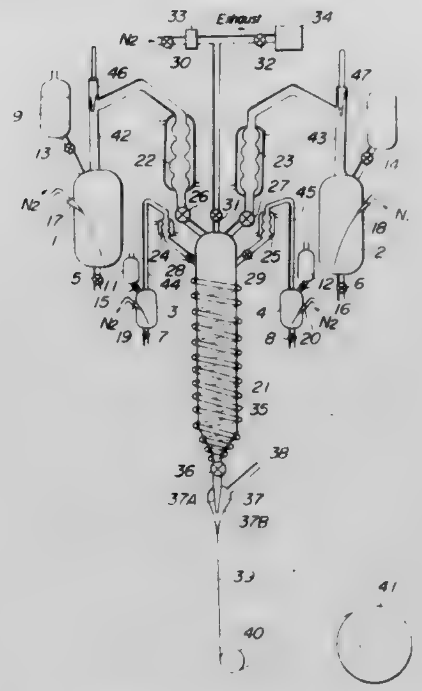


1. A device for gassing liquids which comprises an inlet having a jet orifice for projecting a coherent jet of liquid, a conical surface substantially without obstructions thereon opposite the orifice for piercing the jet of liquid and inducing flow of a liquid film over the conical surface, a frustro-conical surface under the conical surface and spaced therefrom to cause liquid flowing over the conical surface to continue its flow over the frustro-conical surface at a distance therefrom, means for introducing a stream of gas or vapor into the space between the conical and frustro-conical surfaces for intimate admixture with the flow of liquid thereover, and guide means spaced from the base of the frustro-conical surface forming an annular zone for withdrawing gassed liquid therefrom.

4,381,269
FABRICATION OF A LOW-LOSS PLASTIC OPTICAL FIBER
Toshikuni Kaino; Michiya Fujiki; Shigeo Nara, all of Mito, and Shigeru Oikawa, Katsuta, all of Japan, assignors to Nippon Telegraph & Telephone Public Corporation, Japan
Filed Oct. 30, 1981, Ser. No. 316,834
Claims priority, application Japan, Nov. 11, 1980, 55-157599; Nov. 14, 1980, 55-159599
Int. Cl.³ B29D *11/00;* **G02B** *5/14*
U.S. Cl. 264—1.5 **22 Claims**

1. In a fabrication method of low-loss plastic optical fibers by using a polymer prepared from methyl methacrylate as the principal constituent for a core material, and forming a cladding of a synthetic macromolecular compound having a lower refractive index than that of said core material therearound, the improvement comprises, in a sealed system, the steps of
adding a polymerization initiator and chain transfer agent via a distillation step of said polymerization initiator and chain transfer to a methyl methacrylate monomer distilled under a reduced pressure condition,
subjecting succeedingly said monomer to polymerization to

produce a core polymer while maintaining said reduced pressure condition, and then



subjecting said core polymer produced to melt spinning to form a core fiber.

4,381,270

METHOD OF PRODUCING A FLASH SUPPRESSED PRESSED ROCKET PROPELLANT

Lars-Erik Björn; Mats Olsson, and Olof Öman, all of Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

Filed Apr. 18, 1980, Ser. No. 141,731

Claims priority, application Sweden, Apr. 24, 1980, 7903578

Int. Cl.^{3} C06B *45/12*

U.S. Cl. 264—3 B **11 Claims**

1. A method of producing pressed double base rocket propellant with good flash suppression and high burning velocity which comprises providing a powder paste of double base type free from the necessary catalysts and flash reducing agent;

taking a small batch of said powder paste and mixing thereof a flash reducing agent in a quantity adapted to the entire quantity of said powder paste;

mixing into the larger remaining batch of powder paste catalysts in a quantity adapted to the entire quantity of powder paste;

converting the two batches separately through mechanical processing into desired form;

then mixing the two batches of powder together in layers or in its entirety, and then compressing through a die into a coherent body of propellant under such conditions that the two batches of propellant form longitudinal veins in the body of propellant obtained.

4,381,271

USE OF FIRED FIBROUS GRAPHITE IN FABRICATING POLYCRYSTALLINE DIAMOND AND/OR CUBIC BORON NITRIDE/SILICON CARBIDE/SILICON COMPOSITE BODIES

Stephen C. Hayden, Columbus, Ohio, assignor to General Electric Company, Worthington, Ohio

Filed Feb. 2, 1981, Ser. No. 230,219

Int. Cl.^{3} C04B *35/60*

U.S. Cl. 264—29.5 **7 Claims**

1. In a process for making a shaped polycrystalline body having a volume greater than 10 cubic millimeters comprised of a mass of crystals selected from diamond, cubic boron nitride, and combinations thereof adherently bonded together by a bonding medium of silicon carbide and elemental silicon, said crystals comprising between 1 and 70 volume percent of said body, which process comprises:

(a) infiltrating a substantially uniform mixture of said crystals and fibrous graphite with fluid silicon under a partial vacuum at a temperature above 1400° C.; and

(b) cooling and recovering the infiltrated mass of crystals;

the improvement which comprises vacuum heat treating the fibrous graphite at a temperature between about 800° C. and 1700° C. followed by cooling and release of the vacuum prior to inclusion of the fibrous graphite into the said crystal mixture.

4,381,272

METHOD OF AND SYSTEM FOR INJECTING A FLUID INTO A PLASTIFIED MASS IN AN EXTRUDER

Jürgen Ehritt, Hilchenbach, Fed. Rep. of Germany, assignor to Battenfeld Maschinenfabrik GmbH, Meinerzhagen, Fed. Rep. of Germany

Filed May 21, 1981, Ser. No. 266,098

Claims priority, application Fed. Rep. of Germany, May 27, 1980, 3020122

Int. Cl.^{3} B29D *27/00*

U.S. Cl. 264—40.3 **10 Claims**

1. A method of operating an extruder system having:

an extruder having a barrel and an extruder worm therein,

a source of an additive fluid under pressure,

a conduit connected to said source and opening into said barrel,

a closable upstream valve in said conduit between said source and said barrel,

a closable downstream valve in said conduit between said upstream valve and said barrel, and

a pressurizable fluid reservoir in said conduit between said valves,

said method comprising the steps of:

rotating said extruder in said barrel to plastify a resin therein;

alternatively opening and closing said valves, whereby when said upstream valve is open and said downstream valve is closed said additive fluid flows into and pressurizes said reservoir and when said upstream valve is closed and said downstream valve is open the pressurized additive fluid in said reservoir flows into said barrel;

detecting the rotation rate of said worm in said barrel; and

pressurizing said reservoir at a level generally proportional

to the detected worm rotation rate, whereby as said worm rotates rapidly to greatly pressurize a resin therein said reservoir is pressurized correspondingly with great pressure.

2. An extruder system comprising:

an extruder having a barrel and an extruder worm therein;
a source of an additive fluid under pressure;
a conduit connected to said source and opening into said barrel, whereby said fluid can flow along said conduit from said source to said barrel;
a closable upstream valve in said conduit between said source and said barrel;
a closable downstream valve in said conduit between said upstream valve and said barrel;
a fluid reservoir in said conduit between said valves;
means for alternatively opening and closing said valves, whereby when said upstream valve is open and said downstream valve is closed said additive fluid flows into and pressurizes said reservoir and when said upstream valve is closed and said downstream valve is open the pressurized additive fluid in said reservoir flows into said barrel;
drive means for rotating said worm in said barrel; and
control means connected to said drive means and to said reservoir for pressuring same at a pressure proportional to the rotation rate of said worm.

4,381,273

METHOD OF CO-EXTRUDING A REINFORCED COMPOSITE FOAMED RESIN CHANNEL-SHAPED SEALING STRIP HAVING AN ABRADED SURFACE PORTION

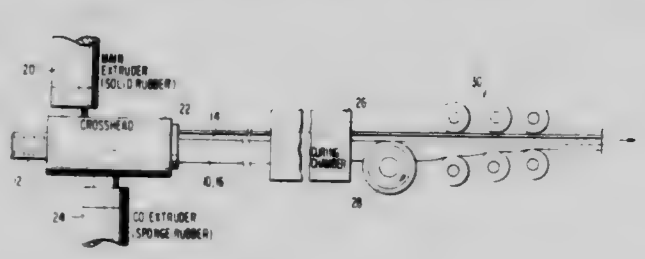
Roberto Azzola, Turin, Italy, assignor to Saiag S.p.A. Industria Articoli Gomma, Turin, Italy

Filed Oct. 1, 1980, Ser. No. 193,212

Claims priority, application Italy, Dec. 21, 1979, 69460 A/79

Int. Cl.³ B29D *27/00;* **B29F** *3/10;* **B29H** *21/04*

U.S. Cl. 264—45.9 **4 Claims**



1. A process for manufacturing a sealing strip for vehicle bodies comprising a channel-shaped attachment profile of solid rubber having embedded therein a metallic reinforcing strip, comprising the steps of: co-extruding with the attachment profile a layer of sponge rubber coating the outer surface of the profile; co-vulcanizing the profile and the coating layer thereon; and abrading the exposed surface of the coating layer to render said surface velvety.

4,381,274

PROCESS FOR THE PRODUCTION OF A MULTICOMPONENT YARN COMPOSED OF AT LEAST TWO SYNTHETIC POLYMER COMPONENTS

Erich Kessler, Hochst, and Peter Birken, Miltenberg, both of Fed. Rep. of Germany, assignors to Akzona Incorporated, Asheville, N.C.

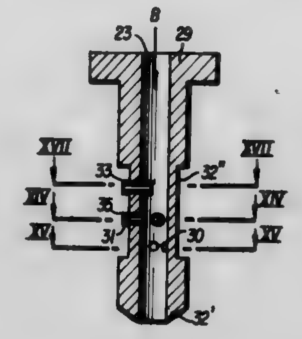
Continuation of Ser. No. 6,491, Jan. 25, 1979, abandoned. This application Aug. 25, 1980, Ser. No. 180,786

Claims priority, application Fed. Rep. of Germany, Jan. 25, 1978, 2803136; Jan. 25, 1978, 7802110[U]

Int. Cl.³ B29H *7/18*

U.S. Cl. 264—147 **11 Claims**

1. A process for the preparation of a multicomponent filament consisting of at least two synthetic polymer components, comprising a matrix of one of said polymer components and a plurality of segments of at least one other polymer component separated from each other by said matrix whereby said segments retain their shape and position in the cross section over the length of the filament comprising feeding said matrix component as a compact core stream to the spinning orifice of a spinneret coaxially with said spinning orifice and injecting said



other polymer component as a plurality of spatially separated partial streams aligned in at least two planes perpendicular to the axis of said orifice radially into said matrix component before said matrix component leaves the spinning orifice, wherein at least one of said spacially separated partial streams is injected at a point within said matrix component.

4,381,275

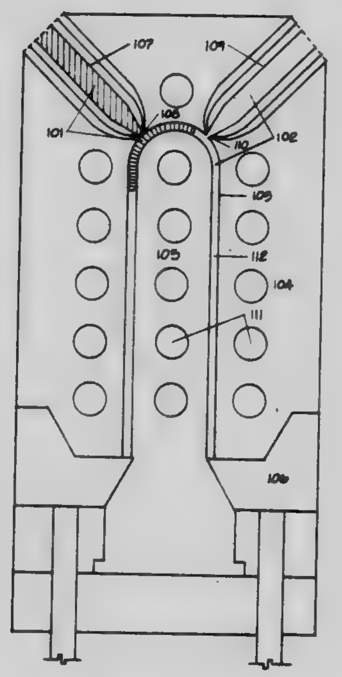
STABILIZED CORE INJECTION MOLDING OF PLASTIC

Jens O. Sorensen, Rancho Santa Fe, Calif., assignor to Trade Finance International, Georgetown, Cayman Islands

Filed Jan. 30, 1981, Ser. No. 230,302

Int. Cl.³ B29F *1/00*

U.S. Cl. 264—328.8 **9 Claims**



1. A method of cyclic injection molding of hollow plastic products, utilizing a mold chilling cavity with a core, in which the dimensions of the plastic products are controlled by stabilizing the core, wherein each production cycle comprises the steps of:

(a) injecting a hot molten first plastic at a first temperature and a first pressure from at least a first runner through a first gate into the chilling cavity so that the cavity is not filled and so that the injected plastic does not obstruct injection from a second gate;
(b) cooling the injected first plastic in the chilling cavity to thereby cool and at least partly solidify the first plastic;
(c) injecting, subsequent to injecting the first plastic, a hot molten second plastic at a second temperature and a second pressure from a second runner through the second gate into the chilling cavity whereby the cooled injected first plastic is sufficiently cooled and at least partly solidi-

fied to stabilize the core by impeding any movement of the core caused by injecting the second plastic and whereby the injected second plastic fills the cavity and fuses with the previously injected plastic;

(d) cooling the injected second plastic in the chilling cavity to thereby solidify the fused unit; and

(e) ejecting the solidified molded unit of the hollow plastic product.

4,381,276

PROCESS AND APPARATUS FOR THE FABRICATION OF A FLAT-SHAPED HOLLOW BODY

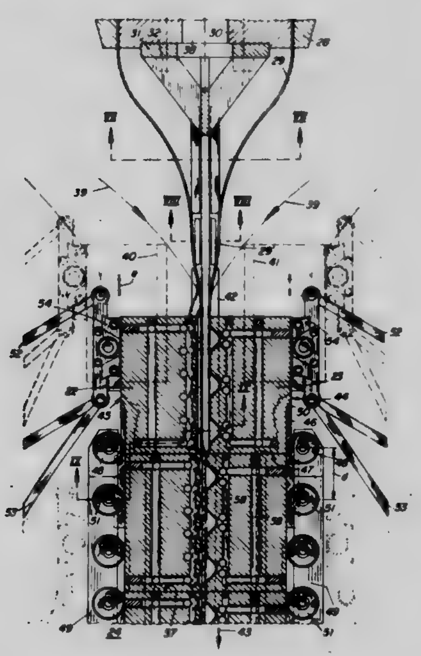
Wilhelm Hegler, Goethestrasse 2, D-8730 Bad Kissingen, Fed. Rep. of Germany, and Ralph-Peter Hegler, Bad Kissingen, Fed. Rep. of Germany, assignors to Wilhelm Hegler, Bad Kissingen, Fed. Rep. of Germany

Filed Jul. 6, 1981, Ser. No. 280,837

Claims priority, application Fed. Rep. of Germany, Jul. 17, 1980, 3027045

Int. Cl.³ B29C *17/07*

U.S. Cl. 264—508 **9 Claims**



1. Process for the continuous manufacture of a flat-shaped body, particularly a ventilation and drainage panel or mat or a heat exchange panel or mat, equipped with fluid transport ducts, which have fluid entry ports and fluid exit ports, through the use of a mold consisting of continuously-moving mold segment halves, moving along a forming line which, upon entering the forming die, are moved through the forming die in close contact with each other in the operating direction and with the forming die closed on pairs of mold segment halves, wherein a warm thermoplastic hose is introduced into the forming die and formed there under vacuum, wherein said hose has a relatively large wall thickness, and wherein the hose stock, in at least a portion of its cross section, is subjected to vacuum action before the two mold segment halves are brought together and is then pressed together thereby forming voids and welds over at least a portion of its cross section.

7. Apparatus for continuously forming a flat-shaped hollow body comprising a forming die consisting of movable and continuously guided mold segment halves which, upon entering the forming die, are guidable into close facing proximity to each other and move in an operating direction, wherein the two paired mold segment halves have mold recesses which correspond with the desired profile of the hollow body and wherein the mold segment halves are equipped with at least one vacuum port which leads in one direction to their underside and in another direction to the mold recess on their other side and which can be aligned with at least one vacuum port in a machine table which holds the forming die in place, and wherein at least one vacuum port is formed in such a manner as to permit at least one vacuum hole to be aligned with this vacuum port before the mold closes.

4,381,277

METHOD FOR PRODUCING CONTAINERS

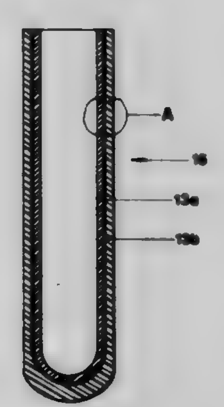
Claes T. Nilsson, Löddeköpinge, Sweden, assignor to PLM AB, Malmo, Sweden

Filed May 18, 1981, Ser. No. 264,425

Claims priority, application Sweden, May 29, 1980, 8004003; Dec. 10, 1980, 8008652

Int. Cl.³ B29C *17/07;* **B29D** *9/04*

U.S. Cl. 264—512 **10 Claims**



1. A method for producing a barrier-coated container of a thermoplastic material from a preform, said method comprising stretching a preform of amorphous thermoplastic material axially while reducing the wall thickness of the preform to form an axially stretched preform having monoaxially oriented crystallinity, applying a barrier layer on the axially stretched preform, heating the thus coated preform to a molding temperature therefor and circumferentially expanding the axially stretched and coated preform to form the barrier-coated container, wherein said axial stretching represents the total axial stretching of the preform and said barrier layer only undergoes circumferential expansion and corresponding reduction in thickness.

4,381,278

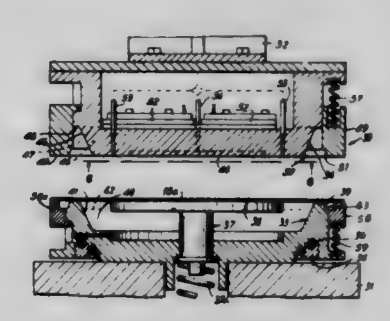
METHOD FOR FORMING A COATED PAPERBOARD CONTAINER

Dominic D. Ingraffea, Ringwood, N.J., assignor to James River-Dixie/Northern, Inc., Greenwich, Conn.

Continuation of Ser. No. 208,624, Nov. 20, 1980, abandoned, which is a continuation of Ser. No. 65,581, Aug. 10, 1979, abandoned, which is a division of Ser. No. 968,014, Dec. 11, 1978, abandoned. This application Dec. 16, 1981, Ser. No. 331,507

Int. Cl.³ B29C *17/04*

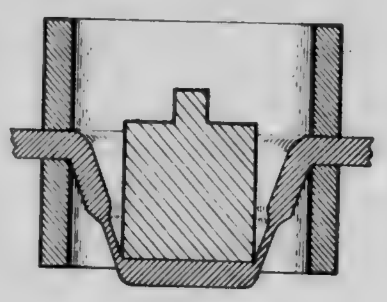
U.S. Cl. 264—512 **19 Claims**



1. A method of deep drawing a container from a paperboard blank having a layer of polymeric material on at least one side thereof, comprising the steps of: providing a female mold and a mandrel having the shape of the outside and inside, respectively, of said container, and movable between an open position and a blank forming closed position; disposing said blank between said female mold and said mandrel in said open posi-

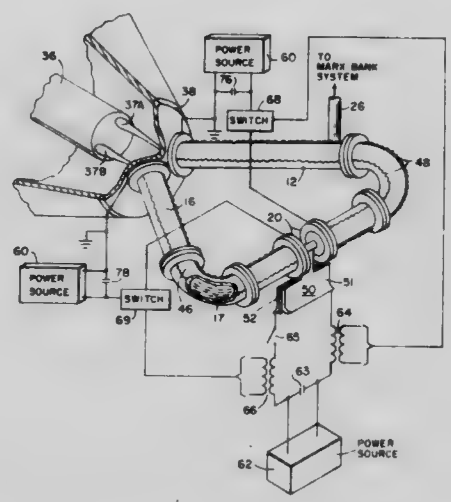
tion thereof, so that said side having said layer is presented toward said mandrel; heating said female mold and said mandrel to temperatures in a range of from about 200° F. to about 350° F., said temperatures being sufficient to set the paperboard blank and capable of damaging said layer; relatively moving said heated female mold and said heated mandrel toward one another into the recited closed position thereof to engage said blank and urge the latter into conformity with said female mold and said mandrel; and, just prior to movement to the recited closed position of said female mold and said mandrel, introducing and confining a film of compressible fluid between said mandrel and said side of said blank and said layer to ensure against damage to the latter by said heated mandrel.

4,381,279
MANUFACTURE OF ARTICLES BY DRAWING AND BLOW-MOULDING
Kjell M. Jakobsen, Skanör, and Claes T. Nilsson, Löddeköpinge, both of Sweden, assignors to PLM Aktiebolag, Malmo, Sweden
Filed May 30, 1980, Ser. No. 154,890
Claims priority, application Sweden, Jun. 11, 1979, 7905047
Int. Cl.[3] B29C *17/03, 17/04*
U.S. Cl. 264—522 **12 Claims**



1. A process for the manufacture of an article from polyethylene terephthlate or similar materials comprising providing a substantially flat blank of amorphous, polyethylene terephthlate having a crystallinity of less than 10%, clamping said blank between clamping devices to form at least one inner zone completely surrounded by a closed, band-like, clamped section of material, applying a press element against said inner zone over a region smaller than the total area of said inner zone, whereby a second closed, band-like zone is formed between said clamped band-like section and said inner zone to which the press element is applied, relatively displacing said press element and said clamping devices with the thermoplastic material at a temperature below the glass transition temperature (Tg) while maintaining said press element in contact with said inner zone, the second band-like zone being substantially greater than the thickness of the blank whereby the material in said second band-like zone is freely stretched by drawing in a drawing region between the outer surface of the press element and the inner surface of the clamping devices without contact of the drawn material with the surfaces of the clamping devices, the material in said drawing region forming a transition zone at which flow takes place in the material reducing the original thickness of the blank by a factor of about 3 to effect crystallization thereof and monoaxial orientation whereby a drawn element is formed which comprises an edge part composed of said clamped section and a body which is drawn relative to said edge part and includes material drawn until it flows to form the monoaxially oriented crystallized material, the crystallinity of said material of said body being between 10% and 25%, while the crystallinity of the material in said edge part and in any undrawn part of the body retains its original value of less than 10%, and reshaping said body at a temperature above the glass transition temperature (Tg) by blow-moulding to achieve the shape of the final product.

4,381,280
METHOD AND DEVICE FOR PRODUCING NUCLEAR FUSION
Thomas G. Roberts, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Oct. 31, 1980, Ser. No. 202,811
Int. Cl.[3] G21B *1/02*
U.S. Cl. 376—105 **6 Claims**



1. A trigger device for directing electron beam pulses toward a target comprising: an electron accelerator having a cathode for emitting electrons and an accelerating electrode having plural openings therein through which electrons exit said accelerator, said cathode being a multi-element cathode having a plurality of separate emitting portions for simultaneously generating separate electron beam pulses from a common source, said emitting portions being positioned adjacent respective openings, in said accelerating electrode for directing electrons from an emitting portion through a particular electrode opening, a plurality of curved dielectric linear pinch discharge tubes of equal length for directing the separate electron beam pulses to the target from different directions for symmetrically and simultaneously irradiating the target uniformly, each tube having a first end adjacent said accelerating electrode for receiving electrons therein from only one of said cathode emitting portions, a second end adjacent said target, and being filled with a plasma producing medium for providing electron transport through said tube.

4,381,281
REACTOR AND PROCESS FOR PRODUCTION OF NOVEL NUCLEAR FUEL
Linton W. Lang, Richland, Wash., and Robert L. Stetson, Pacifica, Calif., assignors to Pacific Nuclear Fuels, Inc., Richland, Wash.
Continuation-in-part of Ser. No. 861,285, Jan. 20, 1978, abandoned. This application May 4, 1981, Ser. No. 215,161
Int. Cl.[3] G21C *3/28*
U.S. Cl. 376—172 **3 Claims**

1. A method of production of a novel nuclear fuel comprising the steps:

(A) initially charging a light-water nuclear reactor with fertile thorium fuel elements and fissile uranium core elements in predetermined arrangements; wherein the thorium is segregated from the uranium and wherein some of said thorium fuel elements are extra-core fuel elements;

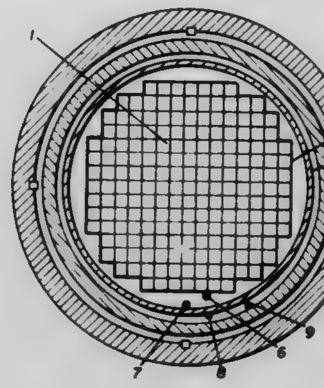
(B) irradiating said thorium fuel elements and said fissile uranium core elements at an averge driver fuel rod power output of approximately 7 kw thermal per foot;

(C) continuing said irradiation of said extra-core thorium fuel elements for a period of two to three years at a power density of 50 to 100 kw thermal per liter;

(D) thereafter removing and replacing preselected ones of said thorium fuel elements and said fissile uranium fuel elements;

(E) further continuing said irradiation of the non-removed thorium fuel elements until the U-232 content in the U-233 averages 300 to 500 parts per million;

(F) removing and co-dissolving only said thorium fuel elements together with natural uranium in the proportion of 2 to 3% U-233 in total uranium;



(G) separating the uranium isotopes from those of other elements present;

thereby producing a fissile fuel comprising U-233 with a U-232 content of less than 10 parts per million in total uranium.

4,381,282

RADIATION SHIELD AND SHIELDED GAS CONDUIT FOR A REACTOR PRESSURE VESSEL

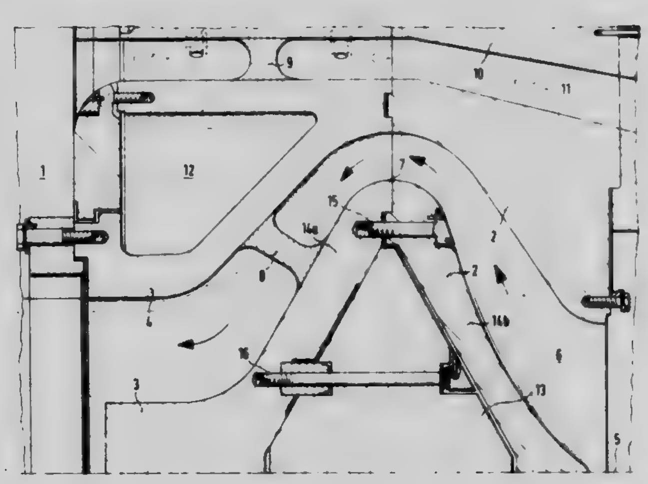
Claus Elter, Bad Duerkheim; Hans-Juergen Kolodzey, Ketsch; Josef Schoening, Hambruecken; Hans-Georg Schwiers, Kietsch, and Wilfried Stracke, Oftersheim, all of Fed. Rep. of Germany, assignors to Hochtemperatur-Reaktorbau GmbH, Cologne, Fed. Rep. of Germany

Filed Aug. 12, 1980, Ser. No. 177,494

Claims priority, application Fed. Rep. of Germany, Aug. 22, 1979, 2933899

Int. Cl.³ G21C *9/00*

U.S. Cl. 376—292 **4 Claims**



1. A shielded gas conduit for a reactor pressure vessel comprising:

a conduit housing forming a passageway for cooling gas, said passageway comprising two separate coaxially arranged conduits with cooling gas flowing in one direction in the outer conduit and cooling gas flowing in the opposite direction in the inner conduit;

a displacement body arranged centrally within said housing and having a symmetrical shape about an axis of rotation coinciding with the longitudinal axis of said conduit housing;

a shielding annulus surrounding said displacement body at a distance to define a first annular flow path for reactor cooling gas communicating with said inner conduit within said conduit housing, said shielding annulus having an inner surface substantially following the contour of the said displacement body and a cavity area located behind the deflection in the direction of the cooling gas flowing along said inner conduit;

means for mounting said shielding annulus within said conduit housing, said means and the outer surface of said shielding annulus defining a second annular flow path for reactor cooling gas communicating with said outer conduit; and

a plurality of mounting elements fixedly securing said displacement body to said shielding annulus.

4,381,283

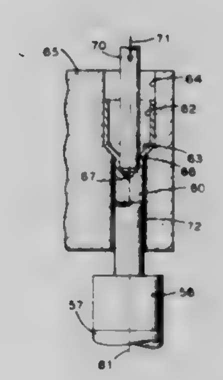
CONTROL COMPONENT STRUCTURE

Lewis A. Walton, Lynchburg, Va., assignor to The Babcock & Wilcox Company, New Orleans, La.

Continuation of Ser. No. 952,522, Oct. 18, 1978, abandoned. This application Jul. 1, 1981, Ser. No. 279,396

Int. Cl.³ G21C *7/04*

U.S. Cl. 376—327 **4 Claims**



1. A control component structure comprising:

a spider having a plurality of arms, at least one spider bore formed in said plurality of arms, said spider bore including an enlarged recess and a small recess with an upright truncated conical section forming a transition from the enlarged recess to the small recess, and

a burnable poison rod including a tube terminating in a transverse end, a plug with a chamfered end that leads into a cylindrical portion, said cylindrical portion of the plug snuggly fitting within the tube and terminating in a radially protruding shoulder which engages the transverse end of the tube to which it is welded, and a stem protruding in the longitudinal direction from the central portion of the shoulder having a longitudinal stem bore extending through about half of the length of the stem, at least part of the stem which defines the stem bore is fixed within the truncated conical section, the enlarged recess and the small recess of the spider by outward deformation of that portion of the stem in order to releasably attach the rod to the spider, said stem adapted to substantially reshape itself by movement of the rod in a longitudinal direction with respect to the spider bore, while maintaining the structural integrity of the poison rod and maintaining the structural integrity of the spider.

4,381,284

FUEL ASSEMBLY FOR A NUCLEAR REACTOR

Robert K. Gjertsen, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 16, 1980, Ser. No. 217,059

Int. Cl.³ F16L *15/00*

U.S. Cl. 376—364 **10 Claims**

1. A fuel assembly for a nuclear reactor comprising:

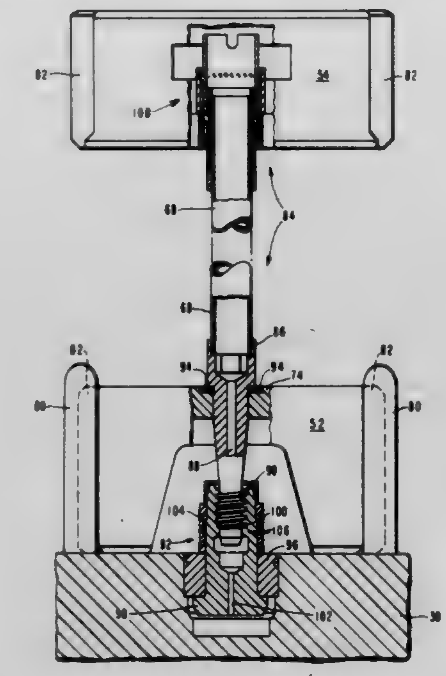
a top nozzle;

a bottom nozzle;

a plurality of fuel elements containing nuclear fuel disposed between said top nozzle and said bottom nozzle;

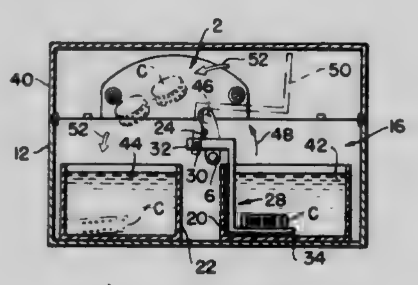
a guide tube extending from said top nozzle to said bottom nozzle;

a lower member attached to the lower end of said guide tube and having external threads thereon for engagement the core plate of said nuclear reactor thereby attaching said fuel assembly to said core plate; and



locking means attached to said top nozzle for preventing disengagement of said external threads.

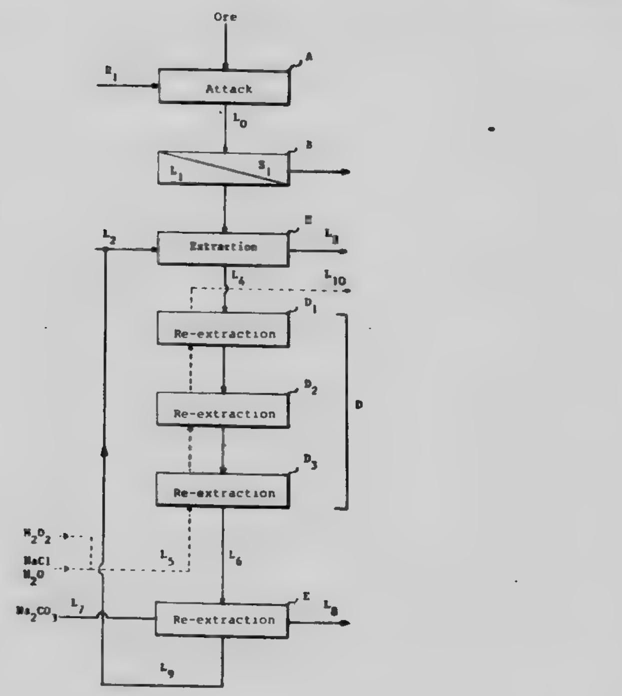
4,381,285
CONTACT LENS STERILIZING DEVICE
Sidney Wittenberg, 52 Surrey La., Sudbury, Mass. 01776
Filed Jan. 9, 1981, Ser. No. 223,755
Int. Cl.³ A61L *2/18*
U.S. Cl. 422—116 **18 Claims**



1. A device for sterilizing articles with a sterilizing solution and for subsequently transferring the articles to a storage environment after completion of the sterilization process, said device comprising:
(a) a first receptacle containing sterilizing solution;
(b) a second receptacle containing storage solution;
(c) support means disposed in said first receptacle for holding the articles in fluid contact with the sterilizing solution;
(d) momentum generating means movable between a first position and a second position to generate momentum; and
(e) means for transmitting the momentum generated by said momentum generating means to said support means to impart motion to said support means and to forcefully drive the articles along a trajectory from said first receptacle to said second receptacle.

2. A device for sterilizing articles with a sterilizing solution and for subsequently transferring said articles to a storage environment at the completion of the sterilization process, said device comprising:
(a) a first cell structure containing sterilizing solution;
(b) a second cell structure containing storage solution;
(c) a cage means disposed in said first cell structure for holding the articles in fluid contact with the sterilizing solution;
(d) timer means for measuring a predetermined interval of time, said timer means including a striker arm which generates momentum by moving from a first position to a second position at the expiration of said predetermined interval of time; and
(e) means for transmitting the momentum generated by said striker arm to said cage means to propel said cage means from said first cell structure to said second cell structure at the expiration of said predetermined interval of time.

4,381,286
PROCESS FOR THE SELECTIVE SEPARATION OF URANIUM AND MOLYBDENUM WHICH ARE CONTAINED IN AN AMINO SOLVENT
Antoine Floreancig, Saint Genis Laval, France, assignor to Uranium Pechiney Ugine Kuhlmann, Paris, France
Filed Jun. 9, 1981, Ser. No. 271,941
Claims priority, application France, Jun. 19, 1980, 80 13912
Int. Cl.³ C01G *43/00, 39/00*
U.S. Cl. 423—9 **5 Claims**

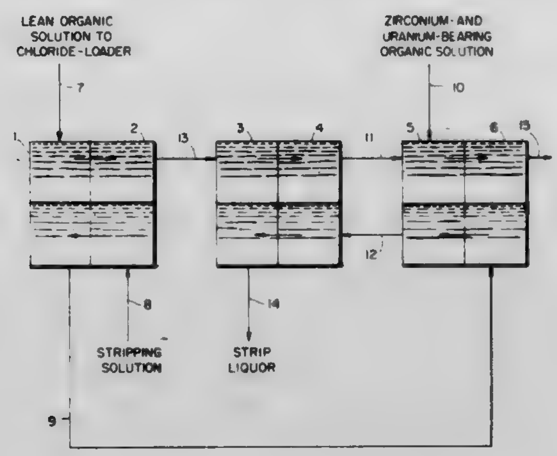


1. In a process for the selective separation of the uranium and molybenum which are contained in an extract resulting from the treatment by liquid-liquid extraction by means of an amino solvent of a solution resulting from the attack using sulphuric acid on a molybdo-uraniferous ore comprising aqueous re-extraction of the uranium contained in said extract by means of an acid solution of an alkali metal chloride, followed by re-extraction of the molybdenum by treatment of the residual extract by means of an alkali metal carbonate solution and recycling of the solvent to achieve selective separation, the improvement comprising the step of adding an oxidizing agent to the acid alkali metal chloride solution before the latter is brought into contact with the extract.

4,381,287
SEPARATION OF ZIRCONIUM AND URANIUM
David J. MacDonald, and Helen G. Henry, both of Reno, Nev., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.
Filed Mar. 30, 1982, Ser. No. 363,367
Int. Cl.³ C01G *25/00*
U.S. Cl. 423—70 **5 Claims**

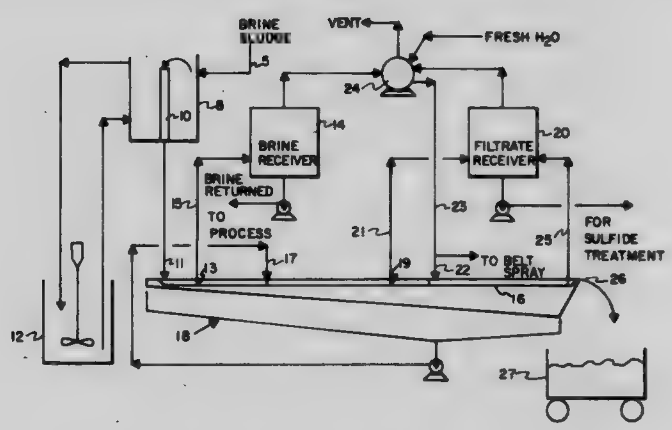
1. A process for separation of zirconium and uranium comprising:
stripping a zirconium- and uranium-containing hydrocarbon-amine organic solution with an aqueous chloride solution, whereby zirconium is selectively extracted from the organic solution, with extraction of only minor amounts of uranium, and

scrubbing the resulting zirconium- and uranium-containing aqueous solution with a chloride-loaded hydrocarbon-amine organic solution to selectively extract uranium,



whereby the uranium content of the solution is further lowered to yield an aqueous zirconium solution substantially free of uranium.

4,381,288
MERCURY BRINE SLUDGE TREATMENT
Samuel Weiss, River Edge, N.J., and Andrew R. Lechuga, Baton Rouge, La., assignors to Stauffer Chemical Company, Westport, Conn.
Filed Oct. 15, 1981, Ser. No. 311,566
Int. Cl.^{3} C01G *13/00*
U.S. Cl. 423—101 7 Claims



1. A process for removing leachable mercury values from mercury containing waste sludge which comprises depositing the sludge on a horizontal belt filter, dewatering the sludge, and then subjecting the dewatered sludge to at least one water washing to remove therefrom leachable mercury to a leachable content of less than 20 ppb.

4,381,289
PROCESS FOR PREPARING ZIRCONIUM PHOSPHATE
Derek V. Nowell, Hatfield, and Koteswararao Rentala, Stevenage, both of England, assignors to National Research Development Corporation, London, England
Filed Dec. 2, 1981, Ser. No. 326,927
Claims priority, application United Kingdom, Dec. 10, 1980, 8039546
Int. Cl.^{3} C01B *15/16, 25/26*
U.S. Cl. 423—311 10 Claims

1. A process for preparing zirconium phosphate comprising:
(1) forming a solution of zirconyl chloride in hydrochloric acid, the solution having a pH not exceeding 0.3;
(2) adding sodium fluoride to a minimum molar ratio sodium:zirconium of 4:1 and subject to a maximum of 5.0:1 at a zirconium concentration of 0.1 M, of 5.2 at 0.07 M and 9 at 0.05 M;
(3) ensuring that the solution is homogeneous, at a maximum pH of 1.6, and at a concentration of from 0.05 to 0.1 M in zirconium;
(4) mixing the solution with phosphoric acid such that in the mixture the molar ratio phosphate:zirconium is substantially always at least 3, whereby zirconium phosphate precipitates; and
(5) recovering said precipitated zirconium phosphate.

4,381,290
METHOD AND CATALYST FOR MAKING CHLORINE DIOXIDE
Kenneth L. Hardee, Middlefield; Arnold Z. Gordon, Lyndhurst; Charles B. Pyle, Chardon, and Rajat K. Sen, Cleveland Heights, all of Ohio, assignors to Diamond Shamrock Corporation, Dallas, Tex.
Continuation-in-part of Ser. No. 256,969, Apr. 23, 1981, Pat. No. 4,362,707. This application Feb. 1, 1982, Ser. No. 344,304
The portion of the term of this patent subsequent to Dec. 7, 1999, has been disclaimed.
Int. Cl.^{3} C01B *11/02*
U.S. Cl. 423—478 17 Claims

1. A heterogeneous catalytic process for the generation of ClO_2 comprising the steps of:
(1) providing a chlorate containing feedstock selected from a group consisting of aqueous solutions of alkali metal chlorates and alkaline earth metal chlorates;
(2) providing an acid feedstock;
(3) providing a heterogeneous catalyst substantially insoluble in the feedstocks comprising at least one of ruthenium oxide, iridium oxide, palladium oxide, rhodium oxide and platinum oxide;
(4) combining the feedstocks and reacting the combined feedstocks in contact with the catalyst at a temperature greater than 20° C.; and
(5) stripping and recovering ClO_2 from the combined feedstocks.

4,381,291
MEASUREMENT OF FREE LIGANDS
Roger P. Ekins, Friday Street, near Dorking, England, assignor to AB Fortia, Uppsala, Sweden
Filed Feb. 21, 1980, Ser. No. 123,328
Claims priority, application United Kingdom, Feb. 23, 1979, 7906525
Int. Cl.^{3} G01N *33/16;* **A61K** *43/00*
U.S. Cl. 424—1 5 Claims

1. A method for indirect measurement of the concentration of a free ligand in a liquid sample also containing the ligand bound to endogenous binding material, comprising the steps of performing two separate measurements, wherein the first measurement is used to determine the total concentration of free and reversibly bound ligand in the sample to be tested, and the second measurement comprises the steps:
(i) exposing separately to a known amount of labelled ligand (a) the sample to be tested, and (b) each of a plurality of standard solutions containing known concentrations of the free ligand,
(ii) thereafter exposing each resulting mixture from (i) (a) and (i) (b) separately to an immobilized binding agent to bind a proportion of the free labelled ligand and a similar proportion of the free unlabelled ligand to the immobilized binding agent in each mixture,
(iii) separating the immobilized binding agent with its bound ligand from the residual material in each mixture,
(iv) measuring the proportion of labelled ligand bound to the immobilized binding agent in each mixture,
(v) computing, from this proportion and the total concentration of free and reversibly bound ligand determined in the first measurement, the total amount of ligand bound to the immobilized binding agent in each case, and
(vi) estimating from this figure the concentration of free

ligand in the sample to be tested using as calibration the known concentrations in the standard solutions.

4,381,292

ANTI-HUMAN T-LYMPHOCYTE MONOCLONAL ANTIBODY

Charles P. Bieber, Los Altos Hills, and Frank D. Howard, Los Altos, both of Calif., assignors to The Board of Trustees of the Leland Stanford Jr. University, Stanford, Calif.

Filed Nov. 14, 1980, Ser. No. 206,915
Int. Cl.^{3} A61K *43/00, 39/00;* **G01N** *33/54*
U.S. Cl. 424—1 **9 Claims**

1. Mammalian monoclonal antibodies specific for the lymphocyte antigen Leu-5, specifically binding to thymocytes and E-rosette forming peripheral blood lymphocytes and inhibiting human thymocyte rosette formation.

3. Mammalian monoclonal antibodies specific for the lymphocyte surface antigen Leu-5 having a label providing a detectible signal, specifically binding to human thymocytes and human peripheral blood lymphocytes which form E-rosettes and inhibiting E-rosette formation of human thymocytes.

4,381,293

SHAVING COMPOSITION

George H. Michel, 343 Oak Knoll Dr., Glendora, Calif. 91740

Filed Jan. 11, 1982, Ser. No. 338,349
Int. Cl.^{3} A61K *9/00, 7/15;* **B26B** *21/40*
U.S. Cl. 424—14 **10 Claims**

1. A solid shaving composition comprising:
a. a water soluble polyethylene oxide polymer of a molecular weight of 400,000 or less in an amount ranging from about 1 to about 65 weight percent;
b. a trackability component in an amount ranging from about 20 to about 80 weight percent;
c. a preservative component in an amount ranging from about 0.005 to about 7.5 weight percent;
d. an anti-caking component in an amount ranging from about 1 to about 20 weight percent;
e. a humectant component in an amount ranging from about 0.0 to about 20 weight percent; and,
f. a lubricant component in an amount ranging from about 0.0 to about 10 weight percent.

7. A shaving composition comprising:
a. a water soluble polyethylene oxide polymer of a molecular weight of 400,000 or less in an amount ranging from about 1 to about 65 weight percent;
b. a trackability component in an amount ranging from about 20 to about 80 weight percent;
c. a preservative component in an amount ranging from about 0.005 to about 7.5 weight percent;
d. an anti-caking component in an amount ranging from about 1 to about 20 weight percent;
e. a humectant component in an amount ranging from about 0.0 to about 20 weight percent; and,
f. a lubricant component in an amount ranging from about 0.0 to about 10 weight percent

wherein, the composition is formed into a solid of suitable size and shape for topical application by a user.

8. The shaving composition of claim 7 wherein the solid comprises a disc having a diameter in a range of from about 1.0 inches to about 3.0 inches and a thickness in a range of from about 1/16 inch to about ¼ inch.

4,381,294

PROCESS FOR REINFORCING FRAGILE OR BRITTLE NAILS AND A COMPOSITION CONTAINING A CATIONIC POLYMER FOR USE IN SAID PROCESS

Claude Bouillon, Eaubonne; Jean-Louis Abegg; Constantin Koulbanis, both of Paris, and Patrick Darmenton, Villejuif, all of France, assignors to Societe Anonyme dite: L'OREAL, Paris, France

Filed Nov. 27, 1979, Ser. No. 98,330
Claims priority, application France, Dec. 1, 1978, 78 33965
Int. Cl.^{3} A61K *7/04*
U.S. Cl. 424—61 **24 Claims**

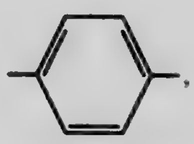
1. A process for reinforcing fragile or brittle nails comprising applying to the nail surface an effective amount of a composition consisting essentially of at least one cationic polymer selected from the group consisting of

(1) a crosslinked polyamino-polyamide having the formula

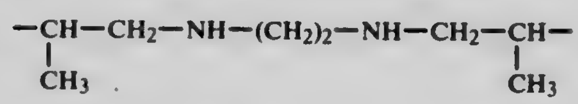
$$\text{-}[\text{OC—R—CO—Z}]\text{-}$$

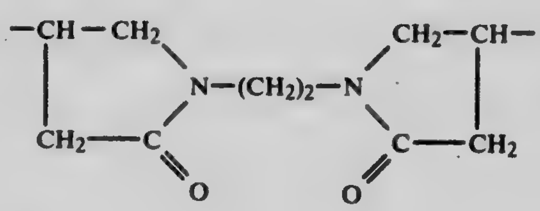
wherein

R represents a radical selected from the group consisting of

(i) , (ii) $-(CH_2)_4-$,

(iii) $-(CH_2)_2-NH-(CH_2)_2-NH-(CH_2)_2-$,

(iv)  and

(v) , and

represents:

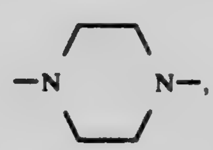
(a) in an amount from 60 to 100 mole percent, the radical, $+NH-(CH_2)_x+NH+_n$ wherein x=2 and n=2 or 3, or x=3 and n=2,

(b) in an amount from 0 to 40 mole percent, a radical selected from the group consisting of:

(a′) $-NH-(CH_2)_x-NH+_n$ wherein x=2 and n=1,

and

(b′)



and

(c) in an amount from 0 to 20 mole percent, the radical, $-NH+(CH_2)_6-NH+$, crosslinked with a crosslinking agent selected from the group consisting of an epihalohydrin, a diepoxide, a dianhydride and a bis-unsaturated derivative;

(2) an adipic acid-dimethylaminohydroxypropyl diethylenetriamine polymer having a nitrogen content of 17.0–18.0 weight percent thereof, and a viscosity measured in a 30% aqueous solution of 350–800 centipoises at 20° C.;

(3) a polymer obtained by the reaction of a polyalkylenepolyamine having two primary amine groups and at least one secondary amine group with a dicarboxylic acid selected from the group consisting of diglycolic acid and a saturated aliphatic acid having 3–8 carbon atoms, the

molar ratio of said polyalkylene polyamine to said dicarboxylic acid being about 0.8:1 to 1.4:1 and by the reaction of the resulting polyaminoamide with epichlorohydrin, the molar ratio of said epichlorohydrin to the secondary amine group of said polyaminoamide being from 0.5:1 to 1.8:1; and

(4) a cyclopolymer selected from the group consisting of
 (i) a homopolymer of dimethylammonium chloride having a molecular weight lower than 100,000, and
 (ii) a cyclopolymer of dimethyldiallylammonium chloride and acrylamide having a molecular weight greater than 500,000.

4,381,295

MONOCLONAL ANTIBODY TO HUMAN HELPER T CELLS AND METHODS OF PREPARING SAME

Patrick C. Kung, Bridgewater, and Gideon Goldstein, Short Hills, both of N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed Apr. 26, 1979, Ser. No. 33,639

Int. Cl.[3] **A61K** *39/395;* **C12N** *5/00, 5/02, 15/00;* **C12Q** *1/00;* **G01N** *33/48, 33/68, 33/96*

U.S. Cl. 424—85 **11 Claims**

1. A monoclonal antibody of class IgG produced by a hybridoma formed by fusion of cells from a mouse myeloma line and spleen cells from a mouse previously immunized with human T cells, which antibody:
 (a) reacts with essentially all normal human peripheral helper T cells (being about 55% of all normal human peripheral T cells), but not with normal human peripheral B cells, null cells or macrophages;
 (b) reacts with about 80% of normal human thymocytes;
 (c) does not react with leukemic cells from humans with T cell chronic lymphoblastic leukemia, B cell chronic lymphoblastic leukemia, T cell acute lymphoblastic leukemia, or null cell acute lymphoblastic leukemia;
 (d) reacts with the human T cell line CEM, but not with HJD-1, Laz 191, or HM1;
 (e) does not react with Epstein-Barr virus-transformed human B cell lines Laz 007, Laz 156, Laz 256, or SB;
 (f) reacts with about 55% of Rhesus monkey peripheral T cells;
 (g) fixes complement; and
 (h) defines a T cell population which is unreactive with anti-TH_2 serum and is only minimally cytotoxic.

4. Mouse monoclonal antibody which reacts with essentially all normal human peripheral helper T cells but not with normal human peripheral B cells, null cells, or macrophages.

5. A method of preparing monoclonal antibody which reacts with essentially all normal human peripheral helper T cells but not with normal human peripheral B cells, null cells, or macrophages, which comprises culturing the hybridoma ATCC CRL 8002 in a suitable medium and recovering the antibody from the supernatant above said hybridoma.

4,381,296

TREATMENT FOR HERPES VIRUS

James E. Tinnell, 3121 S. Maryland Parkway, Las Vegas, Nev. 89109

Continuation-in-part of Ser. No. 162,252, Jun. 23, 1980, Pat. No. 4,285,934, which is a continuation-in-part of Ser. No. 57,453, Jul. 13, 1979, abandoned, which is a continuation-in-part of Ser. No. 879,085, Feb. 21, 1978, abandoned. This application Jun. 29, 1981, Ser. No. 278,837

The portion of the term of this patent subsequent to Aug. 25, 1998, has been disclaimed.

Int. Cl.[3] **A61K** *33/22, 35/78, 31/60*

U.S. Cl. 424—148 **2 Claims**

2. A method for treatment of herpes virus lesions in a human host comprising topically applying to the lesions an effective amount of a composition comprising boric acid, tannic acid and salicylic acid in the weight ratios of about 2–12:2–12:1–6.

4,381,297

SUBSTITUTED CARBONYL PHOSPHINYL-ALKANOYL COMPOUNDS

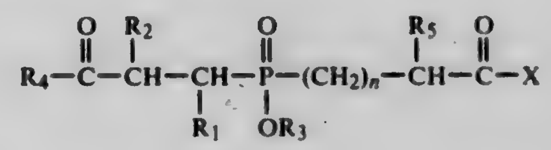
Donald S. Karanewsky, Princeton Junction, and Edward W. Petrillo, Jr., Pennington, both of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed May 4, 1981, Ser. No. 260,659

Int. Cl.[3] **A61K** *31/675;* **C07F** *9/30, 9/32*

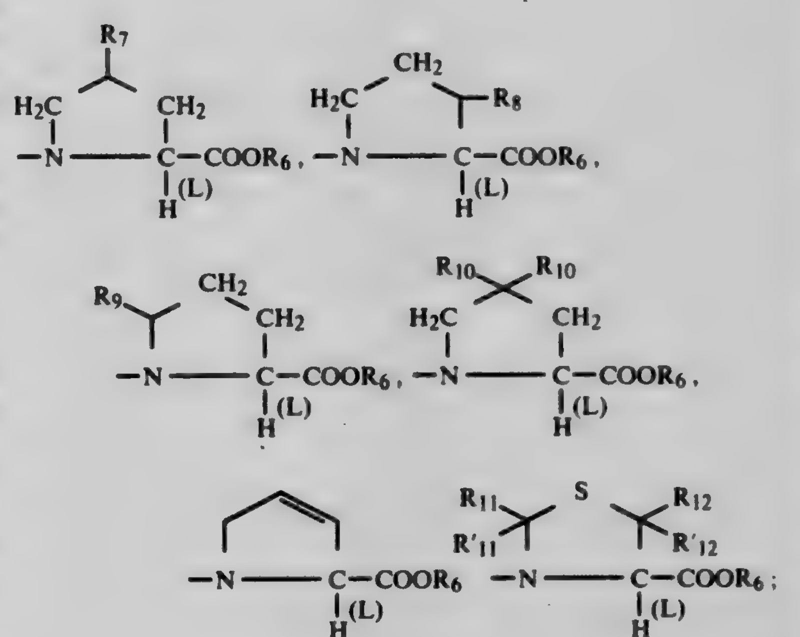
U.S. Cl. 424—200 **15 Claims**

1. A compound of the formula

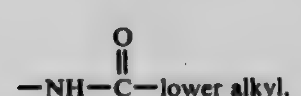


wherein

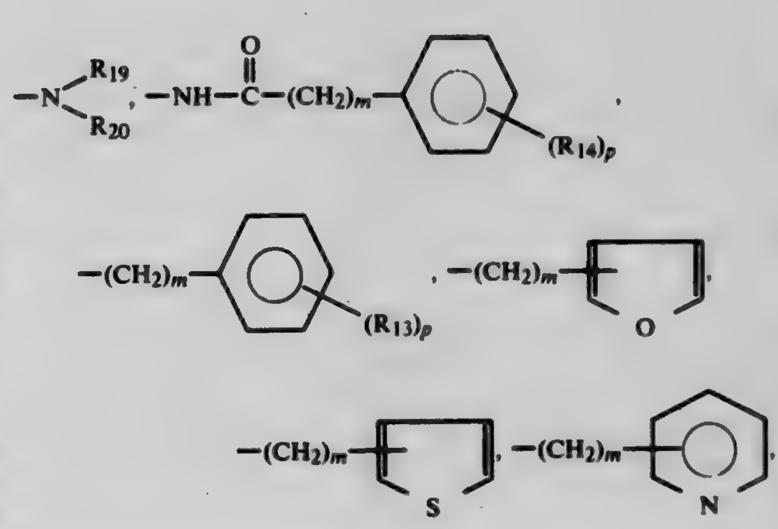
X is an imino acid of the formula



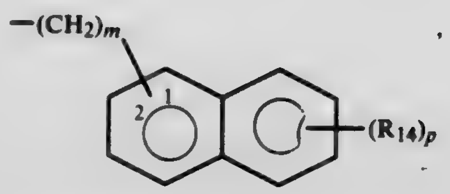
R_7 is hydrogen, lower alkyl, halogen, keto, hydroxy,



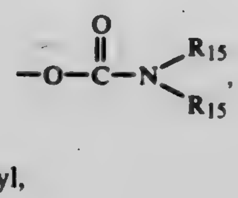
azido, amino,



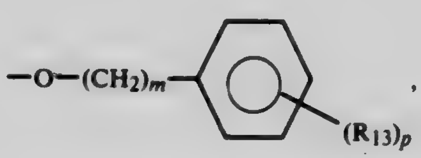
a 1- or 2-naphthyl of the formula



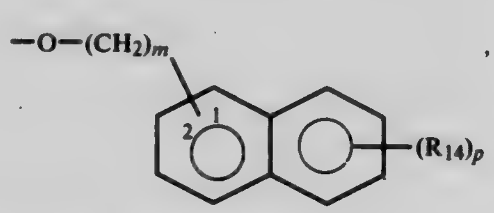
—$(CH_2)_m$-cycloalkyl,



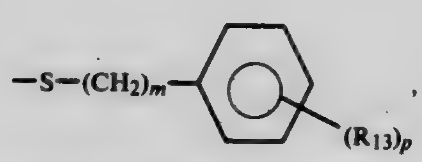
—O—lower alkyl,



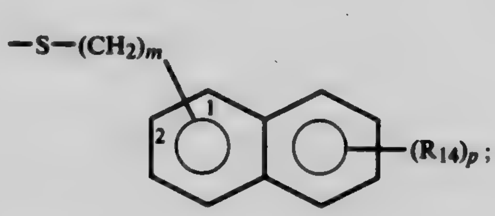
a 1- or 2-naphthyloxy of the formula



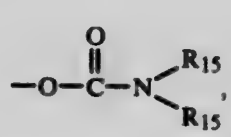
—S—lower alkyl,

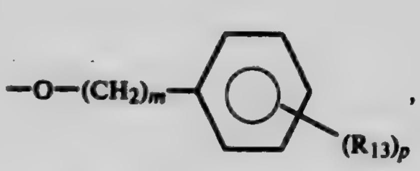


or a 1- or 2-naphthylthio of the formula

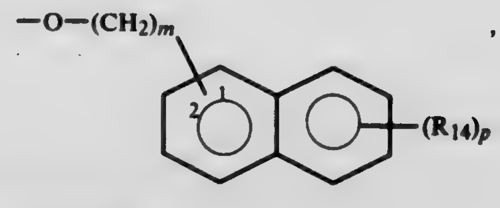


R_8 is keto, halogen,

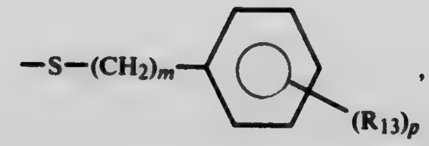




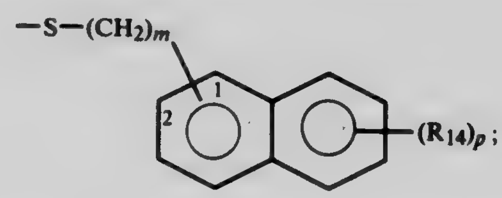
—O—lower alkyl, a 1- or 2-naphthyloxy of the formula



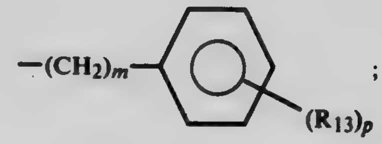
—S—lower alkyl,



or a 1- or 2-naphthylthio of the formula

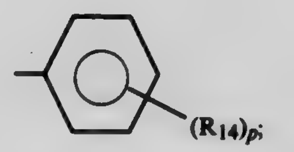


R_9 is keto or



R_{10} is halogen or —Y—R_{16};

R_{11}, R_{11}', R_{12} and R_{12}' are independently selected from hydrogen and lower alkyl or R_{11}', R_{12} and R_{12}' are hydrogen and R_{11} is



R_{13} is hydrogen, lower alkyl of 1 to 4 carbons, lower alkoxy of 1 to 4 carbons, lower alkylthio of 1 to 4 carbons, chloro, bromo, fluoro, trifluoromethyl, hydroxy, phenyl, phenoxy, phenylthio, or phenylmethyl;

R_{14} is hydrogen, lower alkyl of 1 to 4 carbons, lower alkoxy of 1 to 4 carbons, lower alkylthio of 1 to 4 carbons, chloro, bromo, fluoro, trifluoromethyl, or hydroxy;

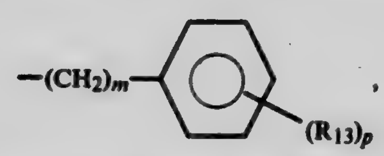
m is zero, one, two or three;

p is one, two or three provided that p is more than one only if R_{13} or R_{14} is hydrogen, methyl, methoxy, chloro, or fluoro;

R_{15} is hydrogen or lower alkyl of 1 to 4 carbons;

Y is oxygen or sulfur;

R_{16} is lower alkyl of 1 to 4 carbons,

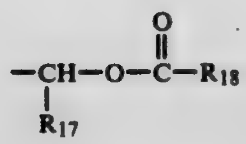


or the R_{16} groups join to complete an unsubstituted 5- or 6-membered ring or said ring in which one or more of the carbons has a lower alkyl of 1 to 4 carbons or a di(lower alkyl of 1 to 4 carbons) substituent;

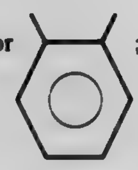
n is zero or one;

R_5 is hydrogen, lower alkyl, halo substituted lower alkyl, benzyl or phenethyl;

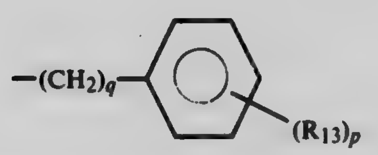
R_3 and R_6 are independently selected from hydrogen, lower alkyl, benzyl, benzhydryl, or



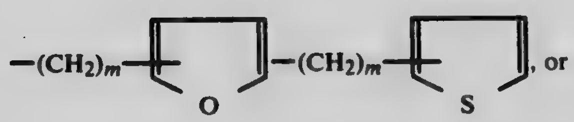
wherein R_{17} is hydrogen, lower alkyl, or phenyl, and R_{18} is hydrogen, lower alkyl, lower alkoxy, phenyl, or R_{17} and R_{18} taken together are

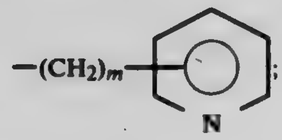
$-(CH_2)_2-$, $-(CH_2)_3-$, $-CH{=}CH-$, or  ;

R_4 is hydrogen, lower alkyl, halo substituted lower alkyl,



wherein R_{13} and p are as defined above and q is zero or an integer from 1 to 7, cycloalkyl,

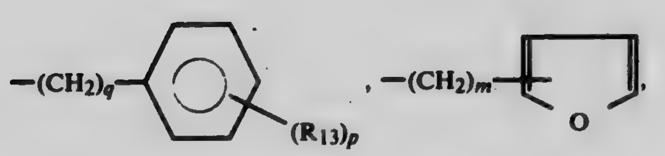


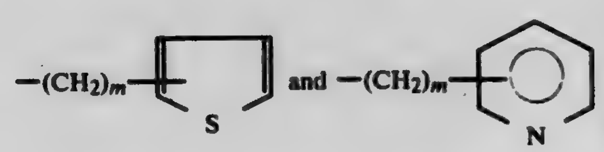


R_{19} is lower alkyl, benzyl or phenethyl;

R_{20} is hydrogen, lower alkyl, benzyl or phenethyl;

R_1 and R_2 are independently selected from the group consisting of hydrogen, lower alkyl, halo substituted lower alkyl,





wherein q, R_{13}, p and m are as defined above; and when either or both of R_3 and R_6 are hydrogen a basic addition salt or an amino acid addition salt thereof.

14. A pharmaceutical composition useful for treating hypertension comprising a pharmaceutically acceptable carrier and one or more compounds of claim 1 or pharmaceutically acceptable salts thereof.

4,381,298

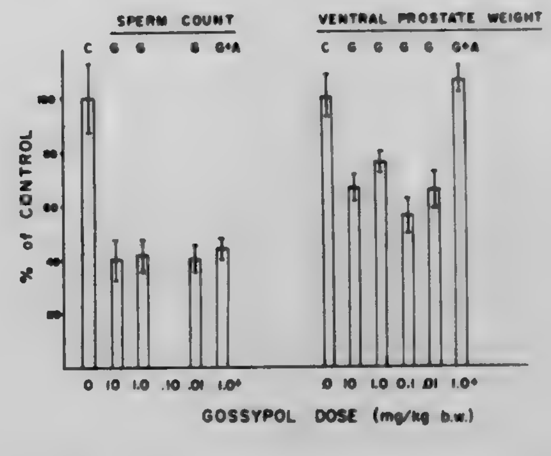
ORAL MALE CONTRACEPTIVE COMPOSITION

Patricia B. Coulson, 7417 Sheffield Dr., Knoxville, Tenn. 37919

Filed Oct. 13, 1981, Ser. No. 310,390

Int. Cl.³ A61K *31/56*

U.S. Cl. 424—240 18 Claims



11. An orally active male animal contraceptive composition for substantially inhibiting sperm production without substantially affecting the activity of secondary sex organs during administration periods, which comprises:

a biologically acceptable and orally active form of gossypol in a dosage of 3-30 milligrams per kilogram body weight per day; and

a biologically acceptable and orally active replacement androgen selected from the group consisting of fluoxymesterone and medroxyprogesterone in a dosage of 1 to 5 milligrams per kilogram per day.

12. A method of substantially inhibiting sperm production in male animals without substantially inhibiting the activity of secondary sex organs during administration periods, which comprises:

orally administrating a biologically acceptable binaphthalamine structure compound selected from gossypol and gossypol derivatives at a dosage whereby said sperm production is substantially inhibited to below the azoospermia level; and

orally administering a biologically acceptable orally active replacement androgen at a dosage whereby said activity of secondary sex organs is substantially unaffected by said gossypol and gossypol derivatives.

4,381,299

7-AMINO-THIADIAZOLE OXYIMINO DERIVATIVES OF CEPHEM AND CEPHAM COMPOUNDS

Tsutomu Teraji, Osaka; Kazuo Sakane, Amagasaki, and Jiro Goto, Suita, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

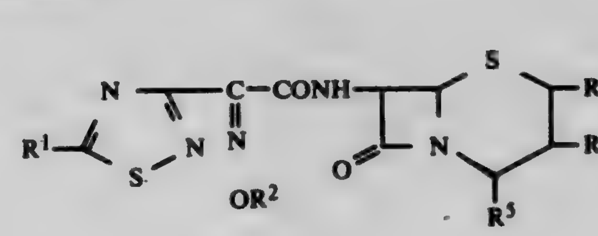
Continuation-in-part of Ser. No. 128,260, Mar. 7, 1980, Pat. No. 4,331,665, which is a continuation-in-part of Ser. No. 116,984, Jan. 30, 1980, Pat. No. 4,332,798, which is a continuation-in-part of Ser. No. 108,161, Dec. 28, 1979, abandoned. This application Jun. 18, 1980, Ser. No. 160,904

The portion of the term of this patent subsequent to May 19, 1998, has been disclaimed.

Int. Cl.³ A61K *31/545*

U.S. Cl. 424—246 39 Claims

1. 7-substituted-3-cephem and cepham-4-carboxylic acid of the formula:



where R^1 is amino or a protected amino;

R^2 is hydrogen; carbamoyl; lower alkanoyl; lower alkoxycarbonyl; aroyl; ar(lower) alkanoyl; cyclo(lower) alkyl(-lower) alkanoyl; ar(lower) alkoxycarbonyl; (lower) alkanesulfonyl; arenesulfonyl; aryl; alkaryl; aryl and alkaryl substituted in the aryl nucleus with 1 to 3 substituents selected from the group consisting of halogen, lower alkoxy, nitro, halo(lower)alkyl, and protected carboxy; substituted lower alkyl selected from the group consisting of ar(lower)alkyl, lower alkylthio(lower)alkyl, halo(lower)alkyl, aryloxy(lower)alkyl, cyano(lower)alkyl, protected carboxy(lower)alkyl, di(lower)alkylcarbamoyl(-lower)alkyl, lower alkoxy(lower)alkoxy(lower)alkyl, lower alkanesulfonyl(lower)alkyl, protected amino(lower)alkyl, amino(lower)alkyl, carboxyl(lower)alkyl, ar(-lower)alkyl substituted with protected carboxy, ar(lower-)alkyl substituted with carboxy, ar(lower)alkyl substituted with protected amino(lower)alkyl, and ar(lower)alkyl substituted with amino(lower)alkyl; lower alkenyl; lower alkynyl; cycloalkyl; cycloalkyl substituted with carboxy or protected carboxy; cyclo(lower)alkenyl; or S or O containing 5-membered heterocyclic group substituted with an oxo group;

R^3 is hydrogen or lower alkyl;

R^4 is hydrogen; acyloxy(lower)alkyl; acylthio(lower)alkyl; pyridinium(lower)alkyl; pyridinium(lower)alkyl substituted with carbamoyl, lower alkanoyl, hydroxy(lower)alkyl, carboxy(lower)alkyl, or hydroxy iminomethyl; thiazolium(lower)alkyl; thiazolium(lower)alkyl substituted with lower alkyl or hydroxy(lower)alkyl; heterocyclicthio(lower)alkyl; heterocyclicthio(lower)alkyl substituted with 1 to 3 substituent(s) selected from the group consisting of lower alkyl, hydroxy(lower)alkyl, protected amino(lower)alkyl, amino(lower)alkyl, di(lower)alkylamino(lower)alkyl, lower alkenyl, carboxy(lower)alkyl, protected carboxy(lower)alkyl, aryl, morpholino(-lower)alkyl, piperidino(lower)alkyl, lower alkyl substituted piperazinyl(lower)alkyl, oxo and hydroxy; lower alkyl; halogen; or hydroxy;

R^5 is carboxy or a protected carboxy; wherein R^5 is COO^- when R^4 is pyridinium(lower)alkyl or substituted pyridinium(lower)alkyl, or thiazolium(lower)alkyl or substituted thiazolium(lower)alkyl; and the heavy solid line means single or double bond; and pharmaceutically acceptable salt thereof.

39. An antibacterial composition comprising an effective amount of a compound of claim 1 or pharmaceutically acceptable salt thereof in association with a pharmaceutically acceptable, substantially non-toxic carrier or excipient.

4,381,300

SULPHUR ANALOGS OF CEPHALOSPORINS HAVING A NUCLEOPHILE SUBSTITUTED IN THE 7 POSITION

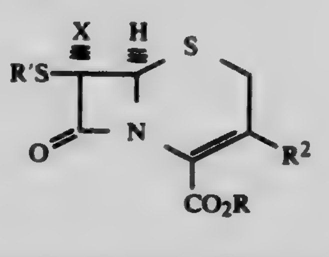
John C. Sheehan, Lexington, and Thomas J. Commons, Boston, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Division of Ser. No. 838,874, Oct. 3, 1977, Pat. No. 4,265,882. This application Feb. 3, 1981, Ser. No. 231,260

Int. Cl.³ C07D *501/57;* **A61K** *31/545*

U.S. Cl. 424—246 **15 Claims**

1. A compound having the formula:



where R is a protective group for acids or a pharmaceutically acceptable group, R^1 is hydrogen or an organic electrophilic moiety, R^2 is a pharmaceutically acceptable group, and X is a halogen or an organic nucleophile.

4,381,301

SUBSTITUTED TRICYCLIC THIENO COMPOUNDS, THEIR SYNTHESIS, THEIR USE, THEIR COMPOSITIONS AND THEIR MEDICAMENTS

Georg Rainer, Constance, Fed. Rep. of Germany, assignor to BYK Gulden Lomberg Chemische Fabrik GmbH, Fed. Rep. of Germany

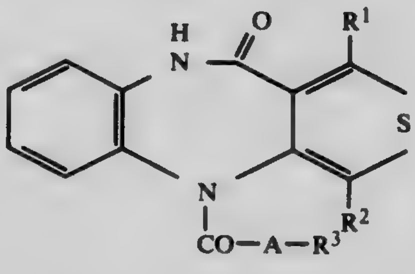
Filed Aug. 4, 1980, Ser. No. 175,244

Claims priority, application Switzerland, May 7, 1980, 3581/80

Int. Cl.³ A61K *31/495;* **C07D** *521/00*

U.S. Cl. 424—250 **14 Claims**

1. A substituted thienobenzodiazepinone of the formula



wherein

R^1 denotes a hydrogen atom (-H) or alkyl with from 1 to 4 carbon atoms,

R^2 represents halo or has one of the meanings of R^1,

R^3 denotes halo or $-N(R^4)R^5$,

R^4 denotes alkyl with from 1 to 4 carbon atoms or alkenyl with from 3 to 5 carbon atoms,

R^5 denotes one of the meanings of R^4 or $-(CH_2)_m-N(R^6)R^7$ or $N(R^4)R^5$ denotes morpholino, pyrrolidino, piperidino, hexahydroazepin-1-yl, piperazin-1-yl which is optionally substituted in the 4-position by methyl, ethyl or benzyl, 2,4-dimethylpiperazin-1-yl or hexahydro-1H-1,4-diazepin-1-yl which is substituted in the 4-position by methyl or ethyl,

R^6 denotes alkyl with from 1 to 4 carbon atoms,

R^7 denotes alkyl with from 1 to 4 carbon atoms,

A denotes straight-chain or branched alkylene with from 1 to 5 carbon atoms and

m denotes 2 or 3,

or an acid-addition salt thereof.

3. A thienobenzodiazepinone according to claim 1 wherein

R^1 denotes —H or alkyl with from 1 to 4 carbon atoms,

R^2 represents halo or has one of the meanings of R^1,

R^3 denotes $-N(R^4)R^5$,

R^4 denotes alkyl with from 1 to 4 carbon atoms or alkenyl with from 3 to 5 carbon atoms,

R^5 has one of the meanings of R^4 or represents $-(CH_2)_m-N(R^6)R^7$, or $N(R^4)R^5$ denotes morpholino, pyrrolidino, piperidino, hexahydroazepin-1-yl, piperazin-1-yl which is optionally substituted in the 4-position by methyl, ethyl or benzyl, 2,4-dimethylpiperazin-1-yl or hexahydro-1H-1,4-diazepin-1-yl which is substituted in the 4-position by methyl or ethyl,

R^6 denotes alkyl with from 1 to 4 carbon atoms,

R^7 denotes alkyl with from 1 to 4 carbon atoms,

A denotes straight-chain or branched alkylene with from 1 to 5 carbon atoms and

m denotes 2 or 3,

or a pharmacologically-acceptable acid-addition salt thereof.

14. A method for the prophylaxis or treatment of acute and chronic ulcus ventriculi and ulcus duodeni, gastritis and hyperacid gastric irritation which comprises administering to a mammal subject to or afflicted with such a disorder an effective amount of a compound according to claim 3.

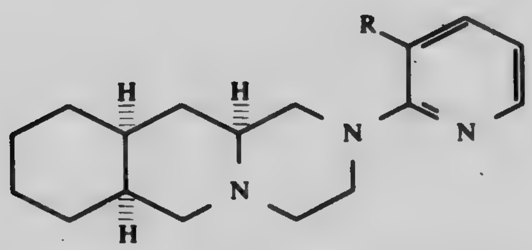
4,381,302

(6Aα,10Aα,11Aα)-2-(2-PYRIDINYL)-1,3,4,6,6A,7,8,9,10,-10A,11,11A-DODECAHYDRO-2H-PYRAZINO]1,2-B]ISOQUINOLINE AND DERIVATIVES

Joel R. Huff, Gwynedd; Stella W. King, and Walfred S. Saari, both of Lansdale, all of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

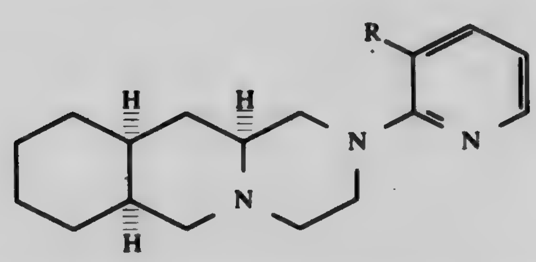
Filed May 26, 1981, Ser. No. 267,325
Int. Cl.³ A61K *31/495;* **C07D** *471/04*
U.S. Cl. 424—250 **9 Claims**

1. A method of selectively antagonizing α_2-adrenergic receptors in a patient in need of such treatment which comprises the administration of an effective amount of a compound of structural formula:



or a pharmaceutically acceptable salt thereof wherein
R is
(1) hydrogen,
(2) halo,
(3) C_{1-4}alkyl,
(4) cyano,
(5) C_{1-4}alkoxy,
(6) trifluoromethyl, or
(7) nitro.

4. A compound of structural formula:



or a pharmaceutically acceptable salt thereof, wherein
R is
(1) hydrogen,
(2) halo,
(3) C_{1-4}alkyl,
(4) cyano,
(5) C_{1-4}alkoxy,
(6) trifluoromethyl, or
(7) nitro.

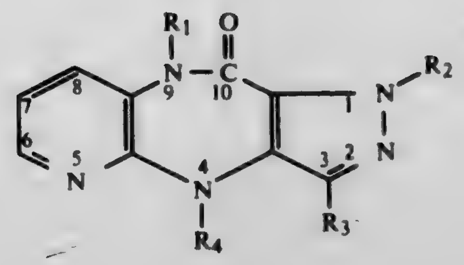
4,381,303

1,4,9,10-TETRAHYDRO-PYRAZOLO [4,3-]PYRIDO[-3,2-b][1,4]DIAZEPIN-10-ONES

Günther Schmidt; Wolfhard Engel; Wolfgang Eberlein, all of Biberach; Günter Trummlitz, Warthausen, and Günther Engelhardt, Biberach, all of Fed. Rep. of Germany, assignors to Dr. Karl Thomae GmbH, Biberach an der Riss, Fed. Rep. of Germany

Filed May 13, 1982, Ser. No. 377,911
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1981, 3122670
Int. Cl.³ A61K *31/55;* **C07D** *471/14*
U.S. Cl. 424—252 **30 Claims**

1. A compound of the formula



(I)

wherein
R_1 is hydrogen or an alkyl of from 1 to 6 carbon atoms;
R_2 is an alkyl of from 1 to 3 carbon atoms;
R_3 is hydrogen or an alkyl of from 1 to 3 carbon atoms; and
R_4 is hydrogen or an alkyl of from 1 to 4 carbon atoms.

20. A method of inducing analgesic, antiphlogistic and antipyretic activity in a host which comprises administering to a host in need of such treatment an analgesically effective amount of active ingredient comprising at least one compound of claim **1**.

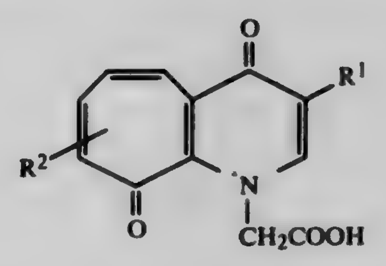
4,381,304

4,9-DIHYDRO-4,9-DIOXO-1H-CYCLOHEPTA[B]PYRIDINE DERIVATIVES

Bozidar Palameta, Dollard des Ormeaux; Tibor Bogri, St. Laurent, and Jehan Bagli, Kirkland, all of Canada, assignors to Ayerst, McKenna & Harrison, Inc., Montreal, Canada

Filed Aug. 21, 1981, Ser. No. 295,179
Int. Cl.³ C07D *221/04;* **A61K** *31/435*
U.S. Cl. 424—256 **9 Claims**

1. A compound of formula I



I

in which R^1 is COOH and R^2 is hydrogen, 8-halo or 6-hydroxy; or R^1 is $CON(R^3)—CH_2COOH$ wherein R^3 is lower alkyl and R^2 is hydrogen or 8-halo; or a therapeutically acceptable salt thereof with an organic or inorganic base.

8. A pharmaceutical composition for preventing or relieving diabetic complications, selected from neuropathy, nephropathy, retinopathy and cataracts, in a diabetic mammal, which comprises a therapeutically effective amount of a compound of claim **1**, or a therapeutically acceptable salt thereof with an organic or inorganic base, and a pharmaceutically acceptable carrier.

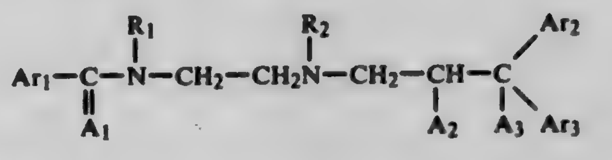
4,381,305

ETHYLENEDIAMINE DERIVATIVES AND PHARMACEUTICAL COMPOSITIONS CONTAINING SAME

Cesare Casagrande, Arese, and Giorgio Ferrari, Milan, both of Italy, assignors to Simes S.p.A., Milan, Italy

Filed Jun. 5, 1981, Ser. No. 270,808
Claims priority, application Italy, Jun. 10, 1980, 22677 A/80
Int. Cl.³ A61K *31/165;* **C07C** *103/82, 87/28;* **A61K** *31/135*
U.S. Cl. 424—263 **5 Claims**

1. A compound of formula

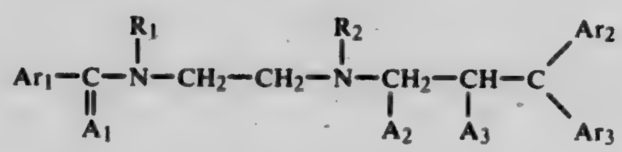


(I)

wherein

R_1 is a hydrogen atom, a lower alkyl, or an arylalkyl radical;
R_2 is a lower alkyl radical;
Ar_1 is an aryl radical which may be substituted by one or more radicals selected from the group consisting of nitro, chlorine and methoxy, an arylalkyl radical, or a heterocyclic radical selected from the group consisting of furanyl, thienyl and pyridinyl;
Ar_2 and Ar_3 are the same or different aryl radicals which may be substituted by one or more radicals selected from the group consisting of chlorine, fluorine, methyl and methoxy;
A_1 is an oxygen atom or 2 hydrogen atoms;
A_2 is hydrogen;
A_3 is a hydrogen atom, a hydroxyl radical, or, together with A_2, is a bond of a double bond.

4. A pharmaceutical composition comprising a vascular antispasmodic or antiallergic amount of a compound of formula



wherein
R_1 is a hydrogen atom, a lower alkyl, or an arylalkyl radical;
R_2 is a lower alkyl radical;
Ar_1 is an aryl radical which may be substituted by one or more radicals selected from the group consisting of nitro, chlorine and methoxy, an arylalkyl radical, or a heterocyclic radical selected from the group consisting of furanyl, thienyl and pyridinyl;
Ar_2 and Ar_3 are the same or different aryl radicals which may be substituted by one or more radicals selected from the group consisting of chlorine, fluorine, methyl and methoxy;
A_1 is an oxygen atom or 2 hydrogen atoms;
A_2 is hydrogen;
A_3 is a hydrogen atom, a hydroxyl radical, or, together with A_2, is a bond of a double bond,
or a pharmaceutically acceptable salt thereof together with a pharmaceutically acceptable excipient.

4,381,306

HYDROXYPROPYL-TRIAZOLE COMPOUNDS, THEIR PRODUCTION AND THEIR MEDICINAL USE

Erik Regel; Karl H. Büchel; Ingo Haller, and Manfred Plempel, all of Wuppertal, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

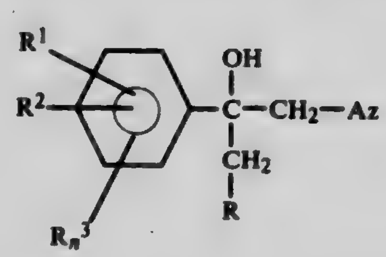
Filed Nov. 9, 1979, Ser. No. 92,805

Claims priority, application Fed. Rep. of Germany, Nov. 25, 1978, 2851086

Int. Cl.³ A61K *31/41;* C07D *249/08*

U.S. Cl. 424—269 **16 Claims**

1. A hydroxypropyltriazole of the formula



(I)

or a salt thereof,
in which
Az denotes a 1,2,4-triazol-1-yl or 1,3,4-triazol-1-yl radical,
R denotes phenyl, naphthyl or tetrahydronaphthyl radical which is unsubstituted or substituted by halogen, C_1–C_4-alkyl, C_1–C_4-alkoxy or halogenoalkyl with 1 to 4 carbon atoms and up to 5 halogen atoms,
R^1 denotes a phenyl or C_3–C_7 cycloalkyl radical which is unsubstituted or substituted by halogen or C_1–C_4-alkyl and
R^2 denotes a hydrogen atom, or
R^1 and R^2 together, in the o-position relative to one another, represent an optionally halogen or C_1–C_4-alkyl substituted methylene bridge with 3 to 5 methylene groups, or, together with the phenyl ring, represent naphthyl,
R^3 represents halogen, an alkyl or alkoxy group with in each case 1 to 4 carbon atoms or halogenoalkyl with 1 to 4 carbon atoms and up to 5 halogen atoms and
n is 0, 1, 2 or 3.

9. A pharmaceutical composition containing as an active ingredient an antimycotically effective amount of a compound according to claim 1 in admixture with a diluent.

4,381,307

SOFT TERTIARY AMINE ESTERS OF BIO-AFFECTING CARBOXYLIC ACIDS

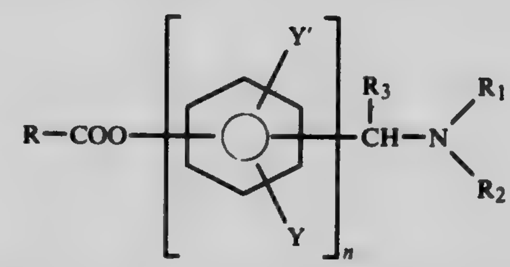
Kenneth B. Sloan, Gainesville, Fla., assignor to Merck & Co., Inc., Rahway, N.J.

Filed Oct. 31, 1980, Ser. No. 202,750

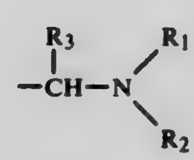
Int. Cl.³ A61K *31/43, 31/56;* C07J *7/00*

U.S. Cl. 424—271 **31 Claims**

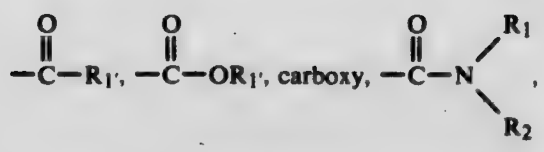
1. A compound selected from the group consisting of:
(a) compounds having the structural formula:



wherein R—COO— is the acyloxy residue of the cephalosporin antibiotic containing one carboxylic acid function; Y and Y', which can be the same or different, and each hydrogen or alkyl of 1 to 4 carbon atoms; n is zero or one; the depicted phenylene group is oriented such that R—COO— and



are positioned ortho or para to each other; R_1 and R_2, which can be the same or different, are each alkyl or 1 to 10 carbon atoms; alkenyl of 2 to 10 carbon atoms; aryl of 6 to 10 carbon atoms; cycloalkyl or 3 to 8 carbon atoms; cycloalkenyl of 4 to 8 carbon atoms; alkynyl or 2 to 10 carbon atoms; aralkyl, alkaryl, aralkenyl, aralkynyl, alkenylaryl, or alkynylaryl, wherein the alkyl, alkenyl, alkynyl, and aryl portions are defined as above; or a substituted derivative of one of the above-defined alkyl, alkenyl, aryl, cycloalkyl, cycloalkenyl, alkynyl, aralkyl, alkaryl, aralkenyl, aralkynyl, alkenylaryl and alkynylaryl radicals, said derivative having one or more substituents each of which are selected from the group consisting of C_1–C_8alkyl, C_1–C_8alkoxy, C_1–C_8alkanoyl, C_1–C_8alkanoyloxy, halo, cyano, C_2–C_9carbalkoxy, C_1–C_8alkylthio, nitro, C_1–C_8haloalkyl having 1 or more halo substituents, dialkylamino wherein the alkyl portions each contain 1 to 8 carbon atoms, carboxy, dialkylcarbamyl wherein the alkyl portions each contain 1 to 8 carbon atoms, and C_1–C_8alkylsulfonyl; or R_1 and R_2 are combined so that $—NR_1R_2$ represents the residue of a saturated or unsaturated heterocyclic compound containing one secondary nitrogen atom; and R_3 is hydrogen, R_1',

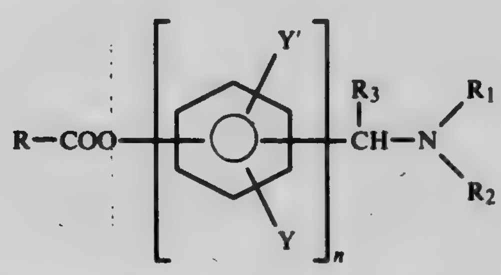


—$CH_2OCOR_{1'}$, —CH_2ONO_2, CX_3, 2-pyridyl, 3-pyridyl, 4-pyridyl, 2-furyl, cyano, carbamyl or C_2–C_9alkylcarbamyl, wherein R_1 and R_2 are as defined above, X is Cl or Br and $R_{1'}$ is any radical encompassed by the definition of R_1 above; and

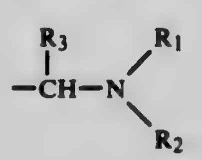
(b) the non-toxic pharmaceutically acceptable acid addition salts and N-oxides thereof.

15. A pharmaceutical composition of matter comprising an antibiotic effective amount of a compound selected from the group consisting of:

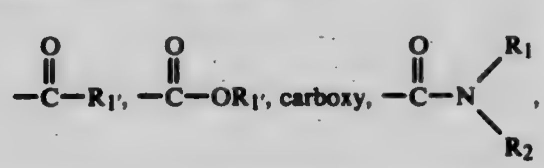
(a) compounds having the structural formula:



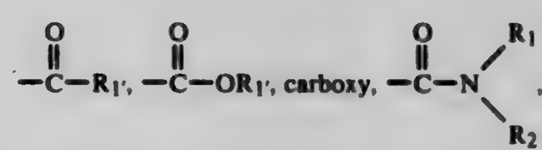
wherein R—COO— is the acyloxy residue of a cephalosporin antibiotic containing one carboxylic acid function; Y and Y', which can be the same or different, and each hydrogen or alkyl of 1 to 4 carbon atoms; n is zero or one; the depicted phenylene group is oriented such that R—COO— and



are positioned ortho or para to each other; R_1 and R_2, which can be the same or different, are each alkyl or 1 to 10 carbon atoms; alkenyl of 2 to 10 carbon atoms; aryl of 6 to 10 carbon atoms; cycloalkyl or 3 to 8 carbon atoms; cycloalkenyl of 4 to 8 carbon atoms; alkynyl or 2 to 10 carbon atoms; aralkyl, alkaryl, aralkenyl, aralkynyl, alkenylaryl, or alkynylaryl, wherein the alkyl, alkenyl, alkynyl, and aryl portions are defined as above; or a substituted derivative of one of the above-defined alkyl, alkenyl, aryl, cycloalkyl, cycloalkenyl, alkynyl, aralkyl, alkaryl, aralkenyl, aralkynyl, alkenylaryl and alkynylaryl radicals, said derivative having one or more substituents each of which are selected from the group consisting of C_1–C_8alkyl, C_1–C_8alkoxy, C_1–C_8alkanoyl, C_1–C_8alkanoyloxy, halo, cyano, C_2–C_9carbalkoxy, C_1–C_8-alkylthio, nitro, C_1–C_8haloalkyl having 1 or more halo substitutents, dialkylamino wherein the alkyl portions each contain 1 to 8 carbon atoms, carboxy, dialkylcarbamyl wherein the alkyl portions each contain 1 to 8 carbon atoms, and C_1–C_8alkylsulfonyl; or R_1 and R_2 are combined so that —NR_1R_2 represents the residue of a saturated or unsaturated heterocyclic compound containing one secondary nitrogen atom; and R_3 is hydrogen, $R_{1'}$,



—$CH_2OCOR_{1'}$, —CH_2ONO_2, CX_3, 2-pyridyl, 3-pyridyl, 4-pyridyl, 2-furyl, cyano, carbamyl or C_2–C_9alkylcarbamyl, wherein R_1 and R_2 are as defined above, X is Cl or Br and R_1 and R_2, which can be the same or different, are each alkyl or 1 to 10 carbon atoms; alkenyl of 2 to 10 carbon atoms; aryl of 6 to 10 carbon atoms; cycloalkyl or 3 to 8 carbon atoms; cycloalkenyl of 4 to 8 carbon atoms; alkynyl or 2 to 10 carbon atoms; aralkyl, alkaryl, aralkenyl, aralkynyl, alkenylaryl, or alkynylaryl, wherein the alkyl, alkenyl, alkynyl, and aryl portions are defined as above; or a substituted derivative of one of the above-defined alkyl, alkenyl, aryl, cycloalkyl, cycloalkenyl, alkynyl, aralkyl, alkaryl, aralkenyl, aralkynyl, alkenylaryl and alkynylaryl radicals, said derivative having one or more substituents each of which are selected from the group consisting of C_1–C_8alkyl, C_1–C_8alkoxy, C_1–C_8alkanoyl, C_1–C_8alkanoyloxy, halo, cyano, C_2–C_9carbalkoxy, C_1–C_8alkylthio, nitro, C_1–C_8haloalkyl having 1 or more halo substituents, dialkylamino wherein the alkyl portions each contain 1 to 8 carbon atoms, carboxy, dialkylcarbamyl wherein the alkyl portions each contain 1 to 8 carbon atoms, and C_1–C_8alkylsulfonyl; or R_1 and R_2 are combined so that —NR_1R_2 represents the residue of a saturated or unsaturated heterocyclic compound containing one secondary nitrogen atom; and R_3 is hydrogen, $R_{1'}$,



—$CH_2OCOR_{1'}$, —CH_2ONO_2, CX_3, 2-pyridyl, 3-pyridyl, 4-pyridyl, 2-furyl, cyano, carbamyl or C_2–C_9alkylcarbamyl, wherein R_1 and R_2 are as defined above, X is Cl or Br $R_{1'}$ is any radical encompassed by the definition of R_1 above; and

(b) the non-toxic pharmaceutically acceptable acid addition salts and N-oxides thereof, and a pharmaceutically acceptable carrier therefor.

4,381,308
HYPOGLYCEMIC 5-SUBSTITUTED OXAZOLIDINE-2,4-DIONES

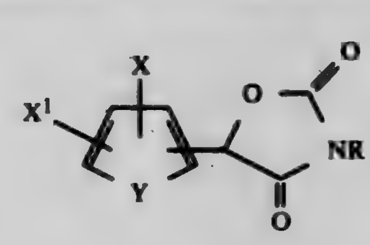
Rodney C. Schnur, Noank, Conn., assignor to Pfizer Inc., New York, N.Y.

Division of Ser. No. 252,961, Apr. 23, 1981, Pat. No. 4,332,952, which is a continuation-in-part of Ser. No. 173,206, Jul. 28, 1980, abandoned. This application Mar. 1, 1982, Ser. No. 353,458

Int. Cl.[3] A61K *31/42;* C07D *263/32*

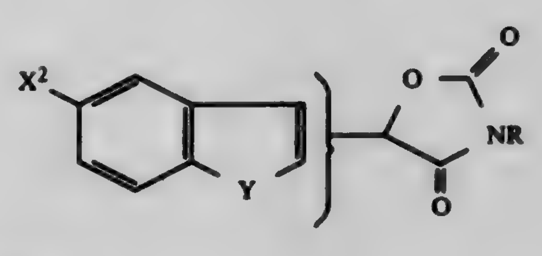
U.S. Cl. 424—272 **23 Claims**

1. A method of lowering the blood glucose in a hyperglycemic mammal which comprises administering a blood glucose lowering amount of a compound of the formula



(I)

or



(II)

wherein

R is hydrogen, (C_1-C_4)-alkanoyl, benzoyl, (C_2–C_4)-carbalkoxy, (C_1–C_3)-alkylcarbamoyl or di(C_1–C_3)-alkylcarbamoyl;

Y is sulfur or oxygen;

X is hydrogen, fluoro, chloro, bromo, iodo, methyl, phenyl, benzoyl, or (C_1–C_3)-alkoxy;

X^1 is hydrogen or methyl; and

X^2 is hydrogen, fluoro, bromo, chloro or iodo; or a pharmaceutically acceptable cationic salt thereof when R is hydrogen.

4,381,309

1-ARYLOXY-2-HYDROXY-3-((HETEROCYCLIC-SUBSTITUTED ALKYL)-AMINO)-PROPANES AND SALTS THEREOF

Herbert Köppe, Ingelheim; Anton Mentrup, Mainz-Kastel; Ernst-Otto Renth; Kurt Schromm, both of Ingelheim; Wolfgang Hoefke, Budenheim, and Gojko Muacevic, Ingelheim, all of Fed. Rep. of Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Fed. Rep. of Germany

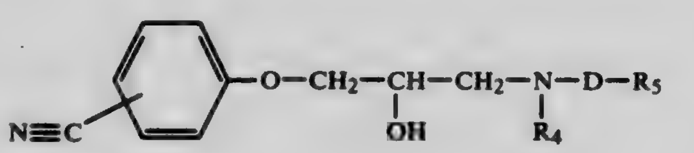
Continuation-in-part of Ser. No. 103,724, Dec. 14, 1979, Pat. No. 4,255,430, which is a continuation-in-part of Ser. No. 4,280, Jan. 17, 1979, Pat. No. 4,212,877, which is a continuation-in-part of Ser. No. 838,450, Oct. 3, 1977, abandoned, and a continuation-in-part of Ser. No. 112,640, Jan. 16, 1980, Pat. No. 4,296,177, which is a division of Ser. No. 4,279, Jan. 17, 1979, Pat. No. 4,256,756, which is a continuation-in-part of Ser. No. 838,450, Oct. 3, 1977, abandoned. This application Oct. 9, 1980, Ser. No. 195,650

Claims priority, application Fed. Rep. of Germany, Oct. 5, 1976, 2644833

Int. Cl.³ A61K *31/415;* C07D *233/36, 235/26*

U.S. Cl. 424—273 B **6 Claims**

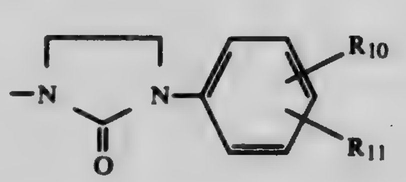
1. A compound of the formula



wherein

R_4 is hydrogen, alkyl of 1 to 5 carbon atoms, or aralkyl of 7 to 14 carbon atoms;

R_5 is



where R_{10} and R_{11} are each hydrogen, halogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, trifluoromethyl, carboxamido or, together with each other, —O—$(CH_2)_y$—O—, where y is 1 or 2, attached to carbon atoms of the phenyl ring in o-position with respect to each other; and

D is alkylene of 1 to 12 carbon atoms,

or a non-toxic, pharmacologically acceptable acid addition salt thereof.

6. The method of blocking the α- and β-adrenergic receptors in a warm-blooded animal in need thereof, which comprises perorally, parenterally or rectally administering to said animal an effective amount of a compound of claims 1 or 3.

4,381,310

ANTIMYCOTIC SUBSTITUTED 2,4-DICHLOROPHENYL-IMIDAZOLYL-VINYL-CARBINOLS

Wolf Reiser; Ludwig Elbe, both of Wuppertal; Karl H. Büchel, Burscheid, and Manfred Plempel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

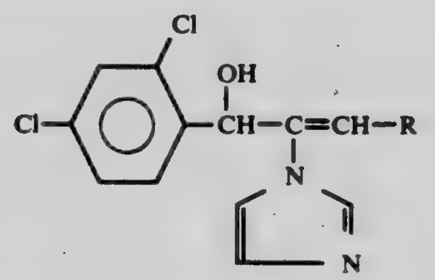
Filed Aug. 24, 1981, Ser. No. 295,276

Claims priority, application Fed. Rep. of Germany, Sep. 9, 1980, 3033917

Int. Cl.³ A61K *31/415;* C07D *233/60*

U.S. Cl. 424—273 R **16 Claims**

1. A compound which is a substituted 2,4-dichlorophenyl-imidazolyl-vinyl carbinol of the formula



(I)

or a salt thereof,

in which

R represents a cycloalkyl or cycloalkenyl radical which has in each case 5 to 7 carbon atoms and is optionally substituted by alkyl with 1 to 4 carbon atoms; a cycloalkyl-alkyl or cycloalkenylalkyl radical which has in each case 5 or 7 carbon atoms in the cycloalkyl or cycloalkenyl part and in each case 1 to 6 carbon atoms in the straight-chain or branched alkyl part and is optionally substituted by alkyl with 1 to 4 carbon atoms; an optionally substituted straight-chain or branched alkenyl or alkinyl radical with in each case up to 6 carbon atoms, the substituents being selected from: hydroxyl, alkoxy with 1 to 4 carbon atoms, and phenyl, which is optionally substituted by halogen or alkyl with 1 to 4 carbon atoms; phenyl substituted by phenoxy or chlorophenoxy; or optionally substituted phenylalkyl radical with 1 to 4 carbon atoms in the alkyl part in the racemic form and/or in the form of the geometric and/or optical isomers.

14. A method of combating mycoses in warm-blooded animals which comprises administering to the animals an antimycotically effective amount of an active compound according to claim 1 either alone or in admixture with a diluent or in the form of a medicament.

4,381,311

ANTIINFLAMMATORY 4,5-DIARYL-α-(POLYHALOMETHYL)-2-THIOPHENEMETHANOLS

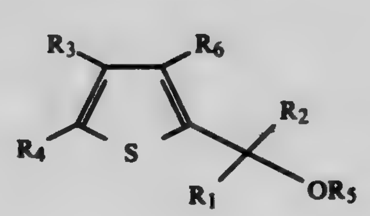
Stephen B. Haber, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 220,773, Dec. 29, 1980, abandoned. This application Aug. 27, 1981, Ser. No. 295,781

Int. Cl.³ A61K *31/38, 31/44;* C07D *333/16, 401/00*

U.S. Cl. 424—275 **48 Claims**

1. A compound of the formula:

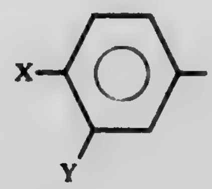


where

R_1 and R_2 independently=CF_3, CF_2H, $CFCl_2$, CF_2Cl, $CClFH$, CCl_2H, CH_2F, CF_3CF_2 or C_1–C_2 alkyl with the

provisos (1) that no more than one of R_1 and R_2 can be selected from the group consisting of CH_2F and C_1–C_2 alkyl and (2) that no more than one of R_1 and R_2 can be CF_3CF_2;

R_3 and R_4 independently = pyridyl or



where

X = H, F, Cl, Br, NO_2, C_1–C_2 alkyl, C_1–C_2 alkoxy, di(C_1–C_2 alkyl) amino or C_1–C_2 alkyl $S(O)_n$; where n = 0, 1 or 2;

Y = H, F or Cl with the proviso that when Y is F or Cl, then X is F or Cl;

R_5 = H, C_1–C_4 alkyl, (C_1–C_3 alkyl)C(O) or CO_2R_7;

R_6 = H or C_1–C_2 alkyl; and

R_7 = C_1–C_4 alkyl.

4,381,312

2,4,6-TRINITRODIPHENYLAMINES FOR CONTROL OF FOLIAR PHYTOPATHOGENS

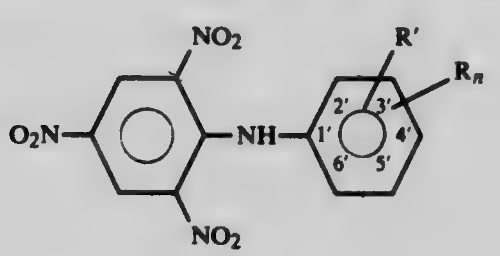
Barry A. Dreikorn, and Kenneth E. Kramer, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Dec. 13, 1974, Ser. No. 532,436

Int. Cl.[3] **A01N** *33/02, 37/10, 37/34*

U.S. Cl. 424—304 **9 Claims**

1. A method of reducing the adverse effects of downy mildew phytopathogens which comprises contacting the phytopathogens on the foliage of plants with an effective phytopathogen-inhibiting amount of a compound of the formula



wherein R represents
 nitro,
 trifluoromethyl,
 hydroxy,
 cyano,
 benzoyl, or
 C_1–C_3 alkoxycarbonyl;
n represents 1–3;
R′ represents
 hydrogen,
 chloro, or
 C_1–C_3 alkyl;

provided that benzoyl and C_1–C_3 alkoxycarbonyl do not occupy either the 2′- or 6′-position; that nitro does not occupy either the 2′- or 6′-position when n represents 1; that n must represent 1 when R represents cyano, benzoyl or C_1–C_3 alkoxycarbonyl; and that R′ represents hydrogen when n represents 3.

4,381,313

PHENYLALKANOIC COMPOUNDS AND THERAPEUTIC USE THEREOF

Jean Heusser, Adliswil, and Max Glasbrenner, Zurich, both of Switzerland, assignors to Hommel AG, Adliswil, Switzerland

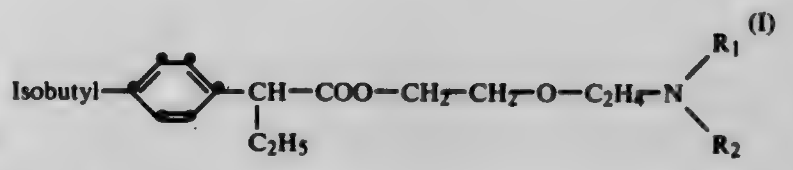
Continuation-in-part of Ser. No. 618,636, Oct. 1, 1975, abandoned. This application May 29, 1981, Ser. No. 268,221

Claims priority, application Switzerland, Oct. 8, 1974, 13516/74; Oct. 8, 1974, 13517/74

Int. Cl.[3] **C07C** *101/00;* **A61K** *31/215*

U.S. Cl. 424—308 **8 Claims**

1. A compound of the formula (I)



wherein R_1 and R_2 independently from each other represent hydrogen or alkyl with 1 to 8 carbon atoms and pharmacologically safe salts of such compound.

4,381,314

CONTACT LENS DISINFECTING AND PRESERVING SOLUTION

Lawrence D. Mandt, Fairport; Thomas M. Riedhammer, and Francis X. Smith, both of Rochester, all of N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Nov. 21, 1980, Ser. No. 208,919

Int. Cl.[3] **A61K** *31/11;* **A01N** *35/00*

U.S. Cl. 424—333 **4 Claims**

1. A method for preserving or disinfecting soft contact lenses comprising contacting said lenses with an aqueous solution having as the active antimicrobial agent 1,5-pentanedial present in an amount from about 0.00001 to about 0.1 weight percent of said composition, said composition being buffered for eye comfort (pH compatible) with at least one buffer in an amount from about 0.05 to 2.5 weight percent.

4,381,315

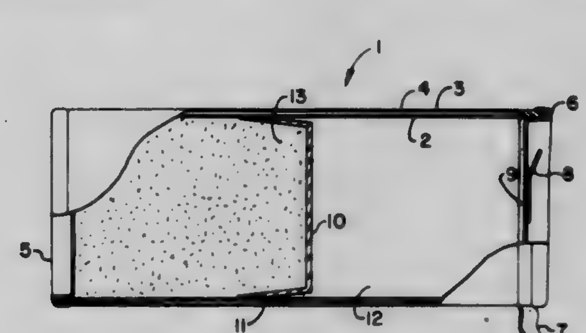
REFRIGERATED DOUGH AND METHOD OF MANUFACTURE

Samuel H. Yong, Minneapolis; Douglas A. Edmonson, Maple Grove; Leah G. Evans, Minneapolis; Deena G. Hohle, St. Louis Park; Susan H. Jensen, Minneapolis; Leslie S. O'Keefe, Tonka Bay, and Debra S. Laatsch, Inver Grove Heights, all of Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Filed May 11, 1981, Ser. No. 262,584

Int. Cl.[3] **A21D** *8/00, 10/02*

U.S. Cl. 426—94 **37 Claims**



1. An improved sheeted fresh dough product which is contained in a container for storage and is at least partially chemically leavened said dough product containing flour, shortening, water and chemical leaveners, including a leavening acid and a leavening base, in amounts sufficient to form a dough mass said improvement comprising:

at least one of the group of water, leavening acid and leaven-

ing base being substantially isolated from the remainder of the group wherein at least one of the leavening acid and leavening base is unreacted in the range of between about 40% and about 85% after sheeting of the dough is completed; and

alternating layers of shortening and flour/water matrix.

4,381,316
WHEY PROTEIN FORTIFIED CURED MEAT AND PROCESS FOR PREPARATION
Eugene Brotsky, Pittsburgh; Charles W. Everson, McMurray, and William E. Swartz, Upper St. Clair, all of Pa., assignors to Nutrisearch Company, Cincinnati, Ohio
Continuation-in-part of Ser. No. 108,734, Dec. 31, 1979, abandoned. This application Jan. 26, 1981, Ser. No. 228,655
Int. Cl.³ A23B *4/00;* **A23L** *1/31*
U.S. Cl. 426—265 26 Claims

1. A protein fortified cured meat, comprising cured intact skeletal meat muscle tissue as the sole cured meat source, having incorporated into the muscle tissue of said meat a whey protein composition having more than about 30% by weight whey protein on a dry solids basis wherein said whey protein composition consists essentially of about 100% of a whey protein concentrate as the sole protein source, wherein said whey protein concentrate is prepared by neutrailizing whey prior to protein concentration, and wherein said whey protein concentrate is hydratable for incorporation into said meat.

4,381,317
METHOD OF MAKING A PIZZA
Robert L. Fournier, and Priscilla J. Fournier, both of 5607 N. 22nd St., Arlington, Va. 22205
Filed Aug. 31, 1981, Ser. No. 297,620
Int. Cl.³ A21D *6/00*
U.S. Cl. 426—302 4 Claims

1. A method of making a pizza product comprising preparing the pizza in a pizza skillet and first cooking the pizza in the skillet on a stove top burner until the crust reaches the desired preparedness and then placing the pizza in the skillet under the broiler of an oven in order to cook the top of the pizza without applying direct heat to the bottom of the pizza skillet until the top of the pizza is fully cooked.

4,381,318
MALTITOL CONTAINING GEL BASE SYSTEMS
Matthew J. Lynch, Wilmington, Del., assignor to ICI Americas Inc., Wilmington, Del.
Continuation-in-part of Ser. No. 222,300, Jan. 5, 1981. This application Aug. 3, 1981, Ser. No. 289,465
Int. Cl.³ A23L *1/09, 1/04*
U.S. Cl. 426—658 2 Claims

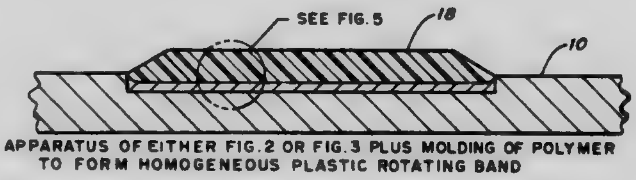
1. An aqueous maltitol containing syrup resistant to mold growth resulting from the hydrogenation of maltitol rich syrup which comprises 36-49% by weight maltitol, 11-14% by weight sorbitol, minor amounts of higher saccharides and reducing sugars when said ingredients are calculated on a dry basis said syrup having a total dissolved solids content of 75 to 85% by weight when calculated on a wet basis.

4,381,319
METHOD OF BONDING ROTATING BANDS ON PROJECTILES
Charles R. Hargreaves, Maple Plain, and Stephen J. Price, Crystal, both of Minn., assignors to Honeywell Inc., Minneapolis, Minn.
Continuation-in-part of Ser. No. 193,680, Oct. 3, 1980, abandoned. This application Dec. 31, 1981, Ser. No. 336,232
Int. Cl.³ B05D *1/10*
U.S. Cl. 427—34 17 Claims

1. A method of bonding a thermoplastic rotating band to a metallic projectile body, comprising the steps of:

designating a band seat zone on a metallic projectile body;

coating said band seat zone with a sprayed metallic coating, said coating being characterized by (i) having a relatively rough external surface, i.e., a large number of irregularly shaped projections comprising a maze of mechanical attachments to said body, (ii) being about 0.003 inches to 0.012 inches thick so as to be metallurgically continuous, thereby to prevent oxidation of said body at said band seat zone thereof, and (iii) being metallurgically bonded to said



APPARATUS OF EITHER FIG. 2 OR FIG. 3 PLUS MOLDING OF POLYMER TO FORM HOMOGENEOUS PLASTIC ROTATING BAND

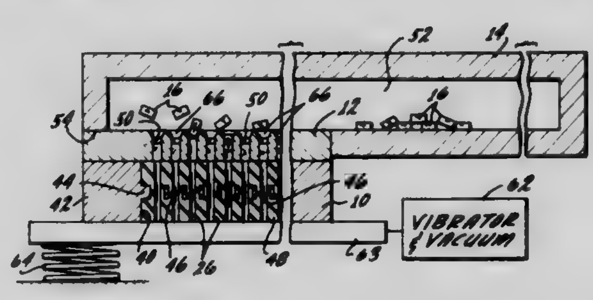
projectile body so as to have a metal-to-metal bond strength; and

applying a thermoplastic polymer in liquid form around said zone and to said sprayed metallic coating to form, after hardening, a thermoplastic rotating band, said polymer, while in fluid form, permeating into intimate contact with said irregularly shaped projections so that, after said polymer becomes solid, a high torque transmittal interface is provided between said plastic rotating band and said projectile body.

4,381,320
NON-IONIC ABSORBENT POLYMERS
Hien V. Nguyen, East Windsor, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.
Filed Jun. 3, 1981, Ser. No. 270,166
Int. Cl.³ B05D *3/06*
U.S. Cl. 427—44 11 Claims

1. Process which comprises exposing an aqueous solution of polyvinyl alcohol and a low molecular weight, water-soluble copolymer containing polymerized oxyethylene and oxypropylene units to electromagnetic or corpuscular ionizing radiation of sufficient dosage to form a gel, wherein the molecular weight of said copolymer is below about 12,000.

4,381,321
METHOD OF PROCESSING MINIATURE ELECTRONIC COMPONENTS SUCH AS CAPACITORS OR RESISTORS
Denver Braden, Carlsbad, Calif., assignor to Palomar Systems & Machines, Inc., Escondido, Calif.
Continuation-in-part of Ser. No. 123,201, Feb. 21, 1980. This application Oct. 22, 1981, Ser. No. 313,950
Int. Cl.³ B05D *5/00*
U.S. Cl. 427—79 10 Claims



1. The process of coating ends of a multiplicity of like miniature electronic parts such as capacitors, resistors or the like, comprising:

(a) forming a body with a multiplicity of juxtaposed parallel passageways extending from face to face of said body,

(b) forming said passageways with resilient walls substantially from end to end of said passageways,

(c) sizing said passageways so that at least one cross-sec-

tional dimension in each passageway is shorter than the corresponding cross-sectional dimension of the parts,

(d) first disposing said parts in a bank juxtaposed to one another and each aligned with one said passgeways and loading the parts by pushing said parts together in a bank into said passageways until their first ends are exposed at a first face of said body,

(e) coating the exposed first ends of said parts and curing the coating thereon,

(f) second pushing all of said parts together in a bank in said passageways until their second ends are exposed at a second face of said body,

(g) coating the exposed second ends of said parts and curing the coating thereon,

(h) continuously resiliently gripping the sides of said parts in all positions in said passageways whether protruding from either end of said passageways or whether inbetween,

(i) pushing said parts together in a bank out of said passageways to unload the parts, and

(j) the lengths of said passageways being greater than the lengths of said parts to be coated and the second pushing step occurring only after the first coating step.

4,381,322

PROCESS FOR PRODUCING A SLIDING LAYER ON THE SURFACE OF AN ALUMINUM-COATED RECORD CARRIER

Dietrich J. Bahr, Herrenberg, and Marian Briska, Böblingen, both of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 21, 1981, Ser. No. 304,224

Claims priority, application Fed. Rep. of Germany, Oct. 28, 1980, 3040485

Int. Cl.[3] **B05D** *3/10, 5/08*

U.S. Cl. 427—179 **3 Claims**

1. A process for forming a record carrier having a sliding layer on an aluminum-coated front surface of a substrate having a nitrocellulose lacquer layer, said process comprising the steps of:

(1) coating the back surface of the substrate with one or several nitrocellulose lacquer layers with from about 0.1 to 2% by weight, as referred to the wet lacquer, of one or several fatty acids being added to the last lacquer layer,

(2) coating the front surface of the substrate with aluminum in a vacuum;

(3) winding the record carrier into the form of a roll, whereby the aluminum layer is in contact with the fatty acid, and a sliding layer is formed by reaction between the aluminum layer and the fatty acid, and

(4) aging the roll for at least one month.

4,381,323

LOW-TEMPERATURE CURING COATING COMPOSITION

Jean C. Lowe, Lansdale; James M. Klotz, Quakertown, both of Pa., and Glenn A. Collins, Jr., deceased, late of Lansdale, Pa. (by Jean C. Lowe, executrix), assignors to Coatings for Industry, Inc., Souderton, Pa.

Division of Ser. No. 144,013, Apr. 28, 1980, Pat. No. 4,319,924, which is a continuation-in-part of Ser. No. 931,674, Aug. 7, 1978, abandoned, which is a continuation of Ser. No. 677,495, Apr. 15, 1976, abandoned, which is a continuation of Ser. No. 441,887, Feb. 12, 1974, abandoned. This application Mar. 15, 1982, Ser. No. 358,384

Int. Cl.[3] **B05D** *3/02*

U.S. Cl. 427—383.7 **12 Claims**

1. In a method for coating a substrate comprising applying to said substrate an acidic aqueous coating composition comprising in coating-forming proportions, materials which are a source of: dissolved phosphate; dissolved dichromate; dissolved aluminum; and inorganic solid particulate material having a particle size of at least about one micron and capable of being bonded to a metallic surface by phosphate bonding; wherein said composition is capable of being heat-cured at elevated temperature within a pre-determined time into a water insoluble coating in which particulate material of the coating is phosphate bonded to said surface; the improvement comprising including diethanolamine into said composition in an amount sufficient to reduce the temperature at which said composition can be cured within said predetermined time into said water insoluble coating; and thereafter curing said composition into said coating.

4,381,324

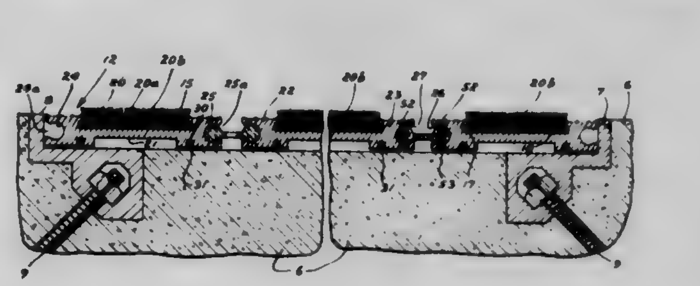
COUPLING MEMBER FOR FLOOR COVERING SECTIONS

Chester W. Ellingson, Jr., Burnsville, Minn., assignor to Reese Enterprises, Inc., Rosemount, Minn.

Filed Mar. 9, 1982, Ser. No. 356,336

Int. Cl.[3] **B32B** *3/06*

U.S. Cl. 428—58 **4 Claims**



1. A floor covering consisting of coupled sections, having in combination

a floor covering section substantially rectangular in plan,
a flange formed at each side edge portion of said section,
each flange having a longitudinal bore therethrough, said bores respectively having oppositely facing slots,
a coupling member comprising
a pair of closely spaced rods,
a web connecting said rods, said web having a thickness less than the height of said slots,
said rods respectively being disposed through adjacent pairs of said slots connecting a pair of said sections, and
a tread surface carried by said sections.

4,381,325

LIQUID RETAINING SYNTHETIC FIBER, PROCESS FOR PRODUCING THE SAME, AND PRODUCTS

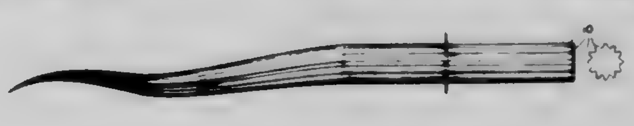
Yutaka Masuda, Otsu; Yoshiteru Kiyomura, Shiga, and Koichi Nishizakura, Otsu, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Sep. 8, 1980, Ser. No. 185,160

Claims priority, application Japan, Sep. 10, 1979, 54-115171; Sep. 12, 1979, 54-116622

Int. Cl.[3] **D02G** *3/00;* **D06M** *5/02;* **A46B** *15/00*

U.S. Cl. 428—91 **15 Claims**



1. A tapered synthetic fiber comprising an elongated body portion, a tapered portion terminating in a single point at its free end, said tapered portion having an acute ridgeline formed with neighboring arcuate concave grooves extending lengthwise along its tapered portion, said pointed free end having a diameter of less than about 15% of the diameter of the body portion.

4,381,326

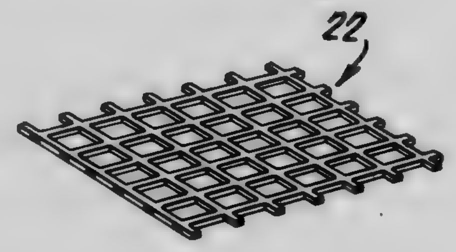
RETICULATED THEMOPLASTIC RUBBER PRODUCTS

William G. F. Kelly, Middlesex, N.J., assignor to Chicopee, New Brunswick, N.J.

Continuation-in-part of Ser. No. 179,593, Aug. 19, 1980, Pat. No. 4,329,309, which is a continuation-in-part of Ser. No. 67,850, Aug. 20, 1979, abandoned, which is a continuation-in-part of Ser. No. 36,726, May 5, 1979, Pat. No. 4,305,990, which is a division of Ser. No. 848,439, Nov. 3, 1977, Pat. No. 4,173,612. This application Oct. 5, 1981, Ser. No. 308,331

Int. Cl.^{3} B32B *3/10;* **A61F** *13/16*

U.S. Cl. 428—134 **7 Claims**



1. Reticulated sheet material consisting essentially of a mixture of (a) thermoplastic rubber comprising a block copolymer of styrene and butadiene or isoprene, and (b) sufficient olefin polymer to improve the processability of said block copolymer, as evidenced by the ability to achieve a draw ratio of greater than one while extruding said mixture of (a) and (b), wherein said olefin polymer is selected from the group consisting of isotactic polypropylene, polyethylene, amorphous polypropylene, polybutylene, ethylene/vinyl acetate copolymer, ethylene/ethyl acrylate copolymer, ethylene/methyl acrylate copolymer, and polystyrene, and wherein said reticulated sheet material has an open area of from about 40 percent to about 75 percent, and tensile strength at 100 percent elongation of about 0.4 to about 1 pound for a ½-inch wide strip.

4,381,327

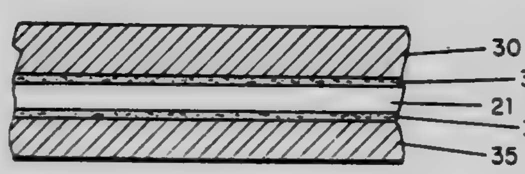
MICA-FOIL LAMINATIONS

Richard L. Briere, Hopkinton, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass.

Filed Oct. 6, 1980, Ser. No. 194,649

Int. Cl.^{3} B32B *3/10;* **B44C** *1/22*

U.S. Cl. 428—137 **25 Claims**



1. A method of fabricating a dielectric-electrode laminate comprising the steps of:

(a) applying a layer of pressure sensitive adhesive to a sheet of mica, said pressure sensitive adhesive comprising a thermoplastic material selected from the class consisting of organopolysiloxane pressure sensitive adhesives,

(b) bonding a face of a metallic sheet to a face of said mica sheet with said thermoplastic pressure sensitive adhesive, and

(c) selectively removing portions of said metallic sheet to create an electrode pattern,

wherein the dielectric-electrode laminate resists delamination due to moisture, and erosion due to ozone and nitric acid.

4,381,328

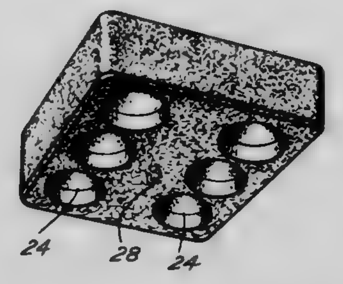
PAVING AND FLOOR BLOCK COMPOSITION AND METHOD OF PRODUCTION

Matthew R. Bunner, and William H. Heinhuis, both of Elkhart, Ind., assignors to Industrial Wood Products, Inc., Elkhart, Ind.

Filed Sep. 11, 1981, Ser. No. 301,221

Int. Cl.^{3} B32B *3/26, 5/16*

U.S. Cl. 428—171 **13 Claims**



1. A paving and floor block comprising a body having an upper wear surface and being composed of a compressed and cured mixture of wood particles of a size range between about 6 and 200 mesh, formaldehyde resin, and paraffin base wax mixed with said wood particles, said resin comprising between about five percent (5%) and about forty percent (40%) by weight of said mixture, and said wax comprising up to about ten percent (10%) by weight of said mixture for said block, said body having a plurality of spaced holes extending upwardly therein, and relatively dense areas of said mixture disposed around said holes and extending upwardly therefrom to form a plurality of relatively hard regions in said wear surface.

4,381,329

THERMOPLASTIC FILM FOR USE IN THE MANUFACTURE OF FORGERY-RESISTANT IDENTIFICATION DOCUMENTS

Hermann Dallmann, Wiesbaden, and Hans J. Palmen, Walluf, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jul. 8, 1981, Ser. No. 281,381

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1980, 3025931

Int. Cl.^{3} B32B *3/00, 27/32, 27/30*

U.S. Cl. 428—204 **26 Claims**

1. A forgery-resistant identification document comprising a core carrying identifying information, said core having laminated thereto the cover layer side of a thermoplastic protective film comprising a base layer and a cover layer comprising a partially hydrolyzed olefin/vinyl ester copolymer, the degree of hydrolysis of said copolymer lying in the range from 20 to 99 percent, said laminated protective film being impossible to detach from said document at temperatures up to and as high as 120° C. without destroying said document.

14. A method of protecting an identification document against forgery comprising laminating to said document the cover layer side of a thermoplastic protective film comprising a base layer and a cover layer comprising a partially hydrolyzed olefin/vinyl ester copolymer, the degree of hydrolysis of said copolymer lying in the range from 20 to 99 percent, said laminated protective film being impossible to detach from said document at temperatures up to and as high as 120° C. without destroying said document.

4,381,330

SURFACE TREATED GLASS-WOOL MAT AND THE METHOD FOR MAKING THE SAME

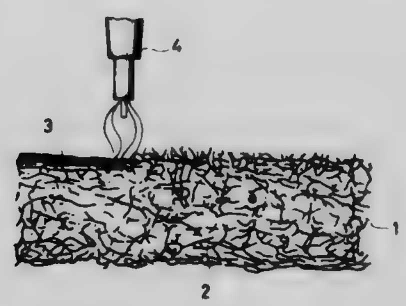
Yasuo Gotomyo, Hiroshima, and Yukihiro Nakagawa, Aichi, both of Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima and Nakagawa Sangyo Co., Ltd., Aichi, both of, Japan

Filed Jul. 31, 1981, Ser. No. 289,080

Claims priority, application Japan, Aug. 2, 1980, 55-106537

Int. Cl.[3] B32B *7/02*

U.S. Cl. 428—218 **8 Claims**



1. A glass-wool mat including a plurality of glass fibers which are entangled with each other to form a sheet having an inner layer and at least one outer layer, said outer layer being comprised of glass fibers having rounded ends and being crimped to provide a stronger entanglement among the fibers, the glass fibers in the outer layer being more condensed than those in the inner layer.

4,381,331

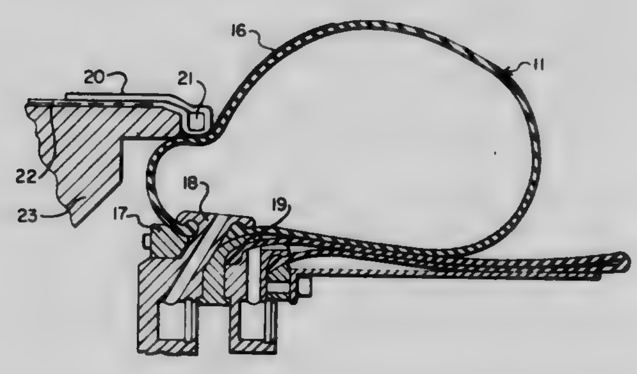
NON-STICKING PLY END TURN-OVER BLADDER AND METHOD OF MANUFACTURE THEREOF

James L. Johnson, Indiana, Pa., assignor to McCreary Tire & Rubber Company, Indiana, Pa.

Continuation of Ser. No. 157,950, Jun. 9, 1980, abandoned. This application Jan. 11, 1982, Ser. No. 338,229

Int. Cl.[3] D03D *3/00*

U.S. Cl. 428—224 **6 Claims**



1. A ply turn-over bladder formed of a rubbery polymer at least a portion of its outer surface having reduced adhesion to unvulcanized rubbery polymers, said portion comprising a fabric layer of spaced cords calendered with a coating of unvulcanized uncured rubbery polymer partially embedded in the rubbery polymer surface, the spaces between the cords being free of said polymer at said surface so that such cords project above said surface.

4,381,332

ADHESIVE AND RESULTING NONWOVEN FABRIC

Glenn E. Fulmer, Clarksville, and Louis L. Wood, Rockville, both of Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Jan. 19, 1982, Ser. No. 340,826

Int. Cl.[3] C08G *18/32*

U.S. Cl. 428—288 **26 Claims**

1. A method of adhering fibers to form a nonwoven fabric comprising applying to the fibers an elastomeric cross-linked polyurethane gel composition which is formed by reacting together water and a water soluble or dispersible prepolymer having a number average molecular weight of about at least 3,000 of a polyether polyol having essentially all of the OH groups capped with an aliphatic polyisocyanate.

4,381,333

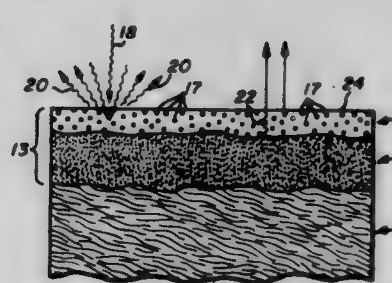
HIGH TEMPERATURE GLASS THERMAL CONTROL STRUCTURE AND COATING

James M. Beggs, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; David A. Stewart, Santa Cruz, Calif.; Howard E. Goldstein, Saratoga, Calif., and Daniel B. Leiser, San Jose, Calif.

Filed Oct. 2, 1981, Ser. No. 308,007

Int. Cl.[3] B32B *5/18, 17/06*

U.S. Cl. 428—312.6 **13 Claims**



1. A re-usable, thermal control structure comprising ceramic substrate and a coating including a first, high emittance glass layer on said substrate and a second, high scattering coefficient glass layer on said first layer, said second layer including discrete but sintered together glass particles in said layer which are of a size which will scatter incident short wavelength radiation, but which is substantially transparent to thermal radiation.

7. A thermal control coating comprising a inner, high emittance glass layer and a outer high scattering coefficient glass layer on said inner layer, said outer layer including discrete but sintered together glass particles of a size which will scatter incident short wavelength radiation, but which is substantially transparent to thermal radiation.

4,381,334

ZINC-RICH POWDERS

Leizer Balk, deceased, late of Pittsburgh, Pa. (by Lois Balk, executrix), and James S. Sojkowski, Pittsburgh, Pa., assignors to Pratt & Lambert, Inc., Buffalo, N.Y.

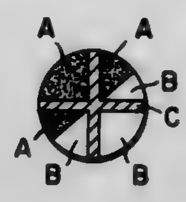
Continuation of Ser. No. 154,462, May 29, 1980, abandoned, which is a continuation of Ser. No. 740,731, Nov. 10, 1976, abandoned. This application Jul. 16, 1981, Ser. No. 283,917

Int. Cl.[3] B32B *15/08, 27/38;* **C04B** *9/02*

U.S. Cl. 428—332 **11 Claims**

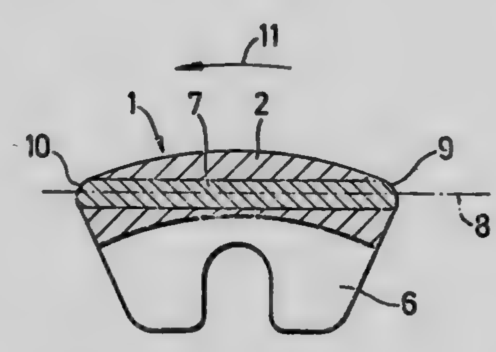
1. An iron or steel substrate having a continuous sacrificial coating of the product obtained by curing a homogeneous zinc-rich powder composition consisting of zinc powder, a curable epoxy resin powder, a curing agent and a flow modifier, thereon, prepared by a process comprising blending the zinc powder with the epoxy resin, curing agent and flow modifier in molten state until a homogeneous mixture is produced, the zinc being 75%-90% by weight of the total of zinc and epoxy resin, cooling the mixture to solid form and then grinding the solid to a powder form.

4,381,335
MULTI-COMPONENT COMPOSITE FILAMENT
Miyoshi Okamoto, Takatsukishi, Japan, assignor to Toray Industries, Inc., Tokyo, Japan
Continuation of Ser. No. 91,161, Nov. 5, 1979, abandoned. This application Apr. 1, 1981, Ser. No. 249,846
Int. Cl.^{3} D02G *3/00*
U.S. Cl. 428—373 **10 Claims**



1. An "islands-in-sea" type multi-component composite filament, for preparing a bundle of puffy superfine filaments upon separation from said sea component and upon differential contraction comprising at least three components including at least two different kinds of filamentary island components each dispersed independently in said sea component, one such component being a single component, interposing therebetween without maldistribution of such filamentary components to either side of said sea component as viewed in said cross-sectional configuration, said composite filament being further characterized by having a difference in coefficient of free contraction between the respective kinds of filamentary island components of at least 5%, and the sum of the weights of said island components being greater than the weight of said sea component.

4,381,336
CAST PIECE
Fritz Ostwald, Dreieich, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.
Filed Jun. 29, 1981, Ser. No. 278,123
Claims priority, application Fed. Rep. of Germany, Jul. 7, 1980, 3025636
Int. Cl.^{3} B22D *19/02*
U.S. Cl. 428—614 **6 Claims**



1. A cast brake caliper having a U-shape with two legs interconnected by a bridge portion, said bridge portion being subjected to bending forces, said cast caliper comprising:

a cast member having said U-shape; and

a core element cast in said cast member in said bridge portion, said core element having a flat plate-like portion extending between and into each of said two legs completely encased on the top and bottom by said cast member and extending to and exposed in both outer edges of said bridge portion, said core element having a density lower than the density of said cast member.

4,381,337
POLYESTER ADHESIVE LAYER FOR PHOTOSENSITIVE ELEMENTS
Mike S. H. Chang, Danbury, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.
Filed Nov. 23, 1981, Ser. No. 324,164
Int. Cl.^{3} G03G *5/14, 5/04*
U.S. Cl. 430—58 **6 Claims**

1. An organic photoconductive element comprising an electroconductive plastic film support, a bonding layer of an adhesive material on said support, a charge generating layer comprising a particulate charge generating organic chemical adhered to said bonding layer, and a charge transport layer comprising a charge transport organic chemical and a binder material for the charge transport chemical adhered to said charge generating layer, characterized by said adhesive bonding layer and said binder material comprising a mixture of a first polyester having a Tg larger than about 60° C. and a second polyester having a Tg smaller than about 30° C., the amount of the first polyester varying from about 40 to about 70 weight percent of the total mixture and the amount of the second polyester varying from about 30 to about 60 weight percent of the total mixture.

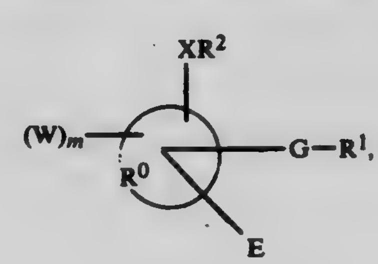
4,381,338
PROCESS FOR PREPARING PHOTOCONDUCTIVE PARTICLES
Kiyoshi Suzuki, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 17, 1980, Ser. No. 188,229
Claims priority, application Japan, Sep. 21, 1979, 54-121750
Int. Cl.^{3} G03G *5/08*
U.S. Cl. 430—135 **6 Claims**

1. A process for preparing cadmium sulfide photoconductive particles comprising:

reacting a water-soluble metal salt with an ion exchange resin having an anion which reacts with the metal ion of the water-soluble metal salt to produce a water insoluble metal compound and depositing the water insoluble metal compound resulting from the reaction on the surface of cadmium sulfide photoconductive particles.

4,381,339
PHOTOGRAPHIC RECORDING MATERIAL AND NON-DIFFUSING COMPOUNDS TO BE USED IN THE MATERIAL WHICH CONTAINS A PHOTOGRAPHICALLY ACTIVE GROUP WHICH CAN BE SPLIT OFF
Günter Renner, Cologne, and Erich Wolff, Leverkusen, both of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Apr. 9, 1981, Ser. No. 252,572
Claims priority, application Fed. Rep. of Germany, Apr. 16, 1980, 3014669
Int. Cl.^{3} G03C *5/00*
U.S. Cl. 430—223 **7 Claims**

1. Photographic recording material having at least one light-sensitive silver halide emulsion layer and in association with said silver halide emulsion layer, a non-diffusing reducible compound which can be split to release a diffusible photographically useful compound, the non-diffusing reducible compound corresponding to the following formula I



I

in which the substituents W, XR^2, G—R^1 and E may be arranged in any positions in relation to each other and in which:

R^0 represents the atoms required to complete a ring system comprising at least one aromatic or heteroaromatic ring;

W represents a group which reduces the electron density in the ring at the position of E and is selected from the group consisting of a halogen atom, a cyano group, a nitro group, a nitroso group, a trifluoromethyl group, a quaternary ammonium group and an acyl group;

m represents an integer of from 1 to 3;

G represents a group from which R^1 can be split off under photographic development conditions;

R^1 represents the residue of a diffusible photographically active compound;

X represents an oxygen atom, a sulfur atom or the group —NR^3—;

R^2 represents hydrogen or a group which can be split off in alkaline medium, and

E represents a reducible substituent selected from the group consisting of

$$-NO_2,\ -NO,\ -CO-R^3,\ -\underset{\displaystyle R_3}{\underset{|}{C}}=N-R^3,\ -N=N-R^3$$

$$-N=\underset{\displaystyle O}{\underset{|}{N}}-R^3,\ -\underset{\displaystyle O}{\underset{|}{N}}=N-R^3 \text{ and } -C=N-OR^3;$$

R^3 represents hydrogen, alkyl, aryl, a heterocyclic group or aralkyl,

and the compound of formula I contains at least one substituent conferring diffusion resistance.

4,381,340

METHOD OF TREATING LITHOGRAPHIC PRINTING PLATES WITH 2-PROPOXYETHANOL

John E. Walls, Annandale, N.J., assignor to American Hoechst Corporation, Somerville, N.J.

Division of Ser. No. 176,363, Aug. 8, 1980, Pat. No. 4,308,340. This application Aug. 31, 1981, Ser. No. 298,051

Int. Cl.³ G03C *5/00*

U.S. Cl. 430—302 **12 Claims**

1. The method of developing a lithographic printing plate having resin binders in photosensitive coatings adherent thereupon, comprising treating said printing plate with a solution comprising 2-propoxyethanol as a detackifying agent, to remove the nonimage portions.

4,381,341

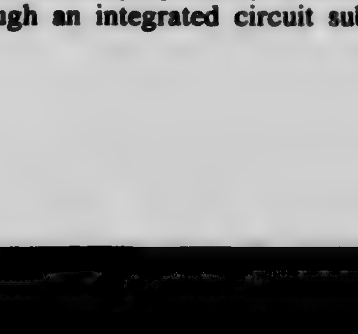
TWO STAGE ETCHING PROCESS FOR THROUGH THE SUBSTRATE CONTACTS

John X. Przybysz, Penn Hills; Michael C. Driver, Monroeville, and Harvey C. Nathanson, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 1, 1982, Ser. No. 344,467

Int. Cl.³ H01L *21/312;* **B44C** *1/22;* **C03C** *15/00, 25/06*

U.S. Cl. 430—312 **4 Claims**



1. Method of providing a plurality of electrical interconnection vias through an integrated circuit substrate wherein a plurality of transistor devices are formed on one side of the substrate with a plurality of transistor contacts disposed on the substrate surface in electrical contact with transistor regions, wherein the respective interconnection vias are aligned with and are smaller in area than the transistor contacts with which they are respectively aligned, which method comprises;

(a) selectively thinning the substrate from the side opposed to the side on which the transistor devices and transistor contacts are disposed, which selectively thinned substrate area exceeds the transistor contact area;

(b) etching through portions of the selectively thinned substrate area which is aligned with the transistor contacts to produce electrical interconnection vias of an area smaller than the transistor contact area.

4,381,342

LIQUID JET METHOD FOR COATING PHOTOGRAPHIC RECORDING MEDIA

Roger S. Van Heyningen, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 27, 1981, Ser. No. 258,154

Int. Cl.³ B05D *1/04, 1/06, 5/00;* **G03C** *1/76*

U.S. Cl. 430—496 **14 Claims**

1. A method of coating a photographic support of the kind having a major surface of substantially uniform transverse dimension and a plurality of cell walls upstanding from said surface in a regular pattern to define a plurality of minute, open-topped, discrete cells, said method comprising:

(a) moving said support through a coating zone in a direction orthogonal to said transverse dimension and at a substantially constant velocity;

(b) generating at least one stream of equally sized and spaced drops of photographic coating liquid directed toward the coating zone; and

(c) synchronizing the support movement and the rate of drop generation so that the drops of said stream are deposited in predetermined cells of said support.

4,381,343

DETERMINATION OF ANTIBACTERIAL AGENTS

Nathan Citri, Jerusalem, Israel, assignor to Teva Pharmaceutical Industries Ltd., Har Hotsvim and Yissum Research Development Co., Jerusalem, both of, Israel

Filed Mar. 27, 1981, Ser. No. 248,408

Claims priority, application Israel, Mar. 27, 1980, 59723

Int. Cl.³ C12Q *1/36, 1/18;* **C12R** *1/085, 1/10*

U.S. Cl. 435—24 **10 Claims**

1. A method for the simultaneous determination of a β-lactam antibiotic (BLA) and a non-BLA antibacterial agent in a test material, comprising:

(i) seeding a nutrient medium with a strain of β-lactamase generating bacterium or spores thereof;

(ii) applying to the seeded nutrient medium at two discrete sites two samples of the test material, one of them together with a BLA;

(iii) then incubating the nutrient medium under conditions inducive to the generation of β-lactamase by said bacteria;

(iv) assaying said discrete sites for β-lactamase (development); and

(v) comparing the development of said two sites.

4,381,344

PROCESS FOR PRODUCING DEOXYRIBOSIDES USING BACTERIAL PHOSPHORYLASE

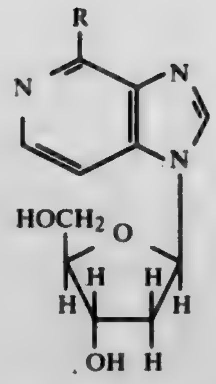
Janet L. Rideout, Raleigh, and Thomas A. Krenitsky, Chapel Hill, both of N.C., assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.

Filed Apr. 25, 1980, Ser. No. 143,836

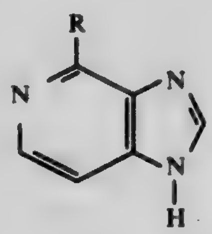
Int. Cl.³ C12P *19/38*

U.S. Cl. 435—87 **5 Claims**

1. A process for producing compounds of formula (II)


(II)

wherein R is halogen, amino or substituted amino including protected amino which process comprises reacting a 4-substituted-1H-imidazo-[4,5-c]-pyridine base of formula (III)


(III)

wherein R is as hereinbefore defined with a 2-deoxyribosyl donor system comprising 2-deoxyribose-1-phosphate and a bacterial purine nucleoside phosphorylase enzyme.

4,381,345
PRETREATMENT OF GLUCOSE FEEDSTOCK WITH REDUCING AGENTS
Ronald P. Rohrbach, Forest Lake, and Mary J. Maliarik, Lake Forest, both of Ill., assignors to UOP Inc., Des Plaines, Ill.
Filed May 8, 1981, Ser. No. 261,996
Int. Cl.³ C12P *7/00, 19/24*
U.S. Cl. 435—94 **8 Claims**

1. In a method of converting glucose to fructose using an immobilized glucose isomerase system, the improvement wherein a feedstock containing glucose and minor amounts of isomerase poisons, prior to contacting with the immobilized glucose isomerase system, is treated with a water soluble and water stable metal hydride at a pH from about 7 to about 9 at a temperature from about 10° to about 80° C. for a time and in an amount effective to increase the productivity of said immobilized glucose isomerase system above that productivity occurring when the enzymatic isomerization is carried out without the presence of said metal hydride, the treatment being for a time sufficient to destroy said poisons.

4,381,346
ISOLATION OF PLASMINOGEN ACTIVATORS USEFUL AS THERAPEUTIC AND DIAGNOSTIC AGENTS
Syed S. Hussin, 139 Upland Ave., Newton Highland, Md. 02161; Boguslaw Lipinski, 97 Beaumount Ave., Newtonville, Md. 02160, and Victor Gurewich, 300 Mt. Auburn St., Suite 309, Cambridge, Md. 02138
Continuation-in-part of Ser. No. 93,246, Nov. 13, 1979, abandoned. This application Sep. 2, 1980, Ser. No. 182,976
Int. Cl.³ C12N *9/72, 9/48*
U.S. Cl. 435—215 **10 Claims**

1. The method of isolating a plasminogen activator from urine or culture medium, comprising

providing an adsorptive matrix having fibrin precipitated on its surface,

exposing a mother liquid based upon urine or culture medium and containing high fibrin-affinity plasminogen activator to the fibrin-containing matrix, whereby those plasminogen activator molecules which have high affinity therefor are bound to molecules of fibrin,

removing the remaining mother liquid, and

separating the plasminogen activator from the fibrin.

9. A plasminogen activator enzyme concentrate isolated from a biological source by the methods of any of the claims 1–6 and comprising urokinase (human) of molecular weight of about 56,000 Daltons, having high affinity for binding to fibrin on an adsorptive matrix and having the appearance of a single chain molecular structure.

4,381,347
FIBRE GLASS COMPOSITION
Vlastimil Carbol, Vaxjo, Sweden, assignor to Oy Partek AB, Pargas, Finland
Continuation-in-part of Ser. No. 139,423, Apr. 11, 1980, Pat. No. 4,312,952. This application Jul. 7, 1981, Ser. No. 281,143
The portion of the term of this patent subsequent to Jan. 26, 1999, has been disclaimed.
Int. Cl.³ C03C *3/08, 13/00*
U.S. Cl. 501—36 **1 Claim**

1. Fibre glass composition, characterized in that it consists of

	% by weight
SiO_2	55–65
Al_2O_3	1–2
CaO	6–9.5
MgO	1–4.5
Na_2O	13–17
K_2O	0–2
B_2O_3	1–7
BaO	0–3
Li_2O	0–1
Fe_2O_3	traces
ZnO	0.5–6.

4,381,348
BLUE COLORED ARTIFICIAL STONE STOCKS AND METHOD OF MANUFACTURING THE SAME
Toshio Kamatani, Kosugi; Hirohisa Ishiguro, Sinminato; Kensei Itakura, Shinminato, and Kazuo Yamagishi, Niigata, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 28, 1981, Ser. No. 335,186
Claims priority, application Japan, Dec. 29, 1980, 55-188612; Aug. 26, 1981, 56-132592
Int. Cl.³ C04B *35/00*
U.S. Cl. 501—153 **10 Claims**

1. A blue colored artificial stone stock containing 40–70% by weight of SiO_2, 0.1–5% by weight of chromium oxide having an oxidation number up to 2 and the balance of CaO, MgO and Al_2O_3.

4,381,349
ALUMINA COMPOUNDS IN ION EXCHANGE RESINS
John M. Lee, and William C. Bauman, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.
Continuation-in-part of Ser. No. 939,545, Sep. 5, 1978, Pat. No. 4,221,767, which is a division of Ser. No. 812,534, Jul. 5, 1977, Pat. No. 4,116,856. This application Nov. 19, 1979, Ser. No. 95,691
Int. Cl.³ B01J *41/00, 41/12*
U.S. Cl. 521—28 **12 Claims**

1. In a process for precipitating $Al(OH)_3$ in the reticules of a weak-base anion exchange resin by the in situ ammonia precipitation of Al halide in aqueous media, thereby forming a composite consisting essentially of anion exchange resin having $Al(OH)_3$ dispersed therein, the improvement which comprises the additional steps of

1. slightly acidifying the so-formed composite in an aqueous medium with HX, X being halide, where the amount of

HX is an amount sufficient to provide an acid pH of not lower than about 5.0, thereby converting the anion exchange resin to the halide salt form,

2. substantially separating the composite from the aqueous portion,
3. substantially flooding the composite with an aqueous solution of Al halide, draining the excess solution, and
4. adding NH_4OH to precipitate additional $Al(OH)_3$ in the resin.

4,381,350

PROCESS FOR THE PREPARATION OF HIGH DENSITY ION EXCHANGE RESINS AND ION EXCHANGE RESINS THUS OBTAINED

Edouard Grimaud, Courbevoie, and Maurice Troussier, Pierre Benite, both of France, assignors to Uranium Pechiney Ugine Kuhlmann, Paris, France

Filed Nov. 26, 1979, Ser. No. 97,335
Int. Cl.[3] C08F *8/20;* **B01J** *41/08*
U.S. Cl. 521—31 **8 Claims**

1. A process for increasing the density of an ion-exchange anionic resin based on a copolymer of styrene and divinylbenzene comprising in a liquid phase treatment, contacting the resin with bromine in a liquid phase and simultaneously charging the liquid phase with gaseous chlorine while in contact with the resin for reaction to provide a styrene-divinylbenzene copolymer ion-exchange anionic resin containing bromine and chlorine groups.

4,381,351

COMBUSTION MODIFIED FLEXIBLE POLYURETHANE FOAM

John F. Szabat, Pittsburgh, Pa., assignor to Mobay Chemical Corporation, Pittsburgh, Pa.

Filed Jul. 26, 1982, Ser. No. 401,675
Int. Cl.[3] C08G *18/14*
U.S. Cl. 521—107 **10 Claims**

1. A combustion modified flexible polyurethane foam produced by reacting:

(A) an organic polyisocyanate,

(B) a polyether polyol selected from the group consisting of
- (i) a dispersion of a polyurea and/or polyhydrazodicarbonamide in a relatively high molecular weight organic compound containing at least two hydroxyl groups, wherein the concentration of the polyurea and/or polyhydrazodicarbonamide is from 1 to 40% by weight of the dispersion based on 100 parts by weight of said organic compound,
- (ii) a polyoxyalkylene triol having an OH number of from about 25 to about 40, and,
- (iii) mixtures thereof,

(C) from about 80 to about 150 parts by weight of hydrated alumina of an average particle size of from about 1.5 to about 5 microns,

(D) from about 4 to about 12 parts by weight of antimony trioxide,

(E) from about 5 to about 30 parts by weight of decabromodiphenyl oxide,

(F) from about 15 to about 30 parts by weight of a halogenated phosphate ester,

(G) from 0 to about 5 parts by weight of a char former,

(H) from about 1.5 to about 3.5 parts by weight of water, and,

(I) from 0 to about 20 parts by weight of an organic blowing agent, said parts by weight of components (C) through (I) being based on 100 parts by weight of component (B), the ratio of components being such that the isocyanate index is from about 105 to about 115.

4,381,352

PROCESS FOR REINFORCED REACTION INJECTION MOLDING OF POLYURETHANES

Robert L. McBrayer, Lincoln Park, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Aug. 12, 1981, Ser. No. 292,258
Int. Cl.[3] C08G *18/14*
U.S. Cl. 521—115 **8 Claims**

1. A process for the preparation of reinforced reaction injection molded polyurethane foam comprising reacting an organic polyisocyanate, a polyoxyalkylene polyether polyol, chain extending agent, catalyst, optionally a blowing agent, and milled glass fibers dispersed in said polyol employing an effective amount of a suspending agent which is a salt of the acid diester of the formula

$$R_1-CO-O-(X-O)_n-OC-R_2-COOH.N\begin{matrix} \diagup R_3 \\ -R_4 \\ \diagdown R_5 \end{matrix}$$

wherein

X represents an alkylene radical with 2 to 3 carbon atoms; R_1 represents a member selected from the group consisting of a saturated acyclic hydrocarbon radical having 11 to 23 carbon atoms, a saturated acyclic hydrocarbon having 11 to 23 carbon atoms and being substituted by a hydroxyl group, an olefinic acyclic hydrocarbon radical having 11 to 23 carbon atoms; and an olefinic acyclic hydrocarbon radical having 11 to 23 carbon atoms and being substituted by a hydroxyl group;

R_2 represents a member selected from the group consisting of a phenylene radical, a divalent saturated acyclic hydrocarbon radical, a divalent saturated acyclic hydrocarbon radical being substituted by a hydroxy group, a divalent saturated acyclic hydrocarbon radical being substituted by a carboxyl group, a divalent olefinic acyclic hydrocarbon radical, a divalent olefinic acyclic hydrocarbon radical being substituted by a hydroxyl group, and a divalent olefinic acyclic hydrocarbon radical being substituted by a carboxyl group, said divalent saturated and olefinic acyclic hydrocarbon radicals having 2 to 3 carbon atoms;

R_3 and R_4 represent members selected from the group consisting of hydrogen, a lower alkyl radical, a lower alkyl radical being substituted by hydroxyl group, and a cyclohexyl radical, said radicals containing from 1 to 6 carbon atoms;

R_5 represents a member selected from the group consisting of a lower alkyl radical, a lower alkyl radical substituted by a hydroxyl group, and a cyclohexyl radical, said radicals containing from 1 to 6 carbon atoms and n is an integer ranging from 4 to 25.

4,381,353

SPRAYED POLYURETHANE FOAMS EMPLOYING REACTIVE AMINES TO IMPROVE THE FOAM SURFACE

Kenneth G. McDaniel, Round Rock, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Nov. 2, 1981, Ser. No. 317,708
Int. Cl.[3] C08G *18/14*
U.S. Cl. 521—131 **6 Claims**

1. A rigid polyurethane foam formulation suitable for spray application comprising

a. a polyether or polyester polyol,
b. an organic polyisocyanate,
c. a halocarbon blowing agent,
d. a catalytic amount of a urethane catalyst and
e. 1 to 4 weight percent of an alkanolamine surface-improving additive where the alkanolamine additive is diethanolamine.

4,381,354

RESIN COATED SAND AND CASTING MOLDS PREPARED THEREFROM

Isao Kai; Hirotami Hosokawa, and Takayuki Oda, all of Aichi, Japan, assignors to Asahi Yukizai Kogyo Co., Ltd., Nobeoka, Japan

Filed Aug. 25, 1981, Ser. No. 296,208

Claims priority, application Japan, Feb. 23, 1981, 56-25036; Aug. 11, 1981, 56-125816

Int. Cl.³ B22C *1/22*

U.S. Cl. 523—139 **2 Claims**

1. A resin-coated sand having a surface coating comprising, based on 100 wt. parts of the sand, 0.3–10 wt. parts of hardenable resin, and 0.001–10 wt. parts of halogen-containing organic compound having a strong tendency of carburizing said hardenable resin under heat, further comprising 0.0001–10 wt. parts of pulverized metal capable of acting with halogen under heat.

4,381,355

RESORCINOL POLYMER BONDED TAPHOLE MIX AND SPECIALTY MATERIALS

Francis W. Henry, Jr., Glen Burnie; Henry E. Anthonis, III, Annapolis, and Subrata Banerjee, Glen Burnie, all of Md., assignors to General Refractories Company, Bala Cynwyd, Pa.

Filed Apr. 16, 1981, Ser. No. 254,777

Int. Cl.³ C08K *3/34, 3/04, 3/06*

U.S. Cl. 523—140 **20 Claims**

1. A non-aqueous taphole mix comprising a binder, a non-aqueous solvent for the binder and a refractory filler, said binder comprising a mixture of polymers formed by the homopolymerization of resorcinol and a hardening agent, said mixture of polymers formed by the homopolymerization of resorcinol comprising about 2–8% resorcinol, about 12–20% isomers of dihydroxydiphenyl, about 10–45% isomers of trihydroxydiphenyl, and the balance being higher polymers of resorcinol, and said hardening agent being selected from the group consisting of lignosulphonate, sulphur, tris-(hydroxymethyl)-nitromethane, hexamethylene tetramine, or hexamethoxymethylmelamine.

4,381,356

STABILIZED POLYPROPYLENE COMPOSITIONS

Harold P. Marsh, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 21, 1982, Ser. No. 390,491

Int. Cl.³ C08L *23/12*

U.S. Cl. 523—521 **4 Claims**

1. Composition comprising polypropylene, about 10–60% by weight based on the weight of polypropylene, of talc, and about 0.5–3.0% based on the weight of polypropylene of an amorphous copolyester derived from at least 50 mole percent terephthalic acid, and at least 50 mole percent ethylene glycol and about 20–50 mole percent diethylene glycol or 1,4-cyclohexanedimethanol, said copolyester characterized by having a glass transition temperature of about 40°–85° C. and an inherent viscosity of about 0.2–10.

4,381,357

COVERING, A PROCESS OF PRODUCING IT AND THE USE THEREOF

Walter von der Wettern, Bergisch-Gladbach-Sand, and Harald Albrecht, Cologne, both of Fed. Rep. of Germany, assignors to Gebr. von der Wettern GmbH, Koln-Deutz, Fed. Rep. of Germany

Filed Sep. 21, 1981, Ser. No. 304,185

Claims priority, application Fed. Rep. of Germany, Oct. 3, 1980, 3037390

Int. Cl.³ C08L *95/00*

U.S. Cl. 524—68 **12 Claims**

1. A road covering comprising a mixture of mineral fillers, 5 to 30% by weight of small particles of reclaimed rubber and a binder comprising a ratio of 95-75 parts by weight of bitumen homogenized hot with 5-25 parts by weight of a thermoplastic polymer.

4,381,358

COPOLYESTER-CARBONATES CONTAINING ALIPHATIC DIOL CO-MONOMERS

Niles R. Rosenquist, Evansville, Ind., assignor to General Electric Co., Mt. Vernon, Ind.

Filed Oct. 16, 1981, Ser. No. 312,318

Int. Cl.³ C08G *63/64*

U.S. Cl. 524—114 **28 Claims**

1. A copolyester-carbonate resin composition exhibiting improved processability comprised of the polymerized reaction product of:

(i) at least one dihydric phenol;

(ii) a carbonyl halide carbonate precursor;

(iii) at least one difunctional carboxylic acid or a reactive derivative thereof; and

(iv) a processability improving amount of at least one bishaloformate represented by the formula

$$X-\overset{\overset{\displaystyle O}{\|}}{C}-O-(R)-O-\overset{\overset{\displaystyle O}{\|}}{C}-X$$

wherein X represents a halide radical and R represents an alkylene radical containing from 2 to about 20 carbon atoms.

4,381,359

STABILIZED THERMOPLASTIC MOULDING COMPOSITIONS

Karsten Idel; Hans-Josef Buysch; Dieter Margotte, all of Krefeld, and Horst Peters, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 169,305, Jul. 16, 1980, abandoned. This application Sep. 16, 1981, Ser. No. 302,797

Claims priority, application Fed. Rep. of Germany, Jul. 19, 1979, 2929229

Int. Cl.³ C08K *5/52*

U.S. Cl. 524—117 **2 Claims**

1. A stabilized thermoplastic moulding composition comprising a mixture of

(1) from 10 to 90 parts by weight of a polycarbonate of an aromatic dihydroxy compound and

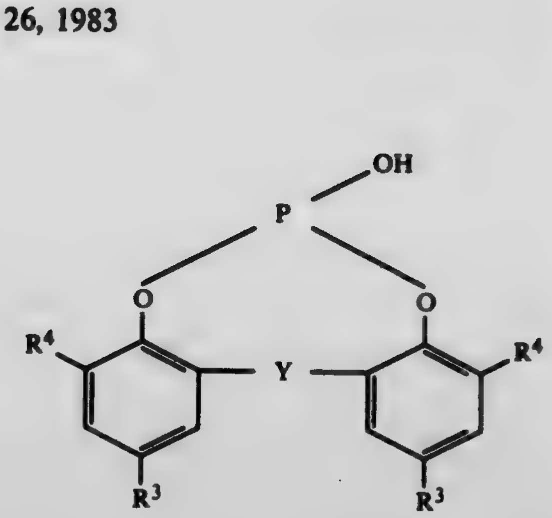
(2) from 90 to 10 parts by weight of a mixture of

(a) from 25 to 100 parts by weight of graft copolymer comprising styrene, methyl methacrylate or a mixture thereof as one constituent and acrylonitrile, methacrylonitrile or a mixture thereof as the other constituent polymerized on a rubber;

(b) from 0 to 20 parts by weight of a butadiene polymer having a butadiene content of at least 5% by weight and

(c) from 0 to 75 parts by weight of a copolymer of at least one monomer selected from the group consisting of styrene, α-methyl styrene and mixtures thereof and another monomer selected from the group consisting of methyl methacrylate, acrylonitrile, methacrylonitrile and mixtures thereof,

said composition containing 0.01 to 3% by weight, based on the mixture of (1) and (2) of a phosphite of the formula



wherein R^3 is C_1–C_9 alkyl, C_5–C_6 cycloalkyl, C_7–C_9 aralkyl or C_6–C_{10} aryl; R^4 is benzyl, methylbenzyl, dimethyl benzyl, methyl, ethyl, isopropyl, tertiary butyl, tertiary amyl, isononyl, cyclopentyl or cyclohexyl and Y is S or HCR^5 wherein R^5 is hydrogen, C_1–C_6 alkyl, cyclohexenyl or cyclohexyl.

4,381,360

1,3-DICARBONYL COMPOUNDS AND POLYVINYL HALIDE RESIN COMPOSITIONS CONTAINING THE SAME

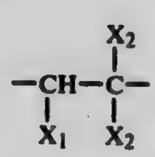
William E. Leistner, Atlantic Beach, N.Y.; Motonobu Minagawa, Kosigaya, Japan; Kouji Tsuruga, Omiya, Japan, and Masashi Harada, Yokohama, Japan, assignors to Phoenix Chemical Corporation, Atlantic Beach, N.Y.

Filed Jan. 14, 1981, Ser. No. 225,064

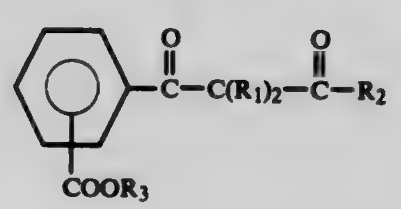
Int. Cl.³ C08K *5/57, 5/10, 5/09*

U.S. Cl. 524—178 **48 Claims**

1. A polyvinyl halide resin composition having improved resistance to deterioration by light and/or when heated at 350° F., comprising a polyvinyl halide resin formed at least in part of the recurring group:



and having a halogen content in excess of 40%, where X_1 is halogen and X_2 is either hydrogen or halogen, and a 1,3-dicarbonyl compound having the formula:



wherein:

R_1 is selected from the group consisting of hydrogen, alkyl groups having from one to about eighteen carbon atoms; cycloalkyl, cycloalkylalkylene, and alkylcycloalkyl groups having from five to about eighteen carbon atoms; and aryl, aralkyl and alkaryl groups having from six to about eighteen carbon atoms; and such groups substituted with one or more groups selected from the group consisting of halogen, hydroxy, and alkoxy having from one to about eighteen carbon atoms;

R_2 is selected from the group consisting of alkyl groups having from one to about eighteen carbon atoms; cycloalkyl, cycloalkylalkylene, and alkylcycloalkyl groups having from five to about eighteen carbon atoms; and aryl, aralkyl and alkaryl groups having from six to about eighteen carbon atoms; and such groups substituted with one or more groups selected from the group consisting of halogen, hydroxy, alkoxy OR_1, ester $COOR_1$, alkyl and alkoxycarbonyl alkyl having one to about eighteen carbon atoms; and

R_3 is selected from the group consisting of hydrogen, alkyl groups having from one to about eighteen carbon atoms; cycloalkyl, cycloalkylalkylene, and alkylcycloalkyl groups having from five to about eighteen carbon atoms; and aryl, aralkyl and alkaryl groups having from six to about eighteen carbon atoms; and such groups substituted with one or more groups selected from the group consisting of halogen, hydroxy, alkoxy OR_1 and ester $COOR_1$, having from one to about eighteen carbon atoms or the corresponding metal enolate salt thereof.

4,381,361

POLYVINYL CHLORIDE MOULDING COMPOSITION

Dietrich K. A. Hardt, deceased, late of Leverkusen, Fed. Rep. of Germany (by Helga Hardt, heir); Fritz Mietzsch, Cologne, and Otto Billinger, Linz, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 28, 1981, Ser. No. 315,620

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1980, 3041231

Int. Cl.³ C08K *5/54*

U.S. Cl. 524—265 **2 Claims**

1. A notched-impact-resistant moulding composition having a low shrinkage value selected from the group consisting of

I. a mixture consisting of (a) from 99 to 85% by weight of polyvinyl chloride, (b) from 1 to 15% by weight of ethylene-vinyl acetate copolymer containing from 25 to 60% by weight of vinyl acetate and having a molecular weight of from 20,000 to 500,000 and (c) from 0.01 to 5% by weight, based on the total weight of (a) plus (b), of a polysiloxane;

II. a mixture consisting of a graft polymer of 3 to 15% by weight of ethylene-vinyl acetate copolymer containing from 25 to 60% by weight of vinyl acetate and having a molecular weight of from 20,000 to 500,000 having grafted thereon from 97 to 85% by weight of polymerized units of vinyl chloride and from 0.01 to 5% by weight, based on the weight of said graft polymer, of a polysiloxane and

III. a mixture consisting of polyvinyl chloride, a graft polymer of from 60 to 4% by weight of ethylene-vinyl acetate copolymer containing from 25 to 60% by weight of vinyl acetate and having a molecular weight of from 20,000 to 500,000 having grafted thereon from 40 to 96% by weight of polymerized units of vinyl chloride, the total content of said ethylene-vinyl acetate copolymer in said mixture being from 3 to 15% by weight, based on the weight of polyvinyl chloride and said graft polymer, and from 0.01 to 5% by weight, based on the total polyvinyl chloride and graft polymer, of a polysiloxane,

said polysiloxane of each of I, II and III being selected from the group consisting of polydimethylsiloxane having methyl terminal groups and a viscosity of 20 cSt; polydimethylsiloxane having methyl terminal groups and a viscosity of 140 cSt; polymethylphenylsiloxane having methyl terminal groups and a viscosity of 350 cSt; polymethylphenylsiloxane having methyl terminal groups and a viscosity of 1,000 cSt; polydimethylsiloxane having OH terminal groups and a molecular weight MW of 90,000 and polydimethylsiloxane having vinyl terminal groups and a molecular weight MW of 500,000.

4,381,362

FLAME RETARDANT POLYMERIC COMPOSITIONS CAPABLE OF PASSING THE CSA VARNISH TEST

James W. Biggs, Lebanon, and Melvin F. Maringer, Cincinnati, both of Ohio, assignors to National Distillers & Chemical Corp., New York, N.Y.

Continuation of Ser. No. 185,461, Sep. 9, 1980, abandoned. This application Aug. 21, 1981, Ser. No. 295,188

Int. Cl.[3] C08K *5/38*

U.S. Cl. 524—305 **19 Claims**

1. A crosslinkable polymeric composition capable of passing the CSA varnish test which comprises:

(a) a polymeric component containing at least 66% by weight of a copolymer of ethylene and a vinyl ester of a C_2–C_6 aliphatic carboxylic acid, a C_1–C_6 alkyl acrylate or a C_1–C_6 alkyl methacrylate,

(b) from 80 to 400 parts of hydrated inorganic filler per 100 parts of the polymer component,

(c) 0.5 to 5 parts of an alkoxy silane per 100 parts of hydrated inorganic filler, and

(d) an amount effective to enable said polymeric composition to pass the CSA varnish test of an antioxidant composition comprising at least 25% distearyl-3,3′-thiodipropionate.

4,381,363

CURE RETARDING ADDITIVES FOR ACETYLENE-TERMINATED POLYMERS

Theodore J. Reinhart, Jr., Dayton, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sep. 10, 1981, Ser. No. 300,838

Int. Cl.[3] C08G *73/10, 73/12*

U.S. Cl. 524—324 **8 Claims**

1. A curable polymeric composition composed of a mixture of a major amount of an acetylene-terminated polymeric resin and a minor amount of a cure retarding additive selected from the group consisting of napthol, napthalenediol, monohydroxyanthraquinone, dihydroxyanthraquinone and 2-chloro-1, 4-dihydroxybenzene.

4,381,364

FLAME RETARDANT TERTIARY POLYMER BLEND

Costas N. Georgacopoulos, Berlin, and Curtis P. Smith, Cheshire, both of Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Jun. 14, 1982, Ser. No. 387,799

Int. Cl.[3] C08K *5/06;* **C08L** *75/06, 75/08*

U.S. Cl. 524—373 **15 Claims**

1. A thermoplastic composition comprising a blend of about 50 to about 85 percent by weight of a thermoplastic polyurethane and the balance of the blend comprising (a) a polyvinyl halide resin and (b) a diene-nitrile copolymer, the weight ratio of (a) to (b) being within the range of from about 1:4 to about 1.5:1.

4,381,365

COPOLYMER LATEX AND ITS PRODUCTION

Saburo Mishiba; Junkoh Hyoda, both of Niihama; Akira Uchida, Nara; Hisao Usami, Izumi, and Akira Watanabe, Yao, all of Japan, assignors to Sumitomo Naugatuck Co., Ltd., Osaka, Japan

Continuation of Ser. No. 187,883, Sep. 17, 1980, abandoned. This application Oct. 29, 1981, Ser. No. 316,519

Claims priority, application Japan, Sep. 17, 1979, 54-120998; Sep. 19, 1979, 54-121123

Int. Cl.[3] C08F *279/02*

U.S. Cl. 524—460 **13 Claims**

1. A process for preparing a copolymer latex by polymerization of at least one aliphatic conjugated diene monomer, at least one ethylenically unsaturated carboxylic acid monomer and at least one monoolefinic monomer copolymerizable with them in a weight proportion of 19.5–80:0.5–10:10–80, which consists essentially of the following sequential steps (a) subjecting to emulsion polymerization a mixture of starting monomers comprising the whole amount of the aliphatic conjugated diene monomer, the whole amount of the ethylenically unsaturated carboxylic acid monomer and a portion of the monoolefinic monomer, the combined amount of them being from 45 to 99% by weight on the basis of the total amount of the starting monomers, and (b) after conversion of said starting monomers reaches 70% or more the remainder of the monoolefinic monomer in an amount of from 1 to 55% by weight of the basis of the total amount of the starting monomers is added to the reaction mixture, whereupon further emulsion polymerization is carried out; and wherein in each step said monoolefinic monomer is selected from the group consisting of styrene and mixtures of styrene with another monoolefinic monomer.

4,381,366

FIBRE REINFORCED POLYAMIDE MOULDING COMPOUNDS

John R. Sanderson; Rudolf Binsack; Dietrich Michael, and Heinrich Bonten, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 163,693, Jun. 27, 1980, abandoned. This application May 26, 1981, Ser. No. 266,957

Claims priority, application Fed. Rep. of Germany, Jul. 3, 1979, 2926778

Int. Cl.[3] C08L *77/00, 51/00*

U.S. Cl. 524—504 **4 Claims**

1. Polyamide moulding blends comprising

(1) polyamide,

(2) 10 to 60% by weight of fibres, glass pellets, or mixtures thereof

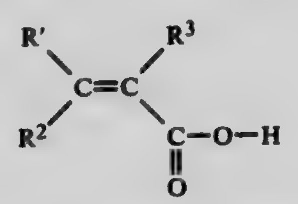
(3) 0 to 20% by weight of other usual additives and

(4) 1 to 30% by weight of graft products consisting of

(a) 70 to 99% by weight of a homopolymer of aliphatic and/or aromatic monoolefines or mixtures thereof or a copolymer of these olefines, up to 50% by weight of other monoolefinically unsaturated compounds capable of radical polymerisation and/or up to 5% by weight of diolefines or mixtures thereof as graft substrate and

(b) 1 to 30% by weight of grafted units of

(α) 0 to 100% by weight of α,β-unsaturated acids corresponding to the general formula



(I)

in which R_1, R_2 and R_3 which may be the same or different represent hydrogen, a C_1 to C_5 alkyl group, a C_6 to C_{12} aryl group or a C_7 to C_{13} alkylaryl group;

(β) 0 to 100% by weight of esters of the unsaturated acid of formula (I) having 1 to 8 carbon atoms in the alcohol moiety,

(γ) 0 to 30% by weight of acrylamide and/or

(δ) 0 to 30% by weight of acrylonitrile or styrene, or mixtures thereof

wherein the sum of 1, to 4, and of a, to b and of α, to δ, must in each case be 100% by weight, characterised in that the graft products have a peroxide graft (as OOH) of 0 to 5000 ppm and have been prepared by bringing the molten graft substrate (a) into contact with oxygen or oxygen-containing gases for a maximum of 10 minutes under conditions of vigorous mixing at a pressure of 1 to 150 bar and a temperature of 80° to 300° C., the monomers (b) which are to be grafted on the graft substrate are added immediately thereafter under conditions of vigorous mixing under pressure with exclusion of oxygen or oxygen-

containing gases, and the residual monomers are removed after graft polymerisation.

4,381,367

SIZING AGENTS FOR PAPER AND A PROCESS FOR THE PRODUCTION THEREOF

Wulf von Bonin, Leverkusen; Peter Mummenhoff, Cologne, and Heinz Bäumgen, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Dec. 7, 1981, Ser. No. 328,009

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1980, 3046906; Dec. 12, 1980, 3046980; Dec. 12, 1980, 3046981

Int. Cl.³ C08F *8/32*

U.S. Cl. 524—549 **5 Claims**

1. A paper sizing agent in the form of an aqueous preparation of a maleic acid anhydride copolymer whose anhydride groups have been reacted with from 0.2 to 10 times the molar quantity of ammonia or a primary-tertiary diamine whose primary and tertiary amino groups are separated by a linear or branched chain having 2 to 6 carbon atoms and the resultant reaction product is subsequently reacted with epichlorohydrin or acetic acid, said copolymers containing polymerized units of

(a) from 5 to 75% by weight of styrene,

(b) from 10 to 75% by weight of a C_1–C_{18} alkyl ester of acrylic acid, a C_1–C_{18} alkyl ester of methacrylic acid or a mixture thereof,

(c) from 5 to 30% by weight of maleic acid anhydride,

(d) from 0 to 25% by weight of acrylonitrile, an α-olefin or a mixture thereof and

(e) from 0.1 to 10% by weight, based on the weight of (a)-(d), of 1,2,5,6-tetrahydrobenzaldehyde, the benzyl enol ether of 1,2,5,6-tetrahydrobenzaldehyde or a mixture of 3-methyl and 4-methyl 1,2,5,6-tetrahydrobenzaldehyde.

4,381,368

PROCESS FOR THE PREPARATION OF UREA-FORMALDEHYDE RESINS

Harold N. Spurlock, 2031 Woodland Rd., Petersburg, Va. 23805

Filed Feb. 16, 1982, Ser. No. 349,303

Int. Cl.³ C08L *61/20*

U.S. Cl. 524—598 **2 Claims**

1. A process comprising mixing an aqueous solution of formaldehyde and urea in a mole ratio of from 2.0:1 to 2.2:1, adjusting the pH to from 6.1 to 7.0, heating the mixture at from 90° to 100° C. for from 20 to 40 minutes, while at this temperature adjusting the pH to from 4.5 to 5.5, adding from 0.06 to 0.13 mole of additional urea per mole of formaldehyde originally present, continuing heating the mixture until the viscosity of the reaction mixture is from about W to about Y on the Gardner-Holt scale, adjusting the pH of the reaction mixture to from 6.8 to 7.2, cooling the reaction mixture to from 30° to 70° C., adding from 0.1 to 0.3 mole urea per mole of formaldehyde originally present, cooling the reaction mixture to from 30° to 40° C., and adding from 0.05 to 0.2 mole of formaldehyde per mole of formaldehyde originally present and from 0.1 to 0.3 mole of urea per mole of formaldehyde originally present to bring the total mole ratio of formaldehyde to urea to from 1.05 to 1.15 whereby a urea-formaldehyde resin containing less than 0.2 ppm free formaldehyde is produced.

4,381,369

DRILLING FLUID CONTAINING A FLUID LOSS CONTROL AGENT OF A SULFONATED PHENOL-FORMALDEHYDE-PHENOL RESIN

Howard W. Holmquist, Bellingham, Wash., assignor to Georgia-Pacific Corporation, Atlanta, Ga.

Division of Ser. No. 153,608, May 27, 1980, Pat. No. 4,322,300. This application Oct. 9, 1981, Ser. No. 310,237

Int. Cl.³ C08L *61/08;* **C08G** *8/18*

U.S. Cl. 524—841 **2 Claims**

1. A water-soluble sulfonated phenol-formaldehyde-phenol resin prepared by

(a) reacting phenol sulfonic acid with formaldehyde in an aqueous medium at a pH in the range of 8 to 9.5 until from about 0.9 to 1.3 moles of formaldehyde per mole of phenol sulfonic acid has reacted with the phenol sulfonic acid,

(b) adding phenol to the pre-reacted mixture in a mole ratio of 0.5 to 0.7 moles of phenol per mole of phenol sulfonic acid and reacting the resulting mixture in the presence of formaldehyde and additional alkali until a cloud point is obtained at a pH in the range of 10 to 11, said formaldehyde being present in the resulting mixture in an amount such that the mole ratio of the sum of formaldehyde present in the resulting reaction mixture and the formaldehyde reacted with the phenol sulfonic acid is in the range of from 1 to 1.6 per mole of the sum of the phenol sulfonic acid and the added phenol, and

(c) adding additional alkali and continuing the reaction at a pH in the range of 11 to 12 until the viscosity of the final reaction mixture is at least 30 cps at a solids concentration of about 45 to 50% at 25° C.

4,381,370

METHOD FOR PRODUCING FIRE-RETARDED CELLULOSIC FIBERS AND FIRE-RETARDED CELLULOSIC FIBERS

Olli Aaltonen; Martti Alkio, both of Espoo; Eero Avela, and Riitta-Maija Housh, both of Helsinki, all of Finland, assignors to The Technical Research Centre of Finland, Espoo, Finland

Filed Mar. 20, 1981, Ser. No. 246,102

Claims priority, application Finland, Mar. 28, 1980, 800963

Int. Cl.³ D01F *8/02*

U.S. Cl. 525—54.21 **6 Claims**

1. A method of producing fire-retarded blend fibers having a fire resistance LOI-value of at least 21% O_2, from cellulose which consists of forming a solution of cellulose of about 7% content in dimethyl sulfoxide/formaldehyde, mixing said solution with at least one chlorine-containing polymer, having a chlorine content of at least 30% but not more than 75% by weight to yield a non-gellable blend with at least 10% but not more than 70% by weight of at least one said chlorine-containing polymer, based on the total amount of cellulose and at least one said chlorine-containing polymer, extruding the blend through a spinnerette, into contact with a coagulating bath of an aqueous or alcoholic solution whereby fire retarded blend fibers are obtained.

4,381,371

POLYMER MIXTURES

Werner Nielinger; Bert Brassat; Rudolf Binsack, and Dieter Neuray, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 121,368, Feb. 14, 1980, abandoned. This application Sep. 15, 1981, Ser. No. 302,567

Claims priority, application Fed. Rep. of Germany, Feb. 17, 1979, 2906222

Int. Cl.³ C08L *77/00, 55/02*

U.S. Cl. 525—66 **3 Claims**

1. A polymer composition comprising:

(I) from 95 to 70%, by weight, of one or more amorphous polyamides; and

(II) from 5 to 30%, by weight, of one or more graft polymers consisting of

(a) as graft base, from 50 to 90%, by weight, of a polymer of butadiene and optionally up to 30%, by weight, of one or more α,β-unsaturated monomers; and

(b) as a grafted unit, from 5 to 55%, by weight, of styrene and acrylonitrile.

4,381,372

POLYMERS DERIVED FROM 4-BIS(CARBALKOXYETHYL)-PHOSPHINOXY-2,2,6,6-TETRAMETHYLPIPERIDINE

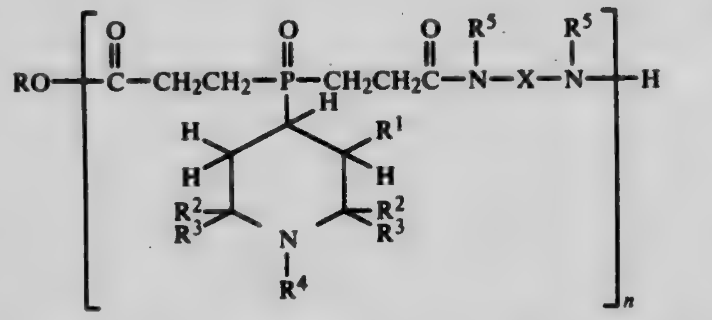
Frank F. Loffelman, Bridgewater, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Filed Apr. 8, 1981, Ser. No. 252,115

Int. Cl.³ C08G *69/26;* **C08L** *23/12*

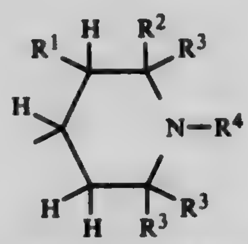
U.S. Cl. 525—181 **12 Claims**

1. A composition of matter represented by formula (I):



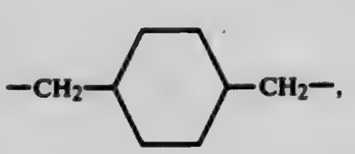
(I)

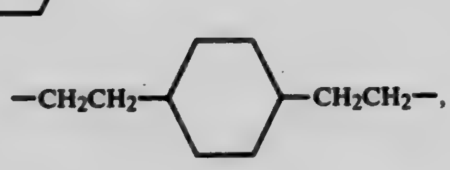
wherein R represents hydrogen, C_1–C_{18} alkyl, or benzyl; R^1, R^2, and R^3 independently represent hydrogen C_1–C_6 alkyl, benzyl, or phenethyl, or R_2 and R_3 together with the carbon to which they are attached form a C_5–C_{10} cycloalkyl; R^4 is hydrogen, C_1–C_6 alkyl, hydroxyl, or oxyl; R^5 is hydrogen, C_1–C_6 alkyl, or

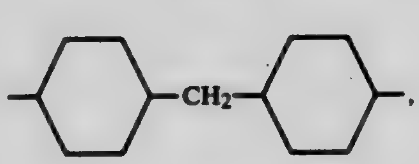


wherein R^1, R^2, R^3, and R^4 are as previously defined; X is C_2–C_{12} alkylene optionally interrupted by an oxy, thio, or

radical; or X is C_5–C_{10} cycloalkylene,







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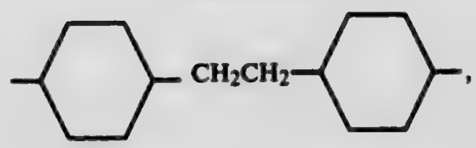
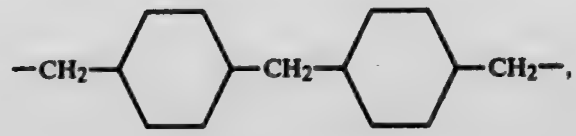
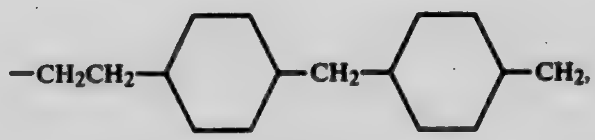
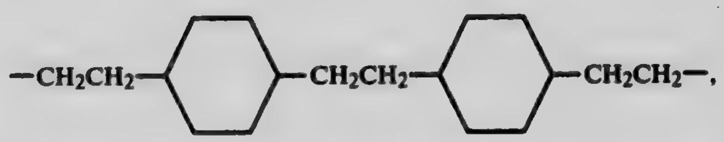








C_6–C_{12} arylene, or C_8–C_{14} aralkylene; and, n is an integer greater than 1.

5. A method for stabilizing a polymer which is normally subject to degradation by ultraviolet radiation which comprises incorporating into said polymer an ultraviolet stabilizingly effective amount of a stabilizer of claim 1.

4,381,373

HEAT RESISTANT RESIN COMPOSITION

Sadao Ikuma, Suzuka, Japan, assignor to Mitsubishi Monsanto Chemical Company, Tokyo, Japan

Filed Nov. 19, 1981, Ser. No. 323,078

Claims priority, application Japan, Dec. 11, 1980, 55/175116; Feb. 9, 1981, 56/17776

Int. Cl.³ C08L *25/12, 33/24, 25/08*

U.S. Cl. 525—194 **7 Claims**

1. A heat resistant resin composition which consists essentially of 10 to 90 wt. % of a copolymer (A) having 15 to 50 wt.parts of N-phenylmaleimide component, 85 to 40 wt.parts of a vinyl aromatic monomer component and 0 to 30 wt.parts of a vinyl comonomer component to be 100 wt.parts in total, which is obtained by imidization of vinyl aromatic/maleic anhydride copolymer with an aromatic amine; and 90 to 10 wt. % of a copolymer (B) having 15 to 30 wt.parts of a cyanovinyl monomer component, 85 to 65 wt.parts of a vinyl aromatic monomer component and 0 to 30 wt.parts of vinyl comonomer component.

4,381,374

HALOGENATION OF BUTADIENE POLYMERS IN MIXED SOLVENTS

Patrick E. Hillman, Corpus Christi, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 12, 1981, Ser. No. 320,983

Int. Cl.³ C08F *8/22*

U.S. Cl. 525—356 **24 Claims**

1. In a process for producing substantially thermoplastic halogenated butadiene polymer wherein butadiene polymer dissolved in liquid organic solvent is reacted with chlorine, bromine or a mixture thereof, the improvement wherein

a. said solvent consists essentially of a mixture of one or more prehalogenated alkanes having one to about two carbon atoms and one or more partially halogenated alkanes having one to about two carbon atoms,

b. fine particles of said substantially thermoplastic halogenated butadiene polymer having a solubility index of at least about 50 precipitate from said solvent during said reaction, and

c. said precipitated fine particles are separated from the bulk of said solvent.

4,381,375
METHOD FOR VULCANIZING ETHYLENE/ACRYLIC OR VINYL ESTER/GLYCIDYL(METH) ACRYLATE COPOLYMER WITH PIPERAZINIUM DIPHENOXIDE SALT OF CHLORO-SUBSTITUTED PHENOL
Leon L. Harrell, Jr., Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Dec. 28, 1981, Ser. No. 334,894
Int. Cl.[3] **C08L** *33/08*
U.S. Cl. 525—359.2 **12 Claims**

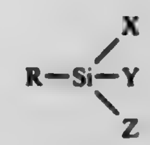
1. A vulcanizable elastomeric composition comprising a copolymer consisting essentially of copolymerized units of:
(a) 25–65 weight percent of a comonomer selected from the group consisting of acrylic and vinyl ester, provided that the acrylic ester is other than glycidyl acrylate and glycidyl methacrylate,
(b) 2–10 weight precent of a cure-site monomer selected from the group consisting of glycidyl acrylate and glycidyl methacrylate,
(c) 0–15 weight percent carbon monoxide,
(d) a complemental amount of ethylene from 30–70 weight percent,
and a curing agent selected from the group consisting of piperazinium diphenoxide salts of chloro-substituted phenols.

4,381,376
PREPARATION OF LOW MOLECULAR WEIGHT COPOLYMER SALTS
Paul J. Albee, Jr., Bensalem, Pa.; Patricia E. Burdick, Lake Hiawatha, and Joseph I. Wrozina, Tenafly, both of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.
Filed Dec. 29, 1980, Ser. No. 220,872
Int. Cl.[3] **C08F** *8/44*
U.S. Cl. 525—366 **39 Claims**

1. A method of making ionic copolymer salts from copolymer acids formed from ethylene and an alpha,beta-ethylenically unsaturated carboxylic acid having at least one carboxylic acid group, the copolymer acid having a number average molecular weight of from 500 to 5000, and at least 50 mol percent ethylene, the copolymer acid being neutralized by cations selected from a group having a valence of 1 to 3, comprising the steps of:
feeding the copolymer acid and a cation containing material to a reacting vessel;
maintaining a vacuum in the reaction vessel;
mixing the reacting mixture within the reaction vessel; and
maintaining the temperature within the reaction vessel above the melting point of the copolymer acid.

4,381,377
HOMO- OR COPOLYMERS OF 1,3-DIENES CARRYING REACTIVE SILYL GROUPS, THEIR PREPARATION AND USE
Wolfgang Kampf, Haltern; Roland Streck, and Horst-guenter Haag, both of Marl, all of Fed. Rep. of Germany, assignors to Chemische Werke Huels, AG, Marl, Fed. Rep. of Germany
Filed Feb. 2, 1981, Ser. No. 230,483
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1980, 3003893
Int. Cl.[3] **C07F** *7/10, 7/18, 7/04*
U.S. Cl. 525—375 **10 Claims**

1. A homo- or copolymer of a 1,3-diene bound to reactive silyl groups, whereby it contains 0.4–12% by weight of bound silicon,
prepared by reacting, at a temperature of 190–300° C., a 1,3-diene homo- or copolymer, with more than 1% of its aliphatic double bonds in conjugation and having a molecular weight (Mn) of 400–6,000, with a silane of the formula



wherein
R is an unsaturated aliphatic hydrocarbon radical of 2–20 carbon atoms,
X is halogen, C_{1-6} alkoxy, C_{1-6} alkoxyalkoxy, C_{6-12} aryloxy, C_{1-8} alkanoyloxy, C_{1-6} ketoximato, C_{1-12} hydrocarbylamido,
Y and Z are independently one of the X groups, hydrogen, alkyl of 1–8 carbon atoms, cycloalkyl of 5–12 carbon atoms, or optionally substituted phenyl.

4,381,378
METHOD FOR VULCANIZING ETHYLENE/ACRYLIC OR VINYL ESTER/GLYCIDYL(METH)ACRYLATE COPOLYMER WITH PIPERAZINIUM DICARBOXYLATE SALT AND COMPOSITION FOR SAME
Leon L. Harrell, Jr., Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Dec. 28, 1981, Ser. No. 334,893
Int. Cl.[3] **C08L** *33/08*
U.S. Cl. 525—375 **12 Claims**

1. A vulcanizable elastomeric composition comprising a copolymer consisting essentially of copolymerized units of:
(a) 25–65 weight percent of a comonomer selected from the group consisting of acrylic and vinyl esters, provided that the acrylic ester is other than glycidyl acrylate and glycidyl methacrylate,
(b) 2–10 weight percent of a cure-site monomer selected from the group consisting of glycidyl acrylate and glycidyl methacrylate,
(c) 0–15 weight percent carbon monoxide, and
(d) a complemental amount of ethylene from 30–70 weight percent,
and a curing agent selected from the group consisting of piperazinium dicarboxylate salts derived from the acids with pKa values in the range of 4.0–5.2.

4,381,379
POLYESTER CONTAINING 2-METHYL-1,3-PROPYLENE TEREPHTHALATE UNITS
Yuzo Toga; Toshio Shimada, and Hajime Komada, all of Himeji, Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan
Filed Mar. 22, 1982, Ser. No. 360,493
Claims priority, application Japan, Mar. 25, 1981, 56-44286; Apr. 15, 1981, 56-56766
Int. Cl.[3] **C08F** *283/00, 283/02;* **C08G** *63/76*
U.S. Cl. 525—444 **9 Claims**

7. A polyester resin composition which comprises a blend of a first resin which consists essentially of polytetramethylene terephthalate and a second resin which consists essentially of a member selected from the group consisting of (a) poly-2-methyl-1,3-propylene terephthalate resin, (b) a copolyester obtained by copolymerizing terephthalic acid with 2-methyl-1,3-propanediol and tetramethylene glycol, and (c) mixtures of (a) and (b), said blend containing from 0.1 to 25 percent by weight, of 2-methyl-1,3-propylene terephthalate units.

4,381,380

THERMOPLASTIC POLYURETHANE ARTICLE TREATED WITH IODINE FOR ANTIBACTERIAL USE

Harry H. LeVeen; Jeanette L. Rubricius, both of 321 Confederate Cir., Charleston, S.C. 29407; Eric G. LeVeen, 3-3 Woodlake Rd., Albany, N.Y. 12203, and Robert F. LeVeen, 312 Lombard St., Philadelphia, Pa. 19147

Filed Nov. 3, 1980, Ser. No. 203,432

Int. Cl.[3] **C08G** *18/83;* **A61M** *25/00;* **A61K** *31/74;* **C08G** *71/02*

U.S. Cl. 525—452 **18 Claims**

1. A polymeric bacteriocidal shaped form for medical use comprising a thermoplastic, sparingly cross-linked polyurethane having —NH—(C═O)—O— urethane linkages and/or urea linkages —NH—(C═O)—NH— and iodine complexed therewith, said complexed linkages being formed within said polyurethane so that said iodine provides bacteriocidal properties to said polyurethane, said bacteriocidal properties being at least sufficient to inhibit growth of *S. Aureus* and *Proteus Vulgaris* type bacteria, said polyurethane having an average molecular weight between 35,000 and 50,000, an ultimate elongation of 200 to 800 percent and a Shore A scale hardness of 60 to 95, said polyurethane being molded into said shaped medical article and thereafter being treated with a solution of iodine to increase the amount of iodine complexed at the linkage sites.

8. The method of producing the shaped form of claim 1, comprising shaping the said polyurethane and contacting the preformed shape with a solution of iodine.

4,381,381

HYDROCARBONACEOUS RESINS, METHOD FOR THEIR PREPARATION AND MEANS THEREFOR

Giuseppe Ferraris, and Sebastiano Cesca, both of San Donato Milanese, Italy, assignors to Anic S.p.A., Palermo, Italy

Continuation of Ser. No. 16,431, Mar. 1, 1979, abandoned. This application Oct. 15, 1980, Ser. No. 197,206

Claims priority, application Italy, Apr. 12, 1978, 22219 A/78

Int. Cl.[3] **C08F** *2/00, 110/00*

U.S. Cl. 526—75 **14 Claims**

1. A process for the preparation of hydrocarbonaceous resins from C_5 hydrocarbon fractions containing at least 22% by weight of cis-piperylene comprising passing a hydrocarbonaceous fraction exiting a steam-cracker to a dimerizer and subsequently to a plurality of distillation columns, separating said hydrocarbonaceous fraction into light components and heavy components, passing said heavy components through a rectification column, recovering as heads a fraction containing a high percentage of cis-piperylene and trans-piperylene, introducing the heads fraction into a polymerization reactor with butadiene and forming a copolymer of butadiene and transpiperylene, removing said copolymer and unreacted butadiene from the polymerization reaction and obtaining a C_5 hydrocarbon fraction enriched with at least 22% by weight of cis-piperylene, polymerizing the enriched C_5 hydrocarbon fraction in the presence of a catalyst selected from an aluminum halide of the formula AlX_3, wherein X is a halogen atom or an organic metallic compound of aluminum having the general formula:

$$R_mAlX_{3-m}$$

wherein X is a halogen atom, R is hydrogen or a monovalent alkyl, aryl, cycloalkyl, aralkyl, alkaryl, alkoxy or ester radical having from 1 to 12 carbon atoms and m is a number from 1 and 3, in a solvent selected from the group consisting of aromatic hydrocarbon solvents and aliphatic, halogen-substituted hydrocarbon solvents containing from 1 to 12 carbon atoms and obtaining a hydrocarbonaceous resin adhesive enriched with cis-piperylene having a softening point from below 20° C. up to 140° C.

4,381,382

POLYMERIZATION OF OLEFINS FROM CATALYSTS PREPARED FROM ORGANO ZIRCONIUM-CHROMIUM COMPOUNDS

Randall S. Shipley, Alvin, and Fred L. Vance, Lake Jackson, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jun. 1, 1981, Ser. No. 269,233

Int. Cl.[3] **C08F** *4/02, 10/00*

U.S. Cl. 526—97 **13 Claims**

1. A process for polymerizing one or more α-olefins which comprises conducting polymerization under Ziegler polymerization conditions in the presence of a catalyst which comprises

(A) the reaction product of

(1) at least one zirconium compound represented by the empirical formula $(RO)_mZrX_{4-m}$ wherein R is a monovalent hydrocarbyl group having from 1 to about 20 carbon atoms, X is chlorine or bromine and m has a value from 0 to 4; and

(2) an inorganic oxygen-containing chromium compound in a mole ratio of component (2) to component (1) of from about 0.05:1 to about 6:1;

(B) a solid catalyst support containing magnesium;

(C) a tetrahydrocarbyloxy titanium or titanium halide compound; and

(D) an organometallic activating agent;

wherein the Mg:Cr atomic ratio is from about 1:1 to about 200:1, the Al:Cr atomic ratio is from about 1:1 to about 250:1; the Cr:Ti atomic ratio is from about 0.1:1 to about 50:1; and the excess X:Al atomic ratio is from about 0.005 to about 10:1.

4,381,383

PROCESS FOR PRODUCING POLYOLEFINS

Masayoshi Hasuo, Yokohama; Yoshinori Suga, Machida; Masatoshi Suzuki, Fujisawa; Nobuaki Goko, and Yasuhiro Nishihara, both of Kurashiki, all of Japan, assignors to Mitsubishi Chemical Industries Limited, Tokyo, Japan

Filed Apr. 27, 1981, Ser. No. 257,602

Claims priority, application Japan, May 2, 1980, 55-59295

Int. Cl.[3] **C08F** *4/64, 10/04*

U.S. Cl. 526—142 **11 Claims**

1. A process for producing a highly stereoregular olefin polymer, comprising:

polymerizing an olefin in the vapor phase in the presence of a catalytic system composed of a (1) solid titanium trichloride containing material of the formula: $TiCl_3.(AlR'_pX_{3-p})_s.(C)t$ wherein R' is a hydrocarbon group of 1-20 carbon atoms, X represents halogen, p is a value of $0 \leqq p \leqq 2$, s is a value of no more than 0.15, C is a complexing agent and t is at least 0.001; (2) an organoaluminum compound of the formula:

$AlR_n^4Cl_{3-n}$ wherein R^4 is a C_1–C_{20} hydrocarbon group and n is a value of 1.95–2.10; (3) an aromatic hydrocarbon and (4) a monocarboxylic acid ester having an olefinic double bond or an aromatic ring in the molecule thereof, the molar ratio of the titanium trichloride: organoaluminum compound: aromatic hydrocarbon: monocarboxylic acid ester components ranging from 1:2–40:100–5000:0.05–2 in a hydrocarbon solvent.

4,381,384

CONTINUOUS POLYMERIZATION PROCESS

Ausat A. Khan, Newark, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 17, 1981, Ser. No. 293,333

Int. Cl.[3] **C08F** *2/00, 14/18*

U.S. Cl. 526—206 **12 Claims**

1. A continuous process for preparing tetrafluoroethylene homopolymer or copolymers of tetrafluoroethylene and at least one copolymerizable fluorinated ethylenically unsaturated comonomer which comprises feeding tetrafluoroethylene alone or with at least one said comonomer present in an

amount sufficient to produce a comonomer unit content in the copolymer of between 0.005 mole percent and 20 mole percent, into an aqueous polymerization medium containing a free radical initiator and 0.5-3.0 percent dispersing agent, based on weight of aqueous medium, in which the dispersing agent is (1) a mixture of compounds of the formula

$$F(CF_2{-}CF_2)_nCH_2{-}CH_2{-}Y$$

wherein n is a cardinal number of 2-8 and the average value of n is between 3 and 6, or (2) a compound of said formula wherein n is a cardinal number selected from between 2-6; and Y is $-SO_3M$ or $-OSO_3M'$ wherein M is a cation having the valence of 1 and M' is an alkali metal cation or ammonium.

4,381,385

PROCESS FOR THE PREPARATION OF POLYMERS AND COPOLYMERS BASED ON VINYL CHLOROFORMATE

Sylvie L. Boileau, Paris; Gilles F. Meunier, Boulogne Billancourt, and Sabine M. Journeau, Arpajon, all of France, assignors to Societe Nationale des Poudres et Explosifs, Paris, France

Filed Jan. 22, 1981, Ser. No. 227,483

Claims priority, application France, Feb. 7, 1980, 80 02651

Int. Cl.³ C08F *18/00*

U.S. Cl. 526—230.5 **14 Claims**

11. An essentially colorless, transparent copolymer consisting essentially of vinyl chloroformate and a vinylic monomer which is a member selected from the group consisting of acrylonitrile, methyl methacrylat, styrene, vinyl chloride and vinyl acetate which contains 0.5-50% of said chloroformate and 50-99.5% of said vinylic monomer, of number average molecular weight of 8000-100,000 which is prepared by reacting vinyl chloroformate and said vinylic monomer in the presence of an initiator which is an aliphatic or cycloaliphatic percarbonate and wherein said percarbonate has the formula:

$$R_1{-}O{-}\underset{\underset{O}{\|}}{C}{-}O{-}O{-}\underset{\underset{O}{\|}}{C}{-}O{-}R_2$$

in which R_1 and R_2 are the same or different and are a linear or branched alkyl containing from 3 to 8 carbon atoms or cyclohexyl and isolating said copolymer from the reaction mixture.

4,381,386

POLYMERIZABLE ADHESIVES CONTAINING BORON INITIATORS

Wolfgang Ritter, Düsseldorf, and Werner Gruber, Korschenbroich, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

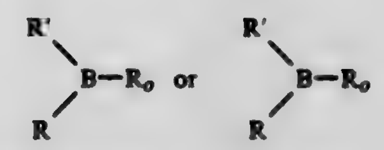
Filed Nov. 5, 1981, Ser. No. 318,444

Claims priority, application Fed. Rep. of Germany, Nov. 6, 1980, 3041843

Int. Cl.³ C08F *30/06, 130/06, 230/06*

U.S. Cl. 526—239 **6 Claims**

1. A two-component reaction adhesive consisting essentially of a polymerizable system hardenable at room temperature and containing polymerizable ethylenic double bonds and an amont sufficient to initiate polymerization of an organoboron compound with sterically hindering groups and containing at least one boron-carbon bond or one boron-hydrogen bond and having practically no spontaneous combustibility in air and having the formula:



wherein R' and R, separately or together, represent an aliphatic monocycle or dicycle with 3 to 25 carbon atoms and R_o is selected from the group consisting of hydrogen and linear or branched or cyclic hydrocarbon having from 3 to 15 carbon atoms.

4,381,387

QUATERPOLYMERS OF THE TETRAFLUOROETHYLENE/ETHYLENE TYPE

Reinhard A. Sulzbach, Burghausen, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Jun. 22, 1981, Ser. No. 275,888

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1980, 3024456; Apr. 14, 1981, 3115030

Int. Cl.³ C08F *18/20, 16/24, 14/18*

U.S. Cl. 526—247 **18 Claims**

1. A thermoplastic fluorine-containing quaterpolymer having a melting point between 245° and 280° C. measured as the minimum of the melting curve by differential thermal analysis and consisting essentially of copolymerized units, in mole percent, of

(a) from 55% to 30% tetrafluoroethylene,
(b) from 60% to 40% ethylene,
(c) from 10% to 1.5% hexafluoropropylene, and
(d) from 2.5% to 0.05% of a vinyl monomer selected from one of the classes consisting of
(d_1) perfluorinated olefins of the formula

$$CF_2{=}CF{-}Rf1$$

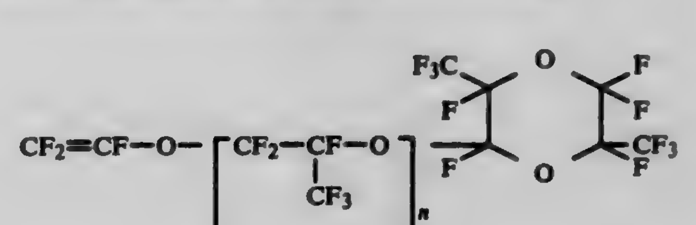
wherein RF1 is a perfluoroalkyl group having from 2 to 10 carbon atoms,
(d_2) perfluorinated vinyl ethers of the formula

$$CF_2{=}CF{-}O{-}Rf2$$

wherein Rf2 is a perfluoroalkyl group having from 2 to 10 carbon atoms,
(d_3) perfluorinated vinyl ethers of the formula

$$CF_2{=}CF{-}O{-}\left[CF_2{-}\underset{CF_3}{\underset{|}{CF}}{-}O\right]_n{-}CF_2{-}CF_2{-}CF_3$$

wherein n is an integer from 1 to 4,
(d_4) perfluorinated vinyl ethers of the formula



wherein n is 1 or zero,
(d_5) perfluoro-2-methylene-4-methyl-1.3-dioxolane,
(d_6) perfluorinated vinyl ethers of the formula

$$CF_2{=}CF{-}O{-}(CF_2)_n{-}COX_1$$

wherein X_1 is F, OH, OR_1, or NR_2R_3, R_1 is an alkyl group having from 1 to 3 carbon atoms, R_2 and R_3 each

are H or identical with R_1, and n is an integer from 1 to 10,

(d_7) perfluorinated vinyl ethers of the formula

$$CF_2{=}CF{-}O{-}\left[CF_2{-}\underset{\textstyle CF_3}{\underset{|}{C}F}{-}O\right]_n{-}CF_2{-}CF_2{-}X_2$$

wherein X_2 is $COOR_4$, COOH, or CN, R_4 is an alkyl group having from 1 to 4 carbon atoms, and n is an integer from 1 to 4,

(d_8) perfluoroalkyl-substituted vinyl compounds of the formula

$CH_2{=}CH{-}Rf3$

wherein Rf3 is a perfluoroalkyl group having from 2 to 10 carbon atoms,

(d_9) 1.1.1-trifluoro-2-(trifluoromethyl)-4-pentene-2-ol,

(d_{10}) allyl-2-hydroxyhexafluoroisopropyl ether,

(d_{11}) fluorinated allyl ethers of the formula

$CH_2{=}CR_5{-}CH_2{-}O{-}CF_2{-}CFX_3H$

wherein X_3 is F, Cl or trifluoromethyl, and R_5 is H or CH_3 and

(d_{12}) fluorinated vinyl ethers of the formula

$CH_2{=}CH{-}O{-}CF_2{-}CFX_3H$

wherein X_3 is F, Cl or trifluoromethyl.

4,381,388

STORAGE STABLE ONE COMPONENT URETHANES AND METHOD FOR USING SAME

Gerald Naples, Hamburg, N.Y., assignor to Textron Inc., Providence, R.I.

Filed Nov. 23, 1981, Ser. No. 323,719

Int. Cl.³ C08G *18/10*

U.S. Cl. 528—59 **26 Claims**

1. A storage stable, weather resistant, one-component air cured urethane composition which comprises a moisture activated curing agent and a polyisocyanate prepolymer, said moisture activated curing agent comprising an oxazolidine ring and said polyisocyanate prepolymer comprising at least two unreacted isocyanate groups and being the reaction product of a polyester polyol, a low molecular weight polyol having at least three hydroxy groups at an equivalent weight ratio of polyester polyol to low molecular weight polyol of from 0.25:1 to 5:1 and isophorone diisocyanate.

4,381,389

OPTICALLY ANISOTROPIC MELT FORMING COPOLYESTERS

Robert S. Irwin, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

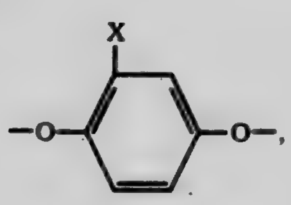
Filed Jul. 15, 1982, Ser. No. 398,563

Int. Cl.³ C08G *63/60*

U.S. Cl. 528—128 **9 Claims**

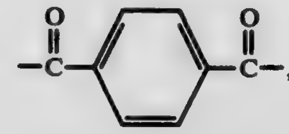
1. A copolyester consisting essentially of (a) Units I, II, III and IV or (b) Units I, II and III, said units having the structural formulas:

I

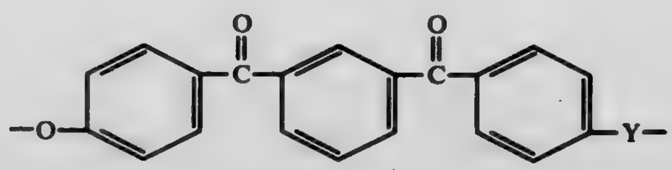


-continued

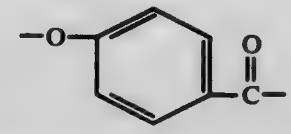
II



III



IV



where x is selected from the group consisting of hydrogen, halo-, lower alkyl, and aryl, Y is selected from the group consisting of oxygen and carbonyl and wherein said copolyesters consisting essentially of Units I, II, III and IV contain from about 10 to 15 mole % of Unit I, from about 10 to 20 mole % of Unit II, from about 10 to 15 mole % of Unit III and from about 50 to 70 mole % of Unit IV; and wherein said copolyesters consisting essentially of Units I, II and III contain from about 40 to 45 mole % of Unit I, from about 40 to 50 mole % of Unit II and from about 10 to 15 mole % of Unit III.

4,381,390

THERMOPLASTIC POLYPHOSPHONATOPHENYL ESTER CARBONATE FROM ARYLOXYCARBONYLOXY-BENZOIC ACID ARYL ESTER AND PREPARATION THEREOF

Manfred Schmidt, New Martinsville, W. Va., and Ludwig Bottenbruch, Krefeld, Fed. Rep. of Germany, assignors to Mobay Chemical Corporation, Pittsburgh, Pa. and Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 15, 1981, Ser. No. 311,360

Int. Cl.³ C08G *63/32*

U.S. Cl. 528—167 **7 Claims**

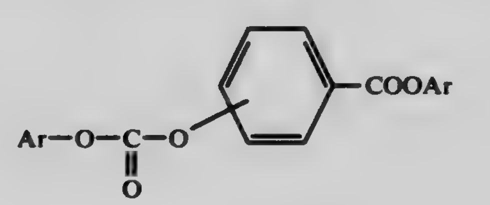
1. A process for the preparation of thermoplastic aromatic polyphosphonatophenyl ester carbonates comprising

(i) reacting a hydroxy benzoic acid with a molar excess of diaryl carbonate of the structure

$$Ar{-}O{-}\underset{\underset{\textstyle O}{\|}}{C}{-}O{-}Ar$$

wherein Ar is an aryl radical, in the presence of an alkaline or neutral transesterification catalyst, to obtain a aryloxycarbonyloxybenzoic acid aryl ester of the structure

(1)



wherein Ar is as defined above, and

(ii) transesterifying said (1) with phosphonic acid diaryl ester of the structure

$$Ar'{-}O{-}\overset{\overset{\textstyle O}{\|}}{\underset{\underset{\textstyle R}{|}}{P}}{-}O{-}Ar' \quad (2)$$

wherein Ar'is a substituted or an unsubstituted aromatic

radical and R is selected from the group consisting of at least one of C_1–C_{12} alkyl, C_2–C_{12} alkenyl, C_6–C_{30} cycloalkenyl, C_6–C_{30} aryl, C_7–C_{30} arylalkyl or C_8–C_{30} arylalkenyl and (3) a diphenol reactant in continuous contact with said catalyst, at a temperature of about 80° to 400° C. under vacuum, with the proviso that the molar amount of said diphenol equals the total molar amount of said (1) and said (2).

4,381,391
INTERFACIAL PROCESS FOR PREPARING POLYAROMATIC ESTERS
Paul Y. Chen, Dayton, Ohio, and Carl S. Marvel, Tucson, Ariz., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Mar. 3, 1981, Ser. No. 239,961
Int. Cl.³ C08G *63/24*
U.S. Cl. 528—173 **12 Claims**

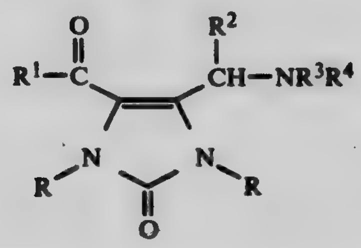
1. A process for synthesizing polyaromatic esters which comprises the steps of (A) forming a reaction mixture composed of equi-molar proportions of (1) a mixture 2,2′-diiododiphenyl-4,4′-dicarbonyl dichloride, isophthaloyl chloride, and terephthaloyl chloride; and (2) a dihydric phenol selected from the group consisting of 4,4′-isopropylidenediphenol, 4,4′-sulfonyldiphenol and resorcinol; (B) effecting a two-phase condensation reaction between said (1) and (2) to form a reaction product; and (C) separating the resultant reaction product.

4,381,392
METHOD FOR REMOVING CHLORINATED SOLVENTS FROM CHLORINATED POLYMERS
Enrico Pontoglio, Brescia, Italy, assignor to Caffaro S.p.A., Milan, Italy
Continuation of Ser. No. 78,510, Sep. 24, 1979, abandoned. This application Mar. 24, 1981, Ser. No. 247,206
Claims priority, application Italy, Oct. 2, 1978, 28330 A/78; Oct. 2, 1978, 51322 A/78
Int. Cl.³ C08F *6/00, 6/12*
U.S. Cl. 528—493 **9 Claims**

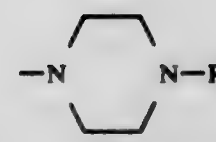
1. A method for removing chlorinated solvents contained in chlorinated polymers comprising treating said chlorinated polymer in dry powder form with an inert gas saturated with acetone vapour.

4,381,393
4-AMINOMETHYL-5-ACYL-1,3-DIHYDRO-2H-IMIDAZOL-2-ONES
J. Martin Grisar; Richard A. Schnettler, and Richard C. Dage, all of Cincinnati, Ohio, assignors to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio
Filed May 4, 1981, Ser. No. 260,446
Int. Cl.³ C07D *403/00, 401/00, 233/30*
U.S. Cl. 544—370 **10 Claims**

1. A compound of the formula



wherein R is hydrogen, lower alkyl of 1–4 C, lower alkanoyl of 2–4 C, or benzoyl; R^1 is lower alkyl of 1–4 C, phenyl, halophenyl, methylphenyl, methoxyphenyl, methylsulfonylphenyl, dimethylaminophenyl, dimethoxyphenyl, 3,4-methylenedioxyphenyl, 2-furyl, 2-thienyl or pyridyl; R^2 is hydrogen or lower alkyl of 1–4 C; and —NR^3R^4 is (lower alkyl)$_2$amino, 1-pyrrolidinyl, 1-piperidinyl, 4-morpholinyl,



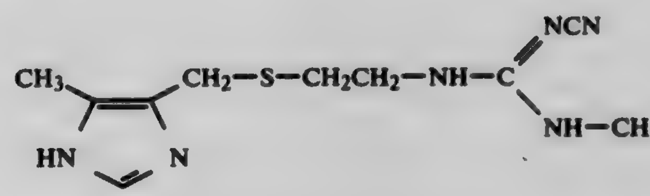
wherein R^6 is lower alkyl of 1–4 C, phenyl, halophenyl, methylphenyl, methoxyphenyl or trifluoromethylphenyl; and the pharmaceutically acceptable acid addition salts and the lower alkyl quarternary ammonium salts of the aforesaid compounds.

4,381,394
6,7-DICHLORO-2-[(METHYL-2-PYRROLIDYLIDENE)AMINO]-4-THIOCYANATOBENZOTHIAZOLE
Robert J. Alaimo, Norwich, N.Y., assignor to Norwich Eaton Pharmaceuticals, Inc., Norwich, N.Y.
Filed Mar. 29, 1982, Ser. No. 362,898
Int. Cl.³ C01D *31/425;* **A61K** *417/02*
U.S. Cl. 548—161 **1 Claim**

1. The compound 6,7-dichloro-2-[(1-methyl-2-pyrrolidylidene)amino]-4-thiocyanatobenzothiazole.

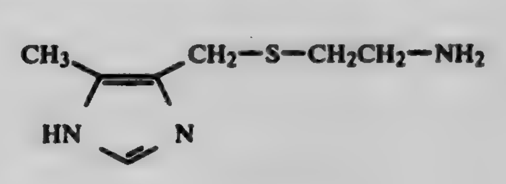
4,381,395
PROCESS FOR PREPARING AN IMIDAZOLE DERIVATIVE
Tsutomu Teraji, Osaka; Yoshiharu Nakai, Otsu, both of Japan, and Graham J. Durant, Welwyn, England, assignors to SK & F Lab Co., Carolina, P.R.
Filed Apr. 3, 1981, Ser. No. 250,796
Int. Cl.³ C07D *233/64*
U.S. Cl. 548—342 **2 Claims**

1. A process for preparing an imidazole derivative of the formula:

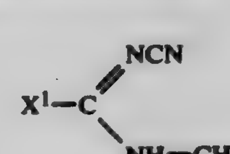


which comprises

(1) reacting a compound of the formula:

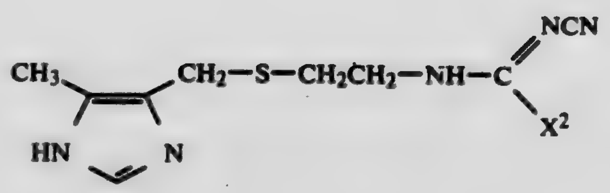


with a compound of the formula:



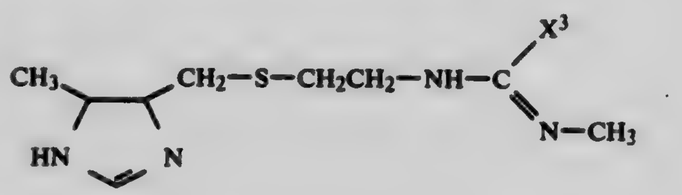
wherein X^1 is an aromatic 5-membered N-containing heterocycle-N-yl or a group of the formula: —$S(O)_n$—Z in which Z is hydroxy or alkyl, and n is 1 or 2, provided that X^1 is not a pyrazolyl ring; or

(2) reacting a compound of the formula:



wherein X^2 is cyanamide, an aromatic 5-membered N-containing heterocycle-N-yl or a group of the formula: —S-(O)$_n$—Z in which Z is hydroxy or alkyl, and n is 1 or 2, provided that X^2 is not a pyrazolyl ring, with methylamine; or

(3) reacting a compound of the formula:



wherein X^3 is a group of the formula:

—S(O)$_n$—Z in which Z is hydroxy or alkyl, and n is 1 or 2,

with cyanamide or a salt thereof.

4,381,396

SILYNORBORNANE ANHYDRIDES AND METHOD FOR MAKING

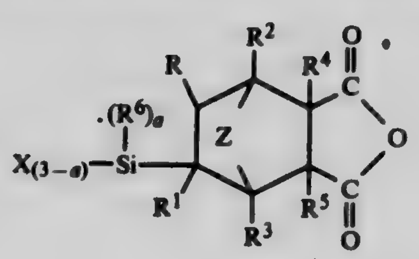
Hong-Son Ryang, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jul. 7, 1982, Ser. No. 395,932

Int. Cl.^{3} C07D *307/89, 307/93*

U.S. Cl. 549—237 **18 Claims**

1. Silylnorbornane anhydrides of the formula



where R-R^5 are members selected from hydrogen, halogen, $C_{(1-13)}$ monovalent hydrocarbon radicals and substituted monovalent hydrocarbon radicals, Z is selected from —O— and C—$(R)_2$, R^6 is a member selected from monovalent hydrocarbon radicals and substituted monovalent hydrocarbon radicals, and X is a member selected from the class consisting of,

(a) a hydrolyzable radical selected from the class consisting of halo, hydrogen, $C_{(1-8)}$ alkoxy, acyloxy, —N$(R^7)_2$, cyano, hydrogen, amido, carbamato, enoxy, imidato, isocyanato, oximato, isocyanate, oximato, thioisocyanato and ureido,

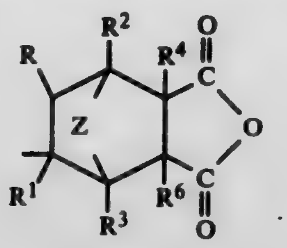
(b) siloxanes having the formula,

$$\begin{array}{c}(R^6)_b\\ |\\ (Y)_c\text{—SiO}_{\frac{4-(b+c)}{2}}\end{array} \text{ and}$$

(c) polysiloxanes having the formula,

$$\begin{array}{ccc} & Y^1 & Y^1\\ & | & |\\ Y\text{—} & (\text{SiO})_n\text{—} & \text{SiO}_{.5},\\ & | & |\\ & Y^1 & Y^1\end{array}$$

R^7 is selected from monovalent hydrocarbon radicals and Y is selected from a radical having the formula,



and (a) radicals, Y^1 is selected from R^6 radicals, Y radicals and mixtures thereof, a is a whole number equal to 0 to 3 inclusive, b is a whole number equal to 0 to 3 inclusive; c is a whole number equal to 0 to 3 inclusive, the sum of b+c is equal to 0 to 3 inclusive and n is an integer equal to 1 to 2000 inclusive.

4,381,397

METHOD FOR SYNTHESIZING TRIOXANE

Koichi Yoshida; Toshiyuki Iwaisako; Junzo Masamoto; Katsuhiko Hamanaka, all of Fuji, and Hajime Komaki, Kamakura, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Feb. 11, 1981, Ser. No. 233,414

Claims priority, application Japan, Feb. 22, 1980, 55-21988

Int. Cl.^{3} C07D *323/06*

U.S. Cl. 549—368 **4 Claims**

1. A method of synthesizing trioxane which comprises heating formaldehyde at a temperature from 60° to 200° C. in the presence of an aqueous solution of a heteropolyacid selected from the group consisting of tungstosilicic acid, tungstophosphoric acid and mixtures of these acids.

4,381,398

AMINO-ALCOHOL DERIVATIVES

Hiroshi Takizawa; Yoshimasa Oiji, and Kazuhiro Kubo, all of Shizuoka, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Mar. 18, 1980, Ser. No. 131,490

Claims priority, application Japan, Mar. 20, 1979, 54-31750

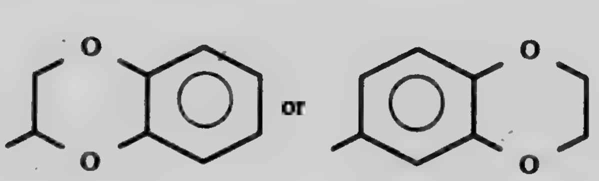
Int. Cl.^{3} C07D *317/44*

U.S. Cl. 549—366 **13 Claims**

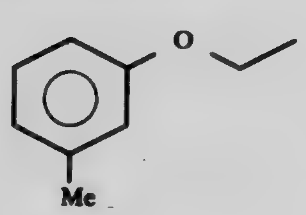
1. A compound of the formula

$$\begin{array}{ccccccc} & & \text{OH} & & & & R_1\\ & & | & & & & |\\ R_4 & \text{—} & \text{CH} & \text{—CH}_2\text{—} & \text{NH} & \text{—} & \text{CH}_2\end{array}$$

wherein R_1 represents



and R_4 represents



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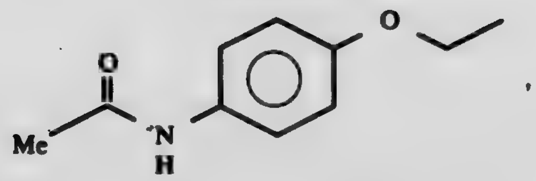
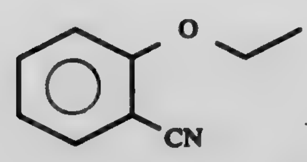
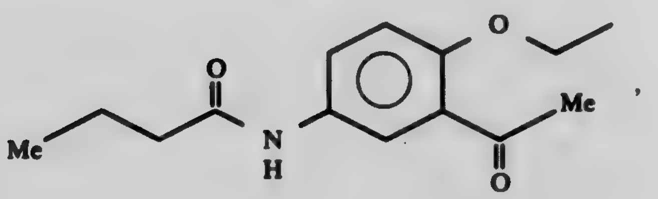
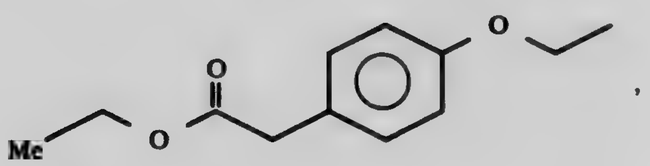
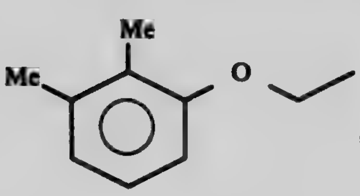
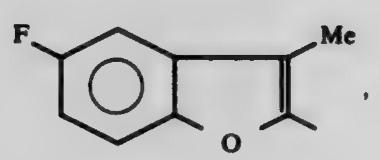


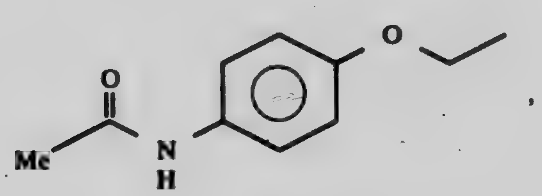


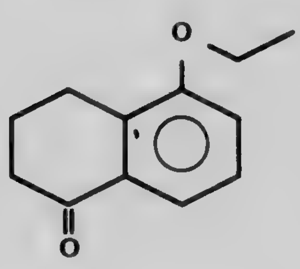




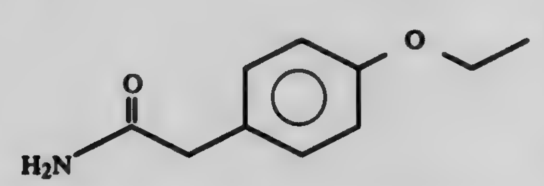








or



wherein Me represents a methyl group, and the pharmaceutically acceptable acid addition salts thereof.

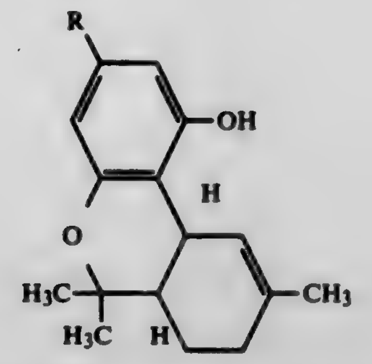
4,381,399

PURIFICATION OF TETRAHYDRODIBENZO[B,D]PYRANS FROM CRUDE SYNTHETIC MIXTURES

Robert E. Olsen, Placerville, and Stephen J. Backlund, Fair Oaks, both of Calif., assignors to Aerojet-General Corporation, LaJolla, Calif.

Filed Dec. 21, 1981, Ser. No. 332,644
Int. Cl.³ C07D *311/80*
U.S. Cl. 549—390 16 Claims

1. A process for the isolation of a compound of the formula:



in which R is hydrogen or C_1–C_{10} alkyl from a crude synthetic mixture, comprising the steps of:

(a) esterifying at least a portion of the components of said mixture to form perfluorinated alkanoic acid esters thereof,

(b) removing low-boiling components and non-volatile components from said mixture,

(c) passing said mixture through a first preparative gas chromatographic column containing a packing consisting essentially of a slightly polar phenyl-substituted silicone oil on a porous, inert solid support to separate said mixture into a plurality of substantially discrete portions, and recovering therefrom the portion containing the highest proportion of the perfluorinated alkanoic acid ester of said compound, or a substantial fraction of said portion,

(d) passing said recovered portion or fraction through a second preparative gas chromatographic column containing a packing consisting essentially of a non-phenyl-substituted silicone oil on a porous, inert solid support to further separate said portion or fraction into a plurality of substantially discrete subportions, and recovering therefrom the subportion containing the highest proportion of the perfluorinated alkanoic acid ester of said compound, or a substantial subfraction of said subportion,

(e) hydrolyzing said recovered subportion or subfraction to convert the perfluorinated alkanoic ester moieties contained therein to hydroxyl groups, and

(f) recovering said compound from said hydrolyzed subportion or subfraction.

4,381,400

PROCESS FOR THE SYNTHESIS OF ISOSORBIDE MONONITRATES

Jean-Marie Emeury, and Eric Wimmer, both of Sorgues, France, assignors to Societe Nationale Des Poudres et Explosifs, Paris, France

Filed Feb. 16, 1982, Ser. No. 349,073
Claims priority, application France, Feb. 27, 1981, 81 03906
Int. Cl.³ C07D *493/04*
U.S. Cl. 549—464 12 Claims

1. Process for the synthesis of isosorbide mononitrates, characterised in that isosorbide dinitrate is denitrated by means of a hydrazine derivative, in a polar solvent medium.

4,381,401

AMINOETHYLATION PROCESS

Graham S. Poindexter, Evansville, Ind., assignor to The Dow Chemical Company, Midland, Mich.

Filed Oct. 9, 1981, Ser. No. 309,959
Int. Cl.³ C07C *85/00*
U.S. Cl. 556—410 5 Claims

1. A process for preparing 1,2-ethanediamines of the formula

$$R_3\text{-}(NR_1CH_2CH_2NHR_2)_n$$

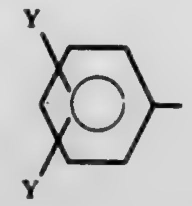
where

n is one or two;

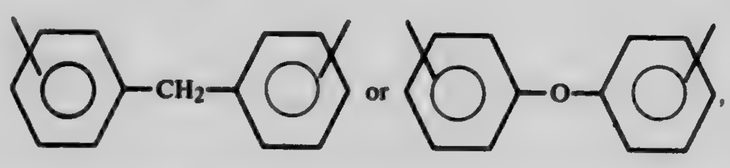
R_1 is hydrogen or C_{1-20} hydrocarbyl;

R_2 is hydrogen, C_{1-20} alkyl, C_{1-20} hydroxyalkyl, $R_1C(O)$—,

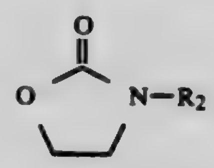
$R_1OC(O)$—, R_1SO_2—, $(R_1)_3Si$—, $(R_1)_3P$, $(R_1O)_2P(O)$—, or $(R_1O)_3P$—; and
when n is 1, then R_3 is



wherein Y independently each occurrence is selected from the group consisting of halogen, amino, R_1 and R_1X— where X is oxygen or sulfur; and
when n is 2, then R_3 is:



comprising contacting 2-oxazolidinone or a derivative thereof having the formula



where R_2 is as previously defined, with the hydrochloride derivative of an aromatic amine or diamine of the formula:

R_3—$NR_1H)_n$.n(HCl),

where n, R_1 and R_3 are as previously defined, at a temperature of from about 140° C. to about 250° C. for a time sufficient to form substantial amounts of the corresponding 1,2-ethanediamine hydrochloride salt and thereafter contacting with base.

4,381,402
STEVIOL COMPOUNDS
Grant E. DuBois, Palo Alto, Calif., assignor to Dynapol, Palo Alto, Calif.
Division of Ser. No. 189,243, Sep. 22, 1980, Pat. No. 4,332,830. This application Dec. 17, 1981, Ser. No. 331,810
Int. Cl.[3] **C07C** *69/753, 69/74*
U.S. Cl. 560—6 **2 Claims**

2. A physiologically acceptable alkali metal salt of 13-O-sulfopropyl steviol.

4,381,403
PROCESS FOR THE PREPARATION OF N-MONOSUBSTITUTED CARBAMIC ACID ESTERS
Samuel J. Falcone, West Chester, and John J. McCoy, Media, both of Pa., assignors to Atlantic Richfield Company, Los Angeles, Calif.
Filed Mar. 31, 1980, Ser. No. 135,946
Int. Cl.[3] **C07C** *125/065, 125/073*
U.S. Cl. 560—24 **21 Claims**

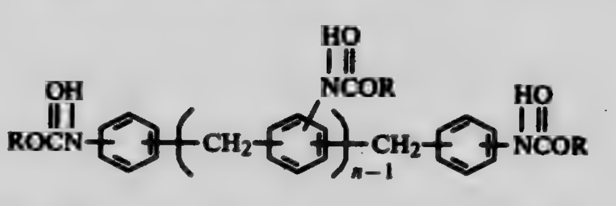
1. A process for the preparation of an N-monosubstituted carbamic acid ester which comprises reacting an unsubstituted carbamic acid ester having the formula NH_2CO_2R wherein R is a straight or branched chain alkyl group containing from 1 to 10 carbon atoms, with an aromatic primary amine having the formula $R'(NH_2)n$ wherein R' is a substituted or unsubstituted aryl or aralkyl group containing one or more benzenoid rings which may be fused or joined by single valency bonds and n is an integer of 1 to 6, at a temperature in the range of from about 125° C. to 250° C. in the presence of a monohydric aliphatic alcohol having from 1 to 10 carbon atoms and a catalytic amount of from about 0.01 to 30 mole percent based on the aromatic primary amine employed of a tertiary amine which may be an aliphatic, cycloaliphatic, aryliphatic or aromatic amine containing from 1 to 18 carbon atoms.

4,381,404
PROCESS FOR THE PRODUCTION OF N,O-DISUBSTITUTED URETHANES AND USE THEREOF AS STARTING MATERIALS FOR THE PRODUCTION OF ORGANIC ISOCYANATES
Hans-Josef Buysch; Heinrich Krimm, and Wolfgang Richter, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Sep. 28, 1981, Ser. No. 306,070
Claims priority, application Fed. Rep. of Germany, Oct. 1, 1980, 3036966
Int. Cl.[3] **C07C** *125/065, 125/073*
U.S. Cl. 560—24 **6 Claims**

1. A process for the production of N,O-disubstituted urethanes comprising reacting N-mono or N,N'-disubstituted ureas or linear polyureas with aliphatic carbonic esters in the presence of inorganic or organic compounds of aluminum, lead, magnesium, titanium, tin, zinc or zirconium as catalyst.

4,381,405
PROCESS FOR THE PREPARATION OF POLYMETHYLENE POLYPHENYL POLYISOCYANATE COMPOSITION
Koichi Takeuchi, and Katsuharu Miyata, both of Yokohama, Japan, assignors to Mitsui Toatsu Chemicals, Incorporated, Tokyo, Japan
Filed Dec. 1, 1980, Ser. No. 212,022
Claims priority, application Japan, Dec. 5, 1979, 54-156919
Int. Cl.[3] **C07C** *125/06, 69/00;* **C08G** *18/76*
U.S. Cl. 560—25 **6 Claims**

1. A process for the preparation of a polymethylene polyphenyl polyisocyanate composition, which is comprised of polymethylene polyphenyl polyisocyanates, at least a part of the isocyanate groups contained therein being substituted by carbamate groups, or a mixture of polymethylene polyphenyl polyisocyanates having the substituted carbamate groups and polymethylene polyphenyl polyisocyanates not having any carbamate groups, the amount of the carbamate groups in said composition being 0.1 to 10 percent by mole based on the amount of the isocyanate groups in said composition, comprising subjecting a mixture of polymethylene polyphenyl carbamic acid esters having the formula:



wherein R represents a lower alkyl group having 1 to 4 carbon atoms and n repesents an integer of one or more, to thermal decomposition reaction at 200° to 350° in an organic solvent having a boiling point of up to 300° C. under atmospheric pressure to such an extent that 0.1 to 10 percent by weight of alkoxycarbonylamino group remains unreacted.

4,381,406

PROCESS FOR MAKING ALLYLIC ESTERS OF TETRACHLOROPHTHALIC ACID

Joseph H. Finley, Metuchen, N.J., assignor to FMC Corporation, Philadelphia, Pa.

Filed Sep. 18, 1981, Ser. No. 303,648

Int. Cl.³ C07C *67/00, 67/08*

U.S. Cl. 560—83 **17 Claims**

1. The method of producing a diallylic ester of tetrachlorophthalic acid comprising the steps of:
   (a) forming a salt of the monoallylic ester of tetrachlorophthalic acid by reacting tetrachlorophthalic anhydride with
      (i) a sufficient excess of allylic alcohol, over the amount to form the said monoallylic ester, to comprise at least part of a solvent to maintain in solution or suspension the said salt formed in (a), and
      (ii) a sufficient amount of a base to form said salt,
   (b) adding to the product of step (a) a sufficient amount of an allylic halide to convert the salt of the monoallylic ester to the diester of tetrachlorophthalic acid and heating to accelerate the reaction,
   (c) cooling the solution produced in step (b) to crystallize the said allylic diester of tetrachlorophthalic acid from solution, and
   (d) separating the thus-created allylic diester of tetrachlorophthalic acid from the remaining solvent.

4,381,407

PROCESS FOR THE CONTINUOUS PRODUCTION OF TRIACETIN

Norbert Bremus, Langenfeld; Gerhard Dieckelmann, Hilden; Lutz Jeromin, Düsseldorf-Holthausen; Wolfgang Rupilius, Düsseldorf-Urdenbach, and Hartwig Schütt, Düsseldorf-Benrath, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Jan. 26, 1981, Ser. No. 228,452

Claims priority, application Fed. Rep. of Germany, Feb. 8, 1980, 3004660

Int. Cl.³ C07C *67/08, 67/54, 69/18*

U.S. Cl. 560—263 **10 Claims**

1. A process for the continuous production of triacetin consisting essentially of continuousy charging liquid glycerol into a first liquid reaction area through which acetic acid vapors and water vapors flow, said liquid reaction area being divided into a number of separate individual areas through which liquid glycerol and liquid acetin reaction products flow in one direction and gaseous acetic acid and water flow in a countercurrent direction, continuously charging acetic acid vapor to a separate individual area where said liquid mixture has an OH number of less than 600, said liquid reaction areas being maintained at a pressure of from 0.2 to 30 bar and a temperature of from 100° to 250° C., the number of said separate individual areas and the amount of liquid glycerol and gaseous acetic acid charged being so selected that the total contact time of the reactants is at least one hour, continuously separating a liquid mixture of acetins and water having an OH number of less than 600, continuously passing said liquid mixture into a second liquid reaction area, continuously adding thereto liquid acetic acid anhydride in an amount sufficient to react with water dissolved in said liquid mixture to form acetic acid and to react with monoacetin and diacetin present to form triacetin, continuously recoverng triacetin, continuously passing vaporized acetic acid formed into said separate individual area where said liquid mixture has an OH number of less than 600, and continuously recovering a mixture of water vapors and acetic acid vapors having a content after condensation of less than 3% by weight of acetic acid.

4,381,408

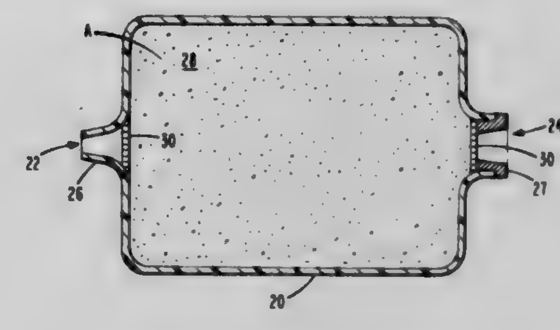
METHOD AND APPARATUS FOR EXTRACTION OF AIRBORNE AMINE COMPOUNDS

David P. Rounbehler, Concord, and John W. Reisch, Brookline, both of Mass., assignors to Thermo Electron Corporation, Waltham, Mass.

Continuation of Ser. No. 61,552, Jul. 27, 1979, Pat. No. 4,249,904. This application Dec. 1, 1980, Ser. No. 225,285

Int. Cl.³ G01N *31/06, 31/08*

U.S. Cl. 564—112 **3 Claims**



1. Method of extracting amine compounds and nitrosamine compounds from an air sample for quantitative analysis without loss due to formation of nitrosamine artifacts comprising the successive steps of:
   A. passing said sample through a first port, a first interior zone, a second zone, and a second port of a cartridge in succession, said first interior zone containing an air pervious packing of a first granular, solid-phase amine complexing agent and said second zone containing an air pervious packing of a mixture of a second granular, solid-phase amine complexing agent and a particulate sorbent adapted to extract and concentrate nitrosamines from air; and
   B. passing an eluent through said second port, said second interior zone, said first interior zone, and said first port in succession, said eluent being a solvent for amine compounds, nitrosamines, and said amine complexing agents.

4,381,409

PROCESS FOR THE PRODUCTION OF 2,4-DINITROANILINES

Istvan Toth, Bottmingen, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Filed Sep. 14, 1981, Ser. No. 301,979

Claims priority, application Fed. Rep. of Germany, Sep. 18, 1980, 3035140

Int. Cl.³ C07C *85/04*

U.S. Cl. 564—406 **12 Claims**

1. In a process for the production of 2,4-dinitroaniline by reacting 1-chloro-2,4-dinitrobenzene with ammonia, the improvement which comprises adding the ammonia to melted 1-chloro-2,4-dinitrobenzene in such dosages that the temperature of the reaction mixture does not exceed 120° C. and the pressure does not exceed 2 bar..

4,381,410

α,β-UNSATURATED ALDEHYDES AND THEIR USE AS FLAVOR-MODIFYING INGREDIENTS

Wilhelm Pinkenhagen, Chavannes-des-Bois, Switzerland, assignor to Firmenich SA, Geneva, Switzerland

Division of Ser. No. 73,466, Sep. 7, 1979. This application Feb. 5, 1981, Ser. No. 231,791

Claims priority, application Switzerland, Sep. 14, 1978, 9632/78

Int. Cl.³ C07C *47/21*

U.S. Cl. 568—448 **1 Claim**

1. An α,β-unsaturated aldehyde selected from the group consisting of:

2,5-dimethyl-oct-2-en-1-al,

2,5-dimethyl-hept-2-en-1-al and

2-ethyl-7-methyl-oct-2-en-1-al.

4,381,411

PRODUCTION OF METHACROLEIN FROM ISOBUTYRALDEHYDE UTILIZING PROMOTED IRON PHOSPHORUS OXIDE CATALYSTS

S. Erik Pedersen, Mentor, and Louis F. Wagner, Solon, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Jun. 22, 1981, Ser. No. 276,312

Int. Cl.³ C07C *45/32*

U.S. Cl. 568—459 **12 Claims**

1. A process for the production of methacrolein comprising contacting isobutyraldehyde with molecular oxygen or an oxygen containing gas in the vapor phase at a reaction temperature of about 250° C. to about 600° C. in the presence of a catalyst having the empirical formula

$$A_aFe_bP_cO_x$$

wherein

A is selected from the group Ag, Al, Be, Cd, Co, Cr, Cu, Ga, Ge, In, Mn, Ni, Te, Th, Ti, Tl, U, V, Zn, Zr, rare earths and mixtures thereof and wherein

a is about 0.01 to about 2.0

b is about 0.5 to about 2.0

c is about 1.0 to about 3.5 and

x is the number of oxygens needed to satisfy the valence requirements of the remaining elements.

4,381,412

4-FLUORO-3-PHENOXY-BENZYL ETHERS

Rainer Fuchs; Fritz Maurer, both of Wuppertal; Uwe Priesnitz, Unna-Massen; Hans-Jochem Riebel, Wuppertal, and Erich Klauke, Odenthal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

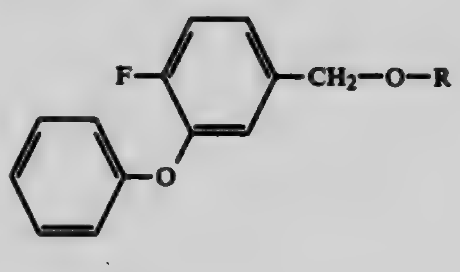
Division of Ser. No. 173,544, Jul. 30, 1980, Pat. No. 4,326,087. This application Aug. 4, 1981, Ser. No. 289,854

Claims priority, application Fed. Rep. of Germany, Aug. 22, 1979, 2933985

Int. Cl.³ C07C *43/29*

U.S. Cl. 568—637 **1 Claim**

1. A 4-fluoro-3-phenoxy-benzyl ether of the formula



in which

R is phenyl or benzyl.

4,381,413

PROCESS FOR CONVERTING ANISOLES TO ORTHO-METHYLATED PHENOLIC PRODUCTS

John R. Dodd, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Filed Jul. 24, 1981, Ser. No. 286,501

Int. Cl.³ C07C *39/04*

U.S. Cl. 568—716 **9 Claims**

1. A process for converting a feedstock comprising methoxybenzene, o-methylmethoxybenzene, 2,6-dimethylmethoxybenzene, or mixtures thereof, to a product mixture containing o-cresol and 2,6-xylenol in high selectivity, said process comprising passing the feedstock in vapor phase over an effective amount of gamma-alumina in the presence of an effective amount of water at a temperature in the range of about 225° to about 295° C., said process being characterized further in that the amount of water, based on the feedstock, is in the range of about 0.5 to about 10 weight percent.

4,381,414

FUEL HAVING REDUCED TENDENCY TO PARTICULATE DISSEMINATION UNDER SHOCK

David L. Beach, Gibsonia, and Charles M. Selwitz, Monroeville, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed May 6, 1981, Ser. No. 261,256

Int. Cl.³ C10L *1/04*

U.S. Cl. 585—10 **5 Claims**

1. A fuel having reduced tendency to particulate dissemination under shock comprising a liquid hydrocarbon jet aviation fuel of flash point at least 90° F. containing dissolved atactic polypropylene carrying methyl groups randomly disposed spatially along its backbone, with an average of about one methyl group for each two carbon atoms on said backbone, and having an intrinsic viscosity of at least about three deciliters per gram.

4,381,415

PROCESS FOR DEALKYLATING AROMATIC HYDROCARBONS IN THE PRESENCE OF STEAM

Philippe Courty, Houilles, France; Georgy L. Rabinovich, Leningrad; Victor N. Mojaiko, Otradnoe, both of U.S.S.R., and Jean-Francois LePage, Rueil Malmaison, France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Division of Ser. No. 206,408, Nov. 12, 1980, Pat. No. 4,340,509. This application Apr. 14, 1982, Ser. No. 368,177

Claims priority, application France, Nov. 12, 1979, 79 28029

Int. Cl.³ C07C *4/12*

U.S. Cl. 585—487 **20 Claims**

1. In a process for dealkylating, in the presence of steam, at least one alkyl aromatic hydrocarbon, the improvement which comprises conducting the process in the presence of a catalyst containing (a) an alumina carrier and, by weight with respect to the catalyst, (b) from 0.1 to 2% of rhodium, (c) from 0.05 to 2% of at least one metal from group I B of the periodic classification of elements, selected from copper, silver and gold, (d) from 0.05 to 2% of rhenium and (e) from 0.02 to 5% of at least one additional metal selected from lithium, sodium, potassium, rubidium, cesium, beryllium, magnesium, calcium, strontium, barium and uranium.

4,381,416

PROCESS FOR PRODUCING ISOPRENE

Susao Kyo; Tumoru Renge, and Katsumi Omura, all of Hasaki, Japan, assignors to Kuraray Co., Ltd., Okayama, Japan

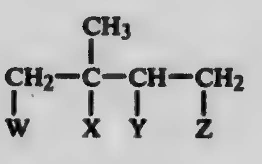
Filed Dec. 1, 1980, Ser. No. 211,712

Claims priority, application Japan, Dec. 4, 1979, 54-157866

Int. Cl.³ C07C *1/24, 11/18*

U.S. Cl. 585—606 **14 Claims**

1. A process for producing isoprene, which comprises decomposing a mixture of at least two compounds represented by the general formula



(I)

wherein (i) W and Y each represent a hydrogen atom, and X and Z are identical or different and each represent the group OR, (ii) W and X together form a single bond, Y represents a hydrogen atom and Z represents the group OR, (iii) W represents a hydrogen atom, X and Y together form a single bond, and Z represents the group OR, or (iv) W represents a hydrogen atom, X represents the group OR, and Y and Z together form a single bond, in which R represents a hydrogen atom, a methyl group, a methoxymethyl group, a methylbutenyl

group, a methylbutenyloxymethyl group, a 1,1-dimethyl-3-hydroxypropyl group, a 1,1-dimethyl-3-hydroxypropyloxymethyl group, a 3-methyl-3-hydroxybutyl group, a 3-methyl-3-hydroxybutyloxymethyl group, a 1,1-dimethyl-3-methoxypropyl group, a 1,1-dimethyl-3-methoxypropyloxymethyl group, a 3-methyl-3-methoxybutyl group or a 3-methyl-3-methoxybutyloxymethyl group,

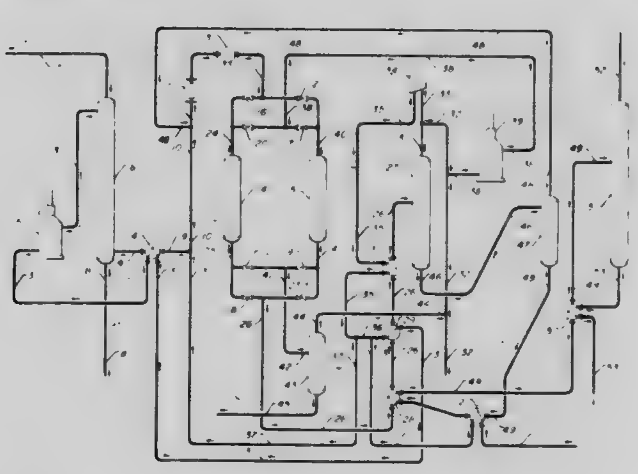
and which contains both at least one formal linkage-free compound of general formula (I) in which R is a hydrogen atom, a methyl group, a methylbutenyl group, a 1,1-dimethyl-3-hydroxypropyl group, a 3-methyl-3-hydroxybutyl group, a 1,1-dimethyl-3-methoxypropyl group or a 3-methyl-3-methoxybutyl group and at least one formal linkage-containing compound of the general formula (I) in which R is a methoxymethyl group, a methylbutenyloxymethyl group, a 1,1-dimethyl-3-hydroxypropyloxymethyl group, a 3-methyl-3-hydroxybutyloxymethyl group, a 1,1-dimethyl-3-methoxypropyloxymethyl group or a 3-methyl-3-methoxybutyloxymethyl group, in the presence of water and an oxygen-containing boron compound selected from the group consisting of boron-oxyacids and boron compounds capable of generating the boron-oxyacids in situ, in the liquid phase at a temperature of at least 150° C. while adjusting the ratio of the oxygen-containing boron compound to the entire water present in the reaction system such that the weight ratio of orthoboric acid to water, calculated on the assumption that all the oxygen-containing boron compound changes in aqueous solution to orthoboric acid, is at least maintained at 15:85.

4,381,417

CATALYTIC DEHYDROGENATION PROCESS

Bipin V. Vora, Elk Grove Village; Dennis E. O'Brien, and Norman H. Scott, both of Arlington Heights, all of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Dec. 4, 1981, Ser. No. 327,655
Int. Cl.³ C07C *5/36*
U.S. Cl. 585—655 8 Claims



1. A catalytic dehydrogenation process which comprises the steps of:

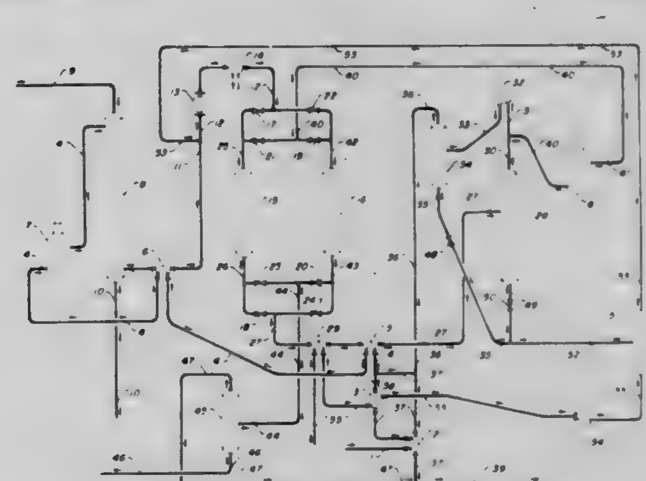
(a) charging a C_2–C_6 paraffinic hydrocarbon into a reaction zone in admixture with hydrogen and contacting said mixture therein with a dehydrogenation catalyst at dehydrogenation conditions of temperature and pressure effecting the formation of a reaction zone effluent stream comprising hydrogen, an olefinic hydrocarbon product, and unreacted paraffinic hydrocarbon;
(b) compressing and cooling said effluent stream to a pressure and temperature effecting the formation of a liquid phase comprising said hydrocarbons and a hydrogen-rich vapor phase, and introducing said effluent stream into a gas-liquid separation zone maintained at said conditions of temperature and pressure;
(c) recovering said hydrocarbon phase;
(d) recovering one portion of said vapor phase substantially equivalent to the net hydrogen make;
(e) expanding the remaining portion of said vapor phase and effecting a substantial reduction in the pressure and temperature thereof;
(f) passing the thus cooled vapor phase in indirect heat exchange relationship with the effluent stream of step (b) to promote said temperature conditions in said gas-liquid separation zone;
(g) thereafter combining one portion of the vapor phase with the effluent stream from step (a) whereby said vapor phase is recycled to said gas-liquid separation zone to control the amount of vapor expanded in accordance with step (e) and the temperature of said separation zone in accordance with step (f); and,
(h) recycling the remaining portion of the hydrogen-rich vapor phase to said reaction zone in admixture with the paraffinic hydrocarbon charged thereto in accordance with step (a).

4,381,418

CATALYTIC DEHYDROGENATION PROCESS

Steve A. Gewartowski, Mt. Prospect, and Dennis E. O'Brien, Arlington Heights, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Dec. 4, 1981, Ser. No. 327,656
Int. Cl.³ C07C *5/36*
U.S. Cl. 585—655 9 Claims



1. A catalytic dehydrogenation process which comprises the steps of:

(a) heat exchanging a C_2+ normally gaseous paraffinic hydrocarbon feed stream with a net hydrogen product stream and a net hydrocarbon product stream chilled in accordance with step (g);
(b) further cooling said hydrocarbon feed stream by admixture with a hydrogen recycle stream chilled in accordance with step (g) and recycled in accordance with step (h);
(c) heating the combined hydrogen/hydrocarbon stream by indirect heat exchange with a reaction zone effluent stream compressed in accordance with step (e);
(d) contacting the heated combined stream with a dehydrogenation catalyst in a reaction zone at dehydrogenation conditions producing a reaction zone effluent stream comprising hydrogen, olefinic hydrocarbon product and unreacted paraffinic hydrocarbons;
(e) compressing said effluent stream and cooling the same by indirect heat exchange with the combined stream in accordance with step (c) and forming a liquid hydrocarbon phase and a hydrogen-rich vapor phase;
(f) separating the thus cooled liquid hydrocarbon phase;
(g) expanding the hydrogen-rich vapor phase to effect a further chilling and condensation of a residual hydrocarbon phase therefrom;
(h) combining one portion of the chilled vapor phase with the hydrocarbon feed stream as recycle hydrogen in accordance with step (b);
(i) heat exchanging the remaining portion of the chilled hydrogen-rich vapor phase with the hydrocarbon feed stream in accordance with step (a) and thereafter recovering said vapor phase as a net hydrogen product stream;

(j) combining the cooled liquid hydrocarbon phase from step (f) and the chilled residual hydrocarbon phase from step (g), heat exchanging the combined hydrocarbon stream with the hydrocarbon feed stream in accordance with step (a), and thereafter recovering the combined stream as a net hydrocarbon products stream comprising olefinic hydrocarbon products stream comprising olefinic hydrocarbon products and unreacted paraffinic hydrocarbons.

4,381,419

ADSORPTION-DESORPTION SEPARATION PROCESS WITH INTEGRATED LIGHT AND HEAVY DESORBENTS

Roger Wylie, Baytown, Tex., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Apr. 22, 1981, Ser. No. 256,651
Int. Cl.^{3} C07C 7/12
U.S. Cl. 585—828 **5 Claims**

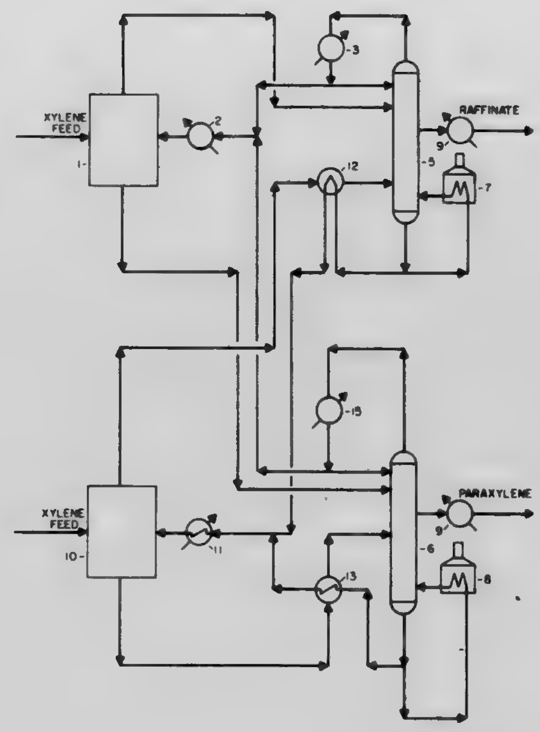
1. In an adsorption-desorption process for separating close boiling materials or isomers in which a liquid desorbent is used to produce an extract of desired materials in said desorbent and also a raffinate of byproduct materials in said desorbent, the improvement which comprises:

carrying out an adsorption-desorption step in a first unit with a desorbent lower boiling than the feedstream to be separated to obtain a light extract and a light raffinate;

carrying out an adsorption-desorption step in a second unit with a desorbent higher boiling than said feedstream to obtain a heavy extract and a heavy raffinate;

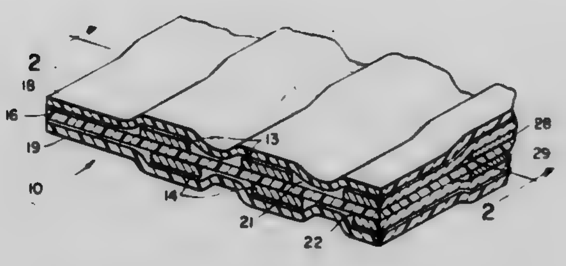
passing light raffinate and heavy raffinate into a fractionating column and separating the same by fractionation into light desorbent, heavy desorbent and byproduct raffinate materials;

passing light extract and heavy extract into a second fractionating column and separating the same by fractionation into light desorbent, heavy desorbent and product extracted materials; and recycling light desorbent streams



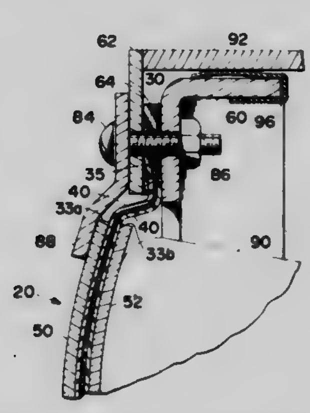
from both fractionators to said first unit and recycling heavy desorbent streams from both fractionators to said second unit.

4,381,420
MULTI-CONDUCTOR FLAT CABLE
William A. Elliott, Reynoldsburg, and Thomas J. Taylor, Gahanna, both of Ohio, assignors to Western Electric Company, Inc., New York, N.Y.
Division of Ser. No. 106,599, Dec. 26, 1979, Pat. No. 4,310,365. This application Aug. 31, 1981, Ser. No. 298,217
Int. Cl.³ H01B *7/08*
U.S. Cl. 174—34 **31 Claims**



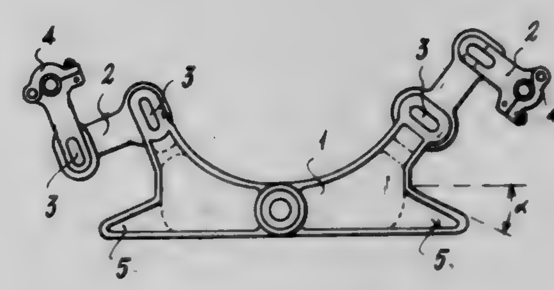
1. A flat cable comprised of:
at least two conductor arrays, with the conductors in one array being slightly offset by a predetermined amount from the respectively associated conductors in the other array;
an initially bare center insulative plastic film, of the type that will not adhere to said conductors, interposed between said conductor arrays, and
two outer insulative plastic films, each having an adhesive backing on the side thereof which faces a different one of said two conductor arrays, and being dimensioned to extend coextensively with said center film, each of said outer films, through said adhesive backing thereon, being bonded to both the adjacent surfaces of the associated array of conductors and to the adjacent longitudinally disposed surface regions of said center film defined both between adjacent conductors, and along border regions on opposite sides of the array thereof, said conductors in each array thus being permanently positioned and encapsulated between said center film and the associated one of said outer films.

4,381,421
ELECTROMAGNETIC SHIELD FOR ELECTRONIC EQUIPMENT
Warren D. Coats, Newberg, Oreg., and Marc A. Kamerling, Santa Rosa, Calif., assignors to Tektronix, Inc., Beaverton, Oreg.
Filed Jul. 1, 1980, Ser. No. 164,874
Int. Cl.³ H05K *9/00*
U.S. Cl. 174—35 R **15 Claims**



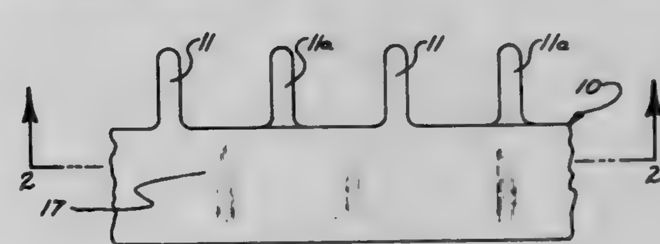
1. An interference shield for limiting non-visual emanations from an electronic device, said shield comprising an electrically conductive screen partially encapsulated within an optically transparent material defining a central portion of first uniform thickness and a peripheral portion of second thickness substantially less than said first thickness, and with a portion of said screen extending without encapsulation beyond said peripheral portion of said transparent material, said central portion of said transparent material being rigid, said peripheral portion being flexible.

4,381,422
SPACER-DAMPER FOR WIRES OF AERIAL ELECTRICAL LINES
Oscar Traini, Cardano al Campo, Italy, assignor to DAMP, S.p.A., Bergamo, Italy
Filed Jul. 6, 1981, Ser. No. 280,670
Claims priority, application Italy, Jul. 4, 1980, 2923 A/80
Int. Cl.³ H02G *7/14, 7/12*
U.S. Cl. 174—42 **12 Claims**



1. A spacer-damper for a plurality of suspended aerial lines comprising:
a central body carrying a plurality of arms, each of said plurality of arms terminating with means for clamping around a respective one of said lines;
and an aerodynamic surface coupled to said body and independent of said arms, said aerodynamic surface including a first surface extending horizontally away from said body and a second surface forming an acute angle with said first surface whereby said aerodynamic surface acts to impede line galloping in response to wind.

4,381,423
HIGH CAPACITANCE BUS BAR MANUFACTURING TECHNIQUE
Michael J. Taylor, Mesa, Ariz., assignor to Rogers Corporation, Rogers, Conn.
Filed Mar. 31, 1981, Ser. No. 249,703
Int. Cl.³ H01B *5/00, 5/14*
U.S. Cl. 174—72 B **34 Claims**



1. A high capacitance bus bar assembly comprising:
at least a pair of spatially separated elongated bus bar conductors, said bus bar conductors having inwardly facing planar surfaces;
a layer of ceramic dielectric material, said layer being disposed between said bus bar conductors, said layer being flame sprayed or flame cast on and in intimate contact with the inwardly facing surface of one of said bus bar conductors; and
electrically conductive means on said dielectric layer and connected to the other of said bus bar conductors for establishing electrical contact with the other of said bus bar conductors.

4,381,424
MULTI-CORE CABLE CONNECTION FOR MEDIUM VOLTAGE CABLE

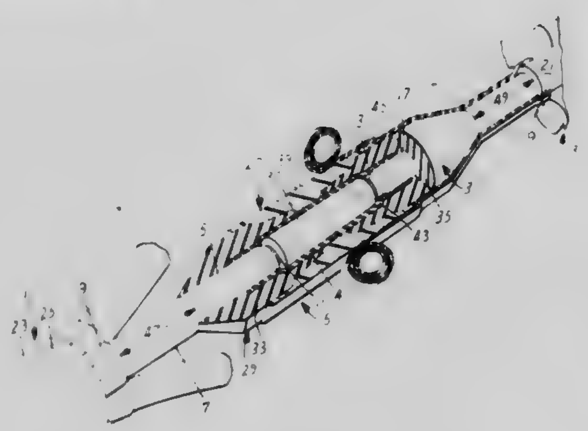
Harold C. Hervig, Maplewood, Minn.; Dieter Kehr, and Raymond Krabs, both of Hamburg, Fed. Rep. of Germany, assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Apr. 28, 1981, Ser. No. 258,421

Claims priority, application Fed. Rep. of Germany, Apr. 30, 1980, 3016585

Int. Cl.³ H02G *15/184*

U.S. Cl. 174—73 R **8 Claims**



1. A multi-core cable connection for medium voltage cables, comprising:
   - a conductor connector providing a core connection for each cable core, and
   - a stress control envelope surrounding each core connection and extending a distance along the core insulation and lying in close contact with it, each stress control envelope including
     - two prefabricated permanently elastic stress control elements, each of the stress control elements comprising
     - a sleeve-like main body of permanently elastic insulating material which extends a distance on the core insulation and terminates there with a gradually decreasing diameter and towards its end adjacent the conductor connector extends a distance over the conductor connector and terminates there with a gradually decreasing diameter, and
     - a permanently elastic, conductive, sleeve-like insert in the main body and bridging the core insulation and the conductor connector; and
   - an electrically insulating filling material bridging the ends of the stress control elements on the conductor connector.

4,381,425
UNIVERSAL JOINT BOX FOR TELECOMMUNICATION OR POWER CABLES

Milenko Maričević, Odvojak N. Demonje 12/4, 41000 Zagreb; Janko Adamović, J. Andrića 2, 21203 Veternik, and Zdravko Maričević, M. Tita 68, 75000 Tuzla, all of Yugoslavia

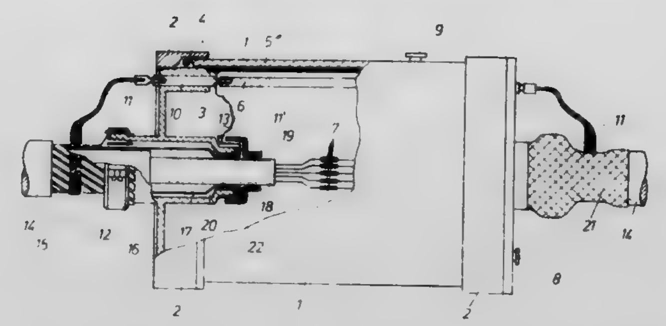
Filed Feb. 3, 1981, Ser. No. 231,430

Claims priority, application Yugoslavia, Feb. 6, 1980, 312/80

Int. Cl.³ H02G *15/08*

U.S. Cl. 174—93 **10 Claims**

1. A cable joint box for enclosing the connection of the ends of a pair of cables, said cable joint box comprising:
   - a. a tubular enclosure open at each end;
   - b. a pair of end members adapted to close the respective ends of said tubular enclosure, said end members including an opening to permit a cable to pass therethrough;
   - c. means to interconnect said end members to position the same at a predetermined spacing;
   - d. tightening means carried by said end members and engageable therewith for axial movement relative thereto, said tightening means engageable with said tubular enclosure;
   - e. annular sealing means positioned between said tightening means and an end of said tubular member, whereby said sealing means is compressed to provide a fluid-tight seal between said tubular member, said tightening means, and



said end member when said tightening means is moved axially toward the end of said tubular enclosure; and
   - f. each of said end members including means to secure the respective cables thereto.

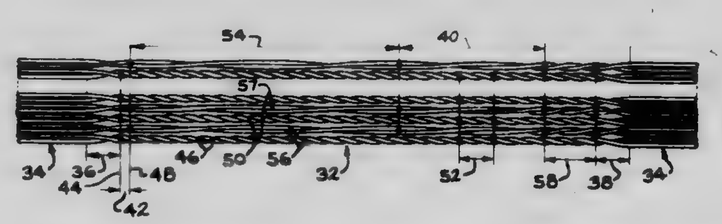
4,381,426
LOW CROSSTALK RIBBON CABLE

Michael O. Cronkite, Huntington Beach, Calif., and Patrick J. Paquin, Hamden, Conn., assignors to Allied Corporation, Toledo, Ohio

Filed Mar. 23, 1981, Ser. No. 246,799

Int. Cl.³ H01B *11/04*

U.S. Cl. 174—117 F **14 Claims**



13. A multi-conductor cable, comprising: a plurality of laterally spaced, longitudinally extending, insulated wire conductor pairs, each of said insulated wire conductor pairs having alternating twisted portions and straight portions;
   - said plurality of insulated wire conductor pairs including a plurality of first insulated wire conductor pairs and a plurality of second insulated wire conductor pairs;
   - said first insulated wire conductor pairs and said second wire conductor pairs being alternately laterally spaced across said multi-conductor cable;
   - said twisted portion of each said first insulated wire conductor pair and said twisted portion of each said second insulated wire conductor pair having a first predetermined lay;
   - said twisted portion of each said first insulated wire conductor pair having a plurality of first beginning portions longitudinally spaced along said cable;
   - said twisted portion of each said second insulated wire conductor pair having a plurality of second beginning portions longitudinally spaced along said cable;
   - said second beginning portions being longitudinally offset by a predetermined distance from said first beginning portion, said lay of each said first insulated wire conductor pair being offset from the lay of each said second insulated wire conductor pair within said twisted portion of said cable;
   - individual insulated wire conductors of said insulated wire conductor pairs being equally laterally spaced within said straight portions of said cable;
   - a longitudinally extending plastic film underlying said spaced insulated wire conductor pairs;
   - said insulated wire conductor pairs being at least intermittently bonded to said plastic film to maintain said insulated

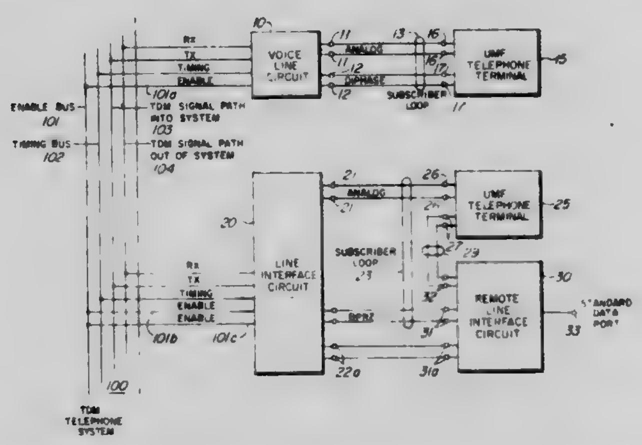
wire conductor pairs in a predetermined lateral relationship along their entire length within said cable, said insulated wire conductor pairs having a first lateral spacing within said twisted portion and each said individual insulated wire having a second lateral spacing within said straight portions.

4,381,427

SUBSCRIBER LOOP SYSTEM FOR VOICE AND DATA

William E. Cheal, San Jose; Gokal C. Gupta, Fremont; Faramarz Sepahmansour, Milpitas, and Avnish K. Aggarwal, San Jose, all of Calif., assignors to Northern Telecom Limited, Nashville, Tenn.

Filed Jun. 16, 1981, Ser. No. 274,246
Int. Cl.³ H04M *9/00;* **H04B** *3/00;* **H04J** *3/00*
U.S. Cl. 179—2 DP **8 Claims**



1. A subscriber loop system for providing a voice call operation along a first conductor path between a user multiline function (UMF) telephone terminal and a time division multiplex (TDM) telephone system, and for providing a data call operation along a second conductor path between a data port and the TDM telephone system, the TDM system providing at least one signalling and supervision (SS) path for communication with a controller in the TDM telephone system, and providing a plurality of time divided communication paths for communication through the TDM telephone system, the UMF telephone terminal including an SS circuit for storing dial pad and key depressions for transmission to the controller and for storing signalling states transmitted from the controller, the subscriber loop system comprising:

a line interface means including;

a codec responsive to an enable signal directed thereto by the TDM telephone system, for receiving analog information signals from the first conductor path and encoding said information signals to provide corresponding digital information signals for transmission along one of the plurality of communication paths as designated by the enable signal and for receiving digital information signals from the designated communication path and decoding said information signals to provide corresponding analog information signals for transmission along the first conductor path,

digital circuits for exchanging data and SS information signals between the second conductor path and the TDM telephone system, the digital circuits being responsive to an enable signal directed thereto by the TDM telephone system for receiving digital information signals from one of the plurality of communication paths as designated by the enable signal and converting said information signals to corresponding information signals in an operating signal format of the second conductor path, for transmission along the second conductor path, and for receiving information signals in the operating signal format of the second conductor path and converting said information signals to corresponding information signals in an operating signal format of the plurality of communication paths,

a voice call storage means and a data call storage means, included in the digital circuits, for storing digital SS information signals corresponding to SS information signals received by the digital circuits in the operating signal format of the second conductor path and pertaining to SS functions of voice calls and of data calls respectively, for transmission along the SS path, and;

a line controller connected to the digital circuit for controlling operation of the digital circuits in exchanges of SS information signals between the second conductor path and the SS path, the line controller being responsive to the designation of the SS path and an assertion of either of the two previously mentioned enable signals to;

(a) cause the digital circuits to receive digital SS information signals from the SS path,

(b) label the received SS information signals to provide voice call and data call information signals in accordance with which of the two enable signals is asserted,

(c) cause the digital circuits to transmit SS information signals corresponding to the labelled SS information signals along the second conductor path,

(d) cue SS information signals, received by the digital circuits from the second conductor path, in the voice call storage means and in the data call storage means in accordance with voice call and data call labels received in association with the SS information signals, and

(e) cause the digital circuits to pass signal contents of the voice call storage means and the data call storage means to the SS path in accordance with respective assertions of the enable signals;

a remote line interface means including;

digital circuits for exchanging data information signals between the data port and the second conductor path and for exchanging SS information signals between the SS circuit of the UMF telephone terminal and the second conductor path, the ditigal circuits being responsive to a time defining characteristics in the information signals transmitted from the first line interface means along the second conductor path for converting data information signals received from the second conductor path to corresponding digital signals compatible with a predetermined operating signal format of the data port for transmission to the data port, and for converting data information signals received from the data port to corresponding data information signals compatible with the operating signal format of the second conductor path for transmission along the second conductor path to the first line interface means, and also, for converting SS information signals received from the second conductor path to corresponding SS information in a signal format compatible with operation of the SS circuit for transmission to the SS circuits and for receiving SS information signals from the SS circuit and converting said SS information signals to corresponding SS information signals compatible with the operating signal format of the second conductor path for transmission along the second conductor path to the first line interface means,

a shift key manually operable by a user for designating functions of SS information signals originating at the UMF telephone terminal as pertaining to a voice call and alternately to a data call,

a directory number key and a directory number indicator, the directory number key being manually operable by a user to request service for a data call,

a remote line controller connected to the digital circuits and being responsive to designation at the shift key to label SS information signals for transmission along the second conductor path as pertaining to one of a voice call and a data call, and being responsive to a request for service at the directory number key for generating data call labelled SS information signals corresponding to a request for service code for transmission via the digital circuits and the second conductor path to the first line interface means, and

being responsive to SS information signals labelled as per-

taining to a data call and corresponding to either of service initiated and service terminated codes for accordingly causing a corresponding indication at the directory number indicator.

4,381,428

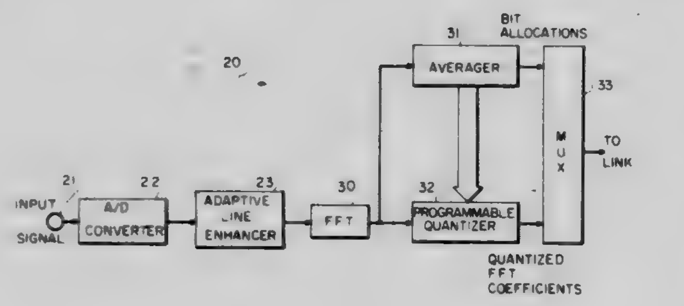
ADAPTIVE QUANTIZER FOR ACOUSTIC BINARY INFORMATION TRANSMISSION

Robert R. Kolesar; John T. Rickard, and James R. Zeidler, all of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 11, 1981, Ser. No. 262,362

Int. Cl.³ G10L *1/00*

U.S. Cl. 179—15.55 R **3 Claims**



1. An apparatus for reducing the data transmission rate for acoustic signals comprising:

means providing a source of analog signals representative of acoustic energy;

means coupled to the analog signal providing means for converting them to digital form;

means coupled to the converting means for processing the digitized signals in an adaptive line enhancer;

first means coupled to the adaptive line enhancer processing means for computing the FFT coefficient signals of the input signals;

means coupled to the FFT computing means for multiplexing the FFT coefficient signals of the input signals;

means interposed between the FFT computing means and the multiplexing means for averaging FFT coefficient signal variances; and

means coupled between the FFT computing means and the multiplexing means and to the averaging means for programming an included quantizer.

4,381,429

DISTRIBUTOR FOR AN INTERNAL COMBUSTION ENGINE CONTAINING AN APPARATUS FOR SUPPRESSING NOISE

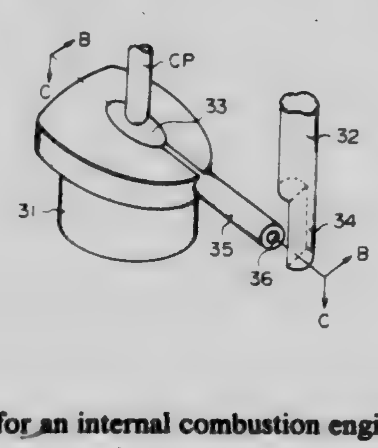
Haruhiko Nakayama; Masahiko Nagai, and Minoru Yano, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed May 7, 1981, Ser. No. 261,610

Claims priority, application Japan, Sep. 22, 1980, 55-130588

Int. Cl.³ H01H *19/00*

U.S. Cl. 200—19 R **9 Claims**



1. A distributor for an internal combustion engine, comprising an apparatus for suppressing noise within a wide range of advance angles, said distributor comprising:

a rotor made of insulating material having a first discharging electrode and being rotated by a driving shaft of the internal combustion engine;

a plurality of stationary terminals fixed to an insulating support member, each stationary terminal provided with a second discharging electrode, said stationary terminals arranged around a circular locus with said rotor at the center of the circular locus, each of said second discharging electrodes being separated from said first discharging electrode by a discharging air gap through which a spark discharge is generated;

said apparatus for suppressing noise comprising means for preventing the random motion of combustible gaseous molecules in said discharge gap when said spark discharge is generated, said apparatus for suppressing noise comprising a tubular insulating member having a first end secured in abutment with said first discharging electrode and a second end extending into said discharge gap;

said tubular member forming a cylindrical passage in said discharge gap through which said spark discharge passes;

said second end of said insulating member being arc-shaped, said arc-shaped second end being concentric with said circular locus.

4,381,430

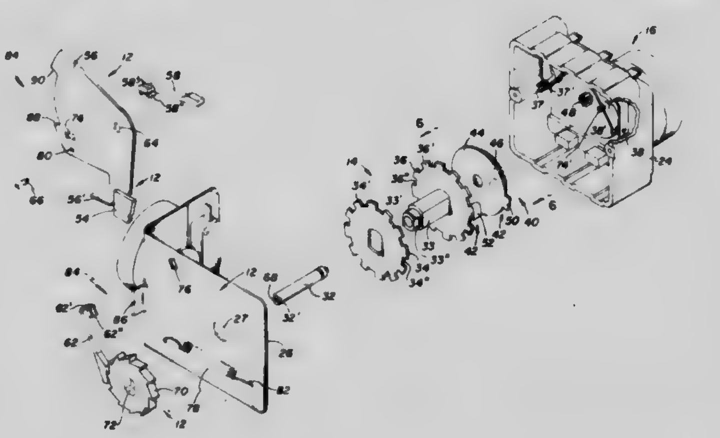
COIN OPERATED TIMING MECHANISM

Steven W. Smock, Indianapolis, and George W. Adams, Greenwood, both of Ind., assignors to Emhart Industries, Inc., Indianapolis, Ind.

Continuation of Ser. No. 174,498, Aug. 1, 1980, abandoned. This application Sep. 14, 1981, Ser. No. 301,720

Int. Cl.³ H01H *43/02*

U.S. Cl. 200—35 R **3 Claims**



1. In a coin operated controller wherein insertion of at least one coin into a receiving means associated with a timing mechanism causes a motor drive means to drive cam means to open and close electrical switches associated therewith, an improvement characterized in a means providing extended cycles for said timing mechanism comprising:

(a) a drive shaft,

(b) at least one cam fixedly carried on said drive shaft and having a plurality of lobes providing a cam outer periphery and notches therein,

(c) at least one electrical switch biased in an open position when engaging said outer periphery and biased in a closed position when engaging said notices,

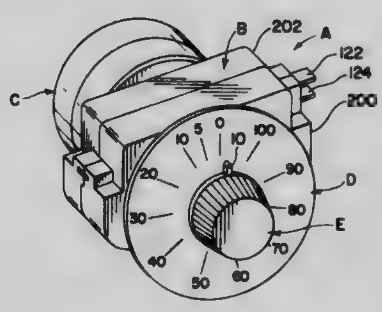
(d) a ratchet fixedly carried on said drive shaft and including teeth synchronized with said lobes, and actuator means engaging said ratchet and rotating same a predetermined amount upon an insertion of a coin in said receiving means,

(e) a rotating means rotatably carried on said drive shaft and a gear carried on said rotating member and coupled to said motor drive means, and

(f) a tab extending radially from a periphery of said rotating

member and a cooperating tab extending from a face of said cam means near its periphery,
insertion of a coin causing rotation of said ratchet and said cam means and displacing said tabs with respect to each other.

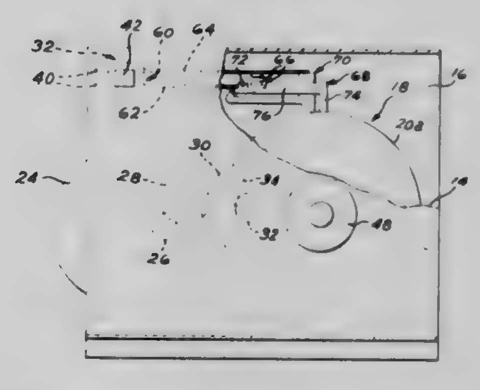
4,381,431
HAND SET TIMER
Donald R. Ritzenthaler, Reedsburgh, and Thomas J. Bottelson, Baraboo, both of Wis., assignors to Gulf & Western Manufacturing Company, Southfield, Mich.
Filed Apr. 24, 1981, Ser. No. 257,258
Int. Cl.³ H01H *43/10, 9/00*
U.S. Cl. 200—38 R **21 Claims**



1. In a hand set timer including a housing, means for mounting a constant speed motor onto said housing, said motor having a driven output shaft, a drive shaft supported for rotation in said housing, a switch actuating element in said housing and driven by said drive shaft between a manual set position and a switch actuated position, means connecting said output shaft to said drive shaft for driving said switch actuating element in a first direction by said motor from said set position to said switch actuated position, manual means connected to said drive shaft for moving said switch actuating element, independently of said motor, in a second direction between said actuated position and said set position, the improvement comprising: said housing including first and second complementary housing components, said first component having a first outer surface facing outwardly and forwardly in a direction axially of said drive shaft, said second component having a second outer surface facing outwardly and rearwardly from said housing in a direction axially of said drive shaft, said first and second housing components having interlocking peripheral edges, and locking means comprising cooperating locking shoulder means respectively affixed to said motor and to said first housing component and engaged with one another for locking said housing components axially together and locking said motor onto said housing at said second surface.

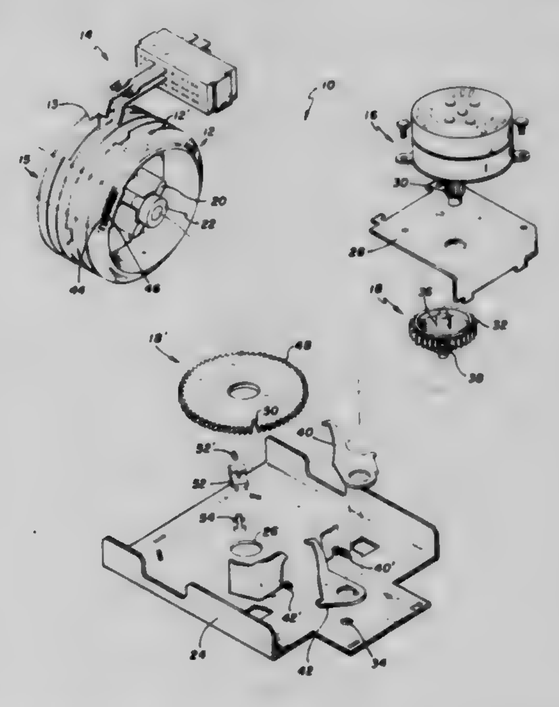
4,381,432
ELECTROMECHANICAL TIMER WITH IMPROVED SHORT INTERVAL ACCURACY
Donald S. Cushing, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.
Filed Jun. 1, 1981, Ser. No. 268,939
Int. Cl.³ H01H *43/10*
U.S. Cl. 200—38 B **6 Claims**

1. An electromechanical timer comprising:
a control cam having a circumferential edge cam track; said cam track comprising a plurality of arcuate segments, each segment having a fixed radius different than the fixed radius of an adjacent segment defining a stepped cam track profile;
switch means comprising first and second resilient contact arms extending generally adjacent said cam track, said first contact arm extending between said second contact arm and said cam track;
a first cam-following member rigidly mounted to said first contact arm and biased into cam-following engagement with said cam track by said first contact arm;
a second cam-following member pivotally mounted to said first cam-following member and biased into cam-following engagement with said cam track by said second contact arm;
said first and second cam-following members being operative to control movement of said first and second contact arms, respectively, into and out of electrical contact with each other in accordance with said cam track profile;
said first and second cam-following members having effective dimensions radially of said cam such that said second cam-following member engages said second contact arm to hold said second contact arm out of electrical contact



with said first contact arm when said first and second cam-following members engage the same segment of said cam track; and
the difference in the fixed radii of said cam track segments being sufficient that said second cam-following member permits said second contact arm to come into electrical contact with said first contact arm when said second cam-following member is aligned with one cam track segment and said first cam-following member is aligned with another cam track segment having a longer fixed radius than said one cam track segment.

4,381,433
DRIVE MEANS FOR A TIMING MECHANISM
William E. Wagle, Bloomington, Ind., assignor to Emhart Industries, Inc., Indianapolis, Ind.
Continuation of Ser. No. 205,012, Nov. 7, 1980, abandoned. This application Sep. 2, 1982, Ser. No. 414,470
Int. Cl.³ H01H *43/10*
U.S. Cl. 200—38 R **6 Claims**



1. A timing mechanism comprising
(a) a cam means rotatably carried on a shaft and providing a program and electrical switches opening and closing in response to said program,

(b) rotatable first ratchet teeth of a first major diameter carried on said shaft and coupled to said cam means for intermittent rotation therewith,
(c) rotatable second ratchet teeth coupled to and in axial alignment with said first rotatable ratchet teeth and of a second major diameter which is less than said first major diameter,
(d) rotatable third ratchet teeth carried by said shaft in axial alignment with said first and second ratchet teeth and independently rotatable from said first and second ratchet teeth and having a third major diameter which is less than said first major diameter but greater than said second major diameter and further having at least one notch of sufficient depth to provide a minor diameter at least as small as a minor diameter of said second ratchet teeth,
(e) a drive pawl selectively engaging said first and third rotatable rachet teeth and said second ratchet teeth when engaged with said notch, and
(f) individual stop means engaging said first and third ratchet teeth.

4,381,434

PRESSURE OPERATED ELECTRIC SWITCH AND ALARM SYSTEM USING SUCH SWITCH

Noel Nicholas, 6, Verona Villas, O'Connell Ave., Limerick, Ireland

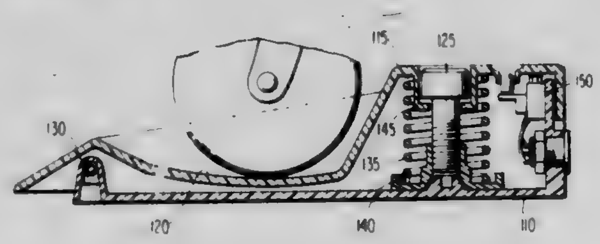
Continuation-in-part of Ser. No. 907,461, May 19, 1978, Pat. No. 4,263,586, which is a continuation-in-part of Ser. No. 826,957, Aug. 22, 1977, abandoned. This application Dec. 18, 1980, Ser. No. 217,605

Claims priority, application Ireland, Aug. 20, 1976, 1867/76

The portion of the term of this patent subsequent to Apr. 21, 1998, has been disclaimed.

Int. Cl.³ H01H *21/00*

U.S. Cl. 200—85 R **7 Claims**



1. A pressure-operated electric switch for use in conjunction with a bed and adapted for insertion under one leg of the bed to signal the absence of a patient therefrom, the switch comprising: a housing having a base portion and an overlying cover portion, at least a part of the cover portion being vertically movable relative to the base portion and being biased upwardly by compression spring means within the housing, the cover portion being recessed to provide a stable support for the leg of the bed on the vertically movable part, and switch means mounted in the housing for actuation upon vertical movement of said at least part of the cover portion with respect to the base portion, the switch means being actuated when an external downward load provided by the bed on said at least part of the cover portion exceeds a selected threshold value, and the compression spring means being supported at one end in the housing by a support member separate from the cover and base portions and vertically adjustable relative to the base portion in order to adjust the degree of compression of the compression spring means and thus the upward bias exerted by the compression spring means, such adjustment being provided by a screw-threaded element rotatable from outside the housing and operatively associated with the housing and support member in such manner that rotation of the element effects vertical movement of the support member relative to the base portion, whereby the threshold value at which said switch means is actuated is adjustable in respect of different weights of bed by rotation of the screw-threaded element.

4,381,435

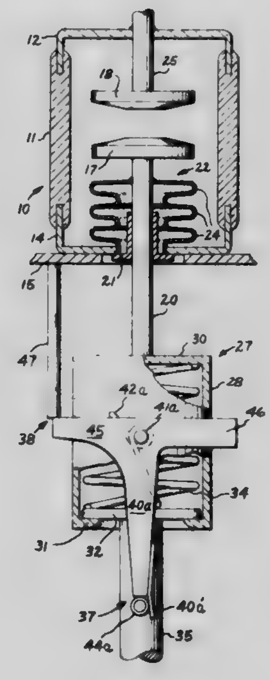
VACUUM CIRCUIT BREAKER WITH MEANS FOR SELECTIVELY LATCHING A WIPE CAGE

Philip Barkan, Stanford, Calif., assignor to General Electric Company, Schenectady, N.Y.

Filed Jan. 2, 1981, Ser. No. 222,183

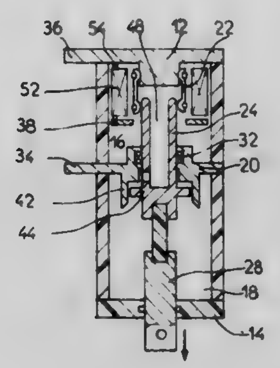
Int. Cl.³ H01H *33/66*

U.S. Cl. 200—144 B **11 Claims**



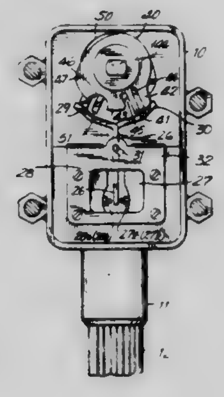
1. A vacuum circuit breaker comprising:
(a) a sealed, evacuated envelope;
(b) first and second separable, electrical contacts contained in said envelope, said first contact being movable with respect to said second contact from a closed position when abutting said second contact and carrying normal current to a fully open position when separated from said second contact and not carrying current;
(c) wipe means having first and second ends, means for resiliently biasing apart said ends, and means to limit the maximum distance of separation between said ends, said wipe means providing contact wipe when said first contact is in said closed position;
(d) means for coupling said first contact to said wipe means first end, said coupling means extending into said envelope;
(e) bellows means for providing a gas-tight seal between said coupling means and said envelope;
(f) an operating member coupled to said wipe means second end, for moving said contacts from said closed position to said fully open position during an opening stroke thereof and for moving said contacts from said fully open position to said closed position during a closing stroke thereof;
(g) latch means rendered actuated during said opening stroke of said operating member for fixedly biasing apart said wipe means ends to a distance equaling said maximum distance of separation reduced by a distance substantially less than the maximum attainable contact wipe; and
(h) latch disabling means rendered actuated during said closing stroke of said operating member for disabling said latch means.

4,381,436
ROTARY ARC TYPE CIRCUIT BREAKER
Yoshifumi Nagaoka; Kanji Morishima; Hiromi Ishii, all c/o Nissin Electric Co., Ltd., 47 Umezu-Takase-cho, Ukyo-ku, Kyoto, 615, Japan, and Georges Bernard, 24, rue de la Richarde, 38120 St. Egreve, France
Filed Jun. 24, 1980, Ser. No. 162,595
Claims priority, application Japan, Jul. 2, 1979, 54-91828[U]
Int. Cl.³ H01H *33/88*
U.S. Cl. 200—148 A 5 Claims



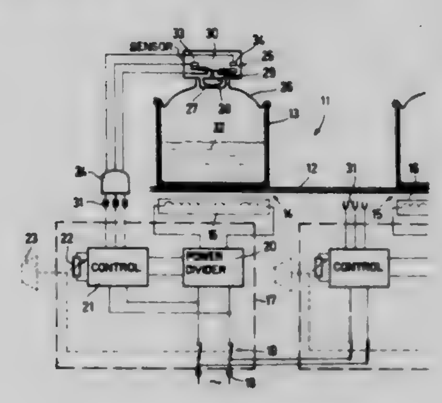
1. A gas-blast circuit interrupter comprising:
a gastight enclosure containing an arc extinguishing gas,
a pair of contact members axially separable to draw an arc between the end portions of said contact members, one of said contact members being tubular and movable,
a partition wall dividing the enclosure into two chambers of constant volume, an arc extinguishing chamber and an expansion chamber,
an opening provided in the partition wall for the gas tight passage of the tubular movable contact,
a gas aspiration device having a piston and a cylinder cooperating so as to produce a flow of gas through said tubular contact and a blast of gas directed towards said arc,
an opening provided in the tubular movable contact for establishing a communication between the interior of the tubular contact and said gas aspiration device during an initial phase of the opening movement of the contacts and a communication between the interior of the tubular contact and the expansion chamber during the further phase of the opening movement thereby permitting a flow of blast gas through the tubular contact towards the gas aspiration device during said initial phase and towards the gas expansion chamber after said initial phase.

4,381,437
SWITCHING DEVICE
Leo F. Geremia, Wallingford, Conn., assignor to Tri-tech, Inc., Waterbury, Conn.
Filed Jan. 8, 1981, Ser. No. 223,404
Int. Cl.³ H01H *21/82*
U.S. Cl. 200—153 LB 7 Claims



1. In a switching device comprising a control shaft rotatable from a neutral position to and beyond a switch actuating position, centering means coupled to said control shaft for resiliently biasing the same to said neutral position, a switch mechanism having a resiliently depressible actuating member, and switch actuating means for depressing said actuating member in response to rotation of said control shaft to said switch actuating position; the improvement wherein said switch actuating means comprises a cam, coupled to said control shaft, including a cam finger extending generally radially with respect to the axis of said control shaft and having a free end remote from said control shaft and a base end coupled to said control shaft; a cam follower slidably contacting said cam finger to deflect in response to rotation of said cam; and linkage means coupled with said cam follower for depressing the actuating member of said switch mechanism when said control shaft has rotated to or beyond its switch actuating position.

4,381,438
ELECTRIC CONTROL APPARATUS FOR CONTROLLING INDUCTIVE HEATING
Gerhard Goessler, and Friedrich Koch, both of Oberderdingen, Fed. Rep. of Germany, assignors to E.G.O. Regeltechnik GmbH, Waghaeusel, Fed. Rep. of Germany
Continuation of Ser. No. 112,679, Jan. 16, 1980, Pat. No. 4,303,816. This application Jun. 3, 1981, Ser. No. 270,141
Claims priority, application Fed. Rep. of Germany, Jan. 16, 1979, 2901556
Int. Cl.³ H05B *5/04*
U.S. Cl. 219—10.49 R 11 Claims



1. An electric control apparatus for controlling inductive heating of a cooking pot at least partly comprising an electrically conductive material, said apparatus comprising:
an electric induction heating coil, for heating the pot by inducing an electric current thereof;
a device for controlling the electrical power delivered to the induction heating coil, the control device having a temperature-dependent guiding and control means; and,
a temperature sensing unit adapted to be so positioned on the cooking pot, over matter being heated therein, as to be there subjected to rising steam formed in the cooking pot by the matter being heated, the sensing unit having means for transmitting control signals to the guiding and control means.

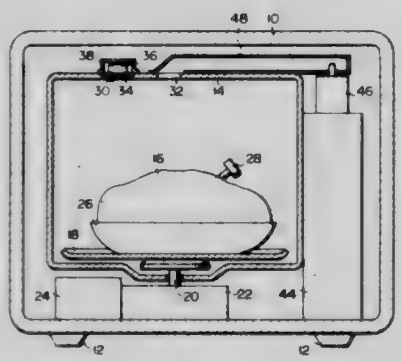
4,381,439
SELF-CONTROLLED MICROWAVE OVEN
Susumu Miyazawa, Chigasaki, and Norisuke Fukuda, Tokyo, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Dec. 10, 1980, Ser. No. 214,978
Claims priority, application Japan, Dec. 21, 1979, 54-166419
Int. Cl.³ H05B *6/68;* G01K *5/42*
U.S. Cl. 219—10.55 B 3 Claims
1. A self-controlled microwave oven comprising:
an oven cavity;
high frequency oscillating means for producing microwaves for heating of food inside said cavity to be cooked;
a hollow skewer having a closed end inserted in the food and an open end protruding from the food and which is formed of a thermal conductive material;

an expandable hollow bellows secured to the open end of said skewer which has a hollow inside for communicating with the hollow inside of said skewer;

a liquid sealed inside said bellows and skewer which is heated through said skewer and has said bellows expanded when the food is heated;

sound generating means operably connected to said skewer and proximate to said bellows, for generating a sound whenever said bellows expand to a prescribed distance, wherein said sound generating means includes a plate spring which is pressed by said bellows when the bellows is expanded and which generates a sound when the pressing force of said bellows overcomes the biasing force of the plate spring; and

control means communicating with said cavity and connected to said high frequency oscillating means which supplies an energy control signal to said high frequency



oscillating means in response to a sound generated by said sound generating means and which thereby controls heating of the food in said cavity, wherein said control means includes a microphone for detecting a sound of said sound generating means to convert it into an electrical signal, a signal generator having an operating member for generating a signal by operation of the operating member, a first flip-flop which is reset when power is supplied and set in response to an output signal of said signal generator, a second flip-flop which is reset when power is supplied and set in response to an output signal of said microphone, an EXCLUSIVE-OR gate which is connected to the output terminals of said first and second flip-flops and a switching element connected to the output terminal of said EXCLUSIVE-OR gate for controlling the supply of power to said high frequency oscillating means and wherein said control means generates an energizing interruption signal in response to a sound of said sound generating means.

4,381,440
CONTROL CIRCUITRY FOR PRODUCING VARIABLY RIFLED TUBES

George R. Madewell, Soddy, Tenn., assignor to Combustion Engineering, Inc., Windsor, Conn.
Filed Jan. 26, 1981, Ser. No. 228,511
Int. Cl.³ B23K *9/04*
U.S. Cl. 219—62 11 Claims

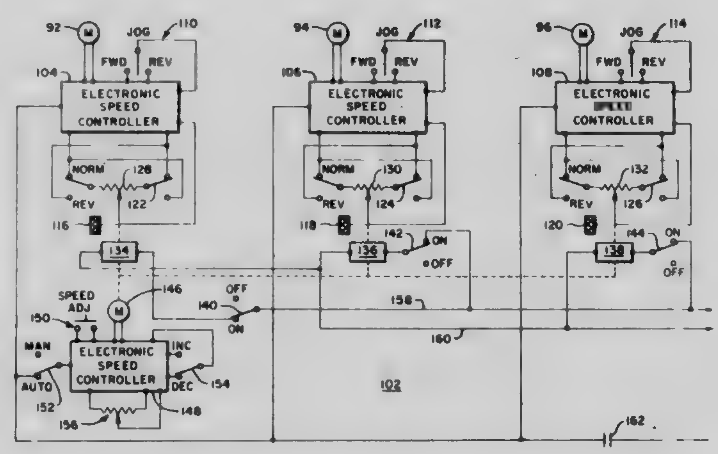
1. An electrical control circuit, employable in cooperative association with welding means embodying rotational motor means, linear travel motor means and weld wire feed motor means, for purposes of effecting the exercise of control over the deposition by the welding means of ribbing on the inner wall surface of a tubular member comprising:

a. electronic speed controller means connected in electrical circuit relation with the rotational motor means, the linear travel motor means and the weld wire feed motor means of the welding means, said electronic speed controller means being operative to control the rotational, linear travel and weld wire feed of the welding means;

b. motorized clutch means operatively connected to said electronic speed controller means and operative for determining the nature of the mode of operation of said electronic speed controller means;

c. potentiometer means operatively connected to both said motorized clutch means and said electronic speed controller means, said potentiometer means being operative in combination with said electronic speed controller means and said motorized clutch means for effectuating control over the operation of the rotational motor means, the linear travel motor means and the weld wire feed motor means of the welding means;

d. a dual purpose electronic speed controller means operatively connected to said electronic speed controller means, said dual purpose electronic speed controller

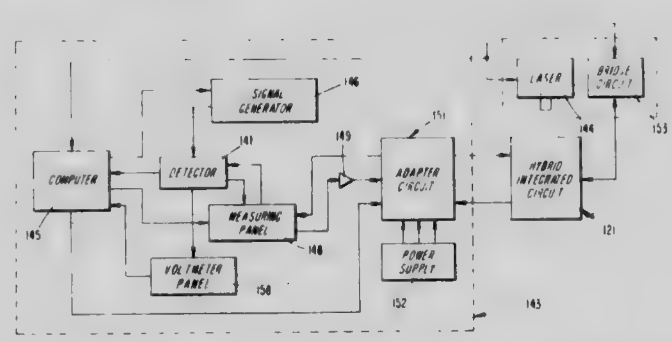


means possessing the dual capability of being able to operate in either a manual operating mode or an automatic operating mode, and of being able to operate in either an increasing operating mode or a decreasing operating mode; and

e. a speed adjusting switch means connected in electrical circuit relation with said dual purpose electronic speed controller means, said speed adjusting switch means being operative for purposes of coordinating through said dual purpose electronic speed controller means the speed of operation established by said electronic speed controller means for the rotational motor means, the linear travel motor means and the weld wire feed motor means of the welding means.

4,381,441
METHODS OF AND APPARATUS FOR TRIMMING FILM RESISTORS

Patrizia R. Desmarais, and Anthony J. DiTroia, both of Andover, Mass., assignors to Western Electric Company, Inc., New York, N.Y.
Filed Oct. 30, 1980, Ser. No. 202,284
Int. Cl.³ B23K *26/00*
U.S. Cl. 219—121 LJ 13 Claims



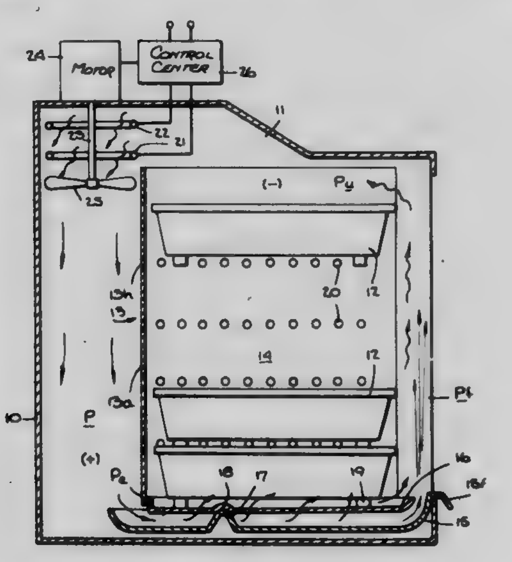
7. An apparatus for trimming a film resistor, which comprises:

a gain-producing circuit;

means for determining the resistance value of the resistor;

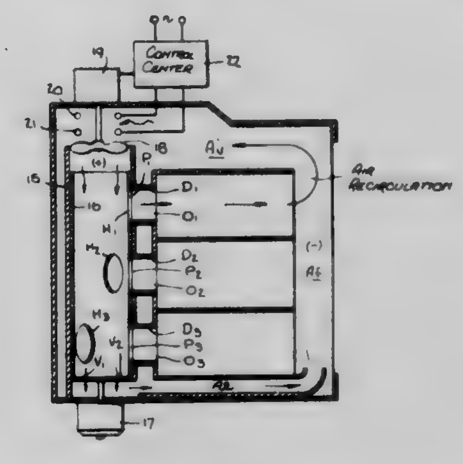
means for connecting the resistor in the gain-producing circuit;
means for establishing a gain level for the gain-producing circuit related to a basic resistance value of the resistor;
means for selectively adding resistance to the resistor in the gain-producing circuit to increase the gain to a level not to exceed the gain level determined by the establishing means;
means for adding the determined value of the resistor and the value of resistance determined by the selectively adding means to produce the basic resistance value;
means for trimming the resistor to increase the value thereof; and
means for stopping the trimming of the resistor when the trimmed value thereof is equal to the basic value.

4,381,442
COUNTER-TOP UNIT FOR HEATING PACKAGED FOOD
Raul Guibert, Los Angeles, Calif., assignor to Sunset Ltd., Los Angeles, Calif.
Continuation-in-part of Ser. No. 221,208, Dec. 30, 1980, Pat. No. 4,327,279, which is a continuation-in-part of Ser. No. 97,787, Nov. 27, 1979, Pat. No. 4,307,286, said Ser. No. 97,787, is a continuation-in-part of Ser. No. 971,381, Dec. 20, 1978, Pat. No. 4,326,497, which is a division of Ser. No. 809,775, Jun. 24, 1977, Pat. No. 4,132,216. This application Jun. 24, 1981, Ser. No. 277,027
Int. Cl.³ H05B *1/00*
U.S. Cl. 219—400 11 Claims



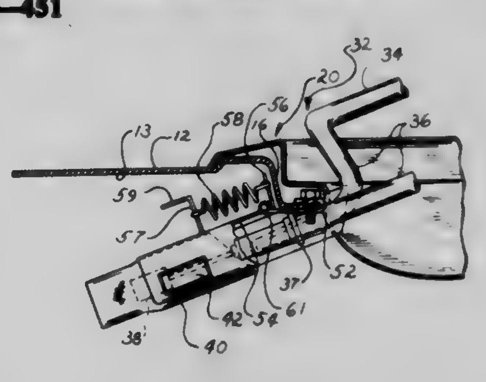
1. A unit for reheating packages containing cold pre-cooked meals, the unit being adapted to rapidly heat up the meals to a service temperature level and to thereafter hold the meals at this level, said unit comprising:
A. a case having an apertured partition mounted therein to form a compartment accessible from the front of the case for accommodating a stack of said food packages with air-flow spaces therebetween, the compartment being spaced from the rear of the case to define a plenum and the front to define an air curtain passage which communicates with upper and lower air passages leading to the plenum; and
B. heating means to heat air drawn from the upper passage and means to blow the heated air into the plenum to create a pressure differential between the plenum and the compartment, as a result of which the heated air is forced through the partition into the flow spaces between the packages to heat the food therein, the heated air also flowing from the plenum in a continuous recirculating loop into the lower air passage, from which the air goes through the air curtain passage and the upper passage back to the plenum to thermally isolate the compartment.

4,381,443
PORTABLE UNIT FOR HEATING PACKAGED FOOD
Raul Guibert, Los Angeles, Calif., assignor to Sunset Ltd., Los Angeles, Calif.
Continuation-in-part of Ser. No. 277,027, Jun. 24, 1981. This application Nov. 17, 1981, Ser. No. 322,084
Int. Cl.³ H05B *1/00*
U.S. Cl. 219—400 12 Claims



1. A unit for reheating packages containing cold precooked meals, the unit being adapted to rapidly heat up the meals to a service temperature level and to thereafter hold the meals at this level, said unit comprising:
(A) a case having a rack therein divided into a series of compartments each adapted to receive at least one of the food packages, said rack being positioned in the case to define a rear space therein;
(B) an air modulator vertically positioned in said rear space, said modulator having an outer tube provided with a series of longitudinally-aligned ports each communicating with a rear opening in a respective compartment, a rotating inner tube disposed within the outer tube and provided with a series of angularly-displaced holes which, in the course of a rotary cycle, sequentially register with a respective port, and means for rotating said inner tube; and
(C) heating means to heat air and means to blow heated air drawn from the region in front of said rack into the inner tube to create a pressure differential between said inner tube and said region, whereby the heated air is sequentially projected at high velocity into the series of compartments through said holes.

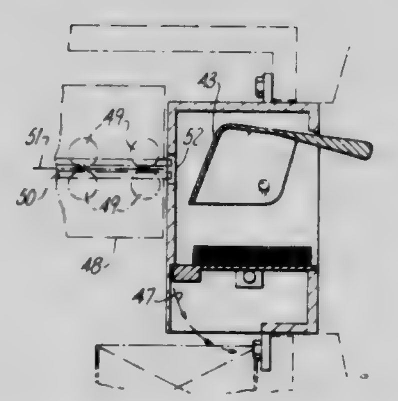
4,381,444
RANGE SURFACE UNIT RECEPTACLE
Ronald B. DeLong, Lowell, and Alvin J. Schettl, Kentwood, both of Mich., assignors to White Consolidated Industries, Inc., Cleveland, Ohio
Filed Sep. 17, 1981, Ser. No. 303,047
Int. Cl.³ H05B *3/68*
U.S. Cl. 219—451 8 Claims



1. In a domestic range of the electric type having a horizontal cooking platform supporting at least one electrical resistance type surface heating element, a clip structure for receiving and supporting a socket member engageable with the ter-

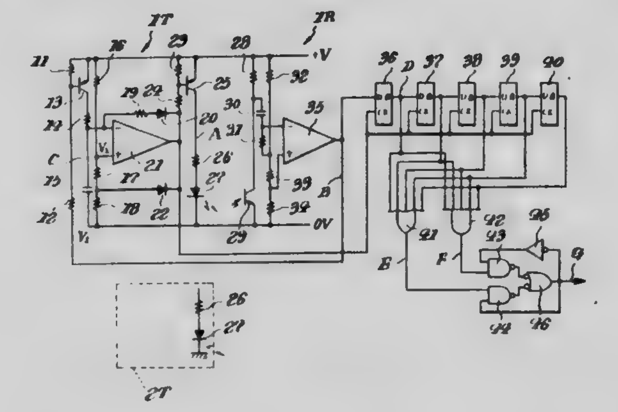
minal pins of the electrical resistance type surface heating element, the clip structure comprising:
- a fixed hinge portion fastened to the cooking platform;
- a movable hinge portion hingedly connected to the fixed hinge portion and movable relative thereto, the movable hinge portion being adapted to receive and support the socket member; and
- a spring member connected between the hinge portions, the spring member biasing the hinge portions at a normal heating position relative to each other, a section of the cooking platform being positioned between the spring member and the heating surface of the heating element at its normal heating position, the section shielding the spring member from radiant heat generated by the heating surface of the heating element, the fixed hinge portion including a first projection, the movable hinge portion including a second projection, the spring member being connected between the projections and supported by the projections in spaced relation from the remainder of the hinge portions at their normal positions to minimize thermal conductivity between the hinge portions and the spring member.

4,381,445
CASH DISPENSER WITH REJECT DUMP MEANS
Stuart M. Jenkins, Bognor Regis; John Wood, Southsea, and David Martin, Milton, all of England, assignors to De La Rue Systems Limited, London, England
Filed Feb. 19, 1981, Ser. No. 235,365
Claims priority, application United Kingdom, Feb. 19, 1980, 8005481
Int. Cl.³ G07F *7/10;* G06K *17/00*
U.S. Cl. 235—379 10 Claims



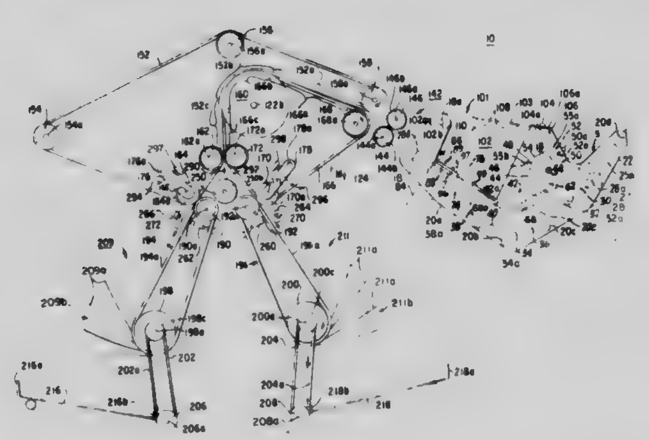
1. A banknote access station for an automatic banknote dispenser having a banknote delivering device, the banknote access station comprising:
- an enclosure formed with an inlet aperture and a reject outlet aperture;
- means within the enclosure for receiving banknotes from the delivery device through the inlet aperture, the banknote receiving means being formed by a platform pivotable between a first position, in which the platform receives and supports banknotes fed from the inlet aperture and also is accessible to the user when the door is open, and a second position in which banknotes are ejected from the platform through the reject outlet aperture, in the case of an incorrect delivery;
- a door to the enclosure giving a user access to the platform;
- locking means to secure the door in a closed position;
- control means for controlling the movement of the platform and the operation of the locking means, the control means operating after each dispensing operation either to release the locking means to allow the user to open the door and remove the banknotes or to cause the platform to pivot so as to eject any banknotes thereon along a reject path and thereafter to return the platform to its first position; and
- an inlet aperture cover formed integrally with the door and moving with the door to block the inlet aperture when the door is moved to its open position and to unblock the inlet aperture when the door is returned to its closed position.

4,381,446
PHOTOELECTRIC SWITCH
Toshifumi Fukuyama, Otokuni, and Norio Onji, Kyoto, both of Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan
Filed Jun. 29, 1981, Ser. No. 278,426
Claims priority, application Japan, Jun. 30, 1980, 55-89555
Int. Cl.³ H01J *40/14*
U.S. Cl. 250—214 R 5 Claims



1. A photoelectric switch comprising a light projecting segment including a pulse oscillator and a light-emitting element adapted to give a pulse light emission in response to an output pulse of said pulse oscillator, a light reception segment including a light reception element adapted to yield a light reception signal on incidence of light, a gate circuit adapted to gate said light reception signal according to said output pulse of said pulse oscillator and an integration circuit for integrating outputs of said gate circuit, and a control circuit for varying the pulse frequency by controlling said pulse oscillator on generation of a light reception signal from said light reception element.

4,381,447
METHOD AND APPARATUS FOR EVALUATING AND SORTING SHEETS IN A HIGH SPEED MANNER
Stephen J. Horvath, Bensalem, Pa., and Steven R. Wilcox, Mount Laurel, N.J., assignors to Brandt, Inc., Bensalem, Pa.
Filed Sep. 19, 1980, Ser. No. 188,891
Int. Cl.³ G01V *9/04*
U.S. Cl. 250—223 R 12 Claims



1. Microprocessor-based control means for operating document handling apparatus comprising means for moving sheets in a first direction at spaced intervals along a predetermined path;
- sensing means for detecting the passage of sheets and for detecting predetermined characteristics of said sheets;
- at least one of said sensing means being adapted to generate

a signal upon the passage of the leading edge of each sheet at the location of said one sensing means;

means for generating timing pulses at a rate which is a function of the velocity of said sheets moving along said predetermined path;

multi-stage counter means being pulsed by said timing means;

memory storage means;

means responsive to a leading edge signal for transferring the contents of said multi-stage counter means to a predetermined location in said memory storage means;

said microprocessor-based control means further including means for periodically sampling the contents of said counter means and for determining the difference between the count stored in said predetermined location in said memory storage means and the count developed by said multi-stage counter means at the time said counter means is sampled wherein the difference in said count represents the location of said sheet along said predetermined path;

document condition examining means positioned at spaced intervals along said path;

means for temporarily storing examined conditions;

means responsive to predetermined difference values between the status count stored in said predetermined location in said memory storage means and the count sampled from said multi-stage counter means for examining the conditions in said temporary storing means.

4,381,448

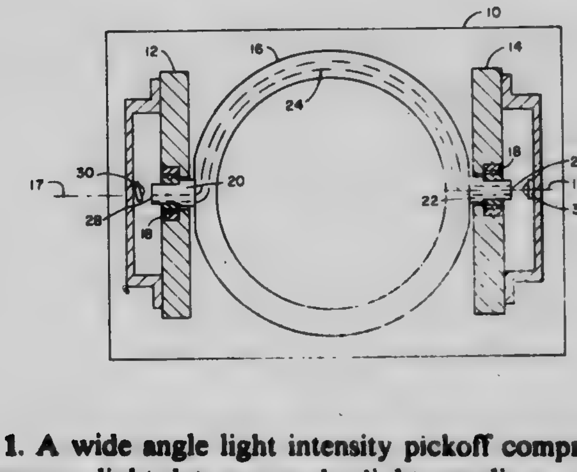
WIDE ANGLE INTENSITY PICKOFF

Aubrey Rodgers, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 31, 1981, Ser. No. 297,795

Int. Cl.³ G02B *5/14*

U.S. Cl. 250—227 12 Claims



1. A wide angle light intensity pickoff comprising: a light source, a light detector, and a light coupling means disposed between said light source and said light detector, said light source being adapted for movement with respect to said coupling means, said coupling means having a light receiving face adjacent to said light source and having a second or output face adjacent to and coaxial with said light detector, said light source being positioned for directing a light beam at an acute angle toward said receiving face for providing a variable light intensity on said face in response to movement of said light source with respect to said receiving face.

4,381,449

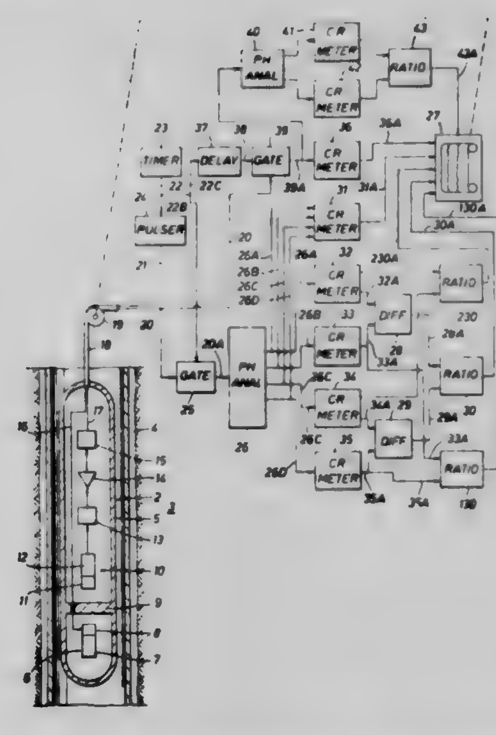
NEUTRON-INELASTIC GAMMA RADIATION WELL LOGGING METHOD AND APPARATUS WITH BACKGROUND RADIATION ACCOUNTED FOR

Harry D. Smith, Jr., Houston, Tex., assignor to Texaco Inc., White Plains, N.Y.

Division of Ser. No. 448,091, Mar. 4, 1974, Pat. No. 3,946,226, which is a continuation of Ser. No. 322,573, Jan. 10, 1973, Pat. No. 3,796,877, which is a continuation of Ser. No. 145,815, May 21, 1971, abandoned. This application Dec. 26, 1974, Ser. No. 536,700

Int. Cl.³ G01V *5/00*

U.S. Cl. 250—270 31 Claims



1. A system for observing earth formation properties comprising:

means for irradiating the earth formation with a pulse of high energy neutrons;

means for detecting over a broad energy band gamma radiation produced by the inelastic scattering of neutrons by nuclei of the formation elements during an interval of 10μ seconds or less in the early part of said neutron pulse and for producing signals in response thereto; and

circuit means for converting said inelastic gamma ray signals to an output signal functionally related to inelastic gamma rays over a selected, broad energy band to provide an indication of the hydrogenous matter content of the earth formations under observation.

4,381,450

PULSED RADIATION DOSIMETRY APPARATUS

John R. Cappelli, North Reading, Mass., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jan. 22, 1981, Ser. No. 227,558

Int. Cl.³ G01T *1/22*

U.S. Cl. 250—370 7 Claims

1. A pulsed radiation dosimetry apparatus comprising in combination:

a radiation detector means to receive a pulsed radiation signal, said radiation detecting means providing a voltage signal in response to said pulsed radiation signal,

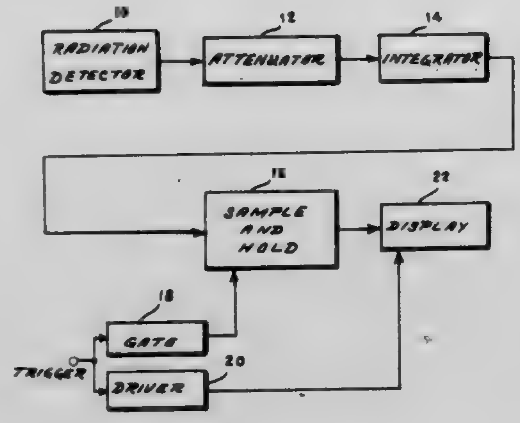
an attenuator means receiving said voltage signal from said radiation detector means, said attenuator means providing more than one level of attenuation,

an integrator means receiving said voltage signal from said attenuator means, said integrator means integrating said voltage signal and providing a ramp signal in response thereto,

a sample and hold means receiving said ramp signal from

said integrator means, said sample and hold means sampling and holding said ramp signal for a predetermined length of time, said sample and hold means providing a dose rate signal,

a gate driver means receiving a trigger signal, said trigger signal being coincident with the test of said pulsed radiation signal, said gate driver means providing a first and



second control signal, said first control signal enabling said sample and hold means to sample and hold said ramp signal, and,

a display means receiving said dose rate signal from said sample and hold means, said display means receiving said second control signal from said gate driver means, said second control signal enabling said display means to continuously display said dose rate signal.

4,381,451

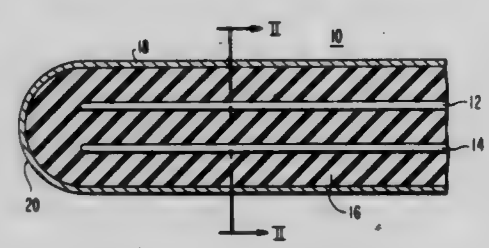
CORE SELF-POWERED RADIATION DETECTOR FOR DETERMINING THERMAL AND EPITHERMAL FLUX

Cheng L. Chen, Pittsburgh; Norman P. Goldstein, Murrysville, both of Pa., and William H. Todt, Elmira Heights, N.Y., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 5, 1980, Ser. No. 204,139

Int. Cl.³ G01T *3/00*

U.S. Cl. 250—390 5 Claims



1. A self-powered neutron detector which is responsive to thermal and epithermal neutron flux from a nuclear reactor core to generate signal currents which more accurately measure reactor power, which detector comprises two separate neutron responsive emitters of two different neutron responsive materials which have differing responses to thermal and epithermal neutron flux, insulating means about the emitter, and a relatively non-neutron responsive conductive collector about the insulating means.

4,381,452

SYSTEM FOR MEASURING TRACE MOISTURE IN A GASEOUS STREAM

Michel L. Jeanchomme, Darien, Ill., assignor to GCA Corporation, Bedford, Mass.

Filed Feb. 4, 1981, Ser. No. 231,303

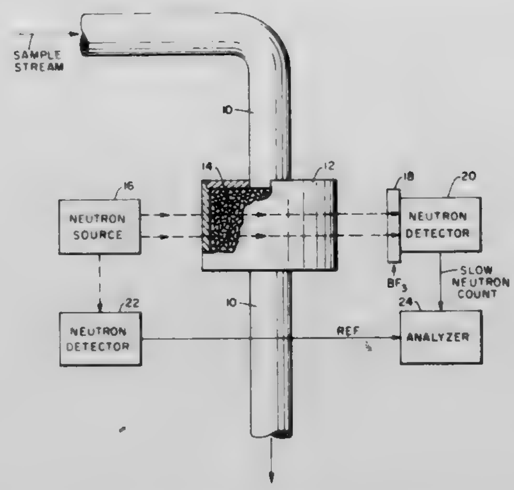
Int. Cl.³ G01T *3/00;* G01N *23/09*

U.S. Cl. 250—392 10 Claims

1. A system for measuring trace moisture in a fluid stream, comprising

moisture-adsorbent means for accumulating moisture to an equilibrium point proportional to moisture content of said fluid stream,

means for continuously directing at least a representative portion of said fluid stream through said moisture-adsorbent means,



means for irradiating said moisture-adsorbent means with fast neutrons, and

means for detecting slow neutrons coming from said moisture-adsorbent means indicative of interaction with hydrogen nuclei.

4,381,453

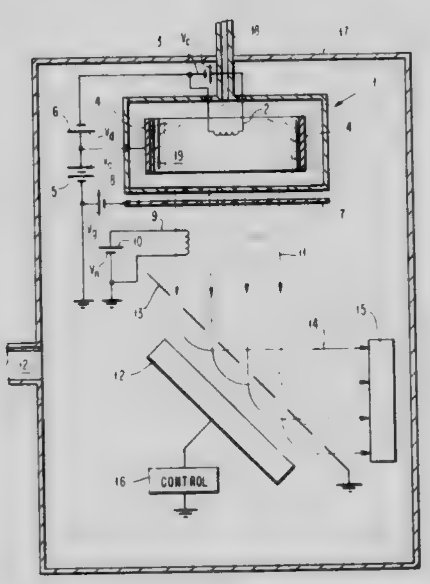
SYSTEM AND METHOD FOR DEFLECTING AND FOCUSING A BROAD ION BEAM

Jerome J. Cuomo, Lincolndale, and James M. E. Harper, Yorktown Heights, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 31, 1980, Ser. No. 221,661

Int. Cl.³ H01J *37/08*

U.S. Cl. 250—398 17 Claims



1. A system for deflecting a broad ion plasma beam, comprising:

a ion source for forming an ion plasma;

extraction means for extracting a broad ion plasma beam from said ion plasma in said ion source;

deflection means including a non-grounded surface located in the path of said ion plasma beam and positioned at an angle to said path for deflecting said ion plasma beam to a target material; and

a grounded screen grid located in front of said deflection means in the path of said ion plasma beam, said screen grid having openings which permit passage of the ions in said ion plasma beam but which block passage of the electrons in said ion plasma beam;

whereby said ion plasma beam is deflected by said deflection

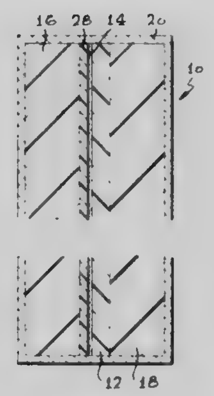
means and said grounded screen grid onto said target material.

4,381,454

DOSE EQUIVALENT NEUTRON DOSIMETER

Richard V. Griffith, Pleasanton; Dale E. Hankins, Livermore, both of Calif.; Luigi Tomasino, Rome, Italy, and Mohamed A. M. Gomaa, Heliopolis, Egypt, assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jan. 7, 1981, Ser. No. 222,867
Int. Cl.[3] G01T *1/04, 3/00*
U.S. Cl. 250—472.1 8 Claims



1. A neutron dosimeter comprising:
a detecting sheet of material which includes polymer chains that are easily broken by energetic particles, to detect charged particles, primarily protons but including alpha particles and recoiling nuclei, from the interaction of energetic neutrons with the material; and
a radiator layer which includes a quantity of neutron-to-alpha particle conversion material which generates energetic alpha particles when struck by neutrons, said layer lying adjacent to said detecting sheet so that the resulting alpha particles produce tracks in said detecting sheet;
the density of said conversion material in said radiator layer being in an amount that produces a number of tracks in said sheet for moderate energy neutrons striking the layer, so that the number of tracks produced in the detecting sheet is roughly proportional to the biological effect of the neutrons causing the tracks, both for moderate energy neutrons that strike said radiator layer and cause the generation of energetic alpha particles that produce tracks in said detecting sheet, and for high energy neutrons that strike said detecting sheet to produce tracks, whereby the track density in said detecting sheet provides a dose equivalent indication for a wide range of neutron energies;
said radiator layer having a mass density of at least 2 milligrams per square centimeter, said conversion material being selected from the group consisting of ^{6}LI and ^{10}B, and said radiator layer including between about 0.01% and about 3% by weight of said conversion material.

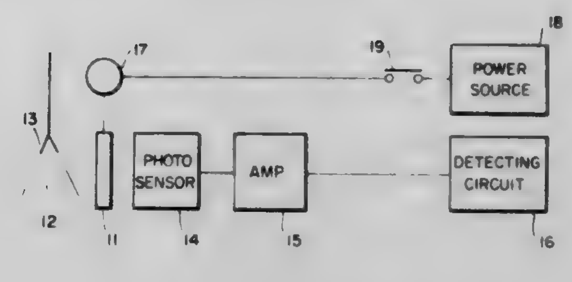
4,381,455

FLAME DETECTOR INCLUDING DETECTOR TESTING APPARATUS

Toshiyuki Komori, Fuchu, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed May 27, 1981, Ser. No. 267,605
Claims priority, application Japan, Jun. 20, 1980, 55/82879
Int. Cl.[3] G06K *7/10*
U.S. Cl. 250—554 8 Claims

1. A flame detector comprising:
a photoelectric element for detecting a light from a flame and producing a current; a photo shielding element for shielding the light of the flame from the photoelectric element when the photo shielding element is opaque and for permitting said photoelectric element to detect the light of the flame when said photo shielding element is transparent, said photo shielding element being electrically actuated to be opaque or transparent; means for converting said current of said photoelectric element to a constant-current; a load for varying the terminal voltage thereof according to said constant-current, said load being applied to a power source through said constant-current; a testing signal circuit constituting a filter circuit for said



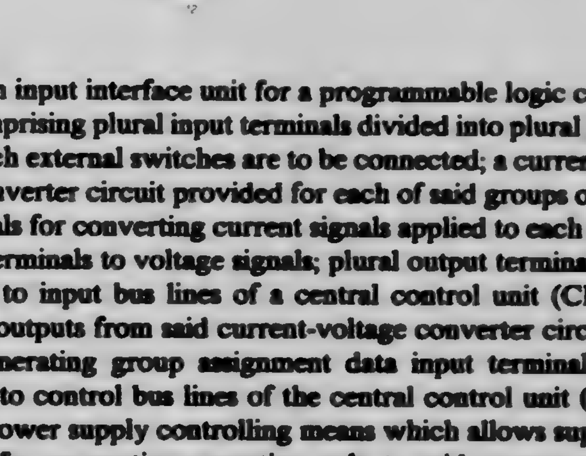
power source; a switch for connecting said testing signal circuit to said power source, said switch being open to output a voltage containing a testing signal from said power source; a circuit for separating the testing signal from the output voltage of said power source when said testing signal circuit is separated while said switch is open; and a driver circuit for actuating said photo shielding element to be opaque according to said testing signal.

4,381,456

INPUT INTERFACE UNIT FOR PROGRAMMABLE LOGIC CONTROLLER

Yoshitane Saito; Akihiro Yamada, and Satoshi Yano, all of Nagaokakyo, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

Filed Mar. 19, 1981, Ser. No. 245,684
Claims priority, application Japan, Mar. 19, 1980, 55-35088
Int. Cl.[3] H02J *3/00*; H01H *19/14*
U.S. Cl. 307—40 5 Claims



1. An input interface unit for a programmable logic controller comprising plural input terminals divided into plural groups to which external switches are to be connected; a current-voltage converter circuit provided for each of said groups of input terminals for converting current signals applied to each of said input terminals to voltage signals; plural output terminals connected to input bus lines of a central control unit (CPU) to which outputs from said current-voltage converter circuit are led; generating group assignment data input terminals connected to control bus lines of the central control unit (CPU), and a power supply controlling means which allows supply of power for converting operation only to said current-voltage converter circuit for specific terminal groups corresponding to the contents of the generating group assignment data applied to said generating group assignment data input terminals.

4,381,457

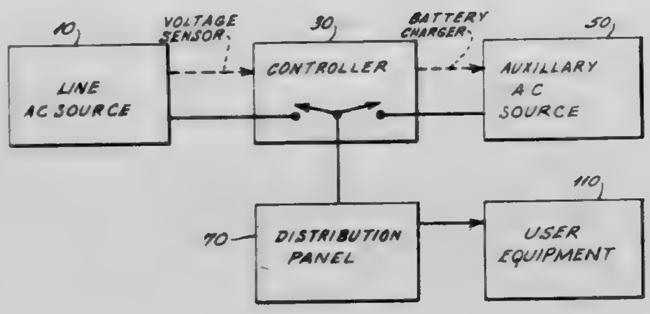
METHOD AND APPARATUS FOR PREVENTING LOSS OF DATA FROM VOLATILE MEMORY

James P. Wiles, Olean, N.Y., assignor to Ladco Development Co., Inc., Olean, N.Y.

Filed Apr. 23, 1981, Ser. No. 286,278

Int. Cl.³ H02J *9/00*

U.S. Cl. 307—64 **6 Claims**



4. In an apparatus for preventing loss of data from volatile memory of user equipment, the improvement comprising:

a portable housing attachable between an AC supply and said user equipment and having control means for receiving said AC supply and controlling power to said user equipment;

means for separably attaching and supplying auxiliary AC supply to said housing and control means;

means for filtering electromagnetic interference from said AC supply and providing a filtered AC supply;

distribution means, remote from and electrically attached to said housing control means, for distributing said filtered AC supply and said auxiliary AC supply to plural pieces of user equipment according to said controlling;

relay means for selectively supplying said filtered AC supply and said auxiliary AC supply to said distribution means upon command;

means for switching said AC supply off and on;

means for indicating said switching means is on and said AC supply is received by said control means;

means for protecting said apparatus from power surges in said AC supply;

means for presetting adjustable upper and lower limits of a voltage window;

means for monitoring said filtered AC supply and sensing voltage dexiations of said filtered AC supply outside of said window, providing a deviation output signal in response to a sensed voltage deviation outside of said window, and actuating said relay means in response to said deviation output signal to disconnect said filtered AC supply from said distribution means and connect said auxiliary AC supply to said distribution means in response to said deviation output signal and to disconnect said auxiliary AC supply and reconnect said filtered AC supply to said distribution means upon cessation of said deviation output signal.

4,381,458

BACK-UP ELECTRICAL POWER SUPPLIES

Michael J. Anstey, Wokingham, and David F. Brown, Thorplands, both of England, assignors to Racal Microelectronic Systems Limited, Bracknell, England

Filed Aug. 4, 1981, Ser. No. 290,104

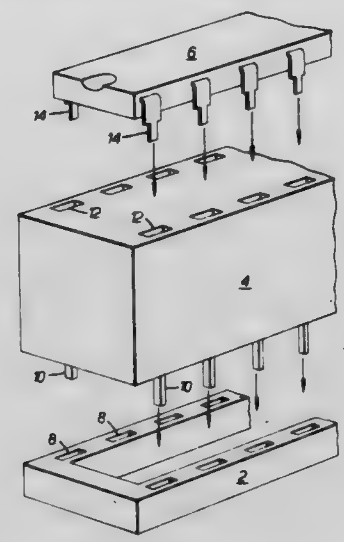
Claims priority, application United Kingdom, Aug. 6, 1980, 8025573; Sep. 24, 1980, 8030819; Feb. 9, 1981, 8103834; Jun. 29, 1981, 8119921

Int. Cl.³ H02J *9/02*

U.S. Cl. 307—66 **14 Claims**

1. A back-up electrical power supply in combination with an electrically powered device which requires a continuous electrical supply and which is connected to input and output connections and to a normal power supply via plug and socket means,

plug and socket means connecting the back-up power supply to the electrical device and to the normal power supply to enable the back-up power supply and the electrical device to be removed as a unit from the input and output connections and the normal power supply, and



circuit means for causing the back-up power supply to take over the function of providing said electrical supply to the said device when the device is unplugged together with the back-up electrical power supply, from the normal power supply.

4,381,459

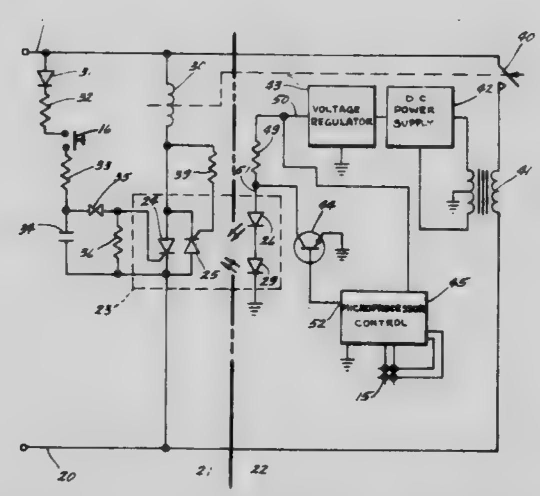
POWER-UP CIRCUIT FOR MICROPROCESSOR BASED APPLIANCE CONTROL

Curran D. Cotton, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa

Filed Sep. 25, 1981, Ser. No. 305,559

Int. Cl.³ H01H *3/00*

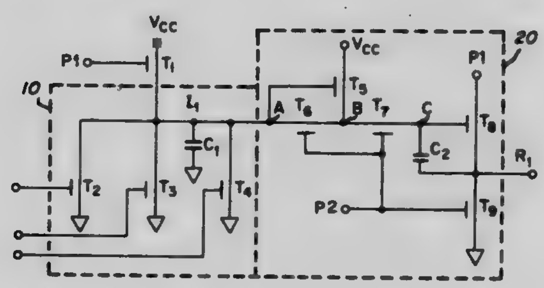
U.S. Cl. 307—139 **10 Claims**



1. A power-up circuit for a microprocessor based appliance control, the combination comprising: a power source providing power between first and second conductors; a first circuit portion connected across said conductors; a second circuit portion electrically disconnected from one of said conductors and from said power source by a normally open switch means and including a microprocessor control, said first circuit portion including means for controlling said normally open switch means; means for operatively coupling said first and second circuit portions including light actuated means in said first circuit portion for energizing said means for controlling and further including light emitting means in said second circuit portion for illuminating said light actuated means; means including a touch switch responsive to manual actuation for

energizing said means for controlling independently of said light emitting means to effect initial closing of said normally open switch means and connection of said second circuit portion to said power source, said light emitting means being operable upon connection of said second circuit portion to said power source for emitting light to maintain said light actuated means operable for energizing said means for controlling; and means connected to said microprocessor control for controlling operation of said light emitting means responsive to said microprocessor control.

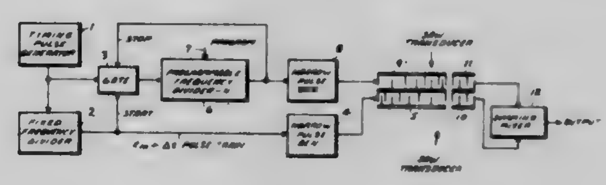
4,381,460
BOOTSTRAP DRIVER CIRCUIT
Abraham Menachem, Herzlia, Israel, assignor to National Semiconductor Corporation, Santa Clara, Calif.
Filed May 27, 1980, Ser. No. 153,485
Int. Cl.³ H03K *19/017, 19/096, 19/20;* **G11C** *8/00*
U.S. Cl. 307—449 **5 Claims**



1. A two-phase field effect transistor circuit for selectively providing an output signal on an output line in response to an input signal comprising:
- means for providing a reference voltage;
- means for providing a supply voltage;
- means for providing alternating first and second clock signals;
- a first transistor having a gate coupled to receive the input signal, a first terminal coupled to receive the supply voltage and a second terminal;
- a second transistor having a gate coupled to receive the second clock signal, a first terminal coupled to the gate of the first transistor, and a second terminal coupled to the second terminal of the first transistor;
- a third transistor having a gate coupled to receive the second clock signal, a first terminal coupled to the second terminal of the first transistor, and a second terminal;
- a fourth transistor having a gate coupled to receive the second clock signal, a first terminal coupled to the output line, and a second terminal coupled to receive the reference voltage;
- a fifth transistor having a gate coupled to the second terminal of the third transistor, a first terminal coupled to the output line and a second terminal coupled to receive the first clock signal; and
- means for providing a capacitance between the gate of the fifth transistor and the output line.

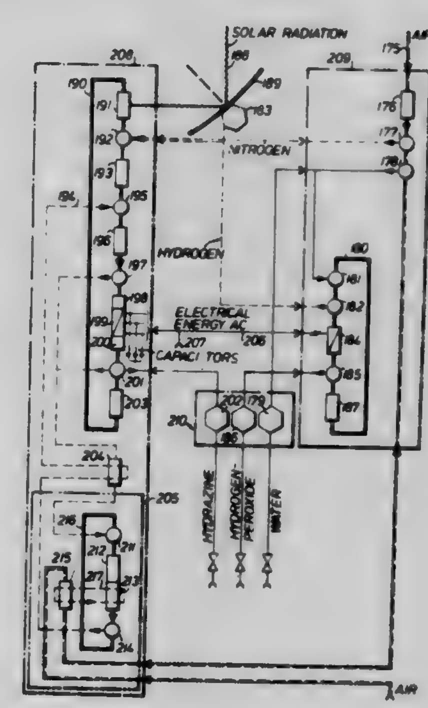
4,381,461
FREQUENCY SYNTHESIZER
Peter D. Steensma, Midland Park, N.J., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Jan. 14, 1981, Ser. No. 224,860
Int. Cl.³ H03B *19/00, 21/02*
U.S. Cl. 307—529 **23 Claims**

1. A frequency synthesizer to generate a selected, adjustable discrete frequency output signal comprising:
- a pair of acoustic means each providing an output signal having a predetermined frequency versus time characteristic;
- first means coupled to each of said pair of acoustic means to excite one of said pair of acoustic means with pulses having a given repetition frequency and to excite the other of said pair of means by said pulses after being delayed a given variable amount; and
- second means coupled to each of said pair of acoustic means to provide said selected discrete frequency output signal;
- each of said pair of acoustic means including
  - a surface acoustic wave interdigital transducer having a predetermined spatially varying periodicity therealong; and
- said first means including
  - a source of timing pulses having a repetition frequency greater than said given repetition frequency,
  - a programmable frequency divider to provide said variable delay having its output coupled to said other of said pair of transducers,



  - a fixed frequency divider having its input coupled to said source of timing pulses to provide said pulses on its output which is coupled to said one of said pair of transducers, and
  - a gate means having an output coupled to an input of said programmable divider, a first input coupled to said source of timing pulses, a second input coupled to said output of said fixed divider to activate said gate means to pass said timing pulses to said programmable divider and a third input coupled to said output of said programmable divider to block passage of said timing pulse when a pulse appears at said output of said programmable divider.

4,381,462
CONVERSION OF AVAILABLE ENERGY
Reinhart Radebold, Quastenhornweb 14 a, 1 Berlin 22, Fed. Rep. of Germany
Division of Ser. No. 545,133, Jan. 29, 1975, Pat. No. 4,127,453. This application Sep. 11, 1978, Ser. No. 941,406
Claims priority, application Fed. Rep. of Germany, Jan. 30, 1974, 2405134
Int. Cl.³ G21D *7/02;* **H02K** *44/00*
U.S. Cl. 310—11 **39 Claims**



1. A system for converting thermal energy into different forms of energy including electrical energy, comprising:
first means for providing a first circulation of a liquidous

medium, the first circulation including means for heating the liquidous medium;

second means for providing a second circulation of a different gaseous medium, including means (a) for mixing it with the heated liquidous medium, thereby combining the first and second circulations; means (b) for causing the gaseous medium as mixed to expand, thereby accelerating the liquidous medium; and means (c) for separating the gaseous medium to continue separately in the second circulation;

means included in the first circulation for extracting energy from the accelerated liquid, the liquid being returned to the means for heating pursuant to said first circulation;

third means included in the second circulation to provide for recuperative heat exchange of the gaseous medium with itself, whereby the gaseous medium discharging thermal energy is taken from the means for separating, the gaseous medium receiving thermal energy being fed to the means for mixing; and

a thermocompressor included in the second circulation and including a diffusion for compressing the gaseous medium having discharged thermal energy in the third means at a low constant temperature and feeding the gaseous medium following the compressing to the third means to receive therein discharged thermal energy from the gaseous medium taken from the means for separating.

4,381,463

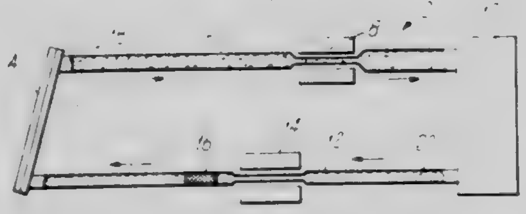
METHOD AND APPARATUS FOR PRODUCING ELECTRICAL POWER AND FOR THE SIMULTANEOUS HEATING OF FLUID, UTILIZING A MAGNETOHYDRODYNAMIC GENERATOR

Herman Branover, Beer-Sheva, Israel, assignor to Ben-Gurion University of the Negev Research and Development Authority, Beer Sheva, Israel

Continuation-in-part of Ser. No. 78,786, Sep. 28, 1979, abandoned. This application Nov. 10, 1980, Ser. No. 205,612

Int. Cl.[3] H02K ***45/00***

U.S. Cl. 310—11 **14 Claims**



1. A method for producing electrical power by means of a magnetohydrodynamic (MHD) generator, comprising

(a) heating a mixture of liquid metal and a low boiling temperature propelling liquid at a relatively low temperature to form a two-phase liquid metal-vapor flow, the heating temperature being such as to effect substantially isothermal expansion of the vapor bubbles, thereby to accelerate the two-phase flow;

(b) directing said two-phase metal-vapor flow through an MHD-generator to generate electricity;

(c) condensing the vapor phase from said two-phase liquid metal to form liquid metal carrying propelling liquid droplets; and

(d) recycling and reheating said liquid metal and said propelling liquid droplets to again form the two-phase liquid metal-vapor flow.

4,381,464

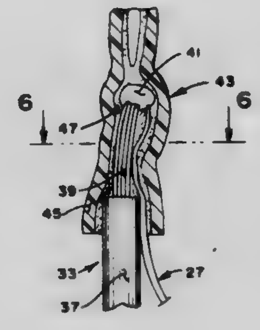
EXTENDED LIFE, MOISTURE RESISTANT ELECTRIC MOTOR

William J. Schnyder, St. Louis County, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Division of Ser. No. 59,589, Jul. 23, 1979, Pat. No. 4,291,455. This application Jun. 15, 1981, Ser. No. 273,579

Int. Cl.[3] H02K ***3/44***

U.S. Cl. 310—45 **10 Claims**



1. An electric motor having a superior service life in high moisture environments, said motor comprising a stator assembly, a rotor assembly, and means for rotatably mounting said rotor assembly within said stator assembly, the latter comprising a core made of a plurality of laminations of suitable magnetic sheet-like material formed in a stack, each of said laminations having a central opening and a plurality of notches extending radially outwardly from said central opening with the latter forming a bore of said stator assembly and with said notches forming a plurality of slots extending longitudinally through said core when said laminations are stacked to form said core, sheet insulation material of non-water absorbing synthetic resin material inserted in each of said slots so as to electrically insulate the sides and bases of said slots, a plurality of coils of magnet wire, the latter having a coating of electrical insulation material thereon of suitable non-moisture absorbent synthetic resin material, said coils being inserted in said slots so as to constitute the stator windings of the motor, wedges of suitable non-moisture absorbent synthetic resin material insertable into said slots so as to hold said coils therein and to insulate said coils, said coils being electrically connected to one another in a predetermined manner so as to form the poles of the motor, certain of said coils being electrically connected to power leads with the connections of the magnet wires of these certain coils and the conductors of said power leads also being referred to as junctions, an electrical connection insulator being installed on each of said junctions, said connection insulators each having a heat shrinkable outer cover and a coating of mastic-like material on the inside thereof, said coating adhering said connection insulators to their respective junctions prior to heat shrinking, said connection insulators being of larger internal cross section than the diameter of said power lead and magnet wire constituting a junction so as to permit said connection insulators to be readily installed on said junctions and to permit liquid electrical insulation to flow into said connection insulators and around said junctions upon dipping of the stator assembly into said liquid electrical insulation, said coating being flowable around said junctions upon heat shrinking of the cover thereby to seal said junctions against moisture, said stator assembly being insulated as a unit and having at least one coat of the cured liquid insulation, whereby, upon curing, excess liquid electrical insulation is forced out of said connection insulators and said mastic-like coating effectively seals moisture from said junctions.

4,381,465

STATOR ARRANGEMENT FOR SMALL MOTORS

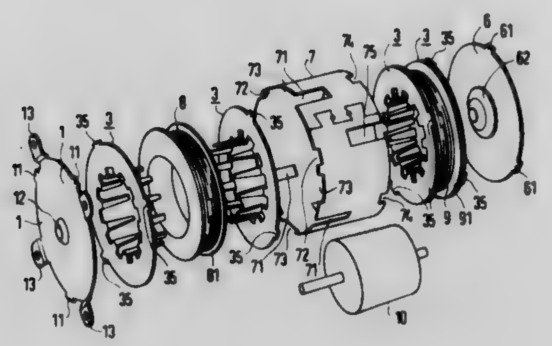
Klaus Renkl, Kürnach, and Helmut Schmidt, Reichenberg, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jun. 17, 1981, Ser. No. 274,377

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1980, 3024674

Int. Cl.³ H02K ***37/00***

U.S. Cl. 310—49 R **6 Claims**



1. A stator arrangement for a motor of the type having first and second stator systems arranged axially in tandem, the arrangement further comprising:

housing means for enclosing the two stator systems, said housing means being integrally formed in a substantially cylindrical shape with first and second end faces, said first and second end faces being each provided with a plurality of axial slots; and

a plurality of pole laminations for forming the first and second stator systems, each of said pole laminations being associated with one of the first and second stator systems and having a substantially circular configuration with a plurality of radial protrusions distributed at unequal angular intervals around a circumference of said circular configuration, whereby said radial protrusions of said pole laminations associated with the first and second stator systems engage respective ones of said axial slots of said first and second end faces, respectively, of said housing means, the axial and rotational orientation of said pole laminations within said housing means being determined by the axial depth and circumferential position of said axial slots, so as to provide a specific position within said housing means for each of said pole laminations.

4,381,466

MAGNETIC CENTRAL ROTARY COUPLING

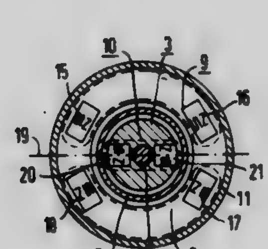
Werner Laenens, Berlin, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Mar. 16, 1981, Ser. No. 244,080

Claims priority, application Fed. Rep. of Germany, Mar. 28, 1980, 3012740

Int. Cl.³ H02K ***49/06***

U.S. Cl. 310—103 **6 Claims**



1. Magnetic central rotary coupling with

(a) an inner coupling half having disposed thereon an inner magnetic device with its longitudinal axis transverse to the axis of rotation, said inner magnetic device including two pairs of magnet poles, one pair at each longitudinal end thereof; and

(b) an outer coupling half having first and second outer magnetic devices disposed thereon symmetrical to the longitudinal axis of the inner magnetic device, the magnet poles of said outer magnetic device adjacent to those of the inner magnetic device and aligned at an angle of approximately 30° to the longitudinal axis of the inner magnetic device, the improvement comprising said inner and first and second outer magnetic devices each containing two rod shaped permanent magnets, the rod shaped permanent magnets of the outer magnetic devices being situated at the locations of the magnet poles of said devices and the rod shaped permanent magnets of said inner magnetic device situated so that their magnet poles are aligned at an angle of 90° to the longitudinal axis.

4,381,467

MULTIPLANAR CONDUCTOR BAR FOR ELECTRIC MACHINES, ESPECIALLY FOR TURBO-GENERATORS

Peter Grünewald, Essen; Peter Jung, Mülheim, and Rudolf von Musil, Berlin, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Continuation of Ser. No. 20,027, Mar. 13, 1979, abandoned. This application Feb. 3, 1981, Ser. No. 231,027

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1978, 2811249

Int. Cl.³ H02K ***3/14***

U.S. Cl. 310—213 **1 Claim**

1. Multiplanar conductor bar for electric machines comprising:

(a) subconductors superimposed radially in a number n of circumferentially mutually adjacent planes, n being a whole, even number between six and ten, inclusive, and transposed by at least 360°;

(b) a total of two groups of two adjacent subconductor planes, respectively, formed at upper and lower sides of the multiplanar conductor bar by exclusively mutual crossover of the semiconductors of said two adjacent planes;

(c) a total of (n/2)−1 groups of four adjacent subconductor planes, respectively, formed at said upper and lower sides of the multiplanar conductor bar by exclusively mutual crossover of the subconductors of the respective four adjacent subconductor planes and exclusively in a transition between the respective outer and the respective inner planes of said four planes;

(d) the respective groups of four adjacent planes being mutually offset at said lower side with respect to said upper side by two subconductor planes;

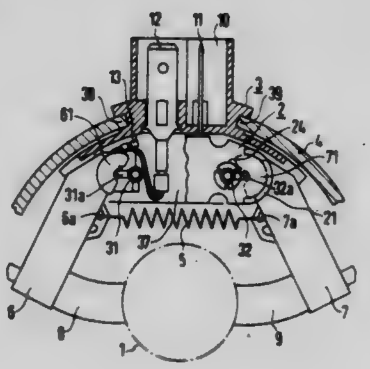
(e) each of said subconductors traversing all layer levels between two crossover points in each subconductor plane alternatingly in descending and ascending order in successive planes;

(f) the individual crossed-over subconductors of each of said subconductor planes being stacked so as to form a respective subconductor column, the subconductor columns

being mutually telescoped and united into the multiplanar conductor bar.

4,381,468
COMMUTATOR MOTOR BRUSH MOUNTING ARRANGEMENT

Peter Adam, Höchberg, and Ewald Wehner, Würzberg, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany
Filed Jun. 17, 1981, Ser. No. 274,380
Claims priority, application Fed. Rep. of Germany, Jun. 25, 1980, 3023803
Int. Cl.^{3} H02K *13/00*
U.S. Cl. 310—239 8 Claims

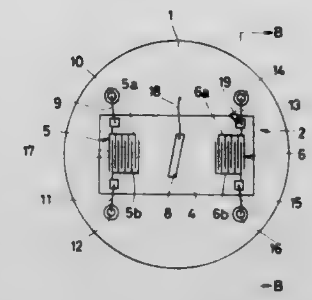


1. A commutator motor brush mounting arrangement, the arrangement being of the type which is secured to a housing of a commutator motor at a longitudinally axial opening therein, the longitudinally axial opening being arranged near a commutator of the commutator motor, the arrangement being provided with a front plate arranged substantially transverse to the longitudinally axial direction of the motor, the front plate being arranged at one end of a brush support plate and having mounting bars projecting axially parallel with the commutator of the commutator motor and disposed so as to be within the housing of the commutator motor when the arrangement is installed thereon, the arrangement being further provided with a plurality of hammer-shaped brush holders having open bearing shells which are rotatably engaged with, so as to depend from, respective ones of the mounting bars, the hammer-shaped brush holders being secured against axial displacement in one direction by being in contact with the front plate of the brush support plate, and rotatably displaceable about the mounting bars, the arrangement further comprising an end plate affixed to the brush support plate at the mounting bars, whereby predetermined portions of the hammer-shaped brush holders are arranged axially intermediate of the front and end plates, said end plate being provided with at least one guide portion for engaging said predetermined portion of a respective one of the hammer-shaped brush holders, said end plate securing the hammer-shaped brush holders from being displaced in a second axial direction.

4,381,469
TEMPERATURE STABLE PIEZOELECTRIC DEVICE

Toshio Ogawa, Kyoto, and Kikuo Wakino, Muko, both of Japan, assignors to Murata Manufacturing Company, Ltd., Japan
Filed Jul. 15, 1980, Ser. No. 169,165
Claims priority, application Japan, Jul. 20, 1979, 54/92803; Sep. 3, 1979, 54/113412; Oct. 2, 1979, 54/137176[U]
Int. Cl.^{3} H01L *41/08*
U.S. Cl. 310—313 R 17 Claims

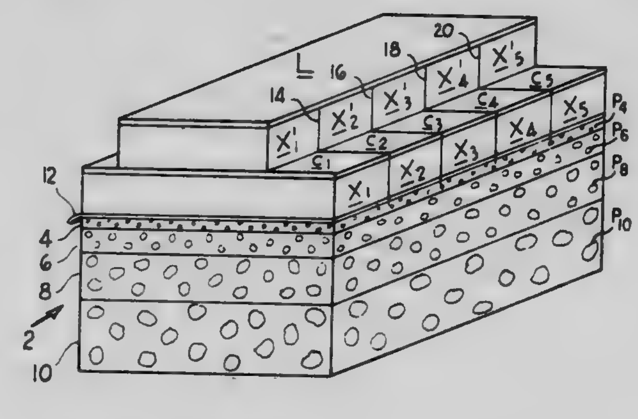
1. A surface acoustic wave device, comprising:
a ferroelectric plate which is polarized in a polarization axis direction and which has first and second opposing surfaces intersecting said polarization axis direction;
an interdigital electrode formed on said first surface of said ferroelectric plate such that an acoustic wave propagation region is defined on said plate; and
a resin layer covering said ferroelectric plate, said resin layer being in direct contact with substantially all exposed surfaces of said plate except said acoustic wave propagation region such that a gap is formed between said plate and said resin layer in said propagation region;



said resin layer including a resistive resin material which shunts an electric charge produced by the pyroelectric effect on said first and second surfaces of said ferroelectric plate.

4,381,470
STRATIFIED PARTICLE ABSORBER

Jerry G. Leach, Hudson, N.H., and James T. Fearnside, Lexington, Mass., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Dec. 24, 1980, Ser. No. 219,633
Int. Cl.^{3} H01L *41/08*
U.S. Cl. 310—327 3 Claims



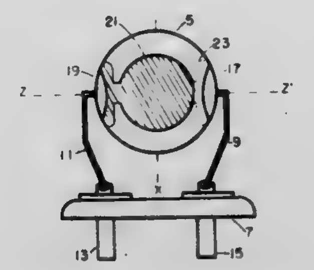
1. A transducer, comprising
an acoustic energy absorbing base,
an array of piezoelectric crystals mounted in spaced parallel relationship on said base, there being cuts in said base aligned with the spaces between said crystals,
said base having been molded from a mixture of high acoustic impedance particles of different sizes and a binder for the particles, the portion of the particles of a smaller size decreasing in a direction away from the interface of said base and said array of crystals, but the density of the particles by weight being the same throughout the base so as to have an acoustic impedance approximately equal to that of said crystals.

4,381,471
SC-CUT QUARTZ RESONATORS WITH SUPPRESSED B-MODE

Raymond L. Filler, Freehold, and John R. Vig, Colts Neck, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Mar. 23, 1981, Ser. No. 246,519
Int. Cl.^{3} H01L *41/08*
U.S. Cl. 310—353 8 Claims

1. An SC-cut quartz crystal resonator blank adapted to oscillate in its desired fundamental c-mode, comprising: a disc shaped blank of an SC-cut crystal resonator, a pair of mounting clips contacting said blank at diametrically opposed points on

the edges of said blank, with said blank oriented so that the ZZ' crystallographic axis thereof passes through both of said diametrically opposed points, the position of the mounting clips

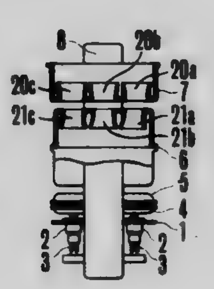


increasing the b-mode resonator resistance with respect to the c-mode resistance to a ratio greater than unity to suppress undesired b-mode oscillation.

4,381,472
ELECTRONIC TUBES
Yoshitada Sakauchi, Mobara, and Masayuki Hikiba, Musashino, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jul. 31, 1980, Ser. No. 174,230
Claims priority, application Japan, Aug. 1, 1979, 54-97265
Int. Cl.³ H01J *5/50*
U.S. Cl. 313—331 6 Claims

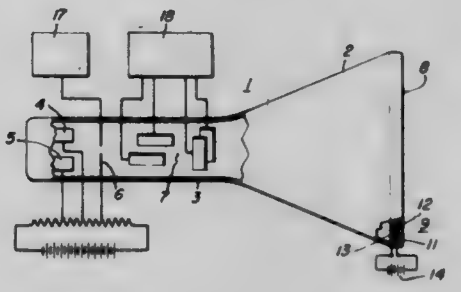
1. In an electronic tube of the type having a hermetic seal structure in which a metal cylindrical member having at least a cylindrical joint portion at the end is bonded to the end of a ceramic cylindrical member by brazing, the improvement of said hermetic seal structure wherein said metal cylindrical member is made of iron, and said cylindrical joint portion has a wall thickness of 0.5 mm or less and a height of 1 mm or more.

4,381,473
IN-LINE TYPE ELECTRON GUN STRUCTURE
Satoru Endoh; Mamoru Ikeda; Minoru Yabe; Mitsuru Igarashi, all of Mobara, and Masaaki Yamauchi, Togane, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jul. 25, 1980, Ser. No. 172,416
Claims priority, application Japan, Jul. 25, 1979, 54-93762
Int. Cl.³ H01J *29/50*
U.S. Cl. 313—414 3 Claims



1. In an electron gun structure for a color picture tube assembly having integrally formed lenses comprising a plurality of tubular electrode assemblies, each electrode assembly having a cup formed, in its bottom, with three electron beam passage holes and sleeve-shaped electrodes drawn from the bottom of the cup at peripheral edges of the electron beam passage holes, the bottom of one electrode assembly opposing that of a similar electrode assembly, said sleeve shaped electrodes for the opposed assemblies extending in opposite axial directions and aligned for passage of their respective beams for establishment of an electron lens and each sleeve-shaped electrode terminating in a substantially field-free region and having a length equal to at least 50% of an inner diameter thereof and said inner diameter of said sleeve-shaped electrodes tapered to gradually increase in diameter to a precision circle toward a free end thereof from an intermediate point along the length of the sleeve-shaped electrode.

4,381,474
SOLID STATE STORAGE DEVICES AND SYSTEMS
Dominic A. Cusano, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed Mar. 30, 1962, Ser. No. 184,642
Int. Cl.³ H01J *29/50, 31/00*
U.S. Cl. 315—13 ST 16 Claims

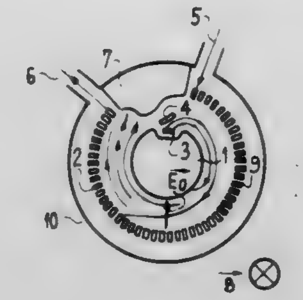


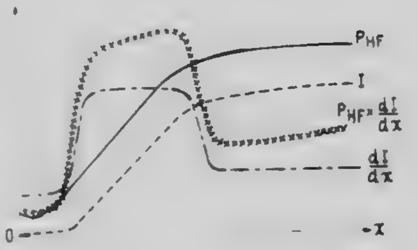
1. A solid state storage device comprising: a luminescent screen including a continuous, crystalline, homogeneous, nongranular layer of a material consisting of one of a photoelectroluminescent phosphor and a cathodoelectroluminescent phosphor; means including a pair of electrically conducting layers in contact with opposite surfaces of said phosphor layer for establishing a unidirectional, transverse electric field therein; means directing information-containing energy upon one surface of said phosphor layer, said energy in combination with the transverse electric field being effective to produce an intensified visible light image from said screen and to form within the phosphor layer thereof a volume positive space charge latent image; and means for flooding said phosphor layer with energy less effective to produce a visible light image than said information-containing energy to cause the latent image previously formed within the phosphor layer to be displayed as a visible light image.

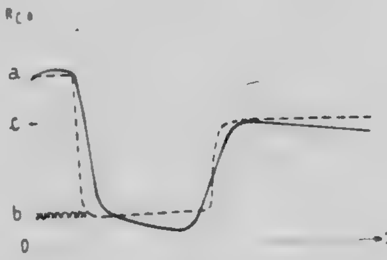
4,381,475
VARIABLE COUPLING RESISTANCE DELAY LINE FOR CROSSED FIELD TUBE
Jean P. Morizot, and Rene Gerber, both of Paris, France, assignors to Thomson - CSF, Paris, France
Filed Oct. 24, 1980, Ser. No. 200,483
Claims priority, application France, Oct. 13, 1979, 79 26886
Int. Cl.³ H01J *25/34*
U.S. Cl. 315—39.3 8 Claims

1. A variable coupling resistance delay line for a crossed field tube, said tube having two parallel electrodes one a positive and the other a negative electrode and between which there is a continuous electrical field E_o, the positive electrode being constituted by a delay line incorporating a sequence of fingers facing the negative electrode, the structure of the delay line ensuring the synchronism of the microwave travelling through it and of an electron beam moving between the negative electrode and the delay line and the pitch of the fingers and their distance from the negative electrode being constant, wherein there is between two successive fingers an interdigital

which varies, by modifying the structure of the fingers, substantially porportionally to the product $P_{HF} \times (dI/dx)$ in which P_{HF} prepresents the microwave power at the point x on the line and in which dI/dx represents the current gradient deliv-







ered by the voltage supply creating the field E_o as a function of the position x on the line, P_{HF} and I being measured on the tube having a constant coupling resistance or calculated by a computer programme, the variation in the interdigital capacitance bringing about an inverse variation of the coupling resistance.

4,381,476
FLUORESCENT LAMP INSTANTANEOUS STARTING DEVICE

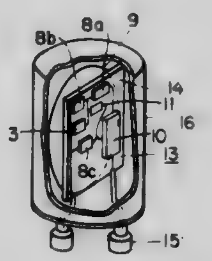
Hiromi Adachi; Kazunari Inoue, and Hiroshi Ohshita, all of Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 16, 1980, Ser. No. 217,076

Claims priority, application Japan, Dec. 20, 1979, 54-166035

Int. Cl.³ H05B *39/00*

U.S. Cl. 315—101 **1 Claim**



1. A flourescent lamp starting device for substantially instantaneously starting a flourescent lamp, comprising:

a ceramic substrate having components forming a semiconductor switch mounted thereon, said semiconductor switch comprising a thyristor having anode and cathode terminals coupled to first and second lead wires, respectively, a first resistor coupled between a gate electrode of said thyristor and said cathode electrode of said thyristor, second and third resistors coupled in series with one another between said anode and cathode electrodes of said thyristor, a nonlinear trigger element coupled between a common connection point of said second and third resistors and said gate electrode of said thyristor, and a capacitor coupled between said common connection point and said cathode electrode of said thyristor, said thyristor and said nonlinear trigger element comprising semiconductor chips, said first through third resistors comprising thick film resistors, and said capacitor comprising a chip-type capacitor;

a nonlinear capacitor of a size substantially equal to the size of said substrate having first and second terminals connected to said first and second leads, respectively, said nonlinear capacitor being in the form of a thin plate, and said first and second leads supporting said nonlinear capacitor in a position adjacent and parallel to said substrate;

a case substantially equal in size to a conventional glow starter case; and

first and second connecting terminals mechanically coupled to said case and electrically insulated from said case, said first and second connecting terminals being adapted to be electrically and mechanically connected directly to a conventional glow starter socket, and said first and second leads being coupled to said first and second connecting terminals, respectively.

4,381,477
CIRCUIT FOR A PICTURE DISPLAY DEVICE FOR CONVERTING AN INPUT D.C. VOLTAGE INTO AN OUTPUT D.C. VOLTAGE

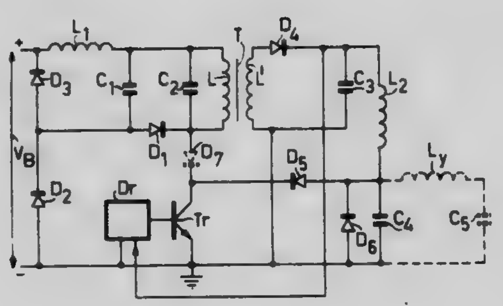
Christianus H. J. Bergmans, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 26, 1981, Ser. No. 314,937

Claims priority, application Netherlands, Nov. 4, 1980, 8006018

Int. Cl.³ H01J *29/70, 29/76*

U.S. Cl. 315—408 **8 Claims**



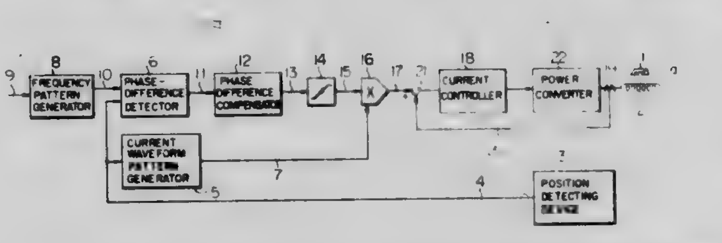
1. A circuit for a picture display device for converting an input d.c. voltage into an output d.c. voltage which is substantially independent of variations of the input voltage and/or variations of a load connected to the output voltage, comprising a transformer whose primary winding is part of a first resonant network which also includes a first and a second capacitor, switching means at line frequency operative to apply the voltage across the first capacitor to the primary winding, the switching means comprising a controllable switch connected in series with a first diode and with a second diode connected in parallel with the series connection of the switch and the first diode an inductance having one end connected to a first terminal of the input voltage and the other end to the primary winding, means connecting the switch to a second terminal of the input voltage, means coupling the inductance to the resonant network via a third diode, means connecting a secondary winding of the transformer to a fourth diode connected in turn to a smoothing capacitor for generating the output voltage, a sawtooth current flowing during operation through the primary winding flowing during a first portion of the trace period thereof through the first diode and during the remaining, second portion of the trace period through the second diode and through the switch, a supply current flowing through the

inductance causing energy to be stored therein while a current flowing during the cut-off period of the switch through the third diode and through the inductance replenishes energy losses, the retrace period of the said sawtooth current being determined by the elements of the first resonant network and the conduction period of the switch being dependent on the output voltage, a fifth diode serially connected to the controllable switch and a sixth diode coupled in parallel with the series connection of the switch and the fifth diode, a second resonant network comprising a second inductance, a trace and a retrace capacitor being included between the connecting point of the fifth and the sixth diode and the connecting point of the fourth diode and the smoothing capacitor, through which second inductance there flows during operation a second sawtooth current of line frequency which flows during a first portion of the trace period thereof through the sixth diode and during the remaining, second portion thereof through the fifth diode and the switch, the retrace period of the second sawtooth current being determined by the elements of the second resonant network and the starting moment of the retrace period of the second sawtooth current coinciding with the starting moment of the retrace period of the first sawtooth current.

4,381,478
CONTROL SYSTEM FOR A LINEAR SYNCHRONOUS MOTOR

Takashige Saijo, Kunitachi; Haruo Ikeda, Hyuga; Kiyoshi Nakamura, and Shigeyoshi Koike, both of Katsuta, all of Japan, assignors to Hitachi, Ltd. and Japanese National Railways, both of Tokyo, Japan

Filed Mar. 6, 1981, Ser. No. 241,372
Claims priority, application Japan, Mar. 7, 1980, 55-27974; Mar. 7, 1980, 55-27975; Mar. 7, 1980, 55-27976; Mar. 7, 1980, 55-27977
Int. Cl.³ H02P *5/40;* H02K *41/00*
U.S. Cl. 318—135 **21 Claims**



1. A control system for a linear synchronous motor comprising:

a linear synchronous motor having a field magnet and armature coils;

power converter means for supplying a polyphase AC power of a variable frequency and a variable voltage to said armature coils;

position detecting means for detecting a relative position of said field magnet to said armature coils;

means responsive to an external speed pattern and for generating a frequency pattern of said motor;

means for producing a propulsion force pattern in accordance with a phase difference between the output of said frequency pattern generator and the output of said position detecting means;

means for generating a current waveform pattern synchronized with the output of said position detecting means;

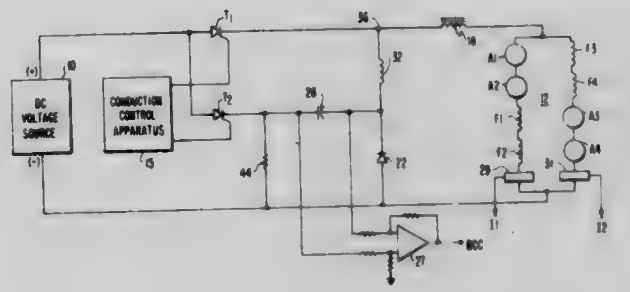
means for producing a current pattern of said armature coils by computing the output of said current waveform pattern generator means and the output of said propulsion force pattern producing means; and

means for controlling said power converter means in accordance with said current pattern.

4,381,479
ELECTRIC MOTOR CHOPPER CONTROL APPARATUS AND METHOD

Henry J. Wesling, Pittsburgh, and James H. Franz, Jr., Murrysville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jan. 15, 1981, Ser. No. 225,227
Int. Cl.³ H02P *5/06*
U.S. Cl. 318—317 **10 Claims**



1. In control apparatus for a chopper having an ON operation and an OFF operation, said chopper having a commutation capacitor with a charge voltage and being operative to control the energization current of an electric motor, the combination of:

means for providing a first pulse signal for determining the ON operation of said chopper,

means for providing a second pulse signal for determining the OFF operation of said chopper,

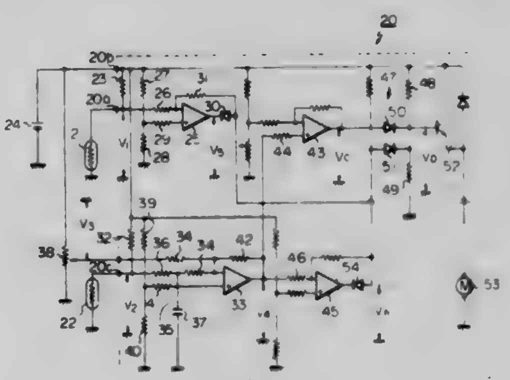
means for comparing the actual value of at least one of said charge voltage and said motor current with a predetermined reference value, and

controlling the time period relationship between said second pulse signal and said first pulse signal to increase the charge voltage when said actual value is less than said predetermined reference value.

4,381,480
APPARATUS FOR CONTROLLING A BLOWER MOTOR

Toshizo Hara, Kawashima; Shinji Sutoh, Annaka, and Toshio Kojima, Kounan, all of Japan, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Mar. 30, 1981, Ser. No. 248,835
Claims priority, application Japan, Mar. 31, 1980, 55-40230
Int. Cl.³ G05B *5/00*
U.S. Cl. 318—471 **10 Claims**



1. An apparatus for controlling the blower motor of a device having a heater core receiving coolant from the engine of a vehicle for heating at least a portion of the air discharged into the passenger compartment of the vehicle, comprising:

means for producing a first signal having a level varying in accordance with the difference between a desired temperature in the passenger compartment and the actual temperature in the passenger compartment;

means for generating a second signal having a level propor-

tional to the temperature of the coolant for the engine of the vehicle;

means responsive to said first and said second signals for producing a control signal having a level varying in accordance with the level of said first signal but limited in accordance with said second signal; and

means responsive to said control signal for driving the blower motor at a speed proportional to the level of the control signal so that the maximum speed of the blower motor is proportional to the temperature of the engine coolant.

4,381,481

CONTROL CIRCUIT FOR A STEPPING MOTOR IN BATTERY-OPERATED INSTRUMENTS

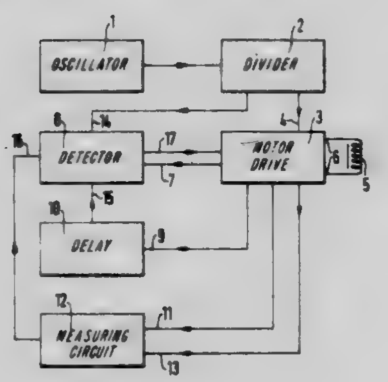
Frieder Kuppers, Schramberg; Bernhard Scherzinger, Berkheim; Friedrich Assmus, and Hans Flaig, both of Schramberg, all of Fed. Rep. of Germany, assignors to Gebruder Junghans GmbH, Schramberg, Fed. Rep. of Germany

Filed Nov. 6, 1980, Ser. No. 204,783

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1979, 2944872

Int. Cl.^{3} H02K *37/00*

U.S. Cl. 318—696 **13 Claims**



1. A circuit for the control of a stepping motor, comprising: an oscillator circuit;

a divider circuit for producing timing signals from the output signals of said oscillator circuit;

a drive circuit for the generation of pulses to actuate a field coil of a stepping motor;

a measuring device for detecting current flowing through the field coil of the stepping motor and producing an output signal related thereto;

a detection circuit for detecting the variation over time of the flow of the current through the field coil, and for terminating said actuating pulses upon detection of a predetermined change in the current;

a delay circuit for inhibiting operation of said detection circuit for a first predetermined period of time with respect to the onset of each actuating pulse, wherein said first predetermined period of time is determined so as to insure that a derivative of the variation over time of the current under all operating conditions of the stepping motor has at least attained a minimum value, to thereby insure that the duration of said actuating pulses is not less than said first predetermined period of time; and

a timing circuit for insuring that the duration of said actuating pulses does not exceed a second predetermined period of time.

4,381,482

SINGLE-PHASE, REVERSIBLE INDUCTION MOTOR

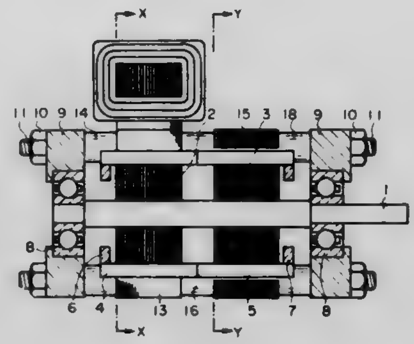
Tabito Doniwa, Atsugi, Japan, assignor to Daiichi Dentsu Kabushiki Kaisha, Japan

Filed Jan. 23, 1981, Ser. No. 227,672

Claims priority, application Japan, Mar. 14, 1980, 55-31544

Int. Cl.^{3} H02K *16/02*

U.S. Cl. 318—816 **7 Claims**



1. A single-phase, reversible induction motor comprising: two cylinderical rotors disposed side by side on the same axis of rotation, the rotors being composed of laminated iron cores and provided with grooves of the same number disposed in parallel with the shaft and on respective surfaces of the cylindrical rotors at regular intervals; two two-pole field systems respectively composed of laminated iron cores and surrounding the rotors, and coils for exciting the field systems, respectively, the field systems and the coils being arranged so that the directions of passage through the rotors of magnetic fluxes emanating therefrom be perpendicular to each other; a switching circuit for reversing the phase of a single-phase alternating current supplied to one of the coils; conductors of a magnetically permeable material fixedly secured to all the grooves of one of the rotors but electrically isolated from the rotor iron core; and conductors of a magnetically-non-permeable material are fixedly secured to all the grooves of the other rotor but electrically isolated from the rotor iron core, corresponding conductors of the two rotors being interconnected at one ends for each groove and connected at the other ends to respective conductors for common connection use.

4,381,483

CHANGE SYSTEM FOR VEHICLE BATTERY WITH RELAY ACTUATED CHARGE INDICATOR

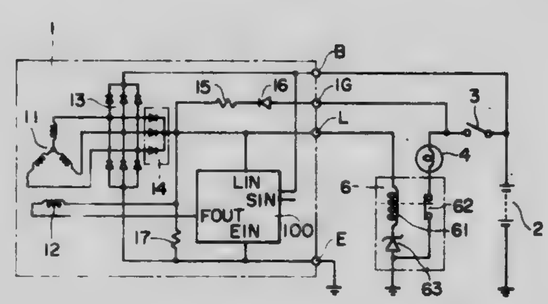
Katsuya Muto, Kariya; Takeshi Nakamoto, Obu; Isamu Nagase, and Shigeru Sawada, both of Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Mar. 13, 1981, Ser. No. 243,515

Claims priority, application Japan, Mar. 21, 1980, 55-36612

Int. Cl.^{3} H02J *7/14*

U.S. Cl. 322—99 **15 Claims**

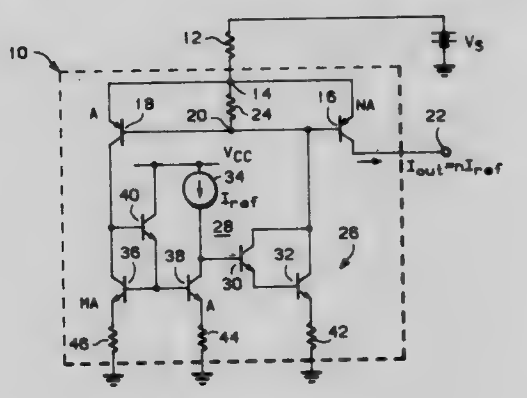


1. A charging system for a vehicle battery, comprising:

an alternator assembly having an alternator, main and auxiliary rectifiers and a voltage regulator, said alternator having a field coil and a three-phase generating coil, said main and auxiliary rectifiers being respectively interposed

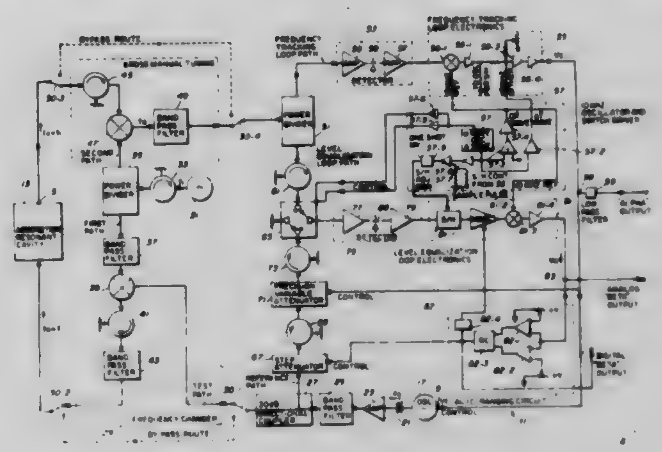
between said generating coil and said battery, and between said generating coil and said field coil;
a switch for supplying said field coil with an initial exciting current from said battery;
a voltage detector responsive to the voltage from said auxiliary rectifier, and having at least one element whose impedance is variable in accordance with said voltage;
means for indicating whether the voltage generated by said alternator and applied through said auxiliary rectifier is above a predetermined value or not; and
a switching circuit having a relay with a winding and normally closed contacts, said relay being arranged such that current flowing through said winding is controlled in accordance with the variation in impedance of said element, said indicating means being connected to one of said normally closed contacts so as to be energized when said normally closed contacts are in a closed state, said relay being energized when said voltage detector detects that the voltage from said auxiliary rectifier is greater than said predetermined voltage, to open said normally closed contacts.

4,381,484
TRANSISTOR CURRENT SOURCE
Robert B. Jarrett, Tempe, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Jun. 1, 1981, Ser. No. 269,117
Int. Cl.³ G05F *3/08*
U.S. Cl. 323—316 17 Claims



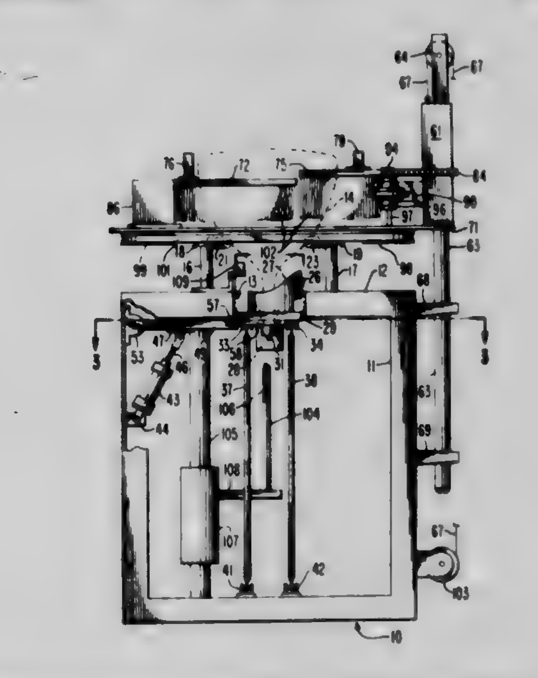
1. A current source, comprising:
a pair of transistors each having an emitter, a collector and a base, the base and emitter of each of said pair of transistors being commonly coupled to each other respectively and coupled to a first terminal at which is supplied a first operating potential, said collector of the first one of said transistors being coupled to an output of the current source, said emitter of said first transistor having an area N times greater than the area of said emitter of said second transistor;
amplifying circuit means having an output coupled to said bases of said pair of transistors and an input including an input and an output transistor coupled respectively to said input and output of said amplifying circuit means and resistive means coupled between said output transistor and a second terminal at which is supplied a ground reference potential such that a system, low frequency dominant pole is formed at said input of said amplifying means;
current source means for supplying a constant reference current at an output, said output being coupled to said input of said amplifying means;
current mirror means having first and second inputs coupled respectively to said collector to said second transistor and said current source means; and
said current mirror means and said amplifying means providing a feedback loop for causing the current sourced from said collector of said first transistor to be N times greater than the current sourced from said collector of said second transistor substantially independent of the beta amplification factor of said first and second transistors.

4,381,485
MICROWAVE TEST APPARATUS AND METHOD
Donald H. Steinbrecher, Carlisle, Mass., assignor to Steinbrecher Corporation, Woburn, Mass.
Filed Feb. 23, 1981, Ser. No. 237,575
Int. Cl.³ G01R *27/04*
U.S. Cl. 324—58 C 8 Claims



1. A method of monitoring the characteristics of an absorbtion type resonant cavity comprising:
a. electronically tracking the resonant frequency of the cavity and obtaining in the course thereof an electrical signal related to resonant frequency, and
b. concurrently therewith, electronically tracking the absorbtion level of the cavity at resonance and obtaining in the course thereof an electrical signal related to the absorbtion level.

4,381,486
APPARATUS FOR CHECKING FOR ELECTRICAL FRIT BREAKDOWN IN KINESCOPES
Merle E. Hertzler, Elverson, Pa., and James S. Stelzer, Marion, Ind., assignors to RCA Corporation, New York, N.Y.
Filed Feb. 24, 1981, Ser. No. 237,846
Int. Cl.³ G01R *31/024*
U.S. Cl. 324—404 12 Claims



1. An apparatus for checking for electrical breakdown of the frit seal between the funnel and the screen of a kinescope envelope having an internal conductive coating in said funnel and in a neck affixed to said funnel comprising:
means for loosely supporting said kinescope envelope in the vicinity of a particular location of said apparatus;
floating positioning means for closely receiving said neck

when said kinescope envelope is positioned in said vicinity;

means for orientating said funnel in a selected orientation with respect to said apparatus, said means for orientating including a plurality of brackets arranged for simultaneous movement toward the sides of said kinescope envelope, each of said brackets including at least one bumper for rotating said kinescope envelope toward said selected orientation;

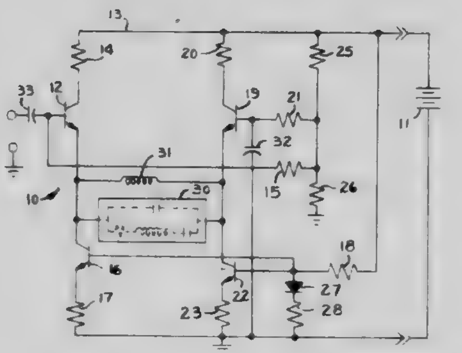
means for positioning and securely maintaining said floating positioning means and said kinescope envelope in said particular location;

drape-like electrical contact means suspended from said means for orientating for movement against a substantial portion of said frit seal to establish electrical continuity between said frit seal and said drape-like contact;

probe means, including a movable electrical contact, arranged for insertion into said funnel portion through said neck portion;

and means for moving said movable electrical contact against said conductive coating.

4,381,487
RESONATOR COUPLED DIFFERENTIAL AMPLIFIER
Bert K. Erickson, Fayetteville, N.Y., assignor to General Electric Company, New York, N.Y.
Continuation of Ser. No. 102,226, Dec. 10, 1979. This application Nov. 9, 1981, Ser. No. 319,494
Int. Cl.³ H03F *3/191*
U.S. Cl. 330—306 8 Claims



1. A bandpass amplifier circuit of the type which is responsive to a DC power supply, for band limiting and voltage amplifying a signal applied thereto comprising:

(a) a first transistor having a base, a collector, and an emitter the first transistor being connected in base input configuration;

(b) a second transistor having a base, a collector, and an emitter, said base being connected to ground through a capacitor;

(c) means adapted for connection to the power supply for coupling a first voltage to the collector of the first transistor;

(d) impedance means, adapted for coupling to the power supply, coupled to the collector of the second transistor;

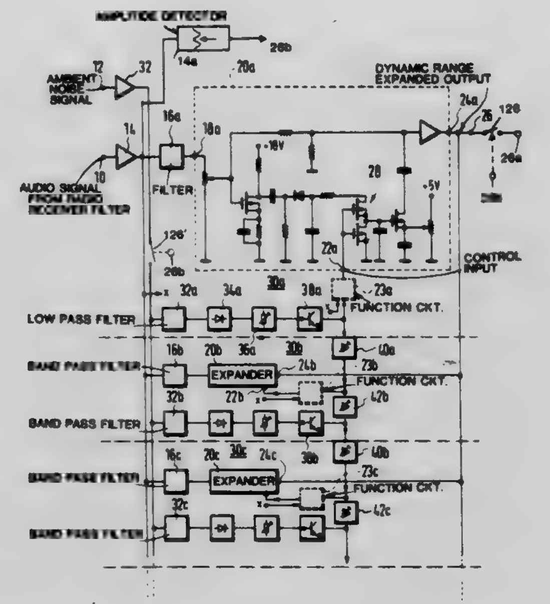
(e) means responsive to the power supply and coupled to the bases of the transistors for biasing each of the transistors in their active regions;

(f) a first semiconductor current source circuit connected in series with the emitter of the first transistor;

(g) a second semiconductor current source circuit connected in series with the emitter of the second transistor;

(h) a series resonator coupling the emitters of the first and second transistors.

4,381,488
DYNAMIC VOLUME EXPANDER VARYING AS A FUNCTION OF AMBIENT NOISE LEVEL
Jobst P. Fricke, Wüllnerstrasse 100, Köln, and Ulrich R. Müller, Carl v. Linnéstrasse 36, Frechen, both of Fed. Rep. of Germany
Filed Feb. 18, 1981, Ser. No. 235,514
Int. Cl.³ H04B *1/64*
U.S. Cl. 333—14 9 Claims



1. Audiosignal amplifier circuit for an audiosignal reproducer which is adapted for use in low noise level surroundings for high fidelity reproduction of audiosignals which have undergone volume compression at a source,

comprising, in accordance with the invention

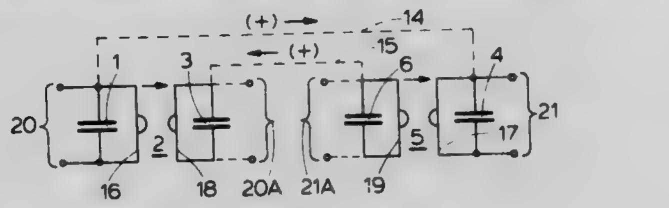
a controllable dynamic volume expander (20) having the precompressed audio signals applied thereto;

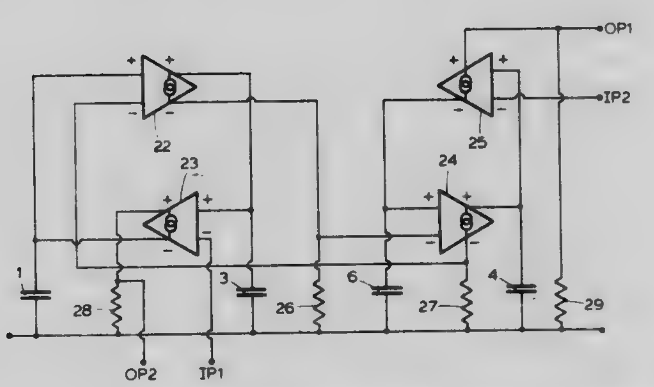
and means (12, 32, 32*a*) connected to and for controlling the degree of dynamic expansion by the dynamic volume expander of the precompressed signals as a function of ambient noise levels, in a direction of increasing the dynamic range of expansion of the expander with decreasing noise levels.

4,381,489
PASS FILTER CIRCUIT ARRANGEMENT
Jonathan R. Canning, deceased, late of Burgess Hill, England (by Francis R. Canning, administrator); Kenneth W. Moulding, Horley, and Gordon A. Wilson, Reigate, both of England, assignors to U.S. Philips Corporation, New York, N.Y.
Continuation of Ser. No. 142,940, Apr. 23, 1980, abandoned. This application Aug. 17, 1981, Ser. No. 293,435
Claims priority, application United Kingdom, May 9, 1979, 7916112
Int. Cl.³ H03H *11/08*
U.S. Cl. 333—215 3 Claims

1. A pass filter circuit arrangement having (a) a first resonant circuit including a first inductive element and a first capacitance, (b) a second resonant circuit including a second inductive element and a second capacitance, and (c) a bilateral coupling between said inductive elements, said first inductive element being constituted by the impedance presented by a first port of a first gyrator circuit which has a third capacitance in parallel with its second port, said second inductive element being constituted by the impedance presented by a first port of a second gyrator circuit which has a fourth capacitance in parallel with its second port, and said bilateral coupling including a first substantially unilateral signal path from one port of the first gyrator circuit to one port of the second gyrator circuit and a second substantially unilateral signal path from the other port of the second gyrator circuit to the other port of the first gyrator circuit, said first signal path bypassing each of said other ports of said gyrator circuits and said second signal

path bypassing each of said one ports of said gyrator circuits, whereby a loop is formed by said gyrator circuits and said first and second signal paths, each of said signal paths being devoid of elements having substantial reactance at the resonant frequency of either of said resonant circuits, characterized in that each of the gyrator circuits comprises a first and a second voltage-controlled current source, each of said first current sources having a first and a second input, which constitute a differential pair of inputs, and a first and a second output, which constitute a differential pair of outputs, the first input of each first current source being connected to the output of the second current source of the corresponding gyrator circuit and the input of each second current source being connected to the first output of the first current source of the corresponding gyrator circuit, one of the current sources of each gyrator circuit being inverting from the input thereof, which is con-





nected to an output of the other current source of the corresponding gyrator circuit, to the output thereof, to which an input of the other current source of the corresponding gyrator circuit is connected, and the other of said current sources of each gyrator circuit being non-inverting from the input thereof, which is connected to an output of the one current source of the corresponding gyrator circuit, to the output thereof, to which an input of the one current source of the corresponding gyrator circuit is connected; said first signal path includes a coupling from the second output of the first current source of one gyrator circuit to the second input of the first current source of the other gyrator circuit, and said second signal path includes a coupling from the second output of the first current source of said other gyrator circuit to the second input of the first current source of said one gyrator circuit.

4,381,490

MAGNETIC STATE SELECTOR

Harry E. Peters, P.O. Box 1877, Tuscaloosa, Ala. 35403

Filed Nov. 5, 1981, Ser. No. 318,603

Int. Cl.³ H01F *5/00*

U.S. Cl. 335—210 **3 Claims**

1. An improved magnetic state selector comprising multiple even numbered magnets, pole pieces, side plates, and connecting posts wherein the pole pieces are adjustable in five degrees of freedom;

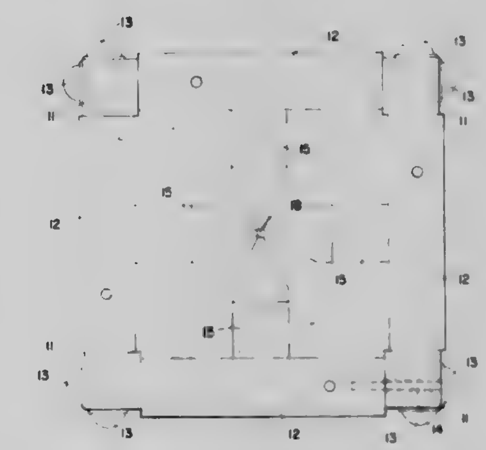
said magnets having attached thereto the said pole pieces, said pole pieces being tapered in the horizontal plane from the approximate width of the magnets to a narrow vertical face;

said magnets and attached pole pieces being regularly spaced in the horizontal plane about a bore point and radial to said point, the narrow faces of said pole pieces being spaced equidistant from and near to and, selectively, adjustable in a range from nearly parallel to an axis to parallel to an axis perpendicular to said horizontal plane and passing through said bore point;

each of said magnets being attached to a side plate, the side of the magnet being attached to the side plate being on the opposite face of the magnet from the pole piece of said magnet;

said side plate, in the horizontal plane, being perpendicular to a radial from the bore point at the center of the side plate; said radial, in the horizontal plane, being the centerline of the pole piece and magnet;

said connector posts being perpendicular to said horizontal plane and perpendicular to and centered on a radial from the said bore point angularly equidistant from the radials to the centerlines of the adjoining magnets and pole pieces;



said connector posts having a multiplicity of holes and positioning fasteners therein, in the vertical plane of each adjoining side plate, said holes and positioning fasteners having a horizontal centerline, and the diameter of each positioning fastener hole being slightly larger than the diameter of the positioning fastener therein, said positioning fasteners extending into and fastened to each adjoining side plate;

said pole pieces, side plates and connecting posts being made of structurally rigid high permeability soft magnetic material;

said side plates being so centered about said connecting posts as to allow radial movement relative therto in an amount not exceeding the difference between the diameters of the connector post holes and the positioning fasteners therein.

4,381,491

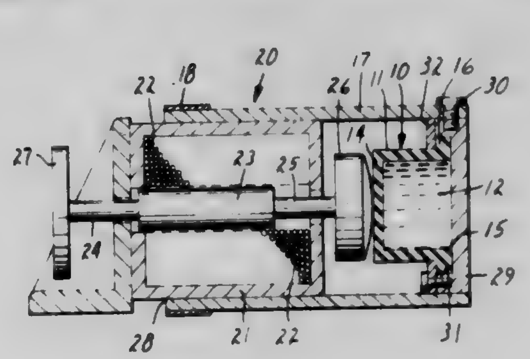
DEVICE TO SLOW SOLENOID ACTUATION MOTION

Peter J. Vogelgesang, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Feb. 20, 1981, Ser. No. 236,260

Int. Cl.³ H01F *7/08*

U.S. Cl. 335—257 **6 Claims**



1. A noise reduction device for use with a solenoid having a movable armature therein, said device comprising

resilient means for defining a container having a predetermined internal volume,

a dilatant material filling said container, which material has as one of its properties at ambient temperatures, a non-resilient deformation when subjected to slow steady state stress, and a highly resilient resistance to deformation when subjected to a rapid shock-like stress, and

means for mounting said device in the path of the armature and in opposition to the movement of the armature, to afford a resistance to rapid changes in the acceleration of the armature while slowly deforming in response to the force applied by the armature.

4,381,492

APPARATUS FOR MAGNETIZING MULTIPOLAR PERMANENT MAGNETS

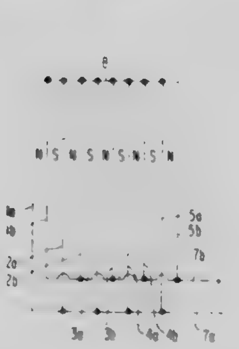
Erich Steingroever, Flensburger Strasse 33, 53 Bonn, and Dietrich Steingroever, Bergisch-Gladbach, both of Fed. Rep. of Germany

Filed Aug. 18, 1981, Ser. No. 293,922

Claims priority, application Fed. Rep. of Germany, Aug. 25, 1980, 3031983

Int. Cl.³ H01F *13/00*

U.S. Cl. 335—284 **12 Claims**



1. Apparatus for magnetizing a permanent magnet body to produce magnetic poles of successively alternating polarities on at least one surface of the body, comprising:

an array of pairs of elongated electrical conductors to be disposed in close proximity to said surface to be magnetized, the conductors of each pair being laterally spaced from each other and each of the pairs of conductors being laterally spaced from each other to define in the spaces between conductors of each pair a magnetic pole of one polarity and to define in the spaces between adjacent pairs of conductors a magnetic pole of the opposite polarity;

a pair of magnetizing direct current supply leads disposed in a predetermined path along a first portion of said array;

one end of each of the conductors in each of said pairs of conductors being connected to a respective one of said pair of current supply leads at said first portion of said array;

the other ends of each of the conductors in each pair of conductors being connected to each other at a location in said array remote from said first portion and having at said remote location the same electrical potential in each of said pairs of conductors, and;

a bridge conductor connected to all of said pairs of conductors at said remote locations.

4,381,493

VISUAL DISPLAY SYSTEM

Robert S. Mason, 7311 Alpine Way, Tujunga, Calif. 91042

Filed Oct. 14, 1980, Ser. No. 196,777

Int. Cl.³ G06F *3/14*

U.S. Cl. 340—27 R **6 Claims**

1. A visual display system for aircraft flight personnel, said system comprising, in combination:

(a) a plurality of separate visual display devices;

(b) a manually operable control panel connected to all of said display devices; and

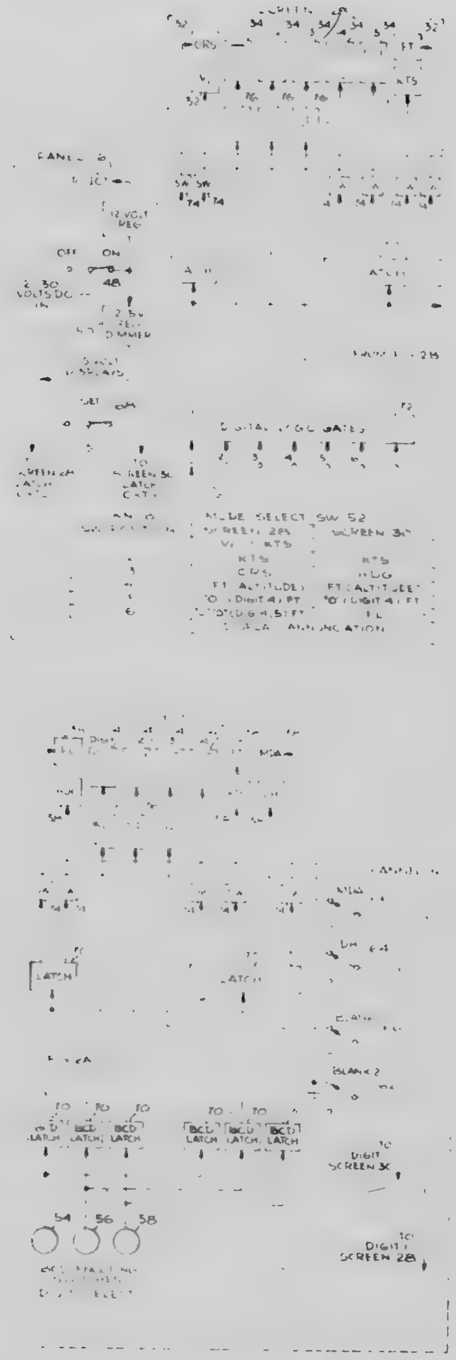
(c) power means connected to said display devices and said control panel, said control panel including:

i. on-off switch means connected to said power means and said display devices; and

ii. visual display input means, including:

a. multi-position selector switch means, adapted to simultaneously activate both

(1) a selected one of a plurality of legends relating to flight characteristics positioned on said display devices for display, and



(2) circuit means for selectively allowing or preventing the display of a numeral in a display window on said display devices,

b. multi-position numeral selector switch means to provide input of preselected numbers to said display devices for display, and

c. visual display selector means to determine which of said display devices is provided with and displays said input.

4,381,494

INTERCHARACTER GAP DETECTOR FOR MICRS

Daniel A. Wisner, Milan, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed Oct. 6, 1980, Ser. No. 194,045

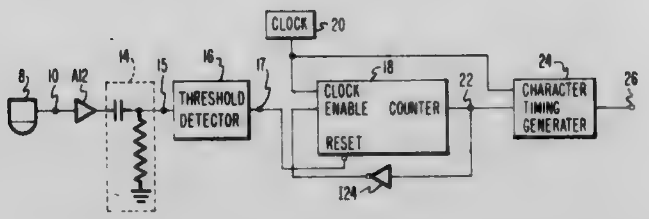
Int. Cl.³ G06K *9/20*

U.S. Cl. 382—64 **9 Claims**

1. In a character recognition system, means for determining whether magnetic material is present in a particular concentra-

tion in an area of a document scanned by a magnetic character read head, comprising:

means responsive to raw signals from a magnetic character read head for providing output signals, said output signals including first signals which are generated by passage of the read head past magnetic material which is present in a particular concentration and second signals denoting passage of the read head past areas where magnetic material is present in less than the particular concentration;



said means responsive to raw signals including a threshold detector including two differential comparators coupled to produce said first signals and said second signals, where the first signals include extraneous noise and the second signals are substantially free of noise; and

means coupled responsive to said first signals and said second signals to establish the presence or absence of magnetic material in the particular concentration for periods determined in accordance with said signals.

4,381,495

DIGITAL-TO-ANALOG CONVERTER WITH ERROR COMPENSATION

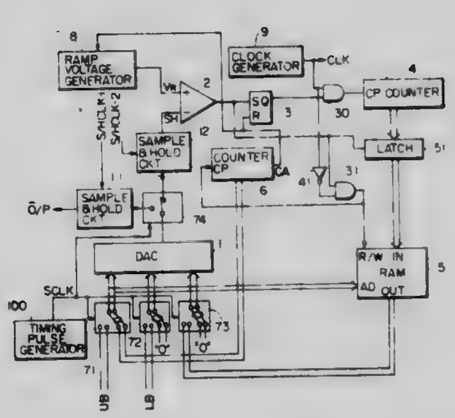
Masao Hotta, Hachiouji; Kenji Maio, Tokyo; Norio Yokozawa, Fuchu, and Hiromi Nagaishi, Hachiouji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 8, 1980, Ser. No. 195,137

Claims priority, application Japan, Oct. 24, 1979, 54/136412

Int. Cl.³ H03K *13/02*

U.S. Cl. 340—347 DA **6 Claims**



1. A digital-to-analog conversion system comprising:
(a) a digital-to-analog converter;
(b) means for selectively supplying to said analog digital converter:
(i) at least one set of digital input signals and a signal for error compensation; and
(ii) a digital signal for error detection;
(c) means to selectively couple either said one set of digital input signals and said signal for error compensation or said signal for error detection to said converter;
(d) means to generate a switching signal having a predetermined period and duration, said switching signal coupled to control said means to selectively couple to thereby cause it to alternately couple said one set of digital input signals and said signal for error compensation and said signal for error detection to said converter;
(e) distribution means for selectively coupling the output of said digital-to-analog converter to two different terminals, said means receiving a control input from said means to generate;
(f) means coupled to one of said terminals to sample and hold the output of said digital-to-analog converter;
(g) means for detecting a linearity error in said digital-to-analog converter output signal when said digital signal for error detection is coupled as an input thereto, coupled to the other terminal of said means to couple the input;
(h) a memory for storing the output of said means for detecting an error;
(i) means to write the output of said means for detecting into said memory; and
(j) means to read the data from said memory and couple it as the signal for error compensation at the input to said digital-to-analog converter.

4,381,496

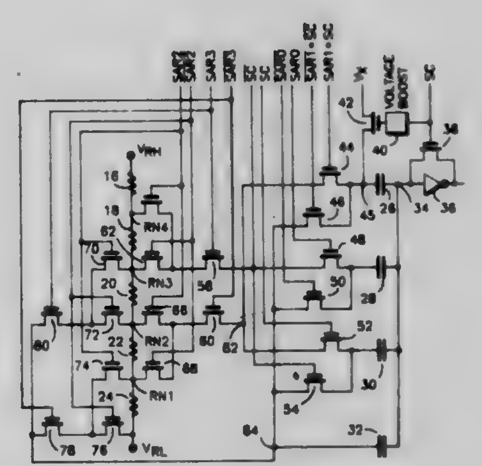
ANALOG TO DIGITAL CONVERTER

Ernest A. Carter, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 3, 1980, Ser. No. 202,953

Int. Cl.³ H03K *13/02*

U.S. Cl. 340—347 AD **2 Claims**



1. A successive-approximation analog-to-digital converter comprising:

comparator means for producing an output in response to an input thereto exceeding a predetermined threshold voltage;

a plurality of binary weighted capacitors, including first and second one-half unit capacitors comprising a unit capacitance, each of the capacitors having a first terminal coupled in common to the input of the comparator means, and a second terminal;

voltage reference means for producing at least first and second predetermined reference voltages, and an offset voltage having a predetermined value between the first and second reference voltages;

sample means, operative during a sample phase, for storing a sample of an unknown analog input voltage on the largest of the capacitors while shorting the comparator means, and for simultaneously coupling the second terminals of each of the other capacitors except the first one-half unit capacitor to the first reference voltage while coupling the second terminal of the first one-half unit capacitor to the offset voltage; and

successive-approximation means, operative during a conversion phase following said sample phase, for converting said sample to a binary representation thereof by successively coupling the second terminals of the capacitors, from the largest to the smallest, to the second reference voltage, and, in response to each such coupling which produces the output from the comparator means, recoupling such second terminal to the first reference voltage.

4,381,497

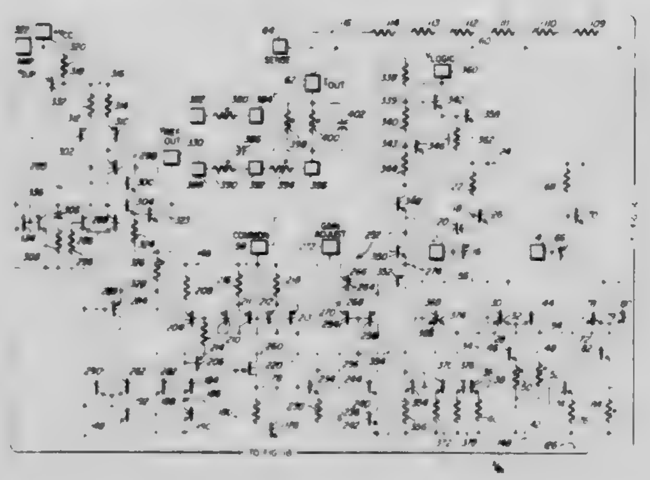
DIGITAL-TO-ANALOG CONVERTER HAVING OPEN-LOOP VOLTAGE REFERENCE FOR REGULATING BIT SWITCH CURRENTS

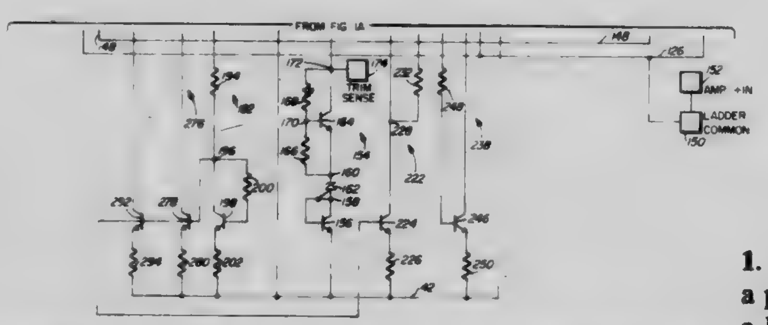
William J. Lillis; Jimmy R. Naylor; Anthony D. Wang, and Robert L. White, all of Tucson, Ariz., assignors to Burr-Brown Research Corporation, Tucson, Ariz.

Filed Apr. 3, 1981, Ser. No. 250,858

Int. Cl.³ H03K *13/05*

U.S. Cl. 340—347 DA **25 Claims**





1. A digital-to-analog converter circuit having a plurality of bit switch current sources responsive to a bias voltage for generating a plurality of bit switch currents, said digital-to-analog converter circuit including an open-loop voltage reference circuit for regulating the bias voltage, said open-loop voltage reference circuit comprising in combination:

a. first and second power supply voltage conductors for conducting first and second power supply voltages, respectively;

b. a reference voltage conductor for conducting a reference voltage;

c. a first current leg coupled between said reference voltage conductor and said first power supply voltage conductor for conducting a first current and generating a reference voltage on said reference voltage conductor in response thereto, said first current leg including a zener diode junction;

d. a second current leg coupled between said reference voltage conductor and said first power supply voltage conductor, said second current leg including a biasing transistor having first, second, and third terminals, said first terminal being coupled to said first power supply voltage conductor and said second terminal being coupled to said reference voltage conductor, said biasing transistor being biased by the reference voltage for conducting a second current in response thereto;

e. current mirror means coupled to said second power supply voltage conductor, said current mirror means being coupled to said reference voltage conductor for providing the first current thereto, said current mirror means also being coupled to the third terminal of said biasing transistor and being responsive to the magnitude of the second current for maintaining the magnitude of the first current in a predetermined relationship therewith; and

f. circuit means coupled to said reference voltage conductor for receiving the reference voltage and for providing the bias voltage in response thereto, said circuit means maintaining the bias voltage in a predetermined relationship with the reference voltage for maintaining said plurality of bit switch currents substantially constant, said circuit means including an emitter follower drive leg for providing a low impedance source of the bias voltage and for isolating said reference voltage conductor from transients imposed upon the bias voltage due to switching of the plurality of bit switch currents, said emitter follower drive leg including an emitter follower transistor having base and emitter terminals, the base terminal of said emitter follower transistor being coupled to said reference voltage conductor and the emitter terminal of said emitter follower transistor providing said bias voltage.

4,381,498

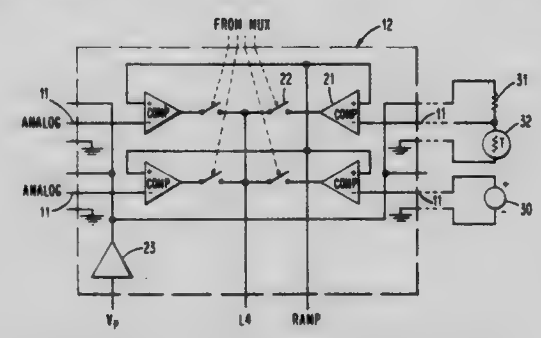
ANALOG-TO-DIGITAL CONVERTING APPARATUS

Thomas C. Goodale, Reading, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

Filed Jul. 6, 1981, Ser. No. 280,642

Int. Cl.³ H03K *13/02, 13/20*

U.S. Cl. 340—347 AD **2 Claims**



1. Analog-to-digital converting apparatus including

a plurality of analog signal input lines;

a like plurality of comparator means each having first and second input terminals and an output terminal, and being operable to produce a first output signal at the output terminal when the voltage at the first input terminal is greater than the voltage at the second input terminal and to produce a second output signal at the output terminal when the voltage at the second input terminal is greater than the voltage at the first input terminal;

each analog signal input line being connected to the first input terminal of a different one of said comparator means;

ramp generator means connected to the second input terminals of all the comparator means and being operable to produce a ramp voltage which increases in predetermined steps in response to toggle signals applied thereto;

a single comparator output line;

a like plurality of switching means, each being operable to connect the output terminal of a different one of said comparator means to said comparator output line;

multiplexing means coupled to said plurality of switching means, said multiplexing means being operable in response to select signals applied thereto to cause the switching means designated by the select signals to connect the output terminal of the associated comparator means to said comparator output line, and said multiplexing means being operable in response to de-select signals applied thereto to cause the switching means to disconnect the output terminal of the associated comparator means from said comparator output line;

processing means comprising

a single storage means for storing an accumulated count coupled to the comparator output line;

means for applying select signals to said multiplexing means designating a selected one of said plurality of switching means whereby said multiplexing means causes the designated switching means to connect the output terminal of the associated comparator means to the comparator output line;

means for resetting said ramp generator means to a starting ramp voltage;

means for applying a toggle signal to said ramp generator means whereby the ramp voltage produced by the ramp generator means increases by a predetermined step;

means operable in response to said first output signal from the selected comparator means subsequent to a toggle signal to cause the storage means to add a count to the accumulated count and to cause said means for applying a toggle signal to said ramp generator means to apply a toggle signal to said ramp generator means; and

means operable in response to said second output signal from the selected comparator means subsequent to a toggle signal to apply de-select signals to said multiplexing means whereby said multiplexing means causes the switching means to disconnect the output terminal of the associated comparator means from the comparator output line;

whereby the count accumulated in the storage means when the selected comparator means is disconnected from the comparator output line is a digital representation of the analog voltage present on the analog signal input line associated with the selected comparator means.

4,381,499

MONOLITHIC INTEGRABLE R-2R NETWORK

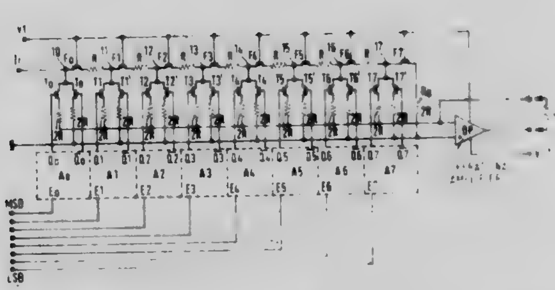
Holger Struthoff, Freiburg, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Nov. 6, 1981, Ser. No. 318,887

Claims priority, application Fed. Rep. of Germany, Nov. 27, 1980, 80107406

Int. Cl.³ H03K *13/02*

U.S. Cl. 340—347 DA **9 Claims**



1. A monolithic integrated R-2R network comprising:

a plurality of R resistors, a last one of which is coupled to a terminal resistor;

a plurality of switch structures, one of which is coupled in series with a first of said plurality of resistors, another one of which is coupled in series between said last one of said plurality of resistors and said terminal resistor and each of the remainder of said plurality of switch structures is coupled in series between different adjacent ones of the remainder of said plurality of resistors, each of said plurality of switch structures being in a conducting state; and

a plurality of 2R resistor units each having two electronic switches to connect the associated one of said plurality of units to a selected one of ground and another reference point, each of said two switches of each of said plurality of units having a common terminal directly connected to each other and one terminal of a different one of said plurality of switch structures.

4,381,500

KEYBOARD APPARATUS

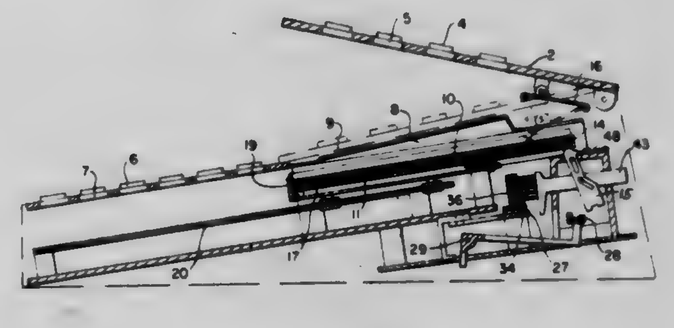
Yoshihito Urata, Katano; Hideyuki Kubo, Suita, and Toshiharu Sasaki, Kawanishi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 11, 1981, Ser. No. 233,647

Claims priority, application Japan, Feb. 13, 1980, 55-17049; Oct. 1, 1980, 55-138166

Int. Cl.³ G08C *9/08*

U.S. Cl. 340—365 VL **5 Claims**



1. A keyboard apparatus, comprising:

key switch means having a set of item keys for performing data entry and having means associated with each item key for displaying a data item to be entered by the corresponding data key, said set of item keys being arranged in a display position, and a set of select keys for selecting sets of input data items corresponding to said item keys and to be displayed in said display means;

a plurality of sheets on which respective sets of input data items are positioned in positions corresponding to the positions of said display means;

a cartridge having a tray means for storing said sheets in piles and which is movable transversely of said cartridge means;

cartridge holding means for holding said cartridge in a first position from which said tray means is movable transversely of said cartridge means to a position corresponding to said display position in which the input data items on the top sheet in said tray means are displayed in the corresponding display means;

selecting means operable in response to said select keys for separating said sheets in said tray means into two groups and holding the sheets in the first group out of said tray means and leaving the sheets in the second group in said tray means; and

translating means engagable with said tray means and operable in response to said select keys for moving said tray means from said position corresponding to said display condition to said first position and holding said tray means in said first position while said selecting means operates to release a previously held first group of sheets and allow them to return into said tray means and to separate and hold a new first group of sheets, and then moving said tray means back to said position corresponding to said display position.

4,381,501

ENCODING APPARATUS UTILIZING ACOUSTIC WAVES OF CONTROLLED INITIAL POLARITY

Raymond T. Pajer, Southbury, Conn., and Pedro T. Guzman, Ithaca, N.Y., assignors to SCM Corporation, New York, N.Y.

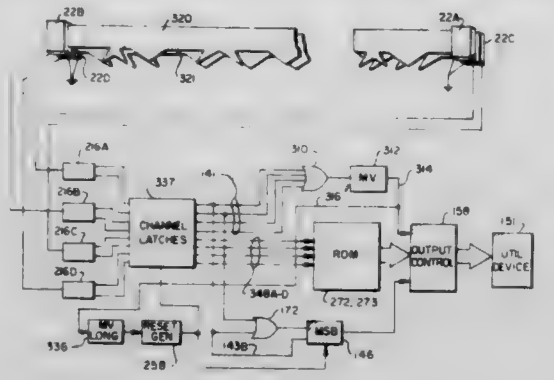
Filed Mar. 23, 1981, Ser. No. 246,820

Int. Cl.³ G06F *3/02*; H04L *15/03*

U.S. Cl. 340—365 R **29 Claims**

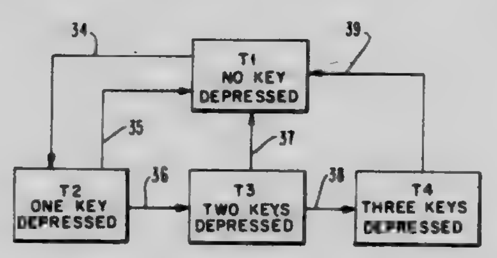
1. In an encoding apparatus of the acoustic type comprising an acoustic member, means for inducing acoustic energy within the member in the form of a wave traveling within the member, and means spaced from the inducing means and operatively connected to the member for sensing the wave; the improvement comprising first control means on said member cooperating with said inducing means and providing a wave

having a wave front of particular polarity, second control means on said member cooperating with said inducing means and providing a wave having an opposite polarity for said wave front, and means connected to said sensing means and responsive to the polarity of the wave front for providing first



code information on sensing of said particular polarity and second code information on sensing of said opposite polarity, said first code indicating cooperation of said inducing means with said first control means, whereas said second code indicates cooperation thereof with said second control means.

4,381,502
METHOD AND APPARATUS FOR CHARACTER GENERATION
Eric S. Prame, Lidingo, Sweden, assignor to International Business Machines Corporation, Armonk, N.Y.
Division of Ser. No. 95,897, Nov. 19, 1979, Pat. No. 4,344,069. This application Jun. 29, 1981, Ser. No. 278,778
Claims priority, application Sweden, Nov. 21, 1978, 7811983
Int. Cl.³ G06C *9/00;* **B41J** *5/06*
U.S. Cl. 340—365 R **3 Claims**



1. A method of generating character codes by means of a keyboard having a plurality of keys arranged spatially in rows and columns, an electronic scanning means for scanning said keys to detect actuations thereof, and to produce key identification codes for said actuated keys, each of said keys bearing a plurality of potential symbols to be generated by depression of that key, said symbols being arranged in a spatial array on the face of said key, said keyboard also having an encoding means for generating character codes in response to the detection of actuated key codes produced by said scanning means, said method comprising steps of:

selecting a first key for depression from among the spatial array of said keys on said keyboard, said selection being in accordance with the relative spatial position in said array that said first key bears to the other keys on said keyboard, which relative spatial position corresponds to the relative position of the desired character symbol in its said spatial array of possible character symbols on the face of a second said key in said array;

depressing said first key and generating a key code therefor as the result of said scanning;

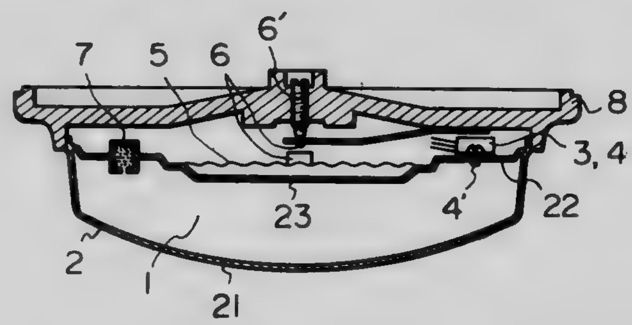
depressing said second key and generating a key code therefor in response to said scanning, said second key being the one on which said desired character symbol appears in the relative spatial relationship to other possible character codes on the face of said key, said relative spatial position corresponding to the relative spatial position of said first depressed key in said array of keys on said keyboard, said first key being maintained in a depressed state contemporaneously with the depression of said second key;

depressing a third key in said array of keys on said keyboard while maintaining said first and second keys in a depressed state;

detecting the coincidence of contemporaneous depression of said first, second and third keys; and

encoding a character code corresponding to the desired character selected by said combined first, second and third key depression codes.

4,381,503
COMBINATION TYPE FIRE DETECTOR
Shigeru Kobayashi, Tokyo, Japan, assignor to Nittan Company, Limited, Tokyo, Japan
Filed Jul. 14, 1981, Ser. No. 283,306
Claims priority, application Japan, Jul. 23, 1980, 55-103347[U]
Int. Cl.³ G08B *17/04, 17/06*
U.S. Cl. 340—584 **3 Claims**



1. A combination type fire detector having a rate of rise thermal sensor in combination with a thermal sensor operative at a predetermined temperature,

wherein said rate of rise thermal sensor comprises: a supporting member (8) of electrical insulating material; a metal casing (2) underlying said supporting member and being attached in supported spaced relation thereto, said casing having a hollow body (21) with a lid plate (23) including a restricted vent (7) placing the interior (1) of said hollow body in communication with the space between said casing and said supporting member, said lid plate being provided with an apertured central depression facing said supporting member; a diaphragm (5) carried by said lid plate and covering said central depression thereof so that the lower side of said diaphragm communicates through the aperture (23) of said central depression with said hollow body interior, whereby thermally expending air in said hollow body interior will deform said diaphragm upwardly when the expansion rate exceeds the leakage rate through said vent; and an alarm switch (6) having contacts which are respectively associated with said diaphragm and said supporting member and which are closed by upward deformation of said diaphragm; and

wherein said thermal sensor comprises a heat sensitive thyristor (3) disposed in said space between said lid plate (23) and said supporting member (8), said thyristor having leads for connection to an alarm circuit and being bodily embraced by an arcuate arm of a flat metal strip (4) which lies atop said lid plate, there being a hollow open-ended cylindrical spacer (10) fitted between said flat strip and an overlying portion of said supporting member, and a screw (9) passing through said spacer and aligned holes in said lid plate, strip and supporting member, with a nut (11) tightened on a projecting end of said screw to securely clamp said strip against said lid plate.

4,381,504

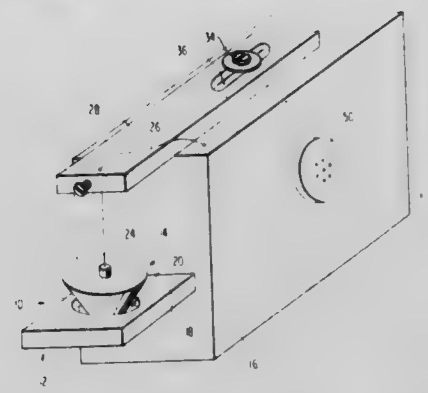
SWITCH AND ALARM SYSTEM RESPONSIVE TO SUDDEN MOVEMENT, ANGULAR TILT AND VIBRATION

David Bitko, Brunswick, N.J., assignor to Fifth Dimension Inc., Trenton, N.J.

Filed Jan. 30, 1981, Ser. No. 229,942

Int. Cl.³ G08B ***21/00***

U.S. Cl. 340—689 **9 Claims**



1. A switch having variable sensitivity to tilt and movement, comprising:

a fixed contact comprised of an apertured plate;

a conically shaped movable contact suspended within the aperture of said fixed contact and normally out of contact with said fixed contact; and

means for adjusting the height of said movable contact relative to said fixed contact and for adjusting the radial position of said movable contact relative to said fixed contact to thereby vary the spacing between said fixed and movable contacts and vary the sensitivity of said switch to tilt or movement.

4,381,505

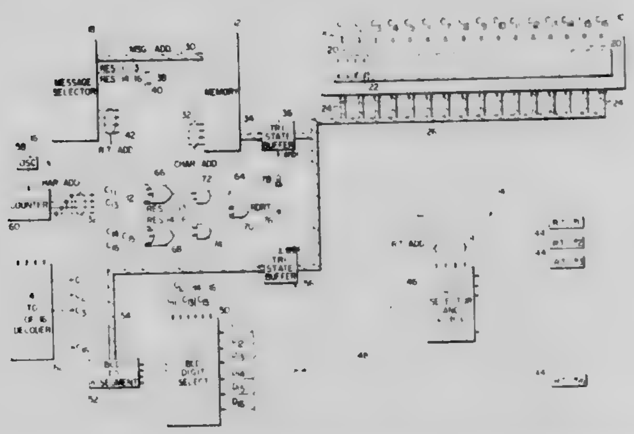
SYSTEM FOR DISPLAYING ALPHANUMERICAL MESSAGES HAVING STORED AND REAL TIME COMPONENTS

Warren E. Dion, Terryville, Conn., assignor to The Arthur G. Russell Company, Incorporated, Bristol, Conn.

Filed Dec. 10, 1980, Ser. No. 214,643

Int. Cl.³ G09G ***3/00***

U.S. Cl. 340—756 **15 Claims**



1. A system for displaying messages, said system comprising:

(a) a unitary visual display device having a plurality of character stations at each of which stations any one of a given set of characters may be displayed by the application thereto of a set of binary coded signals,

(b) a memory having means for storing a plurality of stored message fragments each consisting of a plurality of stored sets of binary coded signals representing a corresponding plurality of characters,

(c) a real time signal means associated with a plurality of real time conditions and providing a selection of real time message fragments each of which real time message fragments corresponds to a respective one of said real time conditions and each of which real time message fragments consists of at least one real time set of binary coded signals representing at least one character, each of said real time message fragments varying in time with variations in the value of its corresponding real time condition so as to represent at any given instant the instantaneous value of said corresponding condition,

(d) a message selector having means for simltaneously selecting one of said stored message fragments and one of said real time message fragments, and

(e) routing means for substantially simultaneously applying said stored sets of binary coded signals of said selected stored message fragment to corresponding first ones of said character stations in a one-signal-set-to-a-one-character-station manner such that each stored set of binary coded signals is transmitted directly to its corresponding character station without being transmitted to any other of said character stations and for applying substantially simultaneously with the applicaton of said stored sets of binary coded signals to said first ones of said character stations said at least one set of binary coded signals of said selected real time message fragment to a corresponding at least one other of said character stations different from said first ones of said character stations in a one-signal-set-to-a-one-character-station manner such that each real time set of binary coded signals is transmitted directly to its corresponding character station without being transmitted to any other of said character stations to cause said device to immediately display a complete unitary visual message made up in part of characters derived from said selected stored message fragment and in part of at least one character derived from said selected real time message fragment, and which at least one character derived from said selected real time message fragment may vary independently of the characters derived from said selected stored message fragment in keeping with variations in the value of the corresponding real time condition.

4,381,506

POSITION-ELECTRICAL SIGNAL TRANSDUCER

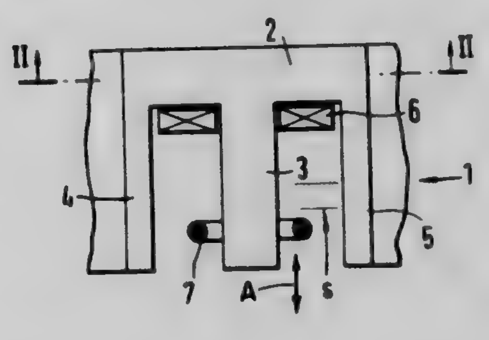
Karl-Otto Linn, Karlsruhe; Walter Jansche, Durmersheim; Dietrich Adolph, Albershausen, and Artur Dannemann, Göppingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Dec. 11, 1980, Ser. No. 215,347

Claims priority, application Fed. Rep. of Germany, Jan. 23, 1980, 3002233

Int. Cl.³ G08C ***19/06***

U.S. Cl. 340—870.32 **12 Claims**



1. Position-electrical signal transducer to provide an electrical output signal representative of displacement (A) of an element comprising

a core including magnetically conductive material;

a coil (6) wound on the core and adapted for connection to a source of alternating current;

a movable short-circuit ring coupled to said element placed on the core and coupled, at least in part, to the magnetic field generated by the coil upon being energized, the short-circuit ring being movable in a direction transverse to the plane defined by the ring;

and wherein, in accordance with the invention, the core comprises

the combination of a carrier body (8) of electrically insulating material, and a foil or layer (9) of a material of high magnetic permeability located and supported on at least one surface of said carrier body.

4,381,507

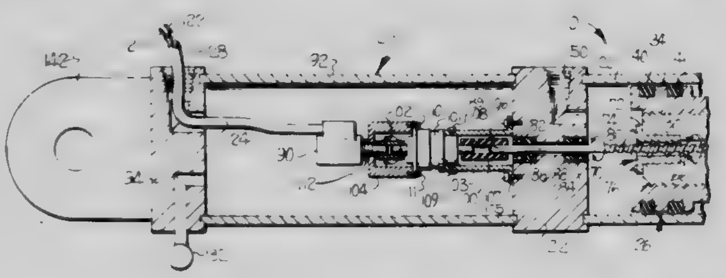
FLUID CYLINDER POSITIONAL INDICATOR AND METHOD

Carl L. Parmer, Harrisburg, N.C., assignor to D. E. McCraw, Jr., Charlotte, N.C.

Filed Oct. 27, 1981, Ser. No. 315,503

Int. Cl.³ G08C *19/04*

U.S. Cl. 340—870.38 6 Claims



1. A fluid cylinder apparatus constructed for being mounted at its opposite ends to the working environment and having means for providing a signal accurately indicating the position of the piston thereof; said apparatus comprising a cylinder defined by an elongate cylindrical body portion and first and second end caps at opposite ends of said cylindrical body portion; piston means provided in said cylinder and including a piston head and a piston rod carried by the piston head, the piston head cooperating with said cylindrical body portion to form a fluid seal, and the piston rod extending longitudinally from the cylinder through said second end cap; connector means carried by the distal end of said piston rod to permit connection of the piston rod to the working environment; a longitudinal bore extending through said piston head and a predetermined distance into said piston rod; a female threaded member carried by said piston means for displacement therewith, said female threaded member having a longitudinally oriented threaded opening aligned with the axis of said longitudinal bore; an elongate threaded rod axially aligned with and extending longitudinally through the threaded opening of said female threaded member and having first and second ends, the first end thereof residing in said longitudinal bore, and the second end extending into said first end cap so as to project externally of said cylinder, and said threaded rod having external threads threadingly engaged with said female threaded member throughout the stroke of said piston means such that longitudinal displacement of said piston means and the female threaded member carried thereby imparts rotation to said elongate threaded rod; electrical sensing means mounted externally of said cylinder and coupled to the externally projecting end portion of said threaded rod for being rotatably driven thereby and being operable upon rotation thereof for obtaining an electrical signal functionally related to the rotational displacement of said threaded rod; a protective housing enclosing said electrical sensing means; and connector means carried by said cylinder apparatus at the end thereof opposite said longitudinally extending piston rod and cooperating with the cylinder apparatus to permit connection thereof to the working environment.

4,381,508

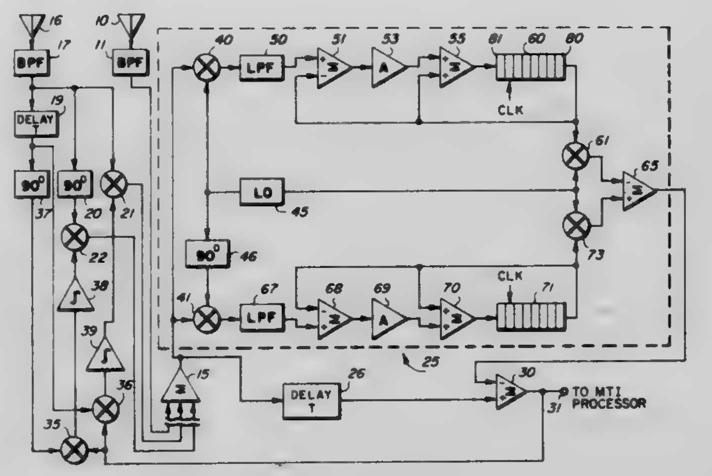
CLUTTER COMPENSATED SIDELOBE CANCELLING COMMUNICATIONS SYSTEM

Isaac N. Durboraw, III, Scottsdale, Ariz., assignor to Motorola Inc., Schaumburg, Ill.

Filed Mar. 12, 1979, Ser. No. 19,379

Int. Cl.³ G01S *1/14*

U.S. Cl. 343—100 LE 10 Claims



1. In communications systems including circuitry for cancelling sidelobe interference wherein signals from a main antenna and weighted signals from an auxiliary antenna are combined, with the combined signal being used to control the weight of the auxiliary antenna signal to substantially eliminate portions of the signal from the main antenna which correlate with signals from the auxiliary antenna, clutter compensating circuitry comprising estimation means for providing an output signal which is an estimate of clutter in the combined signal and circuitry connected to subtract the output signal from the combined signal prior to using the combined signal to control the weight.

4,381,509

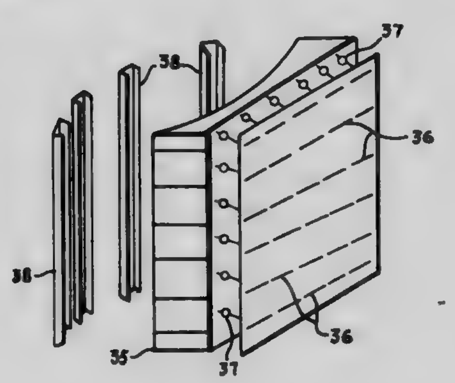
CYLINDRICAL MICROWAVE LENS ANTENNA FOR WIDEBAND SCANNING APPLICATIONS

Walter Rotman, Boston, and Peter R. Franchi, Winchester, both of Mass., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Feb. 23, 1981, Ser. No. 237,020

Int. Cl.³ H01Q *3/24, 15/06*

U.S. Cl. 343—754 6 Claims



1. A three dimensional space fed wideband scanning microwave antenna comprising:

a multiplicity of two dimensioned parallel plate contrained cylindrical lens elements arranged in a vertical stack to effect a three dimensional cylindrical lens, each said two dimensional parallel plate constrained cylindrical lens elements including a linear array of n pickup elements disposed along the inner surface thereof, a liner array of n radiating elements disposed along the outer surface thereof, each radiating element having a corresponding substantially adjacent pick up element, and a transmission

line connecting each radiating element with its corresponding pick up element,

a plurality of discrete feeds positioned in spaced relationship in an arc having substantially the same radius as the focal arc of said three dimensional cylindrical lens, said plurality of discrete feeds being spaced from and oriented to illuminate the inner surface of said three dimensional cylindrical lens whereby pick up elements can be illuminated from different directions along the arc of feeds to effect beam radiation from said radiating elements in the same direction,

an input for receiving the output of a microwave transmitter, and

switch means for selectively connecting any one of said discrete feeds to said input whereby the sequential connecting of feeds effects scanning of a beam radiating from said radiating elements.

4,381,510

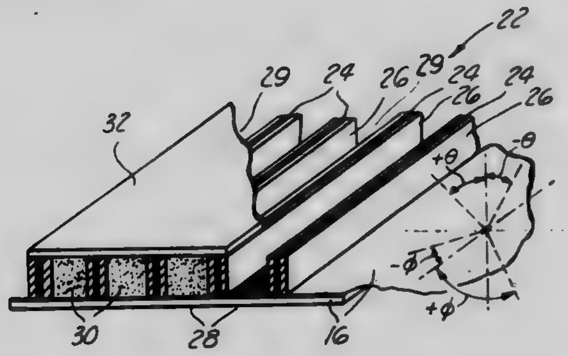
MICROWAVE ABSORBER

Lloyd W. Wren, Valley Center, Kans., assignor to The Boeing Co., Seattle, Wash.

Filed Aug. 18, 1981, Ser. No. 294,046

Int. Cl.[3] H01Q *15/02*

U.S. Cl. 343—909 17 Claims



1. A microwave absorber for a reflecting surface, the absorber coupling and absorbing radio frequency energy at different angles of incidence, the absorber including:

an energy receiving surface adapted for receipt on the reflecting surface;

a first transmission line wall mounted on the receiving surface and having a lossy wall covering; and

a second transmission line wall mounted on the receiving surface and having a lossy wall covering, the second transmission line wall disposed in a spaced relationship from the first transmission line wall, the receiving surface and the first and second wall forming an open channel configuration.

4,381,511

PRINTING DEVICE FOR A TIME RECORDER

Masamichi Suzuki, Yokohama, Japan, assignor to Amano Corporation, Yokohama, Japan

Filed Apr. 30, 1981, Ser. No. 259,053

Claims priority, application Japan, May 2, 1980, 55-60757[U]

Int. Cl.[3] G01D *9/00*

U.S. Cl. 346—20 7 Claims

1. A time recording device comprising:

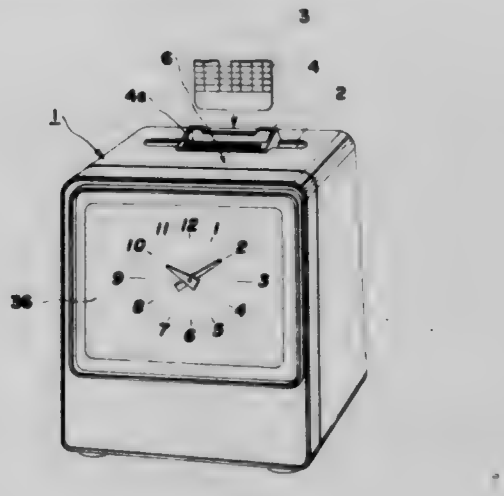
(a) a frame;

(b) a card pocket for vertically receiving a time card, disposed in said frame and being horizontally, transversely displaceable therein;

(c) a dot printer having a printing head opposing the printing surface of the time card when the time card is in said card pocket, for printing on the printing surface of the time card in response to a print signal;

(d) printer guiding means, mounted to said frame, for slidably supporting said dot printer such that said dot printer is slidably movable horizontally and transversely of the printing surface of the time card a transverse distance which is short compared to the width of the time card;

(e) means, including a cam having a cam surface, a contact member engaging said cam surface, and means for rotating one of said cam and said contact member in response to a displacement signal, fixed to said dot printer and said frame, for reciprocally moving said dot printer said transverse distance when said rotary means is rotating said one of said cam and said contact member; and



(f) means for providing said print signal to said dot printer and said displacement signal to said rotating means so that said dot printer is displaced said transverse distance as it prints on the printing surface of the time card, whereby the printing surface of the time card is printed upon along a horizontal segment thereof of substantially the same width as said transverse distance.

4,381,512

CONTROLLER FOR PEN, PAPER AND CHART OF A RECORDER

Keith C. Butler, Newark, Del., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 13, 1979, Ser. No. 11,738

Int. Cl.[3] G01D *9/10*

U.S. Cl. 346—33 R 3 Claims

1. Apparatus for moving the pen and chart of a recorder in such manner that data which changes faster than the pen can follow may be recorded with fidelity, comprising

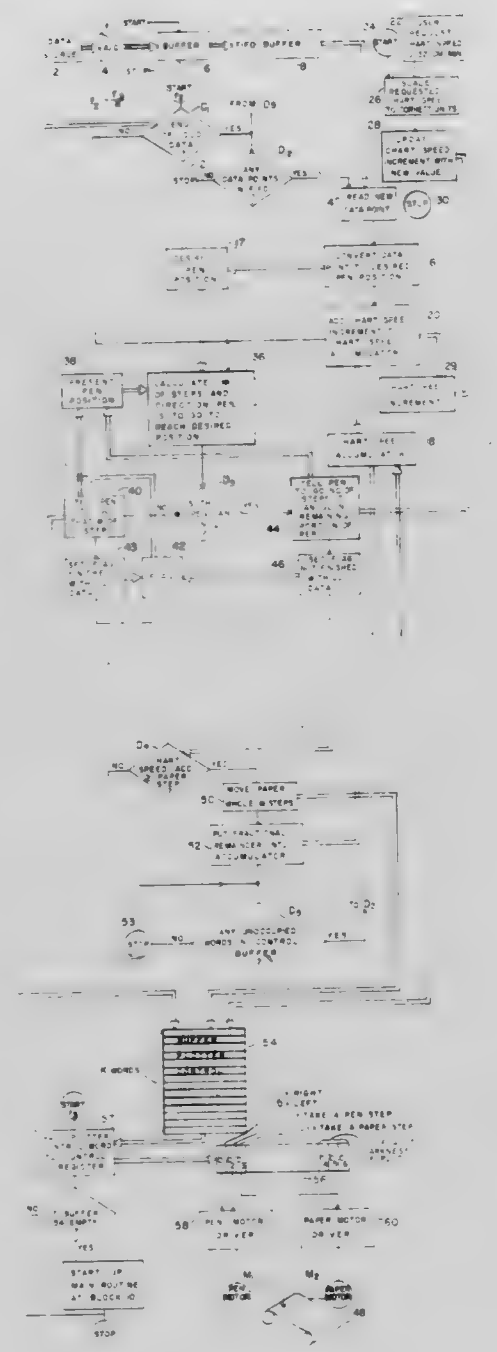
means for buffering data points representing the amplitude of the data to be recorded at successive time intervals,

means for reading data points from said buffer,

means for forming signals for moving a pen from a position corresponding to a previous data point to a position corresponding to the current data point at speeds up to and including its maximum,

means for causing said means for reading data points to read a new data point whenever signals have been given to the

pen that are necessary for it to move to the current data point, and



means for controlling the advance of the chart in response to the reading of a new data point.

4,381,513

DEFLECTION PLATES FOR ELECTROSTATIC INK-JET PRINTER

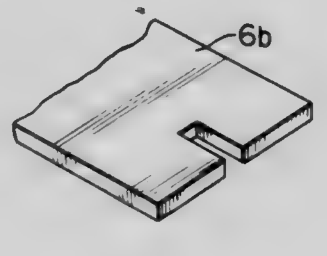
Yutaka Ebi, Kawasaki, and Yutaka Kodama, Tokyo, both of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Filed May 6, 1980, Ser. No. 147,278

Claims priority, application Japan, May 10, 1979, 54/56351

Int. Cl.³ G01D *15/18*

U.S. Cl. 346—75 8 Claims



1. Deflection plates for an electrostatic ink-jet printer characterized in that the leaving end of said deflection plate which is adjacent to the axis along which the ink drops issue is formed with a notch parallel with said ink drop issuing axis whereby the gradient in the electrostatic field is reduced.

4,381,514

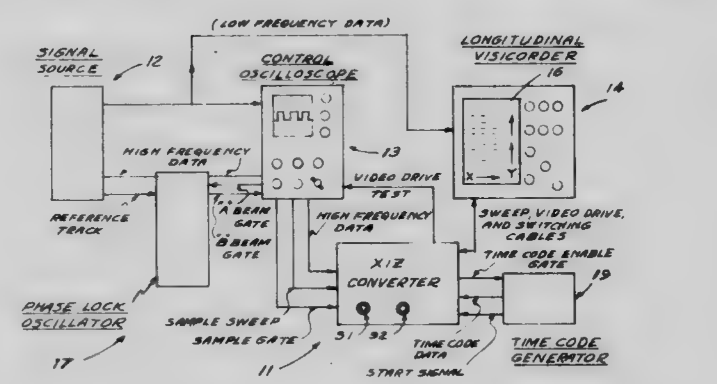
TRANSVERSE MODE CONVERTER FOR USE WITH A LONGITUDINAL MODE OSCILLOGRAPHIC RECORDER

Peter M. Calandrino, 2114 McGowan Pkwy., Marysville, Calif. 95901

Filed Apr. 9, 1981, Ser. No. 252,397

Int. Cl.³ G01D *9/42*

U.S. Cl. 346—110 R 12 Claims



1. In a longitudinal mode oscillographic recording apparatus for continuously recording a low frequency signal by continuously drawing a radiation sensitive medium over the face of a cathode ray tube having a control element for emitting an electron beam capable of exposing the radiation sensitive medium, and including a yoke for transversely sweeping the electron beam across the radiation sensitive mediun in response to the output of a horizontal sweep generator triggered by the low frequency signal, and further including a video drive chain responsive to the low frequency signal for driving the control element, the improvement comprising:

a. means for producing a gating signal and a synchronous horizontal sweep signal, in response to a high frequency signal;

b. a transverse mode converter including:

(1) synchronization means interconnected to the high frequency signal and to said gating signal for producing a synchronized signal corresponding to the portion of the high frequency signal to be recorded;

(2) first amplifying means for amplifying said synchronized signal to produce a video drive signal;

(3) second amplifier means for amplifying said horizontal sweep signal;

(4) mode control means, operative in a first longitudinal mode position to interconnect the video drive chain with the control element and to interconnect the horizontal sweep generator with the yoke for longitudinally recording the low frequency signal; and said mode control means being operative in a second transverse mode position alternatively to interconnect the output of said first amplifier means with the control element and to interconnect the output of said second amplifier means with the yoke for transversely recording the high frequency signal.

4,381,515

REDUCTION OF PULSED DROPLET ARRAY CROSSTALK

Lee L. Bain, Arlington, Tex., assignor to Xerox Corporation, Stamford, Conn.

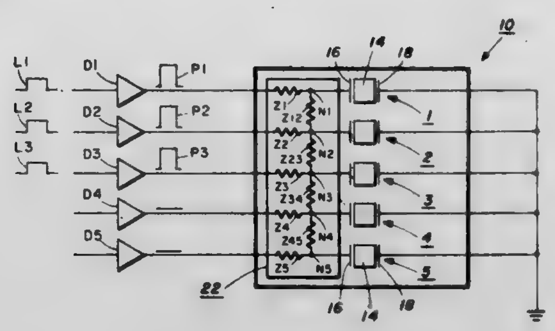
Filed Apr. 27, 1981, Ser. No. 257,699

Int. Cl.³ G01D *15/18*

U.S. Cl. 346—140 R 8 Claims

1. A method for reducing or eliminating mechanical cross-

talk in a drop-on-demand droplet ejector array, which comprises:



providing an induced electrical crosstalk, which at least partly offsets the mechanical crosstalk.

4,381,516

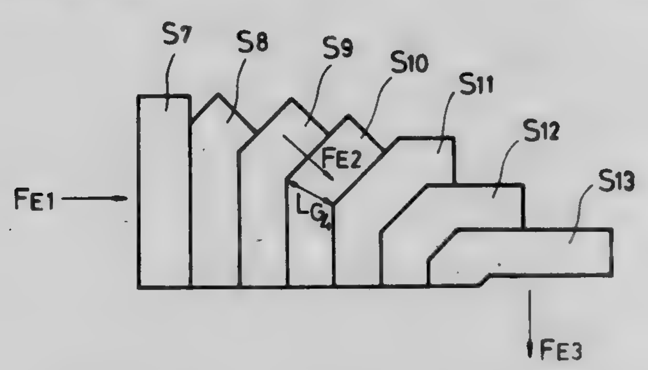
CHARGE-COUPLED DEVICE HAVING A CHANNEL AND AN ELECTRODE FOR CHANGING A TRANSFER DIRECTION OF CHARGE SIGNALS

Hiroshi Kadota, Toyonaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Continuation of Ser. No. 137,294, Apr. 3, 1980, abandoned. This application Sep. 23, 1981, Ser. No. 304,873

Int. Cl.^{3} H01L *29/78;* **G11C** *19/28*

U.S. Cl. 357—24 **4 Claims**



1. A charge-coupled device having one input and one output terminal for signal charge and unique charge transfer channel between said input and output terminal comprising:

a first transferring channel region to transfer signal charges to a first direction consisting of a plurality of rectangular storage sites whose both longer sides have a right angle to said first direction,

a second transferring channel region to transfer signal charges to a second direction consisting of a plurality of rectangular storage sites, whose both longer sides have a right angle to said second direction,

a third transferring channel region to change transfer direction from said first direction to said second direction, which region is disposed between said first and second transferring channel regions consisting of a plurality of bent storage sites having an electrode thereon and those of which comprise a first rectangular part, one pair of whose sides having a right angle to said first direction, a second rectangular part one pair of whose sides having a right angle to said second direction, and a third rectangular part one pair of whose sides having a right angle to a specified direction which is between said first and second directions, and having the charge transfer path to said next storage site through one side of said each pair, and the distance between the sides of said each pair being shorter or equal to that of the longer sides of said first or second transferring channel region,

each of said storage sites in said first, second and third transferring channel regions being defined by an edge of said channel region and an edge of electrode disposed thereon in a semiconductor substrate, with signal charge being stored or being transferred from one storage site to the next storage site responding to signals impressed on said electrode thereon.

4,381,517

SOLID STATE IMAGE SENSOR

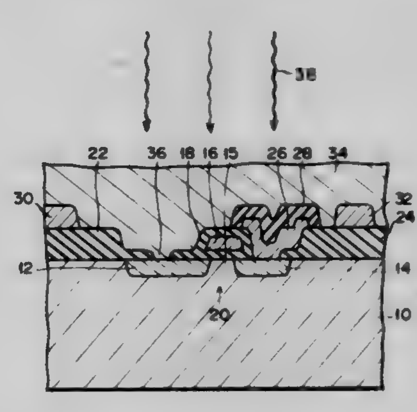
Nozomu Harada, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Dec. 12, 1980, Ser. No. 215,660

Claims priority, application Japan, Dec. 21, 1979, 54/165506

Int. Cl.^{3} H01L *27/14*

U.S. Cl. 357—30 **12 Claims**



1. A solid state image sensor comprising:

a semiconductor substrate of a first conductivity type having a surface portion;

an active region of a second conductivity type opposite to said first conductivity type and formed at the surface portion of said substrate;

field insulation layers formed on said substrate and surrounding said active region;

a photosensing layer of a semiconductor material formed on said substrate and said insulation layers and generating a charge packet corresponding to the incident light; and

charge transfer means for generating within said photosensing layer an electric field having substantial components extending substantially parallel to the surface of said substrate to transfer the charge packet generated by the incident light within said photosensing layer toward said active region, said charge transfer means including electrode means formed in said photosensing layer and made of conductive material for receiving a bias potential applied thereto and for generating said electric field between said active region and said electrode means.

4,381,518

SEMICONDUCTOR COMPONENT WITH SEVERAL SEMICONDUCTOR ELEMENTS

Walter Bahlinger, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Sep. 18, 1980, Ser. No. 188,455

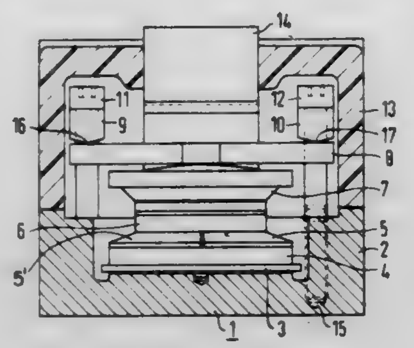
Claims priority, application Fed. Rep. of Germany, Oct. 19, 1979, 2942401

Int. Cl.^{3} H01L *23/42, 23/02*

U.S. Cl. 357—79 **5 Claims**

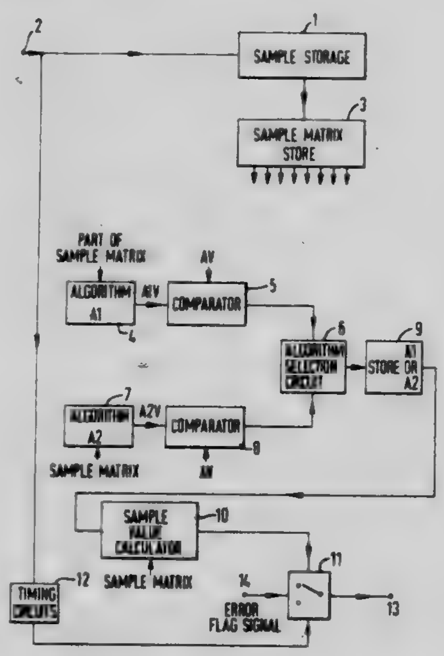
1. Semiconductor component with a plurality of semiconductor elements disposed in a case having a metallic bottom being in heatconducting contact with the semiconductor elements, electrical leads, and a leaf spring having ends and pro-

viding electrical pressure contact between the semiconductor elements and the leads, comprising yokes each holding a re-



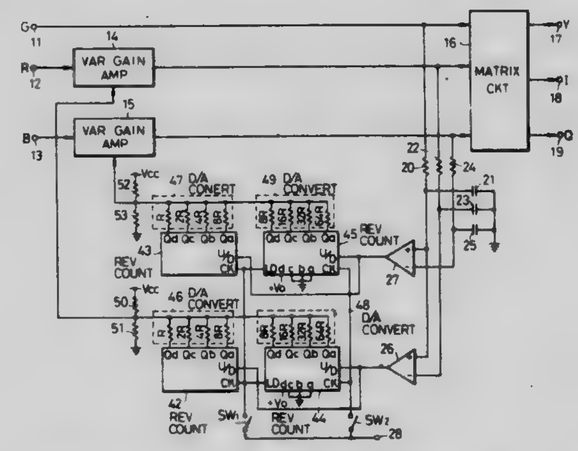
spective end of the spring, and at least two screws anchoring said yokes and the semiconductor elements to the bottom.

4,381,519
ERROR CONCEALMENT IN DIGITAL TELEVISION SIGNALS
James H. Wilkinson, and Mark C. Collins, both of Tadley, Near Basingstoke, England, assignors to Sony Corporation, Tokyo, Japan
Filed Sep. 14, 1981, Ser. No. 302,153
Claims priority, application United Kingdom, Sep. 18, 1980, 8030149
Int. Cl.[3] H04N *9/535, 9/491*
U.S. Cl. 358—21 R **7 Claims**



1. A method of concealing errors in a composite PAL or NTSC digital television signal, which television signal comprises a plurality of sample signals corresponding respectively to sample positions along a horizontal scan line of a television picture made up of a plurality of said horizontal lines, the method comprising, in respect of each said sample signal:
using a first algorithm to calculate a first expected value of said sample signal, said first algorithm using actual values of adjacent sample signals in the same horizontal line as said sample signal for said calculation;
performing a first comparison between said first expected value and the actual value of said sample signal;
using a second algorithm to calculate a second expected value of said sample signal, said second algorithm using actual values of adjacent sample signals in the same horizontal line as said sample signal and actual values of adjacent sample signals in the horizontal lines preceding and following the horizontal line of said sample signal;
performing a second comparison between said second expected value and the actual value of said sample signal;
continuously storing an indication as to which of said first and second comparisons gives a result closer to zero; and
on occurrence of an error sample signal substituting a corrected sample signal for said error sample signal so as to conceal the error, said corrected sample signal being generated using said first or second algorithm in dependence on said indication.

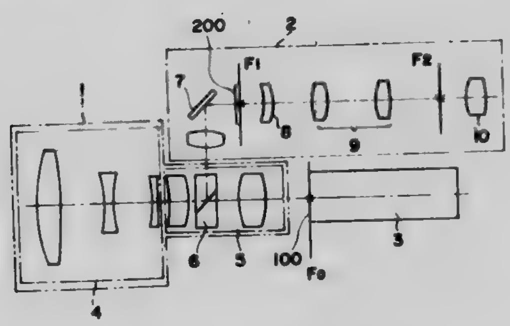
4,381,520
AUTOMATIC WHITE ADJUSTING CIRCUIT FOR A TELEVISION CAMERA
Toyotaka Machida; Teruaki Noda, and Yuichi Ikemura, all of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan
Filed Jun. 1, 1981, Ser. No. 269,126
Claims priority, application Japan, Jun. 2, 1980, 55-73856
Int. Cl.[3] H04N *9/535*
U.S. Cl. 358—29 **6 Claims**



1. An automatic white adjusting circuit for a television camera having a color image pick-up tube, said automatic white adjusting circuit comprising:
first variable gain amplifying means applied with a first primary color signal;
second variable gain amplifying means applied with a second primary color signal;
matrixing means applied with a third primary color signal and outputs of said first and second variable gain amplifying means;
first, second, and third low-pass filters respectively applied with the outputs of said first and second variable gain amplifying means and said third primary color signal;
first and second comparing means respectively supplied with an output of said third low-pass filter to their non-inverting terminals, and supplied with respective outputs of said first and second low-pass filters to their respective inverting input terminals;
first and third reversible counter means respectively supplied with an output of said first comparing means to their respective up/down input terminals;
second and fourth reversible counter means respectively supplied with an output of said second comparing means to their respective up/down input terminals;
first, second, third, and fourth digital-to-analog converters respectively supplied with parallel outputs of said first, second, third, and fourth reversible counter means;
first reference gain establishing means supplied with outputs of said first and third digital-to-analog converters;
second reference gain establishing means supplied with outputs of said second and fourth digital-to-analog converters; and
switching means for selectively switching over an incoming clock pulse, to supply said clock pulse to respective clock pulse input terminals of said first and second reversible counter means or said third and fourth reversible counter means,
said clock pulse input terminals of said first and second reversible counter means being respectively connected to load terminals of said third and fourth reversible counter means,

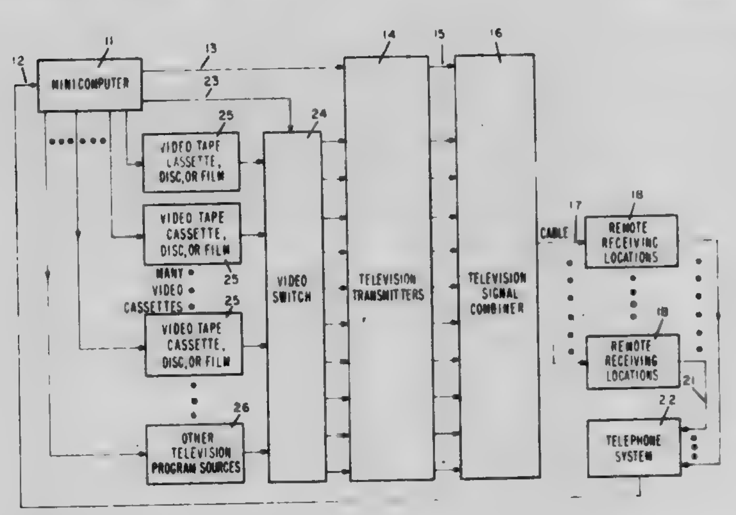
said first and second variable gain amplifying means respectively being supplied with gain varying control voltage from said first and second reference gain establishing means,
said matrixing means producing a luminance signal and two color difference signals.

4,381,521
OPTICAL FINDER SYSTEM FOR A VIDEO CAMERA
Yozo Iida, Komae, and Soichi Nakamura, Kamakura, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan
Filed Jan. 7, 1982, Ser. No. 337,747
Claims priority, application Japan, Jan. 22, 1981, 56-8386
Int. Cl.^{3} H04N *9/04*
U.S. Cl. 358—55 5 Claims



1. In a video camera including a pickup device for converting a first optical image of an object formed on an image pickup surface by an imaging optical system into an electric signal, and an optical finder system whereby a second optical image substantially identical with said first optical image is formed on an imaging surface such that said second optical image on said imaging surface is observable through an eyepiece, said pickup device including color separating filter means disposed on said image pickup surface and having a fine stripe or mosaic pattern, the improvement comprising:
optical means disposed in close proximity to said imaging surface of said optical finder system across an optical axis in such a manner that said second optical image is projected onto a surface of said optical means, said optical means including a plurality of fine optical elements arranged in a pattern similar to said fine pattern of said filter means.

4,381,522
SELECTIVE VIEWING
Trevor Lambert, Sherborn, Mass., assignor to Adams-Russell Co., Inc., Waltham, Mass.
Filed Dec. 1, 1980, Ser. No. 211,759
Int. Cl.^{3} H04N *7/16*
U.S. Cl. 358—86 3 Claims



1. Apparatus for remotely viewing selected television program material at remote receiving locations comprising,
television transmitting means at a central location for providing a plurality of television signals on a plurality of channels,
means at said central location for combining said television signals to provide a combined signal for transmission over a common transmission path to said remote receiving locations,
means for transmitting said combined signal over said common path to said remote receiving locations,
a plurality of sources of selectable television program video signals,
computer means coupled to said sources and said television transmitting means and responsive to a selecting signal from a remote receiving location designating a selected television program for viewing for providing selecting control signals for enabling a corresponding one of said program sources to provide the corresponding television video signal at a predetermined time and for providing switching control signals for coupling the latter video signal for broadcast by said television transmitting means on a designated one of said channels,
video switching means responsive to said switching control signals for coupling the television program video signals from the enabled sources to said television transmitting means for broadcast on designated ones of said channels,
said computer means also continuously providing a schedule video signal to said television transmitting means on a predetermined program schedule channel of said channels representative of the selected television programs to be transmitted, the time of transmission and the transmission channel,
whereby a viewer at a remote receiving location may tune a television receiver thereat to said program schedule channel, observe the time and channel for transmission of a selected television program and switch said television receiver to the designated channel at the designated time.

4,381,523
AUTOMATIC FOCUSING DEVICE
Mitsuo Eguchi, Ageo; Masahito Yoshida, Urawa; Yoshifumi Kato, Oomiya; Nobuyuki Ichino, Warabi, and Yoshimi Kikuchi, Kitamoto, all of Japan, assignors to Mamiya Koki Kabushiki Kaisha, Japan
Filed Jan. 12, 1981, Ser. No. 224,464
Claims priority, application Japan, Jan. 14, 1980, 55-3233
Int. Cl.^{3} H04N *3/26*
U.S. Cl. 358—227 18 Claims

1. An automatic focusing device for use with a photographing device having a photographing optical system, the automatic focusing device comprising:
detecting means for detecting as video signals the intensity distributions of the images on an image pickup plane of an object to be photographed which are formed by different light beams passing through different portions of a photographing otpical system of a photographing device, the

detecting means comprising a detecting array disposed at a position in conjugation with the position of said image pickup plane for receiving a light beam picked up from said photographing optical system;

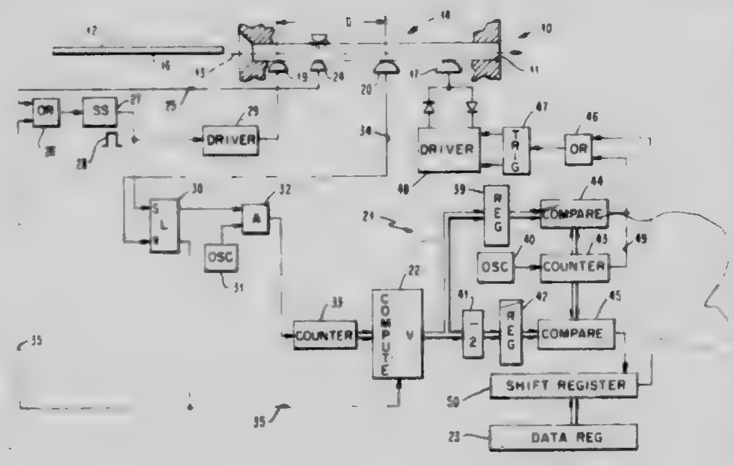
light beam splitting means interposed in said photographing optical system for splitting the light beam in said photographing optical system into said different light beams which are applied to said detecting means;

signal processing means for receiving and processing a relative positional relation of said video signals and producing a corresponding output signal; and

driving means for driving said photographing optical system or said image pickup plane to the focusing position of said object irrespective of the focal distance of said photographing optical system according to an output signal of said signal processing means.

4,381,524
SELF-CLOCKING WRITE HEAD

Robert J. E. Shay, Salisbury, and Wendell L. Smith, Concord, both of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 8, 1980, Ser. No. 214,317
Int. Cl.³ G11B *25/04, 5/09*
U.S. Cl. 360—2 **7 Claims**



1. In a magnetic recording system wherein a magnetic record form and a transducing assembly including a data recording means are moved relatively, one with respect to the other, along a path and wherein the system includes control circuitry responsive to a time base control and a data signal for controlling the recording of data on said record form, the improved transducing assembly comprising, in combination:

a writing device,

a reading device aligned with said writing device along said path and spaced downstream therefrom in relation to the direction of said relative movement,

variable frequency generating means connected to said control circuitry,

a reference signal generator for delivering a reference signal to said writing device to record an indication thereof on said record,

said reading device producing a derived signal in response to reading of said recorded indication of said reference signal,

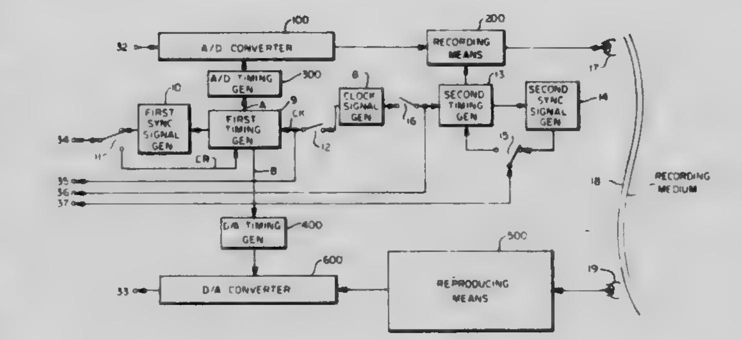
means for measuring the time lapse between said reference signal and said derived signal,

time base control computing means responsive to said measuring means for controlling said variable frequency generating means in accordance with the relative velocity of said record form and said transducing assembly, and

means automatically causing a further operation of said reference signal generator to deliver a further reference signal to said writing device whereby a revised variable frequency is obtained upon changes in relative velocity.

4,381,525
SYNCHRONOUSLY OPERATABLE PCM RECORDING PROCESSOR

Takanori Senoo, Hirakata; Nobuyasu Takeguchi, Osaka, and Kazuo Nomura, Itami, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Nov. 10, 1981, Ser. No. 320,115
Claims priority, application Japan, Nov. 10, 1980, 55-156968
Int. Cl.³ G11B *5/00, 5/09*
U.S. Cl. 360—32 **2 Claims**



1. A PCM recording processor comprising: an A/D converting means for converting an analog input signal to a digital signal; a recording means coupled to said A/D converting means for recording said digital signal on a recording medium; a reproducing means for reading out said digital signal from said recording medium; a D/A converting means coupled to said reproducing means for converting said digital signal to an analog signal; an A/D timing generating means comprising gates for controlling said A/D converting means; a D/A timing generating means comprising gates for controlling said D/A converting means; a first timing generating means comprising counters for providing timing signals to both said A/D timing generating means and said D/A timing generating means; a first synchronizing signal generator coupled to said first timing generating means for generating a first synchronizing signal; a first synchronizing signal port; a first switching means for (a) connecting an output of said first synchronizing signal generator to said first synchronizing signal port when said PCM recording processor is in a master mode and for (b) connecting said first synchronizing signal port to a reset terminal of said first timing generating means in order to reset said first timing generating means when said PCM recording processor is in a slave mode; a second timing generating means for controlling said recording means and for driving said recording medium; a second synchronizing signal generator coupled to said second timing generating means for generating a second synchronizing signal; a second synchronizing signal port; a second switching means for (a) connecting an output of said second synchronizing signal generator to said second synchronizing signal port when said PCM recording processor is in the master mode and for (b) connecting said second synchronizing signal port to a reset terminal of said second timing generator in order to reset said second timing generator when said PCM recording processor is in the slave mode; a clock generator for generating a first clock signal for said first timing generating means and a second clock signal for said second timing generator; a first clock signal port; a third switching means for (a) connecting said first clock signal to both said first clock signal port and said first timing generating means when said PCM recording processor is in the master mode and for (b) connecting said first clock signal port to said first timing generating means when said PCM recording processor is in the slave mode; a second clock signal port; and a fourth switching means for (a) connecting said second clock signal to both said second clock signal port and said second timing generator when said PCM recording processor is in the master mode and for (b) connecting said second clock signal port to said second timing generator when said PCM recording processor is in the slave mode.

4,381,526

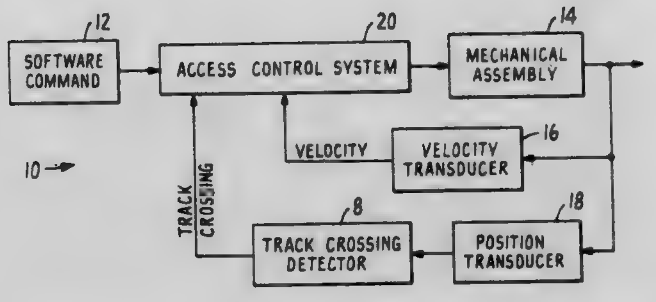
VELOCITY CONTROL SYSTEM FOR A DATA STORAGE APPARATUS

David G. McLaughlin, San Jose, and Andrew M. Rose, Mountain View, both of Calif., assignors to Memorex Corporation, Santa Clara, Calif.

Filed Nov. 10, 1980, Ser. No. 205,679

Int. Cl.³ G11B *21/10*

U.S. Cl. 360—78 **10 Claims**



1. In an access control system, for controlling the velocity of a head assembly in a direct access storage device, having difference counting means for indicating the distance to move for the assembly, memory means for storing a plurality of values of velocity, DAC conversion means for converting a digital to an analogue signal, said analogue signal for controlling the velocity of said head assembly, and an integrator means for generating a signal corresponding to movement of one track, wherein the improvement comprises:

pulsing means for generating a plurality of pulses, during the time for said assembly to move across one track, all of said pulses having the same frequency with each pulse having two states;

said memory means responsive to the output from the difference counting means for generating a modulated velocity signal, said modulated velocity signal being further responsive to each pulse;

said modulated velocity signal being one value of velocity in response to one state of each pulse and said modulated velocity being another value of velocity in response to the other state of each pulse; and

said modulated velocity signal being supplied to said DAC conversion means.

4,381,527

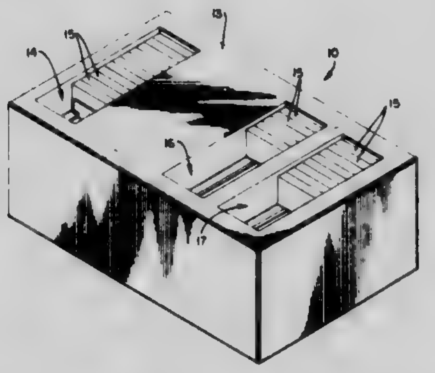
CASSETTE CHANGING METHOD AND APPARATUS

Theodore Titus, IV, Tucker, and Timothy D. Cutler, Atlanta, both of Ga., assignors to Lanier Business Products, Inc., Atlanta, Ga.

Filed Sep. 24, 1979, Ser. No. 78,232

Int. Cl.³ G11B *15/68, 15/24*

U.S. Cl. 360—92 **9 Claims**



1. A changing apparatus for successively engaging a plurality of discrete recording media with a transport mechanism associated with a record/listen head comprising

a channel defining a longitudinally extending path running adjacent to said transport mechanism;

an input magazine adjacent to said channel for storing a plurality of said recording media;

an output magazine adjacent to said channel and longitudinally spaced from said input magazine;

means for urging said recording media from said input magazine into said channel;

a first and a second carriage means within said channel for carrying said recording media along said channel;

a drive means for moving said first and second carriage means in either of two opposite directions along said channel;

a first stop along said channel for arresting motion of said first carriage means moving from said input magazine toward said transport mechanism at said locations opposite said transport mechanism;

a second stop for arresting motion of said second carriage means moving from said transport mechanism toward said output magazine at a location opposite said output magazine;

said arresting of said carriage means being independent of continued operation of said drive means;

transport load means for moving a recording medium in said channel transversely from said path into and out of engagement with said transport mechanism; and

an ejecting means simultaneously operative with said transport load means for moving a recording medium carried by said second carriage means transversely of said path into said output magazine.

4,381,528

ENCLOSED-TYPE MAGNETIC DISC RECORDING AND/OR REPRODUCING APPARATUS

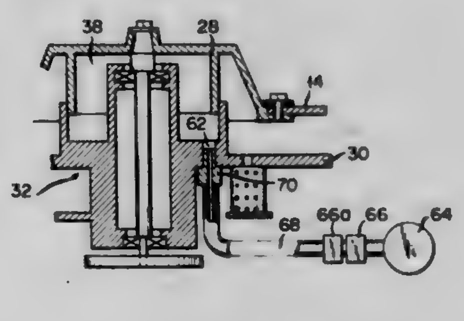
Masahiko Fujioka, Hamura, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki, Japan

Division of Ser. No. 42,786, May 29, 1979, which is a division of Ser. No. 835,060, Sep. 25, 1977, Pat. No. 4,185,308. This application Jan. 27, 1981, Ser. No. 228,888

Claims priority, application Japan, Sep. 24, 1976, 51-114436

Int. Cl.³ G11B *17/00*

U.S. Cl. 360—97 **2 Claims**



1. An enclosed-type magnetic disc recording and/or reproducing apparatus for use in conjunction with a magnetic disc, comprising:

a base;

a disc cover attached to said base and defining an enclosed chamber between said cover and said base;

a bearing unit having a first end protruding into said enclosed chamber from said base and a second end exposed to open air;

a shaft supported by said bearing unit and having a tip end protruding into said enclosed chamber;

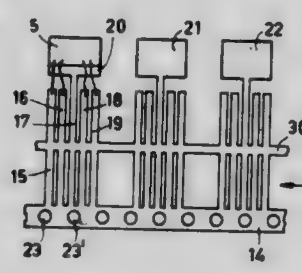
a flange attached to the tip end of said shaft and adapted to have said disc attached thereto;

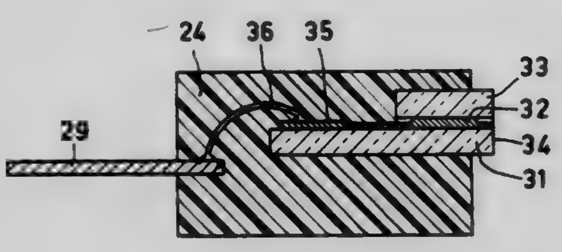
a first cylindrical projecting member projecting toward said flange from said base concentrically with said shaft;

a second cylindrical projecting member projecting toward said base from said flange and overlapping said first cylindrical projecting member to form a narrow gap between the overlapping portions of said cylindrical projecting members, whereby a separate pressure chamber surrounded by said flange, said base and both cylindrical projecting members is formed;

means for rotating said shaft, said flange, said disc, and said second cylindrical projecting member; and
a pressure supply system for introducing high-pressure air into said separate pressure chamber through an air inlet bored in said base, at least during operation of said recording and/or reproducing apparatus;
wherein said gap between the overlapping portions of said first and second cylindrical projecting members is sufficiently narrow and sufficiently long to restrict air leakage from said separate pressure chamber through said gap to maintain said separate pressure chamber at higher than atmospheric pressure.

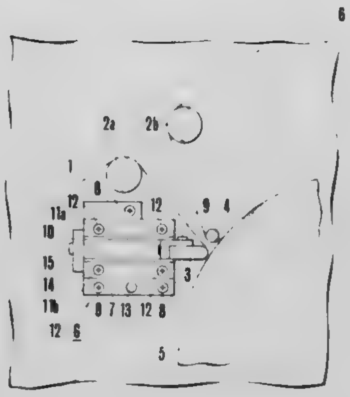
4,381,529
MAGNETIC HEAD CONSTRUCTION
Jan Bouwma, Heerlen, and Johannes Kerssen, Eindhoven, both of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 21, 1980, Ser. No. 208,968
Claims priority, application Netherlands, Dec. 3, 1979, 7908713
Int. Cl.[3] **G11B** *5/20, 5/14*
U.S. Cl. 360—123 **2 Claims**





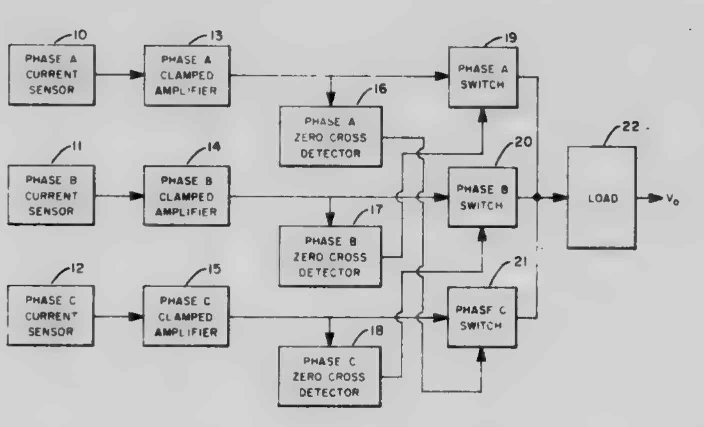
1. A magnetic head construction comprising a substrate of non-electrically conductive material, a number of layer-wise formed electromagnetic transducer elements supported on the substrate, and first connection conductors connecting the elements to connection surfaces on the substrate, characterized in that the construction further comprises a synthetic resin casing in which the substrate with the transducer elements integrated thereon is embedded, and a number of spaced strip-shaped current conductors situated mainly in one plane and having flat parts projecting from the casing, one of the current conductors, at its end situated inside the casing, having a flat portion on which the substrate is provided, the current conductor parts being connected to the connection surfaces of the transducer elements by respective second connection conductors.

4,381,530
MOVABLE TAPE GUIDE DEVICES FOR USE IN HELICAL-SCAN VIDEO TAPE RECORDERS
Nobuyoshi Owada, Kodaira, and Tamotsu Tominaga, Akishima, both of Japan, assignors to Hitachi Denshi Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 29, 1980, Ser. No. 173,275
Int. Cl.[3] **G11B** *15/60, 5/08*
U.S. Cl. 360—130.23 **10 Claims**



1. A movable tape guide device comprising:
a deck establishing a reference plane;
a guide for a tape;
a slider supporting the tape guide;
guide means supported by the deck for guiding reciprocating motion of said slider which is straightforward and in parallel with the reference plane;
drive means for reciprocating said slider;
stop means for preventing said slider from moving beyond a predetermined limit;
detecting and controlling means responsive to a position of said slider for controlling said drive means; and
spring means for applying a predetermined force, which is larger than a maximum resultant force in the slider motion direction of the tension forces of the tape acting on the tape guide, to said stop means when said slider is stopped by said stop means.

4,381,531
ALTERNATING CURRENT MOTOR PROTECTION SYSTEM
Virgil E. Eisenhauer, Camillus, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.
Filed Jul. 2, 1981, Ser. No. 280,161
Int. Cl.[3] **H02H** *3/08, 3/26*
U.S. Cl. 361—87 **7 Claims**



1. A system for protecting a three-phase alternating current motor from current overload and from current imbalance comprising:
means for sensing the current magnitude of each phase of the alternating current supplied to the motor;
signal conditioning means for generating a three-phase electrical output signal in response to the current magnitudes

sensed by the current sensing means, the magnitude of the first, second and third phase of said output signal being proportional to the magnitude of the first, second and third phase, respectively, of the alternating current;

signal processing means for monitoring the magnitude of each phase of the output signal to determine the absolute magnitude of each phase of the alternating current and to determine the relative magnitude of each phase of the alternating current relative to the magnitude of each of the other phases of the alternating current; and

means for terminating the operation of the motor when the absolute magnitude of a current phase exceeds a preselected value or when the relative magnitude of a current phase exceeds a preselected value.

4,381,532

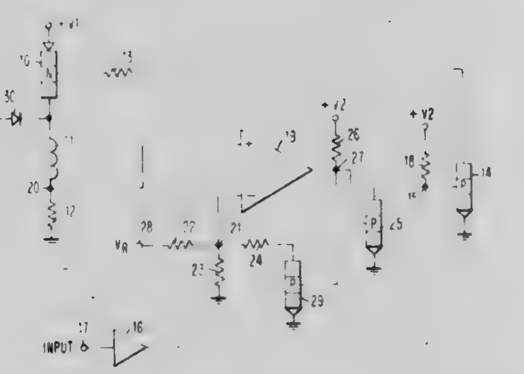
CONSTANT ENERGY DRIVE CIRCUIT FOR ELECTROMAGNETIC PRINT HAMMERS

Robert W. Arnold, Glen Aubrey, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 18, 1981, Ser. No. 274,933

Int. Cl.³ H01H *47/32*

U.S. Cl. 361—154 **13 Claims**



1. A constant energy drive circuit for an electromagnet having a coil connectable to an unregulated source of drive voltage by a switch means activated by a turn on signal of fixed time duration causing current to flow in said coil, and a chopping circuit means for cycling said switch means activatable at a preset level of current in said coil during said time duration for chopping the current in said coil during said time duration at an average peak current for at least a portion of the remainder period of said time duration, characterized by,

said chopping circuit including means for altering the switching rate of said switch means in response to changes in said drive voltage to vary the average peak current in said coil during said remainder period to compensate for changes in the drive voltage of said source.

4,381,533

ATOMIZATION OF LIQUIDS

Ronald A. Coffee, Haslemere, England, assignor to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 79,950, Sep. 28, 1979, which is a continuation-in-part of Ser. No. 812,440, Jul. 1, 1977, abandoned. This application Nov. 18, 1981, Ser. No. 322,687

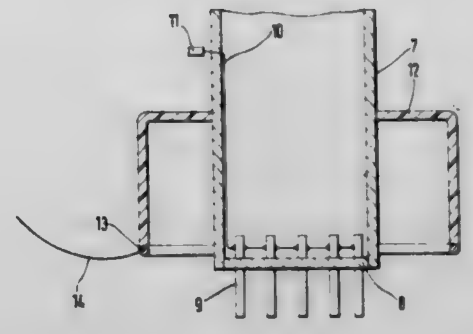
Claims priority, application United Kingdom, Jul. 15, 1976, 29539/76; Feb. 21, 1977, 7186/77

The portion of the term of this patent subsequent to Oct. 26, 1999, has been disclaimed.

Int. Cl.³ B05B *5/02*

U.S. Cl. 361—228 **4 Claims**

1. A spraying apparatus for spraying a liquid onto a plant comprising at least two spraying devices mounted on a boom each such spraying device comprising: a spray-head having an at least electrically semi-conducting surface; means for electrically charging the spray-head surface to a potential of the order of 1-20 kilovolts; means for delivering spray liquid to the surface; a field intensifying electrode mounted adjacent to the spray-head surface; and means for connecting the field intensifying electrode to earth; the electrode being so sited relative to the spray-head surface that when the spray-head surface is charged, the electrostatic field thereat causes liquid thereon to



atomise without substantial corona discharge to form electrically charged particles which are projected past the electrode and into contact with the plant.

4,381,534

PROCESS AND ARRANGEMENT FOR THE POLARIZATION OF SHAPED OBJECTS MADE FROM POLYMERS

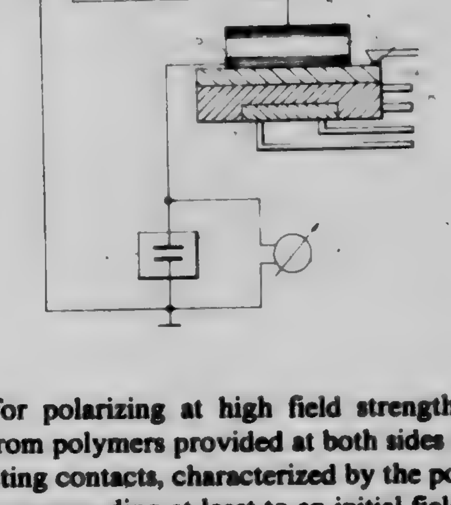
Rudi Danz, Teltow; Wolfgang Stark, Kleinmachnow; Barkhard Elling, Potsdam; Christian Ruscher, Teltow-Seehof, and Wolfgang Schwarz, Stahnsdorf, all of Fed. Rep. of Germany, assignors to Akademie der Wissenschaften der DDR, Berlin, German Democratic Rep.

Filed Dec. 12, 1979, Ser. No. 102,946

Claims priority, application German Democratic Rep., Dec. 29, 1978, 210275; Apr. 24, 1979, 212341

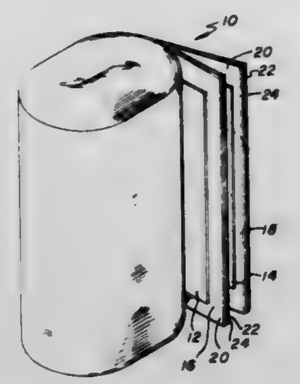
Int. Cl.³ H01G *7/02*

U.S. Cl. 361—233 **5 Claims**



1. Method for polarizing at high field strengths, shaped articles made from polymers provided at both sides with electrically conducting contacts, characterized by the polarization voltage $U_p(t)$ corresponding at least to an initial field strength of 4000 $kVcm^{-1}$ which is applied to the shaped articles made from polymers having with their contacts a capacity C_1 at temperatures preferably above ½ the melting temperature of the shaped articles, by means of variable, high-voltage resistance, charge-limiting polarization capacitors of a capacity C_2, wherein $C_2 >> C_1$ is valid as initial state, and wherein C_2 is selected in such a way that the initial maximum polarization voltage $U_p(t_o)$ is applied only momentarily to the shaped article and will drop after completed polarization to a value $U_p(t)$ which will amount to approximately one half of $U_p(t_o)$.

4,381,535
DIELECTRIC FLUID
Vandos Shedigian, and Gerald A. Voyles, both of Indianapolis, Ind., assignors to Emhart Industries, Inc., Indianapolis, Ind.
Filed Mar. 5, 1981, Ser. No. 241,002
Int. Cl.³ H01G *4/22*
U.S. Cl. 361—318 **4 Claims**



1. In a capacitor, a dielectric fluid consisting of a phthalate ester, dodecylbenzene in a percent by volume amount of substantially 20% and 1,2,4-trichlorobenzene in a percent by volume amount of substantially 10%.

4,381,536
LOW VOLTAGE ELECTROLYTIC CAPACITOR
Sidney D. Ross, Williamstown, and Manuel Finkelstein, North Adams, both of Mass., assignors to Sprague Electric Company, North Adams, Mass.
Filed Feb. 2, 1981, Ser. No. 230,834
Int. Cl.³ H01G *9/02*
U.S. Cl. 361—433 **5 Claims**

1. An electrolytic capacitor comprising a plurality of spaced aluminum electrodes, at least one of which is coated with a barrier layer dielectric oxide, interleaved spacers, and an electrolyte in contact therewith, said electrolyte comprising about 12–15 wt. % of ammonium difluoroacetate salt as solute dissolved in a solvent selected from the group consisting of ethylene glycol and ethylene glycol-butyrolactone mixture and containing about 3–19 wt. % water and said electrolyte having a room-temperature resistivity of 150 ohm-cm or lower and a −40° C. resistivity of less than 11,000 ohm-cm to provide a low-voltage capacitor that retains at least 70% capacitance at −40° C.

4,381,537
ILLUSIONARY WHEEL COVER STRUCTURE
David K. Hinrichs, 3232 Blaisdell Ave. S., Minneapolis, Minn. 55408
Filed Jan. 4, 1982, Ser. No. 337,074
Int. Cl.³ B60Q *1/00*
U.S. Cl. 362—78 **5 Claims**

1. An illusionary movement wheel cover for an automotive vehicle, having in combination

a translucent wheel cover for an automotive vehicle,

non-rotatable axle supported means carrying said wheel cover,

said means comprising

an axle extension,

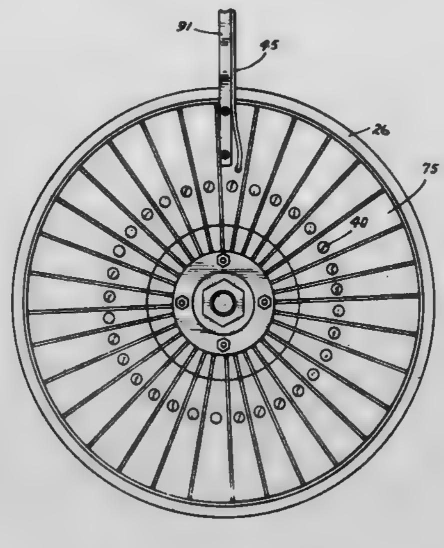
a plate member carried by said axle extension having radially disposed channels therein underlying said wheel cover,

lamps respectfully recessed in said channels,

a circuit including said lamps,

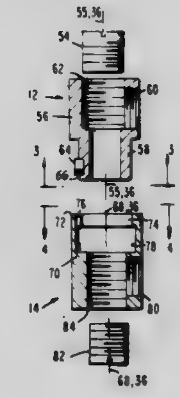
switching means and a line to a power source,

said circuit being arranged and constructed to sequentially turn on and turn off said lamps in a desired sequence, and



said channels appearing through said cover giving the appearance of a rotatable movement of said wheel cover as said lamps are turned on and turned off.

4,381,538
LAMP SWIVEL
Jerome Warshawsky, Baldwin, N.Y., assignor to I. W. Industries, Inc., Melville, N.Y.
Filed Oct. 13, 1981, Ser. No. 310,445
Int. Cl.³ F21V *21/26*
U.S. Cl. 362—269 **13 Claims**



1. A lamp swivel mountable between a lamp base and a lamp body, said lamp body having an associated light-generating means, so that said lamp body together with its associated light-generating means may be swivelably pivoted and rotated on linear support means and about an axis, said axis being the principal axis of the lamp swivel, which comprises.

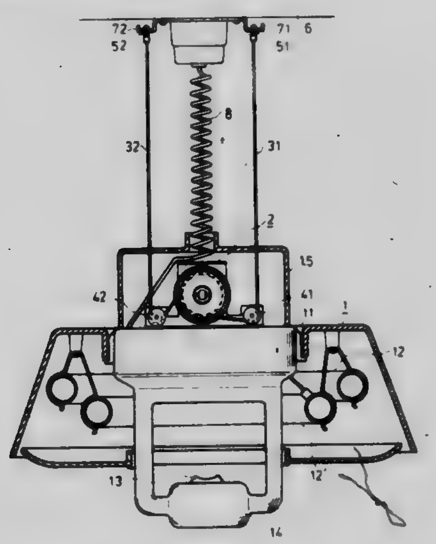
(a) a first member, said first member having a first central axis, a body disposed along said first central axis, and a dependent cylindrical extension, said extension being coaxial with said first central axis, said first central axis lying along said principal axis, said first member body being provided with means to receive one end of said linear support means, said linear support means extending from said one end to an other end connection to said lamp body,

(b) pin means, said pin means extending laterally outwards from the outer surface of said extension, and

(c) a second member, said second member having a second central axis and a body disposed along said second central axis, one end of said second member body having a cylindrical recess, said body recess being coaxial with said second central axis and having a diameter slightly greater than the diameter of said extension of said first member, so that said extension is contiguously insertable into said recess, the lateral surface of said recess having a slot and a circular groove, said surface slot extending from one end

of said second member body to said circular groove in the surface of said recess, said groove being coaxial with said second central axis, so that when said extension is inserted into said recess, at least a portion of said first central axis is coaxial with said second central axis, said pin means being then receivable through said slot and into said groove, whereby said first member is detachably attached to said second member, and said first member is at least partially rotatable about said first central axis, while said second member either remains stationary or concomitantly rotates about said second central axis, said second central axis lying along said principal axis, said second member body being detachably attachable to means extending to said lamp base.

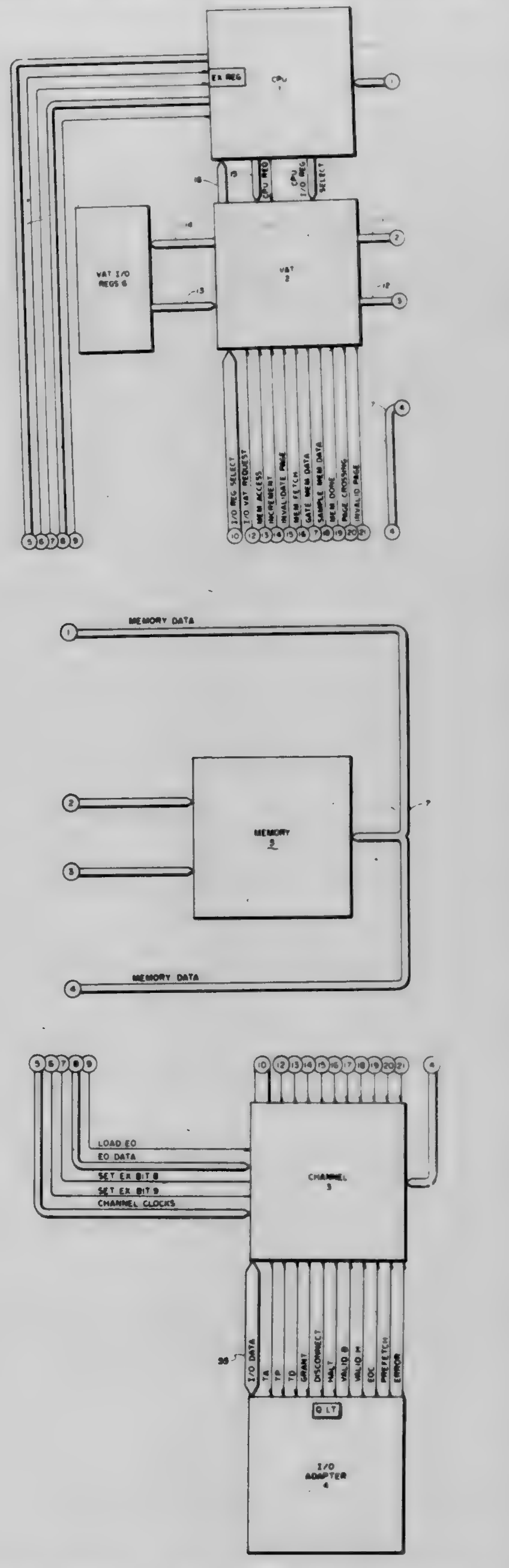
4,381,539
LIGHTING EQUIPMENT
Shoji Sakurai, Sakai, Japan, assignor to Matsushita Electric Works, Ltd., Kadoma, Japan
Filed May 22, 1981, Ser. No. 266,146
Claims priority, application Japan, May 29, 1980, 55-75031[U]
Int. Cl.³ F21V *21/16*
U.S. Cl. 362—285 **17 Claims**



1. A lighting equipment of pendant type comprising:
a plural number of strings strung between a principal body of the lighting equipment and a holding means such as a ceiling or a beam from which said principal body of said lighting equipment is to be suspended,
a string winder for winding and paying out said plural number of strings in each-other related manner for variation of distance from said holding means to said principal body, said string winder being to be fixed either to said principal body or on said holding means,
string guiding means for guiding each string and disposed with a predetermined distance from each other, corresponding to said string winder.

4,381,540
ASYNCHRONOUS CHANNEL ERROR MECHANISM
David O. Lewis, Rochester, and John W. Reed, Pine Island, both of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 953,651, Oct. 23, 1978, abandoned. This application Jun. 30, 1980, Ser. No. 164,161
Int. Cl.³ G06F *11/34*
U.S. Cl. 364—200 **8 Claims**

1. In channel error logging apparatus for a compute. system having an addressable storage for storing an input/output (I/O) event stack with the capacity to store a plurality of I/O events, a central processing unit (CPU) for retrieving I/O events from the I/O event stack in storage and for processing said I/O events where the retrieving and processing of said I/O events from said I/O event stack is performed by said CPU asynchronously to the placement of said I/O events on the I/O event stack, a plurality of I/O adapters connected to control I/O devices, a channel connecting the plurality of I/O adapters to the CPU and the storage, said channel including polling means for polling said I/O adapters on a priority basis



for service requirements, said polling means, upon finding an I/O adapter requiring service, halting polling of other I/O adapters until released by the channel upon completion of servicing of the I/O adapter requiring service, and a plurality of I/O registers accessible by the channel and the CPU,

wherein each register is individually identifiable and where at least one I/O register contains an address for addressing said I/O event stack and where other I/O registers are used in association with an I/O adapter to maintain command and data addresses for performing an I/O operation, the improvement comprising:

means for selectively giving said CPU or said channel access to said at least one I/O register which contains an address usable by said CPU or said channel for addressing the I/O event stack to store or retrieve a channel error I/O event on said stack;

means in said channel for indicating the occurrence and type of channel errors occurring in the channel and in the plurality of I/O adapters in connection with an I/O operation;

means responsive to the means for indicating the occurrence and type of channel errors for forming a channel error I/O event, said event including,

a channel function field for identifying the type of I/O operation being performed at the occurrence of the channel error,

a first identification field for identifying the I/O register in use at the occurrence of the channel error,

a second identification field for identifying the I/O adapter using the channel at the occurrence of the channel error, and

a third identification field for identifying the type of channel error which occurred;

means for storing the formed channel error I/O event in the I/O event stack at a location in addressable storage designated by the contents of said at least one I/O register; and means responsive to the termination of a channel error I/O event storage operation for signalling said channel to release said polling means to resume normal polling and servicing of the I/O adapters, independently of the CPU retrieving the stored event from the I/O event stack, said CPU retrieving said stored I/O events asynchronously to the placement of said I/O events on said I/O event stack.

4,381,541

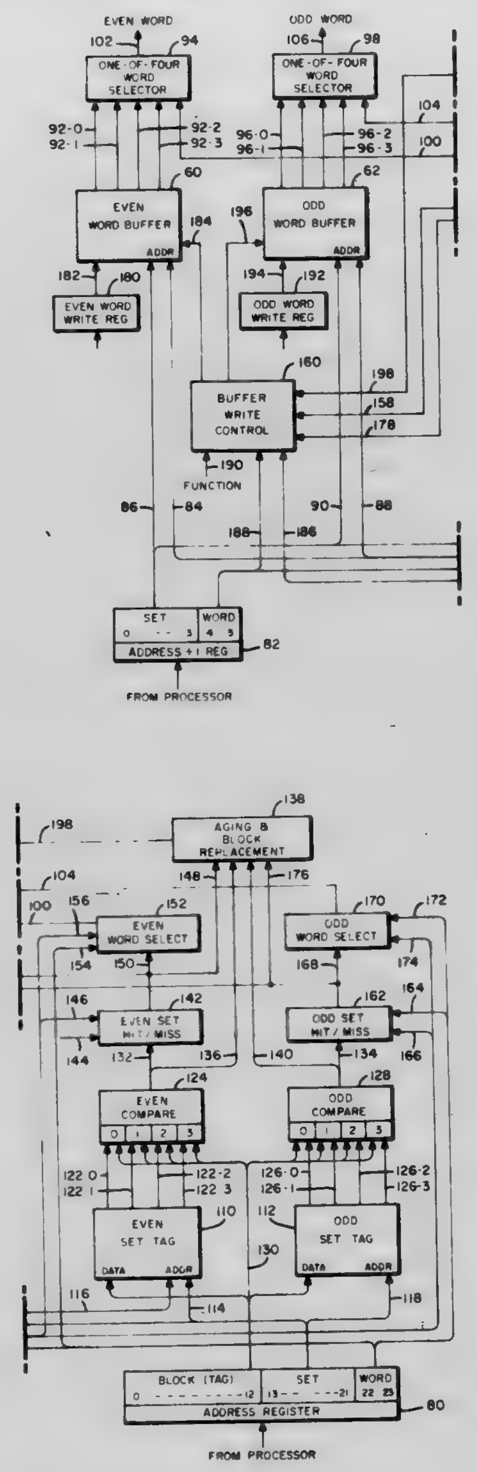
BUFFER MEMORY REFERENCING SYSTEM FOR TWO DATA WORDS

Charles G. Baumann, Jr., Centerville, and Michael Danilenko, West St. Paul, both of Minn., assignors to Sperry Corporation, New York, N.Y.

Filed Aug. 28, 1980, Ser. No. 182,020
Int. Cl.³ G06F *13/00*
U.S. Cl. 364—200 **22 Claims**

1. In a set associative memory system having an addressable main memory for storing data words arranged in blocks and sets, first and second buffer memories coupled to said main memory for storing associated blocks of data words including addressed ones of the data words, and means for receiving two consecutive addresses of two data words to be accessed from said main memory or said first and second buffer memories, a two data word access control comprising:

residency determining means for determining whether two consecutive addressed data words are resident in the buffer memories, and for providing first signals indicative of residency of either or both of said two consecutive addressed data words and second signals indicative of non-residency of either or both of said two consecutive addressed data words; and



access means coupled to said residency determining means for simultaneously accessing said two consecutive addressed words in response to said first signals.

4,381,542

SYSTEM FOR INTERRUPT ARBITRATION

Paul Binder, Tyngsboro, and David A. Cane, Sudbury, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Oct. 20, 1980, Ser. No. 198,528
Int. Cl.³ G06F *3/04*
U.S. Cl. 364—200 **8 Claims**

1. A data processing system comprising:

(A) System interconnection means including means for transferring interrupt request signals, interrupt grant signals, bus access control signals and information signals;

(B) a processor unit means for processing data in response to instructions, said processor unit means including

(i) means for establishing an operating priority level for said processing means, and

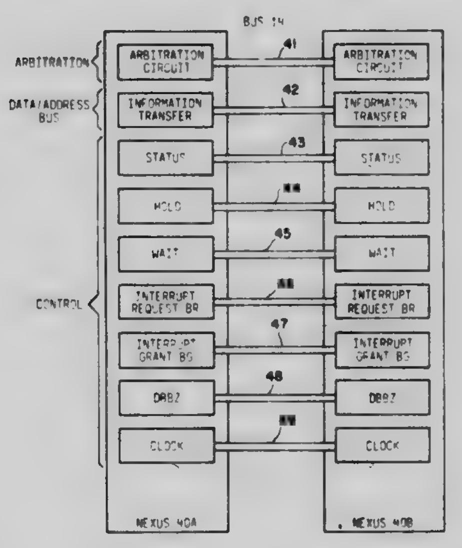
(ii) processor interruption arbitration means connected to said interrupt request signal transfer means, and said operating priority level means for interrupting the oper-

ation of said processor unit means in response to the receipt of an interrupt request signal having a priority level exceeding the operating priority level of said processor unit means, and for transmitting an interrupt grant signal;

(C) At least one data unit means for controlling a transfer of signals over said system interconnection means, said data unit means including:

(i) processor interruption means connected to said interrupt request signal transfer means and said interrupt grant signal transfer means for transmitting an interrupt request signal and for receiving an interrupt grant signal;

(ii) bus access control means connected to said processor interruption means and said bus access control signal transfer means for transmitting and receiving bus access control signals and for controlling the access of said



data unit means to said system interconnection means for transfers of information signals in response to the processor interruption means receipt of an interrupt grant signal and to the receipt of bus access control signals; and

(iii) interrupt vector transmitting means connected to said information transfer means, said bus access control means and said processor interruption means for transferring an interrupt vector over said information transfer means in response to the receipt of an interrupt grant signal and to the data unit means obtaining access to said system interconnection means whereby said data means first receives an interrupt grant signal and then receives access to said system interconnection means for transfers of information signals before transferring an interrupt vector over the information signal transfer means.

4,381,543
CONTROLLER PORT SWITCH ARRANGEMENT FOR SHARING STORED DATA AMONG DIFFERENT SYSTEMS

Roland J. Bunten, III, and John E. Hickman, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 2, 1981, Ser. No. 230,937
Int. Cl.³ G06F *13/00*

U.S. Cl. 364—200 **10 Claims**

1. In a storage subsystem comprising a plurality of storage devices and first and second device controllers, each controller is connectable to at least one data processing system through a first interface and selectively to one of said plurality of devices through a second interface in response to a command which originates from said data processing system and identifies one of said devices, an improved arrangement for controlling the selective connection of each of said devices to either of said controllers in response to connection request commands from said controllers, said arrangement comprising in combination:

a plurality of subchannels, each of which includes:

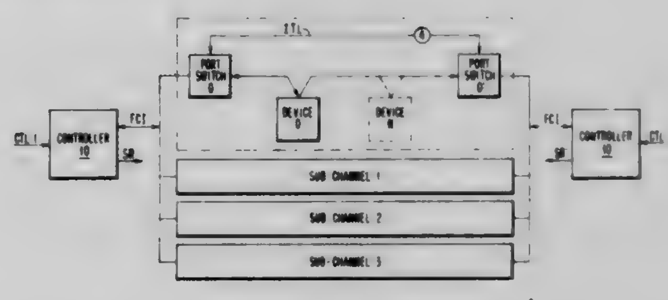
(a) a first port switch associated with said first controller and a second port switch associated with said second controller;

(b) at least one of said devices;

(c) interlocking means interconnecting said switches; and

(d) bus means connecting said first and second device controllers to said at least one said device through said first and second port switches;

each said port switch including:



(1) gating means for selectively connecting said bus means from said second interface of said associated controller to said device; and

(2) control means, operable in response to a connection request command from its associated controller identifying one of said devices for:

(a) controlling said gating means provided said switch is associated with said device identified in said command and provided said device is available; and

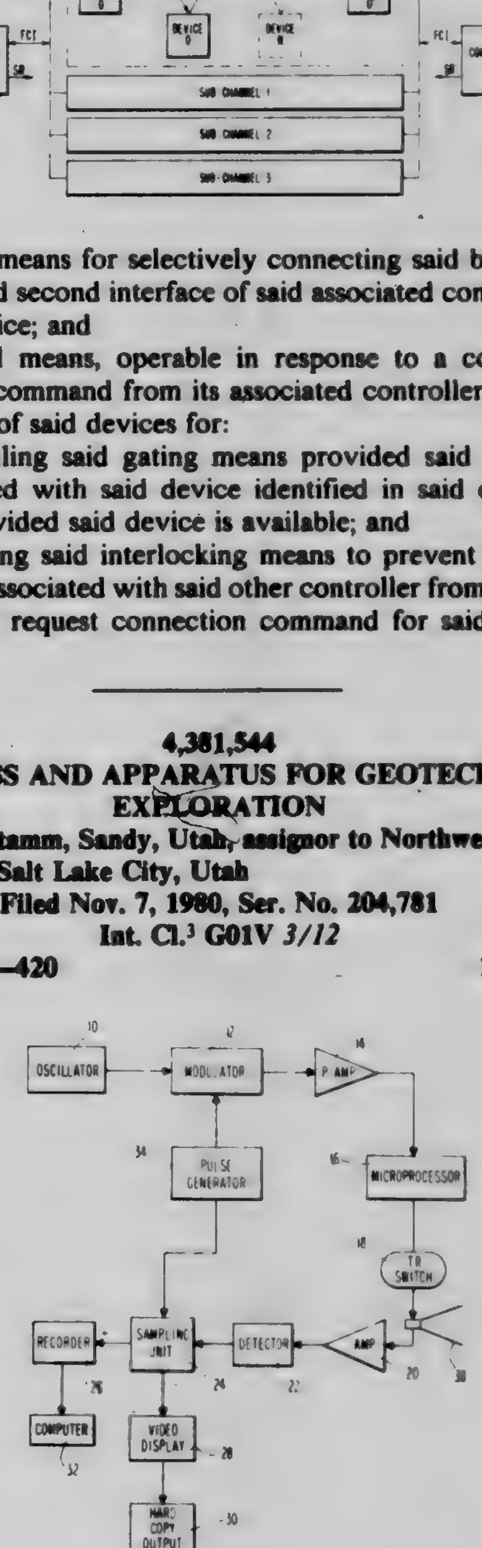
(b) operating said interlocking means to prevent said port switch associated with said other controller from responding to a request connection command for said selected device.

4,381,544
PROCESS AND APPARATUS FOR GEOTECHNIC EXPLORATION

Michael E. Stamm, Sandy, Utah, assignor to Northwest Energy Company, Salt Lake City, Utah

Filed Nov. 7, 1980, Ser. No. 204,781
Int. Cl.³ G01V *3/12*

U.S. Cl. 364—420 **10 Claims**

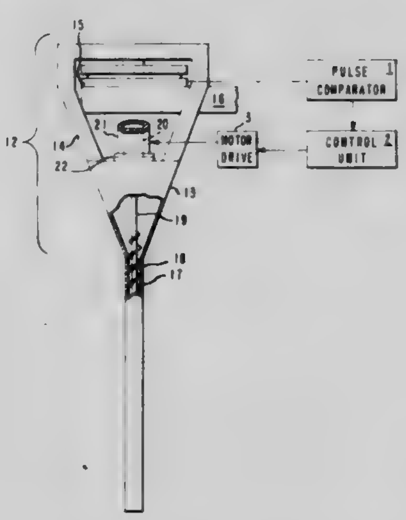


1. A process for geotechnic exploration comprising the steps of:

(a) Emitting at least three electromagnetic pulses toward the ground from an airborne platform at regular intervals, based on the airspeed of the platform and the area being surveyed the wavelengths, frequencies, cyclicity and timing of the pulses being selected to provide, upon reflection, satisfactory indicia of the physical characteristics of the area being measured;

(b) Receiving the reflections of said pulses at said platform;
(c) Amplifying the reflected pulses to a readily processible level;
(d) Processing the reflected pulses to enhance the spatial resolution of images produced therefrom;
(e) Further processing the reflected pulses by selecting those variables represented by the pulses that are deemed relevant;
(f) Displaying the reflected pulses in visual form representing a cross-section of an area;
(g) If desired, storing in recoverable form the pulses representing said variables; and
(h) Repeating said process as often as desired.

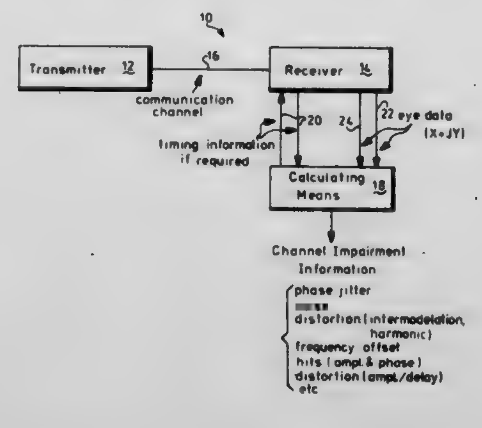
4,381,545
CONTROL MEANS AND METHOD FOR POWDER BAGGING
Nicholas Biddle, III, and Stephen R. Craig, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Dec. 29, 1980, Ser. No. 220,854
Int. Cl.³ B67D *5/30*
U.S. Cl. 364—479 **10 Claims**



1. A method for automatically controlling a powder bagging machine, said powder bagging machine having a weighing means for measuring the weight of powder dispensed and a means for dispensing the powder into a container, said method comprising the following steps in sequence:
(a) operating said dispensing means during a first stage at a predetermined high speed for a predetermined time,
(b) measuring the weight of powder dispensed during said first stage and comparing said measured weight with a desired total weight,
(c) operating said dispensing means during a second stage at a decelerating speed, the rate of deceleration determined by the measurement taken in step (b).

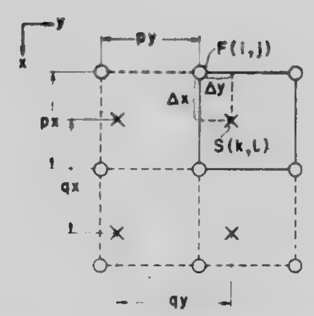
4,381,546
SYSTEM FOR THE QUANTITATIVE MEASUREMENT OF IMPAIRMENTS IN THE COMMUNICATION CHANNEL OF A QUADRATURE AMPLITUDE MODULATION DATA COMMUNICATION SYSTEM
Thomas R. Armstrong, Largo, Fla., assignor to Paradyne Corporation, Largo, Fla.
Filed Mar. 2, 1979, Ser. No. 16,912
Int. Cl.³ H04B *3/14*
U.S. Cl. 364—514 **16 Claims**

1. In a data communications system employing quadrature amplitude modulation comprising; a transmitter receiver, and a communication channel linking said transmitter and receiver, said receiver producing sampled eye diagram point information wherein each received point is defined in a coordinate system in which a first axis is the in-phase channel axis and a second axis is the quadrature channel axis, the improvement comprising: means for rotating said received points by an operand determined by the ideal value of the receiving point information so that each rotated point has a first nominally



maximum component on a new first axis and a nominal second component on a new second axis and means for determining the characteristics of said communication channel from variances and means of the components.

4,381,547
PICTURE DEFORMING PROCESS
Koichi Ejiri, Chiba, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan
Filed Nov. 19, 1980, Ser. No. 208,273
Claims priority, application Japan, Nov. 28, 1979, 54-154110
Int. Cl.³ G06F *15/20, 3/14*
U.S. Cl. 382—47 **2 Claims**

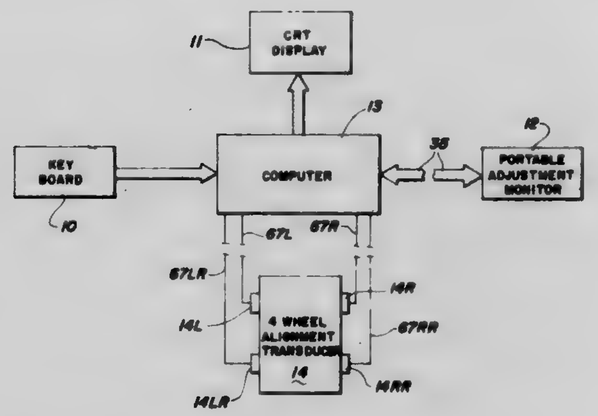


1. A process of deforming an original picture by changing picture element pitches among the data of the original picture which are read by sampling the original picture by the picture element, comprising the steps of:
selecting a deformation percentage to be performed on the original picture;
calculating a set of weight coefficients for all the picture elements according to said selected deformation percentage and storing said weight coefficients in a first memory means;
successively reading original picture data and simultaneously reading out said stored weight coefficients in said first memory means;
calculating the product of said original picture data and said weight coefficients and storing the result of said calculation in a second memory means;
reading out of said second memory means said product calculation according to addressed defined by the original picture data and the data of the weight coefficients previously stored;
adding together each of said read out calculation product of said original picture data and said weight coefficient and each of the data of the weight coefficients, respectively;
dividing the addition result of the original picture data by the addition result of the weight coefficient data; and
outputting a deformed picture processed signal.

4,381,548
APPARATUS AND METHOD FOR GUIDING VEHICLE WHEEL ALIGNMENT ADJUSTMENTS TO KNOWN ALIGNMENT REQUIREMENTS

James M. Grossman, Chesterfield, and Daniel B. January, Bel Ridge, both of Mo., assignors to Hunter Engineering Company, Bridgeton, Mo.

Filed Aug. 18, 1980, Ser. No. 178,747
Int. Cl.³ G01B *5/24*
U.S. Cl. 364—551 19 Claims



1. Apparatus for guiding vehicle wheel alignment adjustments to known alignment specifications and tolerances, the apparatus comprising:

(a) means for storing known alignment specification and tolerance data for a known vehicle;

(b) means connected into said alignment specification and tolerance storing means for supplying thereto known vehicle alignment specification and tolerance data;

(c) alignment adjustment display means for visually guiding the adjustments performed on the wheels of the known vehicle, said display means being connected into said storing means for receiving information therefrom;

(d) vehicle wheel alignment instruments carried by the vehicle wheels for generating signals representative of the wheel positions of such vehicle, each said instrument being connected into said storing means for feeding said wheel position signals thereto; and

(e) means in said apparatus for selecting specific alignment data generated by said instruments for comparison with similar known alignment data stored in said storing means, whereby said display means is activated to visually indicate the existence of differences between the specific alignment data generated by said instruments and corresponding similar known alignment data stored in said storing means.

4,381,549
AUTOMATIC FAULT DIAGNOSTIC APPARATUS FOR A HEAT PUMP AIR CONDITIONING SYSTEM

Custis L. Stamp, Jr., Tyler, Tex., and Rollie R. Herzog, Louisville, Ky., assignors to Trane CAC, Inc., La Crosse, Wis.

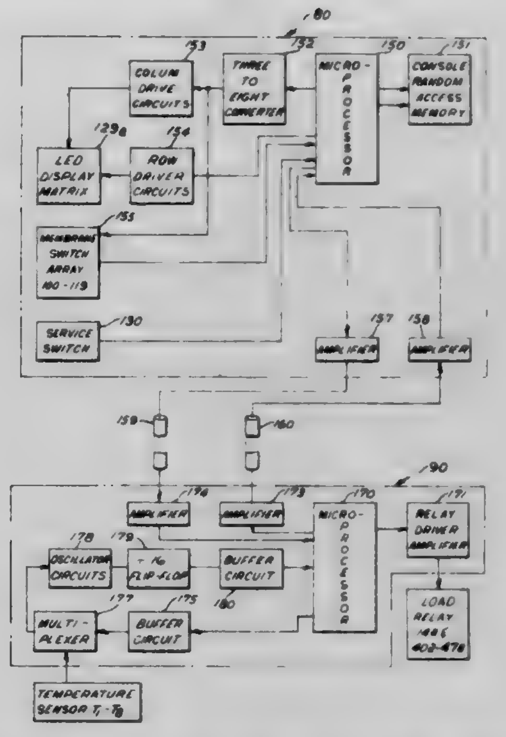
Filed Oct. 14, 1980, Ser. No. 196,412
Int. Cl.³ G01M *19/00*
U.S. Cl. 364—557 20 Claims

1. Automatic fault diagnostic apparatus for use with a heat pump air conditioning system of the type having refrigerant system functional operating components including an indoor heat exchanger, an outdoor heat exchanger, a refrigerant compressor and a switchover valve all interconnected by refrigerant lines, said diagnostic apparatus adapted to provide data representative of system faults to a service technician, said apparatus comprising:

means for sensing temperatures at a plurality of predetermined points on the system's functional operating components and for sensing indoor and outdoor air temperatures;

means jointly responsive to at least a pair of the temperature sensing means for performing one or more predetermined comparative temperature measurement tests comparing the sensed temperature to predetermined tolerance limits to derive a measurement based on the temperature differential between said at least a pair of sensors to determine if measured temperature differentials are outside predetermined tolerance limits;

means responsive to the test means for generating a fault signal for each test in which an out-of-tolerance temperature differential is found;



means for storing each fault signal with a distinctive identification representative of the particular test in which the out-of-tolerance temperature differential was found;

and means operable by a service technician to read out from the storage means data including said distinctive identification representative of each stored fault signal whereby the nature of the respective causative fault can then be determined by the service technician.

4,381,550
HIGH SPEED DIVIDING CIRCUIT

Dan C. Baker, Bountiful, Utah, assignor to Sperry Corporation, New York, N.Y.

Filed Oct. 29, 1980, Ser. No. 201,895
Int. Cl.³ G06F *7/52*
U.S. Cl. 364—766 8 Claims

1. Apparatus for producing a quotient from a binary number dividend and a binary number divisor comprising:

a data bus for sequential transmission of said dividend and said divider as parallel bit numbers,

two's complement adder means connected to said data bus and adapted to receive said dividend and said divisor and to sense the sign bit to determine if the dividend and/or the divisor shall be complemented,

a parallel dividend shift register coupled to said two's complement adder means for receiving and storing the dividend number from said adder means prior to a division operation,

a parallel divisor register coupled to said two's complement adder means for receiving and storing the divisor number from said adder means prior to a division operation,

a parallel adder having its inputs connected to the output of the divisor register and the output of said dividend shift register, said parallel adder having a sign position output,

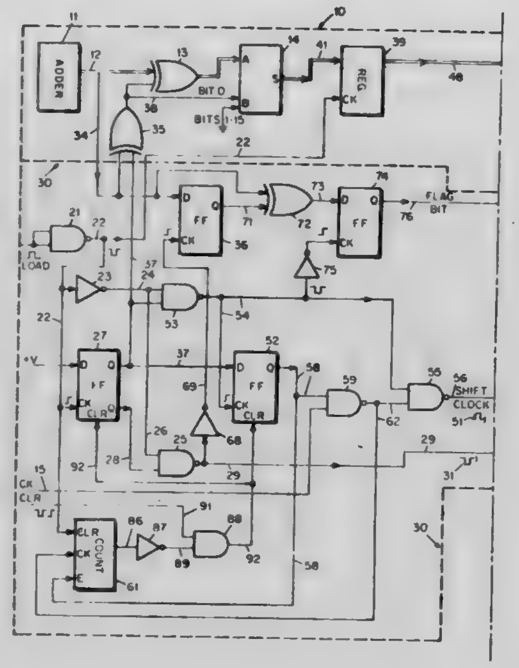
the output of said parallel adder being connected to the input of said dividend shift register,

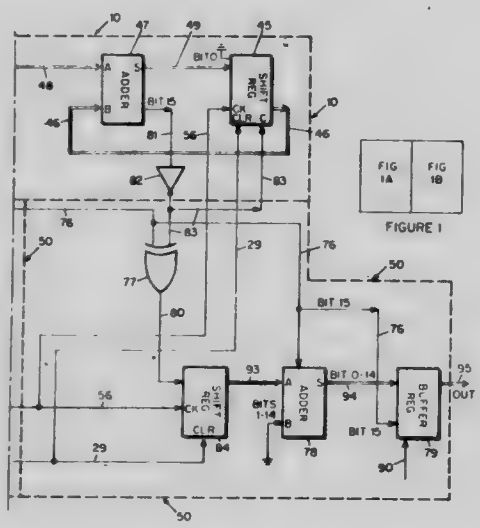
control means, coupled to said data bus and including a flag bit comparator for comparing the sign of the dividend and the divisor,

quotient shift register means coupled to said control means

and coupled to the sign position output of said parallel adder, and

said control means being coupled to said adder means, said divisor register and said dividend shift register for producing timing signals for first loading the dividend number





and then the divisor number from said adder means into said dividend and said divisor registers and subsequently initiating a dividing operation whereby, the number in said dividend shift register is added to the number in said divisor register and the resulting sign position output is processed and stored in said quotient register means.

4,381,551
ELECTRONIC TRANSLATOR

Ikuo Kanou, Yamatokoriyama; Shigenobu Yanagiuchi, Tenri, and Takuro Omori, Yamatokoriyama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Sep. 11, 1980, Ser. No. 186,323

Claims priority, application Japan, Sep. 13, 1979, 54-118146; Sep. 13, 1979, 54-118149

Int. Cl.³ G06F ***15/38***

U.S. Cl. 364—900 **6 Claims**

1. An electronic language interpreter device wherein a first word represented in a first language is entered to obtain a translated word in a second language equivalent to the first word, comprising:

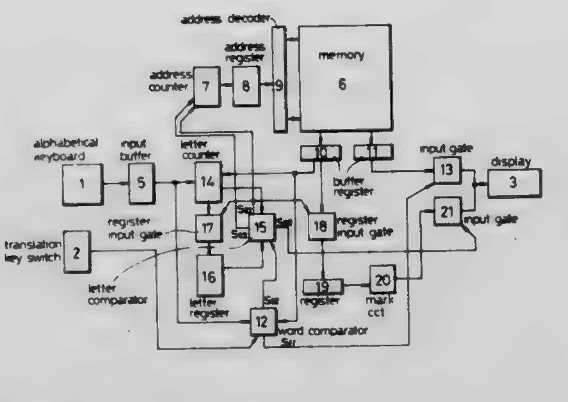
input means for entering the first word;

memory means for storing a plurality of second words in the first language;

access means responsive to the first word entered by said input means for addressing said memory means for retrieving the second words;

similarity detection means responsive to said access means for detecting similarity between letters of the first word and letters of the second words;

means responsive to said similarity detection means for



displaying a translated word corresponding to a determined one of the second words when the determined second word is the same as the first word; and

means responsive to said similarity detection means for displaying a selected one of the second words which is most similar to the first word when none of the second words are the same as the first word.

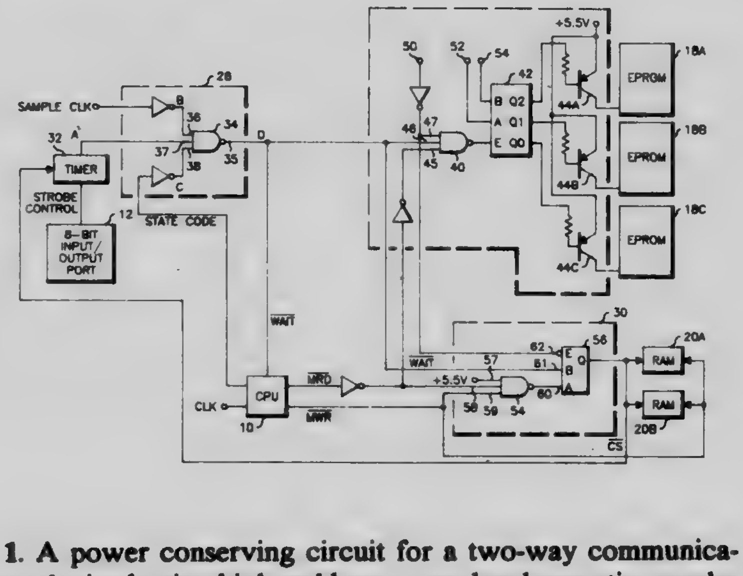
4,381,552
STANBY MODE CONTROLLER UTILIZING MICROPROCESSOR

John D. Nocilini, Margate; Ronald E. Sharp, Sunrise, and Emilio J. Cuadra, Miami, all of Fla., assignors to Motorola Inc., Schaumburg, Ill.

Continuation of Ser. No. 967,761, Dec. 8, 1978, abandoned. This application Nov. 18, 1980, Ser. No. 208,101

Int. Cl.³ G06F ***13/00, 1/00;*** **G11C** ***7/00***

U.S. Cl. 364—900 **7 Claims**



1. A power conserving circuit for a two-way communications device having high and low power-level operating modes and having two operative states in the higher power mode, the device including a microprocessor, ROM memories, RAM memories and a battery, the circuit comprising in combination:

delay means coupled to receiving and delaying a RAM enabling signal indicative of the operating mode of the device;

first input means coupled to an output of the microprocessor for receiving a signal indicative of one of the two operative states of the device while operating in the high power mode;

clock means for providing a low duty cycle signal;

first logic means coupled to receive the output signals of the first input means, the clock means and the delay means for providing an operating level control signal for portions of the device;

second input means coupled to an output of the microprocessor for providing memory select signals from the microprocessor;

third input means coupled to the battery for providing a power input;

fourth input means coupled to an output of the microprocessor for providing a first memory control signal;

fifth input means coupled to an output of the microprocessor for providing a second memory control signal;

second logic means coupled to receive the output signals of the first logic means and the second, third, and fourth input means for controlling power to ones of said ROM memories;

third logic means coupled to receive the inverted output signals of the second input means and the output signals of the third, fourth and fifth input means and to the first logic means for providing an enabling signal to said RAM memories, the RAM enabling signal also being coupled to the delay means input to provide the mode indicative signal.

4,381,553

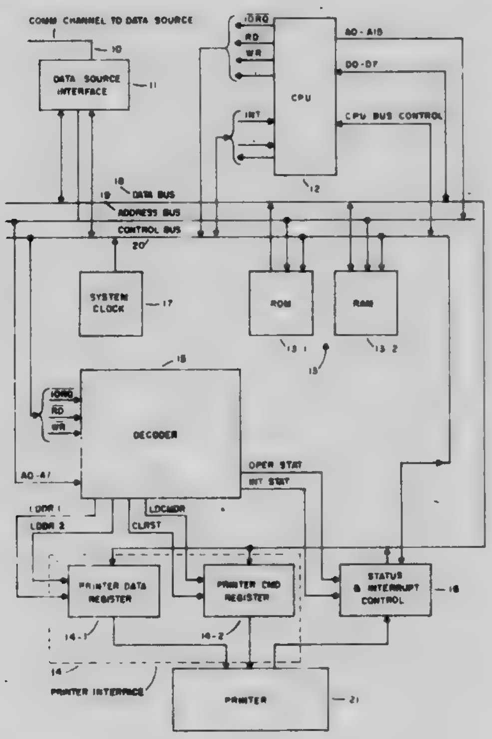
PROGRAMMABLE PRINTER CONTROLLER WITH MULTILINE BUFFERING AND OVERSTRIKE FEATURE

Donald C. Ferguson, Los Gatos, Calif., assignor to Mohawk Data Science Corp., Parsippany, N.J.

Filed Jan. 22, 1981, Ser. No. 227,281

Int. Cl.[3] G06F *3/12, 9/00, 15/20*

U.S. Cl. 364—900 **5 Claims**



1. A programmable controller for a printer comprising:

a memory means, a processor unit, a data source interface and a printer interface interconnected with one another;

input means including the data source interface for sequentially receiving a plurality of blocks of characters, at least one of such blocks including at least one complete line of textual characters followed by a first incomplete line of textual characters and the next succeeding block including a second incomplete line such that the first and second incomplete lines when linked together form a complete line;

control means including the processing unit and a program stored in the memory means for operating the processing unit for each such block in a processing loop which includes a line examination mode followed by a print line mode, the processing unit acting (i) during each line examination mode to examine each character in the line being examined and upon detection of either an end of line condition or an end of block condition to exit to the print line mode, (ii) during each print line mode to provide a set of control signals, the textual characters of the line just examined and an associated set of print commands to the printer interface, (iii) to post a flag signifying the incomplete status of said first incomplete line when processing said one block, and (iv) upon receipt of said next succeeding block to check such flag and to link the first and second incomplete lines by initializing horizontal and vertical escapement values for continuance of printing from the end of such first incomplete line; and

output means including the printer interface responsive to control signals to provide to the printer the textual characters and any associated print commands.

4,381,554

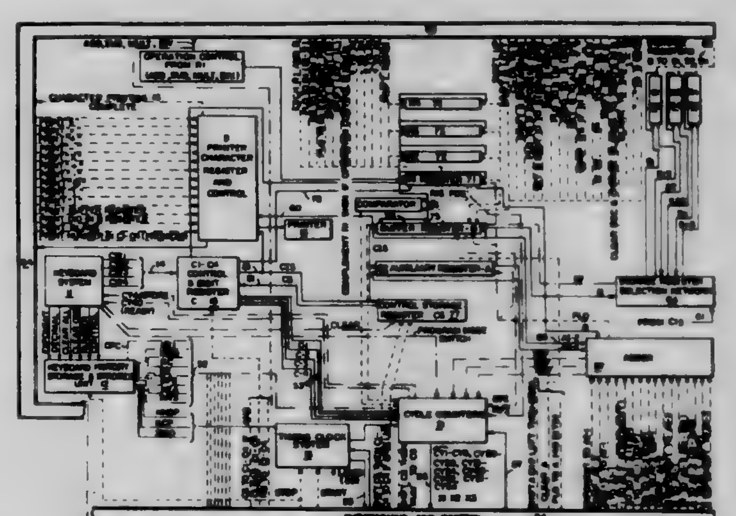
CALCULATOR FOR STORING SOURCE DATA AND EVALUATING NUMERICAL ANSWERS TO PROBLEMS

Roy W. Reach, Sudbury; William M. Kahn, Brighton, and David Shapiro, Lincoln, all of Mass., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 60,950, Jul. 26, 1979, Pat. No. 4,309,761, which is a division of Ser. No. 731,611, Oct. 13, 1976, Pat. No. 4,198,684, which is a division of Ser. No. 390,645, Aug. 22, 1973, Pat. No. 3,996,562, which is a continuation of Ser. No. 378,221, Jun. 26, 1964, abandoned. This application Aug. 13, 1981, Ser. No. 292,371

Int. Cl.[3] G06F *3/023, 3/06, 3/14*

U.S. Cl. 364—900 **21 Claims**



1. A source data entry device for capturing and storing data for future processing or the like, comprising in combination a keyboard data entry means for producing coded data representative of different keys upon actuation thereof; display means for visual character read-out of such data; coupling means for coupling coded data entered into said device to a recorder for recording data; and a programmed microprocessor interfaced to each of said entry means, said display means and said coupling means; said microprocessor including a fixed-program unit and a central logic unit embodying substantially all of the control logic for said entry means and display means; said fixed-program unit having a built-in program dedicating said device to a particular functional configuration and establishing an instruction set which time-shares said logic unit with said entry means and display means to control the same in conformance with such functional configuration.

4,381,555

APPARATUS FOR MEASURING THE BRAKING TIME OF A MOTOR VEHICLE

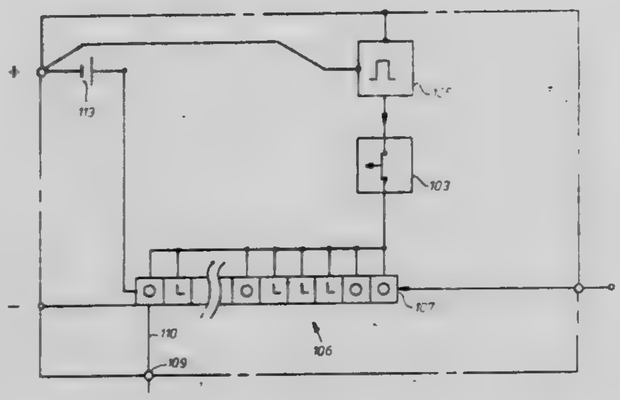
Karl-W. Heinle, Ingolstadt, Fed. Rep. of Germany, assignor to Audi NSU Auto Union Aktiengesellschaft, Neckarsulm, Fed. Rep. of Germany

Filed Apr. 9, 1980, Ser. No. 138,746

Claims priority, application Fed. Rep. of Germany, Apr. 10, 1979, 2914411

Int. Cl.^{3} G11C *13/00*

U.S. Cl. 365—78 **8 Claims**



1. Apparatus for measuring the time elapsed between application of a vehicle brake and occurrence of a predetermined event, comprising:

a shift register having a number of register locations, each of which is capable of assuming one of two binary states and having a means for receiving shift pulses which cause the contents of a given register location to shift to the next succeeding register location upon application of each shift pulse,

oscillator means for supplying shift pulses to said means for receiving shift pulses in said shift register,

brake signal generator means connected to a signal input of said shift register for changing the binary state of a first location in said shift register upon application of the vehicle brake,

switch means operable responsive to a predetermined acceleration value experienced by said vehicle to disconnect said oscillator means from said means for receiving shift pulses, and

interrogation terminal means for determining the number of locations in said shift register containing bits of changed binary state for providing a measure of time elapsed between application of the vehicle brake and occurrence of the predetermined event.

4,381,556

VIDEODISC READER WITH LONGITUDINALLY DISPLACED TURNTABLE

Guy Bourdon, and Jean-Claude Lehureau, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Dec. 3, 1980, Ser. No. 212,549

Claims priority, application France, Dec. 21, 1979, 79 31486

Int. Cl.^{3} G11B *17/00*

U.S. Cl. 369—44 **5 Claims**

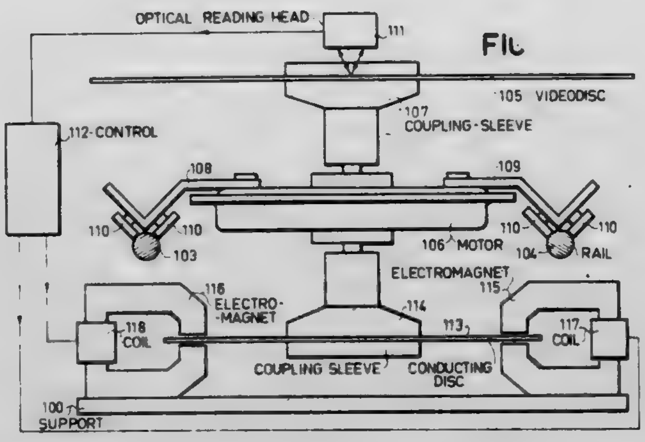
1. A device for providing a rectilinear displacement, with respect to a fixed support, of a rotary engine having a shaft, said displacement being in a direction perpendicular to the axis of rotation of said shaft, said device comprising:

a movable carriage rigidly locked with said engine;

means to guide said carriage along said perpendicular direction;

magnetic means producing a first air gap provided on said support and producing a magnetic output across of said first air gap;

a conductive disk fixed on said shaft and crossing said air gap wherein the magnetic output of said magnetic means produces said displacement; and



electronic control means for controlling the magnetic output of said magnetic means in order to control said displacement of said rotary engine.

4,381,557

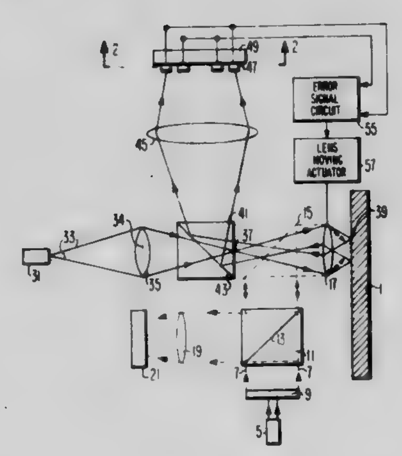
OPTICAL FOCUS SENSOR

Robert W. Jebens, Skillman, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 19, 1980, Ser. No. 218,100

Int. Cl.^{3} G11B *7/12*

U.S. Cl. 369—45 **4 Claims**



1. A focus control apparatus for use with a disc-shaped record medium having information stored in a spiral groove formed on a flat, reflective surface thereof, the apparatus comprising:

a first light source emitting a beam of light of a first given wavelength;

a first light path optically coupling said first light source and said reflective surface of said record medium, said first light path including means for focusing said light beam emitted by said first light source to a diffraction limited spot on said surface of said record medium;

first light detection means having a photosensitive surface, said light detection means being used to detect said information stored in said spiral groove;

a second light path optically coupling said focused light spot on said surface of said record medium to said photosensitive surface of said first light detection means;

a second light source emitting a beam of light of a second given wavelength;

a third light path optically coupling said second light source and said reflective surface of said record medium, said third light path including said means for focusing, said light beam emitted by said second light source being projected by said means for focusing to impinge on said reflective surface as a circular region having a diameter sufficiently large to span a plurality of groove convolutions of said spiral groove;

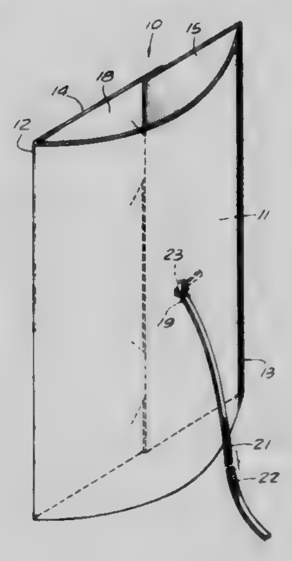
second light detection means having four photosensitive regions arranged to measure the diameter of an illuminated spot incident on said second light detection means;

a fourth light path coupling said circular region on said reflective surface to said second light detection means and including means for imaging a conjugate image of said circular region onto said second light detection means; and

means, responsive to said second light detection means, for generating a signal representative of the diameter of said conjugate image; and

means, responsive to said signal generated by said generating means, for varying the distance between said focusing lens and said reflective surface of said record medium to maintain said light beam emitted by said first source in-focus on said reflective surface.

4,381,558
TALKING GREETING CARD
Robert Bearden, 33571 Divers Ct., Dana Point, Calif. 92629
Filed May 26, 1981, Ser. No. 267,037
Int. Cl.³ G11B *1/00, 3/00*
U.S. Cl. 369—68 **1 Claim**



1. In a greeting card assembly, the combination of: a front display panel having side edges, two rear panels joined to opposite side edges of said front panel, said three panels being adapted to lie substantially flat in one configuration, means for joining said rear panels together in tension and in a second configuration to cause said front panel to bow in a convex manner and thereby form a space between the joined rear panels and the bowed front panel, the front panel having a slot, a flexible sound record strip extending through the slot in close contact with said front panel and having an abutment positioned within said space, the abutment being too large to pass through said slot, said sound record strip having a prepared surface which produces audible sounds upon sliding contact with a moving element such as the thumb nail of a user, the front and rear panels serving as an acoustic amplifier for such sounds.

4,381,559
DISC-SHAPED RECORDING MEDIUM REPRODUCING APPARATUS
Takashi Saito, Ayase, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan
Filed Jul. 24, 1981, Ser. No. 286,468
Claims priority, application Japan, Jul. 28, 1980, 55-103270
Int. Cl.³ G11B *23/04, 23/30, 19/00*
U.S. Cl. 369—77 **6 Claims**

1. A reproducing apparatus for reproducing a disc-shaped recording medium which is accommodated within a case, said case comprising a jacket which has a space for accommodating said disc-shaped recording medium and an opening for allowing said disc-shaped recording medium to go in and out of said jacket, and a lid member inserted through said opening of said jacket for closing said opening of said jacket, said reproducing apparatus comprising:

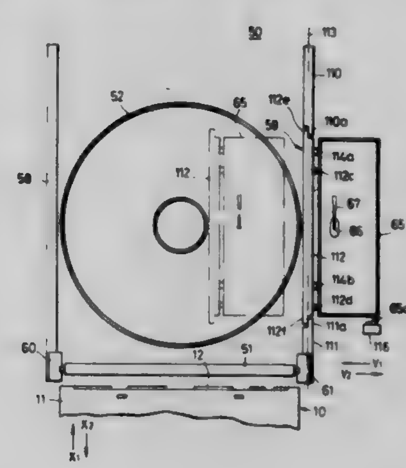
an inserting opening part through which said case is inserted into said reproducing apparatus;

a turntable for rotating said disc-shaped recording medium;

clamping means for clamping at least one of said disc-shaped recording medium or said lid member, provided at the innermost part on the opposite side from said inserting opening part with respect to said turntable;

a pickup frame having a reproducing transducer for reproducing the disc-shaped recording medium placed on said turntable;

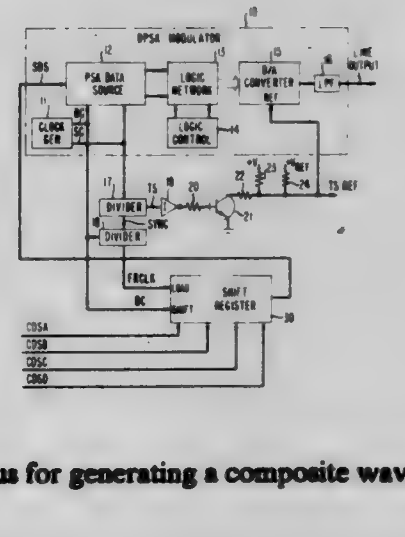
moving means for moving said pickup frame between a waiting position and a reproducing position with respect to the disc-shaped recording medium;



a pair of guide rails provided extending between a position of said inserting opening part and a position at an innermost part of said apparatus, at right and left sides of a moving passage of said case, and allowing slider means for supporting said case to move therealong in response to the inserting and pulling out operation of said case, among the pair of guide rail, the guide rail at the side of said pickup frame comprising fixed front and rear guide rail parts respectively fixed at the front end and the rear end of said apparatus in coincidence with a linear line extending in the case inserting direction, and a moving guide rail provided on said pickup frame to move together therewith; and

position restricting means for restricting the final position of said moving guide rail part so as to align with said fixed front and rear guide rail parts, when said pickup frame is returned to the waiting position.

4,381,560
MULTIPLEX TRANSMITTER APPARATUS
Cecil W. Farrow, Highlands, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Oct. 24, 1980, Ser. No. 200,414
Int. Cl.³ H04J *3/02*
U.S. Cl. 370—11 **5 Claims**



1. Apparatus for generating a composite waveform having a

first component signal corresponding to a supplied serial bit stream and a second component signal corresponding to a timing signal, the supplied serial bit stream capable of being partitioned into either consecutive symbols or consecutive frames, the apparatus comprising angle modulation means responsive to consecutive symbols of the supplied serial bit stream for generating the first component signal of the composite waveform, the apparatus characterized by,

means for generating the timing signal at a predetermined pulse rate corresponding to a rate of occurrence for consecutive groups of (N·M)/GCD(N,M) bits of the supplied serial bit stream, where M is the number of bits in each symbol, N is the number of bits in each frame, GCD(N,M) is the greatest common divisor of N and M and M/N is a nonintegral rational number, and

means responsive to the timing signal for amplitude modulating the first component signal therewith to generate the second component signal of the composite waveform.

4,381,561

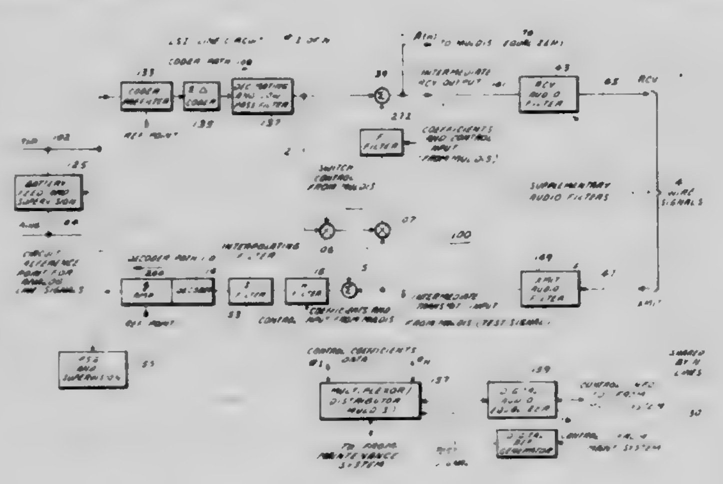
ALL DIGITAL LSI LINE CIRCUIT FOR ANALOG LINES

Robert Treiber, Fairfield, Conn., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Oct. 23, 1980, Ser. No. 199,806

Int. Cl.[3] H04B *1/58*

U.S. Cl. 370—24 **19 Claims**



1. A digital telephone line circuit providing an interface between a full duplex analog telephone subscriber line and a digital switching system, comprising:

means for automatically digitally synthesizing an output matching transmission line terminating impedance;

two-to-four wire conversion means for digitally separating full duplex transmit and receive information signals on said subscriber line into a pair of digital signals, each separate from the other;

automatic recursive equalizer means coupled to said two-to-four wire conversion means for providing time multiplexed signal optimization/equalization of said information signals by

time multiplexing said recursive equalizer means to said full duplex line such that automatic equalization is provided for said line in accordance with its individual transmission line characteristics during the interval that said equalizer means is coupled to said two-to-four wire conversion means and to said means for digitally synthesizing an output matching transmission line terminating impedance.

4,381,562

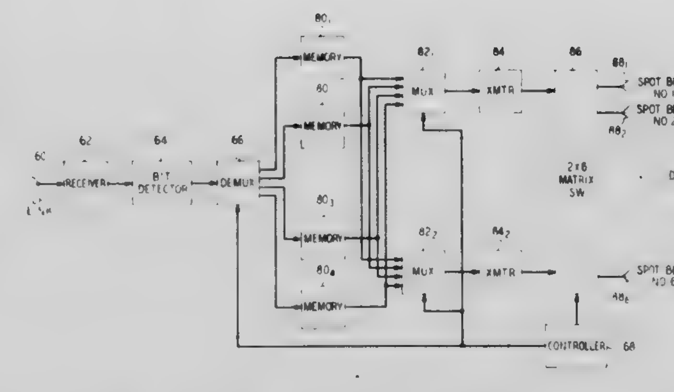
BROADCAST TYPE SATELLITE COMMUNICATION SYSTEMS

Anthony Acampora, Freehold, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 1, 1980, Ser. No. 145,618

Int. Cl.[3] H04J *3/06*

U.S. Cl. 370—97 **10 Claims**



10. A radio repeater capable of providing point-to-multipoint distribution comprising:

antenna means comprising a receiving antenna port (10_1–10_M, 60) capable of receiving information remotely transmitted in a message unit signal during a portion of a predetermined time period; and

an amplifying means (28_1–28_M, 29, 84_1–84_2)

characterized in that the repeater further comprises:

means (14 and 24, 38_1–38_M, 82_1–82_2) capable of directing the information of the message unit signal initially received at the receiving antenna port to the amplifying means at least once during an interval corresponding to the predetermined time period; and

the antenna means further comprises a transmitting antenna port (30_1–30_M, 88_1–88_M) capable of transforming an output message unit signal from the amplifying means into a plurality of separate electromagnetic spot beams for radiation in a plurality of sequential or concurrent spotbeams to a predetermined plurality of remote and spaced-apart receiving sites destined to receive such message unit signal during said interval corresponding to the predetermined time period.

4,381,563

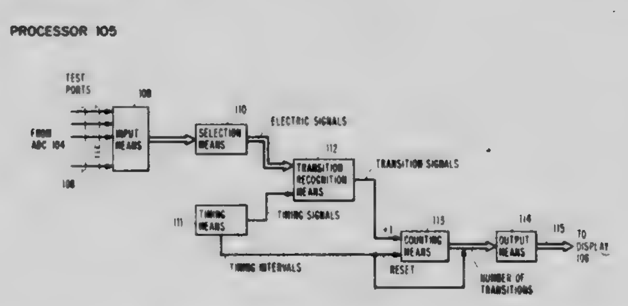
APPARATUS AND METHOD FOR VISUALLY PRESENTING ANALYTICAL REPRESENTATIONS OF DIGITAL SIGNALS

Jay L. Groom, Jr., Weld; John D. Perine, Boulder; John W. Snyder, Boulder, and Gary G. Vair, Boulder, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 18, 1980, Ser. No. 217,966

Int. Cl.[3] G01R *31/28*

U.S. Cl. 371—29 **4 Claims**

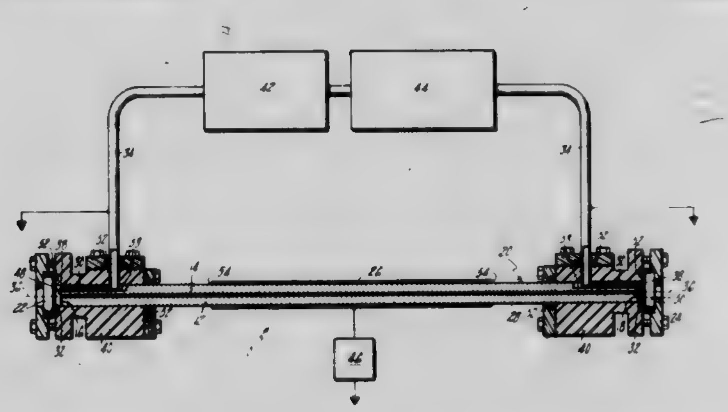


1. Apparatus for displaying, as symbols, representations of time varying electrical signals indicative of the operations of a monitored device present at selectable test points on the device during specified time intervals, comprising:

selection means, connected to the test points on the monitored device, operable to select for monitoring desired

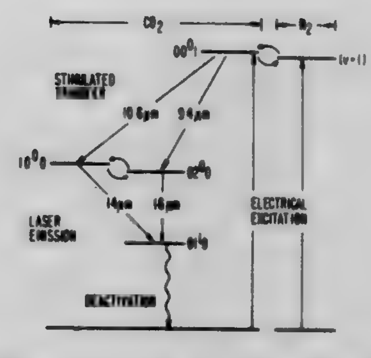
ones of the test points and supply at outputs signals from the selected test points;
a plurality of test ports, connected to the selection means outputs;
timing means for supplying timing signals and operable to specify time intervals during which electrical signals from the selected test points are to be monitored;
transition recognition means, connected to the test ports and timing means, for receiving the selected electrical signals and timing signals, and operable to generate, for each test point, transition signals indicating changes in the magnitude of the signals at that test point; and
utilization means, connected to the transition recognition means, for utilizing the transition signals for each point to visually present symbols representing information describing the electrical signals at selected test points on the monitoring device, said utilization means including:
display means, connected to the timing means, for visually presenting for each selected test point a sequence of symbols indicating by its values and its physical displacements the directions of signal magnitude changes.

4,381,564
WAVEGUIDE LASER HAVING A CAPACITIVELY COUPLED DISCHARGE
Leon A. Newman, South Windsor, Conn., assignor to United Technologies Corporation, Hartford, Conn.
Continuation of Ser. No. 52,887, Jun. 28, 1979, abandoned. This application Jul. 23, 1981, Ser. No. 286,225
Int. Cl.³ H01S *3/08*
U.S. Cl. 372—87 **7 Claims**



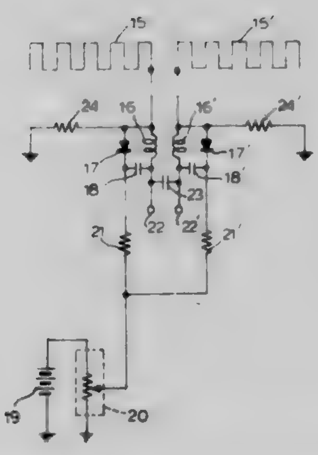
1. An optical apparatus comprising:
an optical resonant cavity bounded by first and second mirrors, said mirrors disposed along an axis extending through said cavity;
a dielectric waveguide having an outside surface and a capillary bore disposed along said axis within said cavity for guiding radiation within said capillary bore;
a gaseous optical gain medium disposed within said waveguide;
energizing means for creating a population inversion by capacitive coupling within said gain medium, whereby optical radiation is resonated between said mirrors and guided by said waveguide;
wherein the improvement comprises that said energizing means for creating a population inversion includes an electrode structure comprising a first electrode disposed outside said waveguide and a second electrode having an active end disposed within said gaseous gain medium and further improved in that said energizing means includes means for applying a voltage pulse between said first and second electrodes, whereby said population inversion is created in said gain medium by coupling energy from said electrodes to said gain medium.

4,381,565
RADIATIVE REMOVAL OF LOWER LASER LEVEL BOTTLENECKING
Lyle H. Taylor, Murrysville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Nov. 25, 1980, Ser. No. 210,436
Int. Cl.³ H01S *3/09*
U.S. Cl. 372—91 **5 Claims**



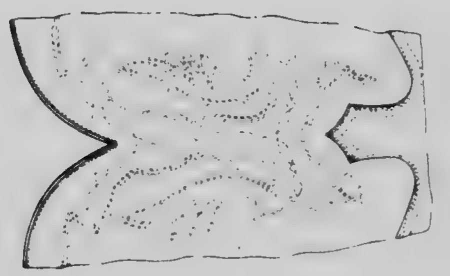
1. A method for minimizing lower laser level bottlenecking of the primary lasing transition to improve the performance of a laser system, comprising the step of,
applying stimulated emission to transfer a portion of the lower laser level population to a third energy level which is not involved in the primary lasing when the lower laser level population is inverted with respect to the population of said third energy level.

4,381,566
ELECTRONIC TUNING ANTENNA SYSTEM
Johji Kane, Sakai, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Filed Jun. 10, 1980, Ser. No. 158,132
Claims priority, application Japan, Jun. 14, 1979, 54-76245; Jun. 14, 1979, 54-76246; Jun. 14, 1979, 54-76249; Jun. 14, 1979, 54-76251
Int. Cl.³ H01Q *9/26*; H04B *1/18*
U.S. Cl. 455—193 **4 Claims**

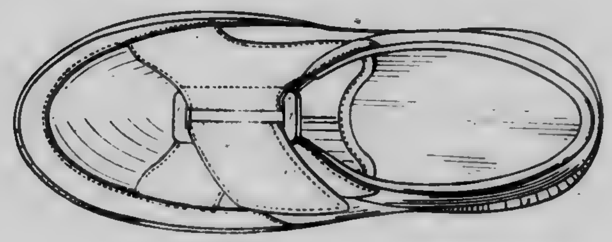


1. An electronic tuning antenna system comprising a pair of antenna elements having a distributed constant inductance resulting from meandering transmitting conductor paths of said elements; variable reactance circuits connected to each of said pair of antenna elements and having variable capacity diodes; an antenna circuit having an impedance adjusting capacitor interconnected between feed terminals of said pair of antenna elements; and a receiver for regenerating a high-frequency received signal from said antenna circuit; wherein an output terminal of said antenna circuit and an input terminal of said receiver are connected by a high-frequency coaxial cable for transmitting said high-frequency received signal from said antenna circuit by way of said high-frequency coaxial cable to said receiver, and wherein a d.c. voltage having a correspondence to a tuning element of said receiver is applied as a bias voltage to said variable capacity diodes of said variable reactance circuits through said high-frequency coaxial cable.

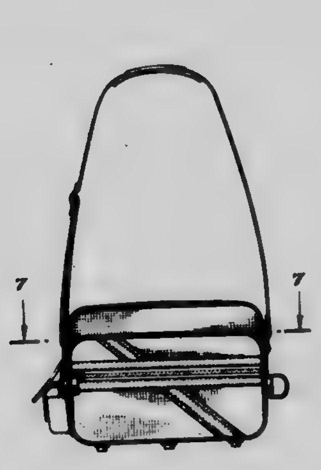
268,709
COWBOY BOOT
Harry Vise, Nashville, Tenn., assignor to Texas Boot Company, Nashville, Tenn.
Filed Apr. 2, 1981, Ser. No. 250,467
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—273



268,710
SHOE
Wolf Anderie, Strasbourg, France, assignor to ADIDAS Fabrique de Chaussures de Sport, Landersheim, France
Filed Jan. 9, 1981, Ser. No. 223,742
Claims priority, application France, Jul. 11, 1980, 80 2277
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—290

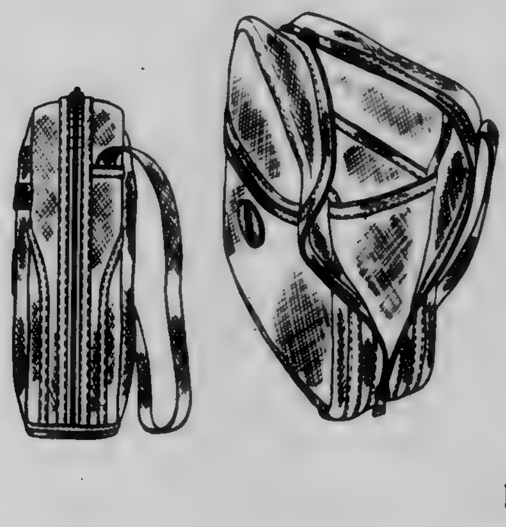


268,711
CAMERA BAG
Miller Outcalt, 225 Notteargenta, Pacific Palisades, Calif. 90272
Filed Apr. 13, 1981, Ser. No. 253,682
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—33

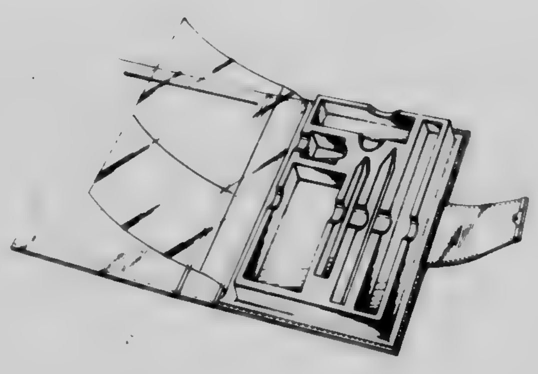


268,712
RACQUET BAG
Barry W. Hoberman, Hazlet, and Joseph Y. Pelavin, North Bergen, both of N.J., assignors to CPG Products Corp., Minneapolis, Minn.
Filed Mar. 23, 1981, Ser. No. 246,515
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—36

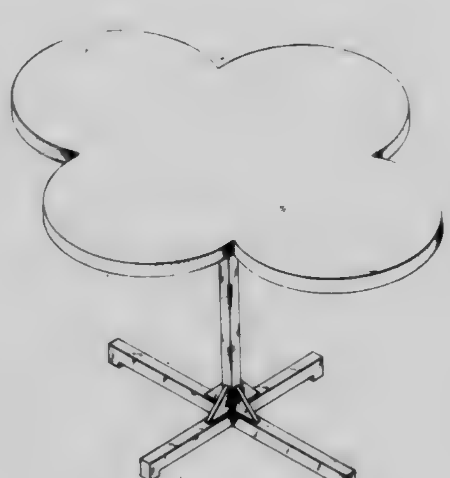
268,713
SHOULDER TOTE BAG
Joseph Y. Pelavin, North Bergen, and Barry W. Hoberman, Hazlet, both of N.J., assignors to CPG Products Corp., Minneapolis, Minn.
Filed Mar. 23, 1981, Ser. No. 246,514
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—48



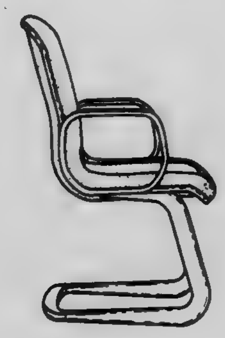
268,714
ACCIDENT DOCUMENT CASE
Walter Goedel, Roemerstrasse 11, 6308 Butzbach 1, Fed. Rep. of Germany
Filed Jan. 28, 1981, Ser. No. 229,036
Claims priority, application Fed. Rep. of Germany, Dec. 10, 1980, MR35
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—74



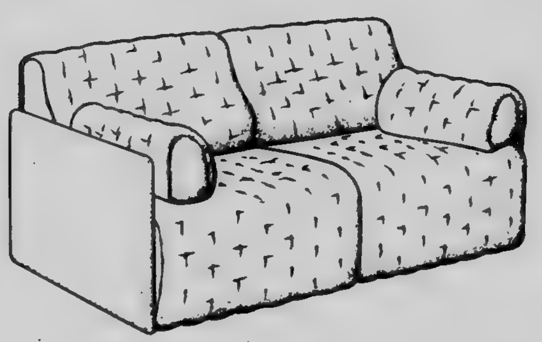
268,715
CLOVERLEAF TABLE
Myrtle H. Curry, P.O. Box 205, Louisville, Ky. 40201
Filed Mar. 9, 1981, Ser. No. 241,587
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—29



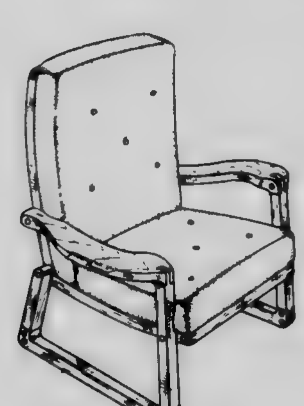
268,716
CHAIR OR SIMILAR ARTICLE
Koni Ochsner, Wettingen, Switzerland, assignor to Giroflex-Entwicklungs AG, Koblenz, Switzerland
Filed Mar. 5, 1980, Ser. No. 127,460
Claims priority, application Switzerland, Sep. 10, 1979, DMA/000007
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—56



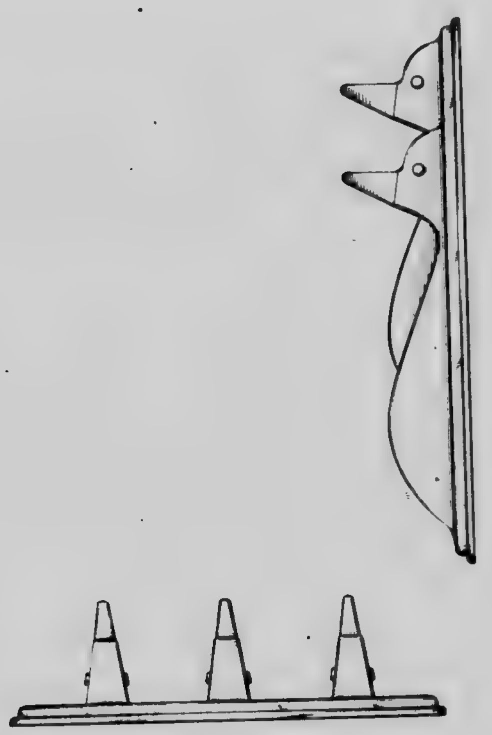
268,717
UPHOLSTERED SETTEE
Ernst Lüthy, Klingnau, Switzerland, assignor to C & C Consulting & Design AG, Engelberg, Switzerland
Filed Mar. 11, 1981, Ser. No. 242,466
Claims priority, application Switzerland, Sep. 18, 1980, 70689/80
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—63



268,718
CHAIR
David DeCristoforo, P.O. Box 57, Silver City, Nev. 89428
Filed Dec. 15, 1980, Ser. No. 187,201
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—73

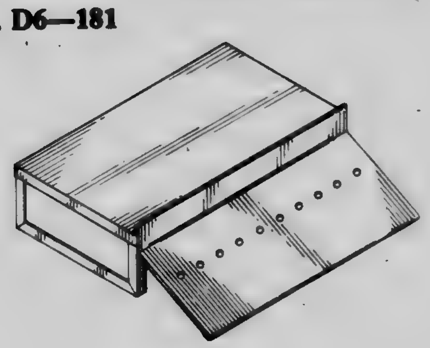


268,719
CLOTHES RACK OR SIMILAR ARTICLE
Daniel W. Leo, Jr., Edgewater, N.J., assignor to Ledan Inc., New York, N.Y.
Filed Oct. 27, 1980, Ser. No. 200,974
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—116

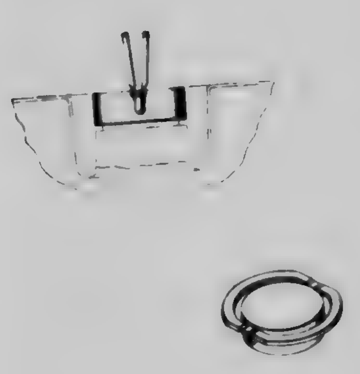


268,721
FRAME FOR A CHAIR
Thomas E. Jernigan, Birmingham, Ala., assignor to Marathon Corporation, Birmingham, Ala.
Filed Oct. 8, 1980, Ser. No. 195,310
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—191

268,720
DISPLAY COUNTER FOR FOODS
William J. Potetz, Cleveland, and Edward T. Bopp, Wickliffe, both of Ohio, assignors to First National Supermarkets, Inc., Maple Heights, Ohio
Filed Feb. 12, 1981, Ser. No. 233,944
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—181

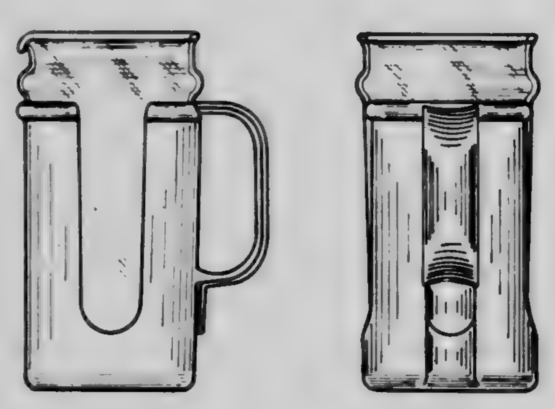


268,722
PULL CAP FOR WATERBED FILLER NECK
Anthony J. Bova, 930 E. Goldenoak, Stockton, Calif. 95207
Filed Jan. 15, 1981, Ser. No. 225,421
Term of patent 14 years
Int. Cl. D6—*09, 99*
U.S. Cl. D6—201

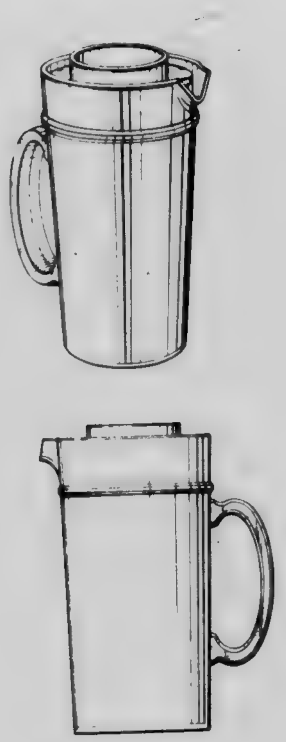


268,723
CORN HOLDER OR THE LIKE
Martin J. Wolff, North Providence, R.I., assignor to Dart Industries Inc., Northbrook, Ill.
Filed Jun. 8, 1981, Ser. No. 271,482
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—42

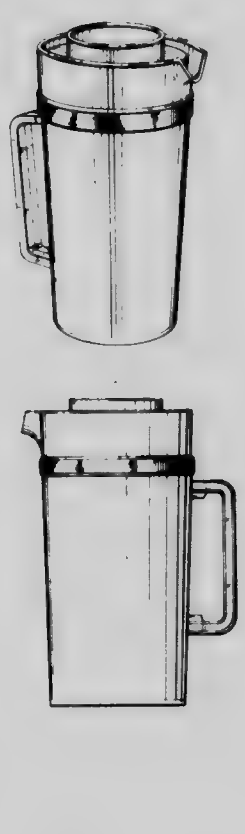
268,724
CREAM PITCHER OR THE LIKE
Richard V. Haner, Elmira, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Aug. 20, 1980, Ser. No. 179,892
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—319



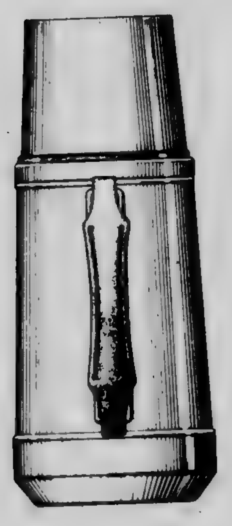
268,725
BEVERAGE SERVER
Edgar F. Trombly, Grosse Pointe Farms, Mich., assignor to Thermo-Serv, Inc., Anoka, Minn.
Filed Oct. 8, 1980, Ser. No. 195,041
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—317



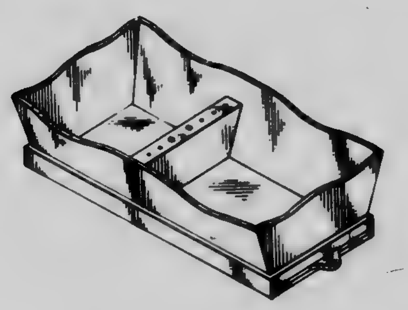
268,726
BEVERAGE SERVER
Edgar F. Trombly, Grosse Pointe Farms, Mich., assignor to Thermo Serv, Inc., Anoka, Minn.
Filed Oct. 8, 1980, Ser. No. 195,045
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—317



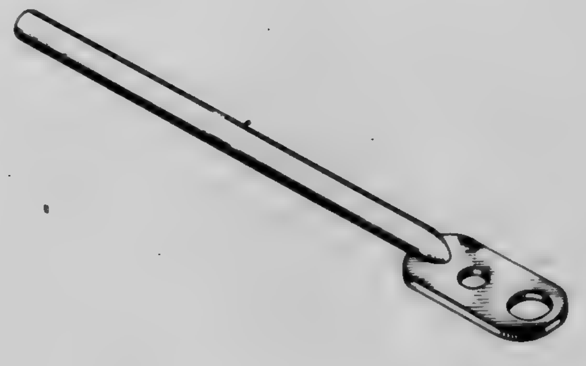
268,727
VACUUM INSULATED FOOD JAR OR SIMILAR ARTICLE
Frederick L. Nestrock, Avon, Conn., assignor to Union Manufacturing Company, Meriden, Conn.
Filed Mar. 17, 1981, Ser. No. 244,759
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—77



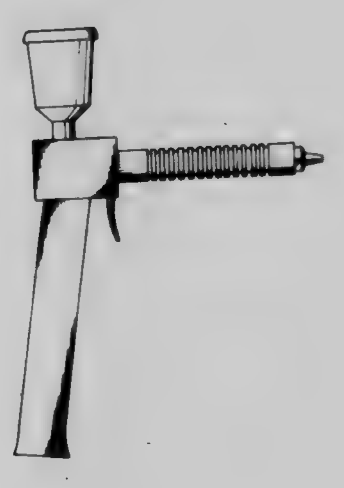
268,728
NUT BOX
Betty A. Poling, 2380 N. Richmond, Wichita, Kans. 67204
Filed Jun. 16, 1980, Ser. No. 159,694
Term of patent 14 years
Int. Cl. D7—*07*
U.S. Cl. D7—98



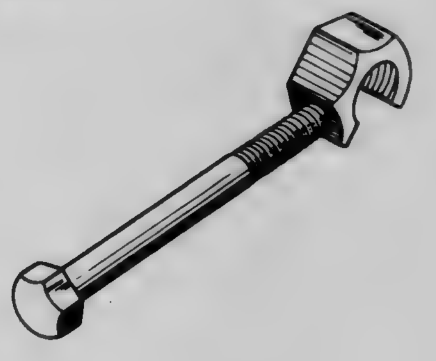
268,729
HAND TOOL FOR PERMITTING REMOVAL OF SWING ARMS FROM A CENTRIFUGAL CLUTCH
Charles A. Brown, 6303 Landover Rd., Cheverly, Md. 20785
Filed Dec. 22, 1980, Ser. No. 218,724
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D8—14



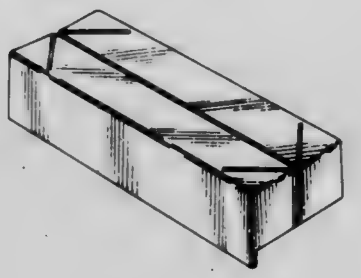
268,730
METALLIZING TORCH
Wayne E. Daub, R.R. #5, Box 82, Three Rivers, Mich. 49093
Filed Sep. 29, 1980, Ser. No. 191,538
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—30



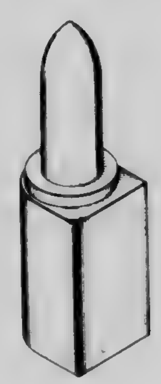
268,731
BOTTLE OPENER
Walter Karg, 132-1064 Beaverhill Blvd., Winnipeg, Manitoba, Canada
Filed Dec. 29, 1980, Ser. No. 221,349
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D8—38



268,732
MITRE BLOCK
Terence C. O'Neill, Cramlington, England, assignor to Internationale Octrooi Maatschappij "Octropa" B.V., Rotterdam, Netherlands
Filed Dec. 29, 1980, Ser. No. 220,855
Claims priority, application United Kingdom, Jun. 25, 1980, 995454
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—71

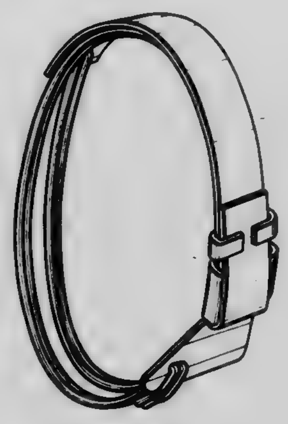


268,733
HINGE PIN
Robert H. Bisbing, Springfield, Pa., assignor to Southco, Inc., Concordville, Pa.
Division of Ser. No. 111,884, Jan. 14, 1980, Pat. No. Des. 263,370. This application Apr. 6, 1981, Ser. No. 251,362
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—323

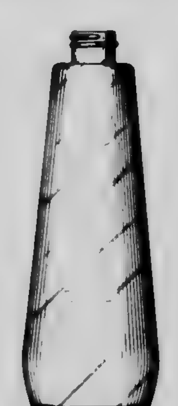


268,734
CORD RETAINING REEL
Isaac B. Soltes, 1923 S. McPherrin Ave., Monterey Park, Calif. 91754
Filed Dec. 8, 1980, Ser. No. 213,850
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—358

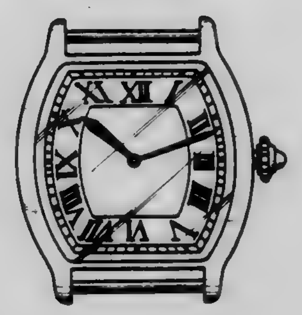
268,735
HOSE CLAMP
Shiro Kanao, 18 9 4-chome, Nanpeidai Takatsukishi Osaka, Japan
Filed Sep. 30, 1980, Ser. No. 192,622
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—396



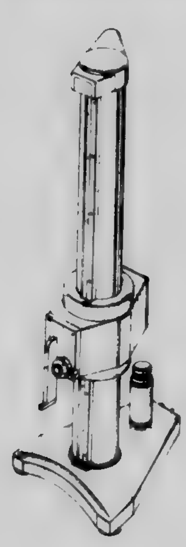
268,736
BOTTLE
Robert J. Kleckauskas, Downers Grove, Ill., assignor to Lamplight Farms, Inc., Brookfield, Wis.
Filed Mar. 27, 1981, Ser. No. 248,416
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—349



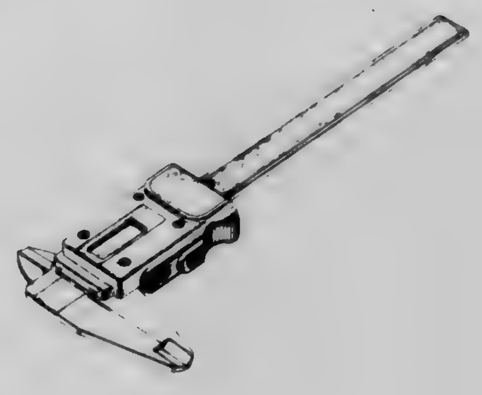
268,737
WRIST WATCH
Alain D. Perrin, Rueil-Malmaison, France, assignor to Interdica S.A., Villars-sur-Glane-Suisse, France
Continuation of Ser. No. 951,058, Oct. 12, 1978, abandoned, and Ser. No. 951,059, Oct. 12, 1978, abandoned. This application Sep. 10. 1980, Ser. No. 185,928
Claims priority, application Hague, Apr. 17, 1978, 66 780
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—39



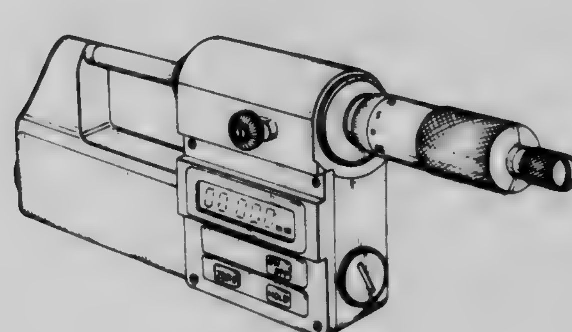
268,738
HEIGHT GAUGE
Susumu Yoshioka, Utsunomiya, Japan, assignor to Mitutoyo Mfg. Co., Ltd., Tokyo, Japan
Filed Feb. 12, 1981, Ser. No. 233,887
Claims priority, application Japan, Aug. 14, 1980, 55-33296
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—70



268,739
ELECTRONIC CALIPER
Jan Hampf, Saeroe, Sweden, assignor to C. E. Johansson AB, Eskilstuna, Sweden
Filed Feb. 12, 1981, Ser. No. 233,780
Claims priority, application Sweden, Aug. 14, 1980, 80-1522
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—73



268,740
MICROMETER
Tetsunori Tanada, Hiroshima, Japan, assignor to Mitutoyo Mfg. Co., Ltd., Tokyo, Japan
Filed Apr. 2, 1981, Ser. No. 250,103
Claims priority, application Japan, Oct. 29, 1980, 55-45285
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—73



268,741
MOTORCYCLE EMBLEM
James M. Preisler, Mound, and Alwin J. Stahel, Saint Paul, both of Minn., assignors to Drag Specialties, Inc., Minneapolis, Minn.
Filed Jul. 21, 1981, Ser. No. 285,772
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D11—107

268,742
MOTORCYCLE EMBLEM

James M. Preisler, Mound, and Alwin J. Stahel, Saint Paul, both of Minn., assignors to Drag Specialties, Inc., Minneapolis, Minn.

Filed Jul. 22, 1981, Ser. No. 286,012
Term of patent 14 years
Int. Cl. D11—*03*

U.S. Cl. D11—107

268,743
DISPLAY STAND

Eunice E. Lubin, 832 S. Sycamore Ave., Los Angeles, Calif. 90036

Filed May 31, 1979, Ser. No. 44,153
Term of patent 14 years
Int. Cl. D11—*02*

U.S. Cl. D11—131

268,744
BEAR FIGURE

Julian Gibsone, Chobham; Michael Brown, Weybridge, both of England; Eduard Steiner, Berne, Switzerland, and Nicholas Maley, High Wycombe, England, assignors to Venture Production Corporation, Panama

Filed Apr. 2, 1981, Ser. No. 250,198

Claims priority, application United Kingdom, Nov. 3, 1980, 997366

Term of patent 14 years
Int. Cl. D11—*02*

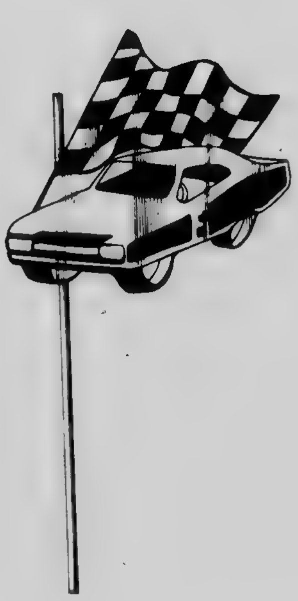
U.S. Cl. D11—158

268,745
PENNANT

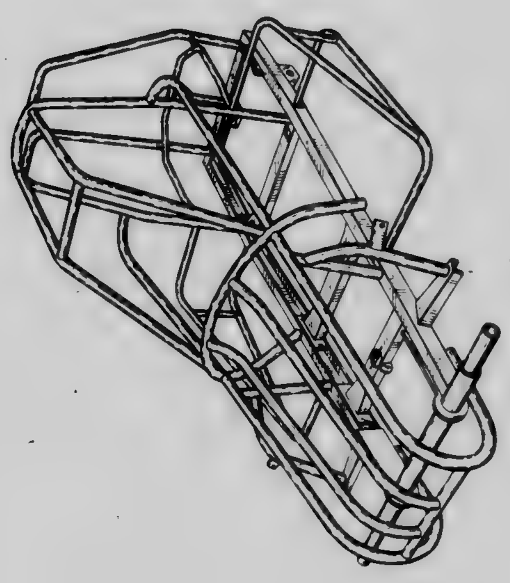
Larry B. Ornatek, 100 - 14th St., North Chicago, Ill. 60064

Filed Mar. 13, 1980, Ser. No. 116,164
Term of patent 3½ years
Int. Cl. D11—*05*

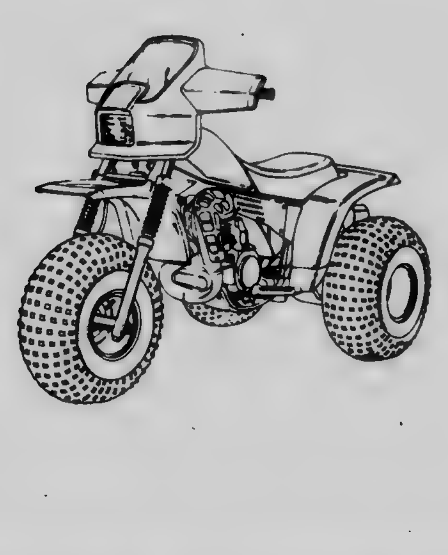
U.S. Cl. D11—166



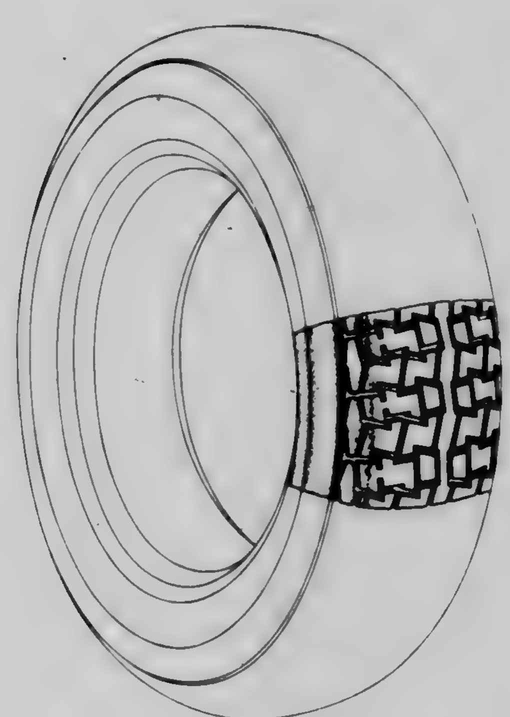
268,746
FRAME FOR A RACING CART
Dennis L. Greenhalgh, and Dale R. Greenhalgh, both of Vancouver, Wash., assignors to West Coast Marine Boat & Tug, Inc., Vancouver, Wash.
Filed Oct. 14, 1980, Ser. No. 197,141
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—88



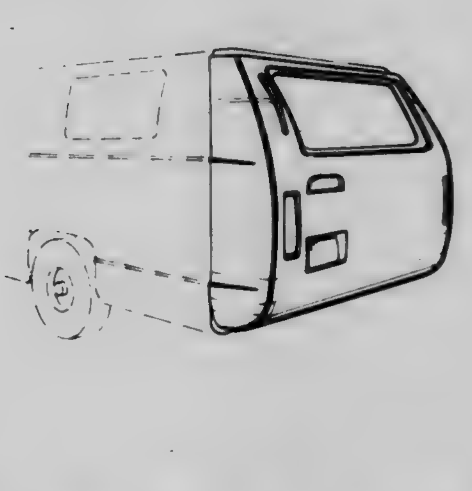
268,747
MOTOR TRICYCLE
Jun Ito, Tokyo, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 26, 1981, Ser. No. 277,503
Claims priority, application Japan, Dec. 26, 1980, 55-54960
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—110



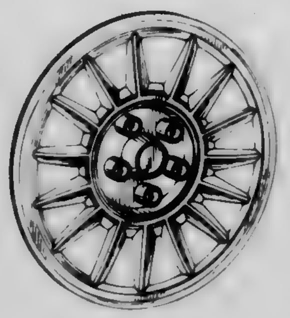
268,748
TIRE
Jacques Champod, and Jean-Rene Simon, both of Clermont-Ferrand, France, assignors to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France
Filed Jan. 21, 1981, Ser. No. 226,792
Claims priority, application France, Jul. 24, 1980, 35
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—146



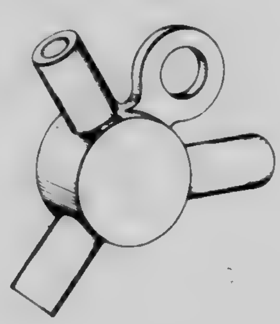
268,749
VAN EXTENSION MODULE
Vincent SorBello, Kelowna, Canada, assignor to Vanamera Industries, Ltd., Kelowna, Canada
Filed Sep. 24, 1980, Ser. No. 190,186
Claims priority, application Canada, May 28, 1980, 28-05-80-2
The portion of the term of this patent subsequent to Sep. 21, 1999, has been disclaimed.
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—196



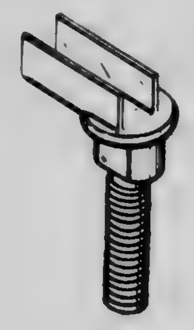
268,750
WHEEL COVER
Frank T. Eichstadt, Westminster, Calif., assignor to Orion Industries, Inc., Carson, Calif.
Filed Jun. 22, 1981, Ser. No. 275,735
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—209



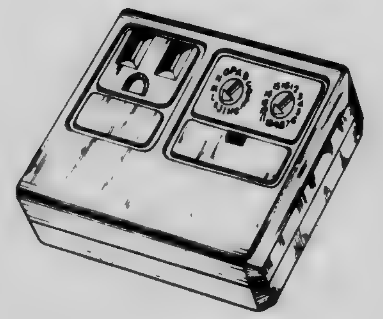
268,751
COMBINED ELECTRICAL TERMINAL CASING AND INTEGRAL FASTENING LUG THEREOF
Frank D. Froh, 33635 Coachman La., Solon, Ohio 44139
Filed Jun. 27, 1980, Ser. No. 163,824
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—24



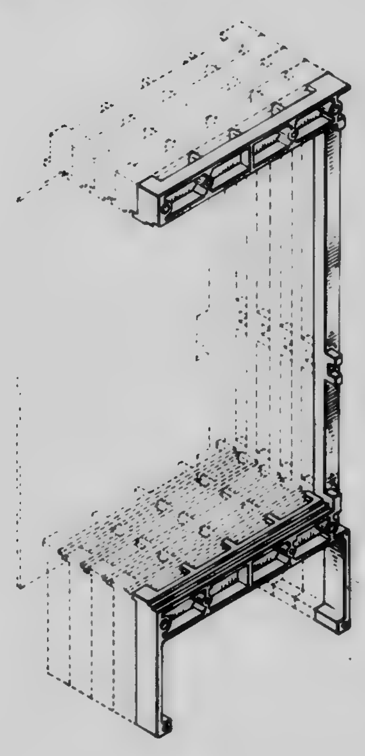
268,752
ELECTRICAL CONNECTOR POST FOR VEHICLE STARTER
Richard L. Parrott, 2592 Carol La., Arnold, Mo. 63010
Filed Oct. 20, 1980, Ser. No. 198,879
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—24



268,753
REMOTE CONTROLLED SLAVE
Kenneth R. Fenne, Glen Ellyn, Ill., assignor to Pittway Corporation, Aurora, Ill.
Filed Sep. 15, 1980, Ser. No. 187,206
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—32

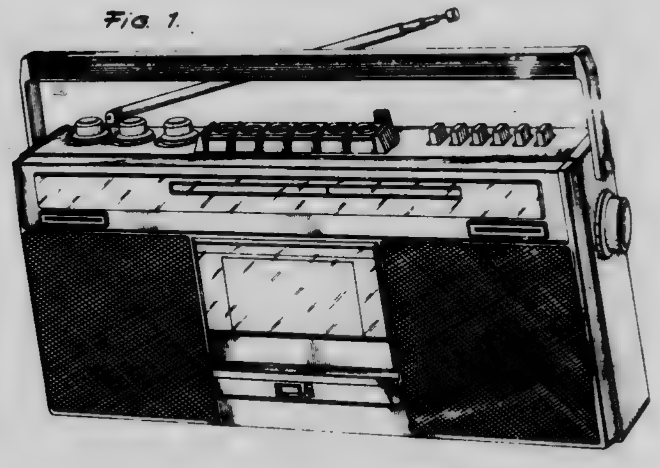


268,754
CARD CAGE MODULE
John W. Chaney, Sharonville, Ohio, and Roger G. Royer, Madison, Ind., assignors to Cincinnati Milacron Inc., Cincinnati, Ohio
Filed Dec. 24, 1980, Ser. No. 219,600
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—40

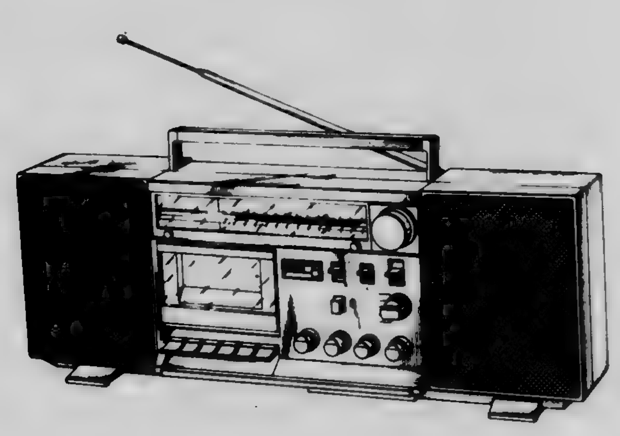


268,755
COMBINED CASSETTE RECORDER AND PLAYER AND RADIO
Richard Culbertson, Onondaga, N.Y., assignor to General Electric Company, New York, N.Y.
Filed Apr. 24, 1981, Ser. No. 256,989
Term of patent 14 years
Int. Cl. D14—*01, 03*
U.S. Cl. D14—5

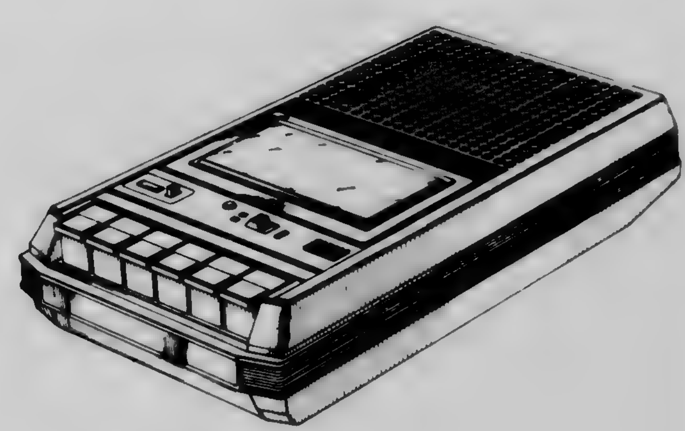
Fig. 1.



268,756
COMBINED TAPE RECORDER AND RADIO OR SIMILAR ARTICLE
Fuminori Yamagata, Yokohama, Japan, assignor to General Electric Company, New York, N.Y.
Filed Apr. 30, 1981, Ser. No. 258,944
Term of patent 14 years
Int. Cl. D14—*01, 03*
U.S. Cl. D14—5

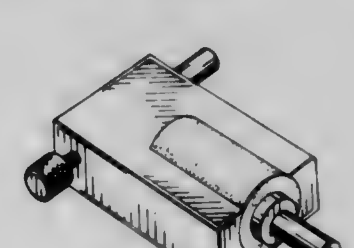


268,757
TAPE RECORDER AND PLAYER OR SIMILAR ARTICLE
Paul J. Kluczni, Fayetteville, N.Y., assignor to General Electric Company, New York, N.Y.
Filed May 11, 1981, Ser. No. 262,944
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—6

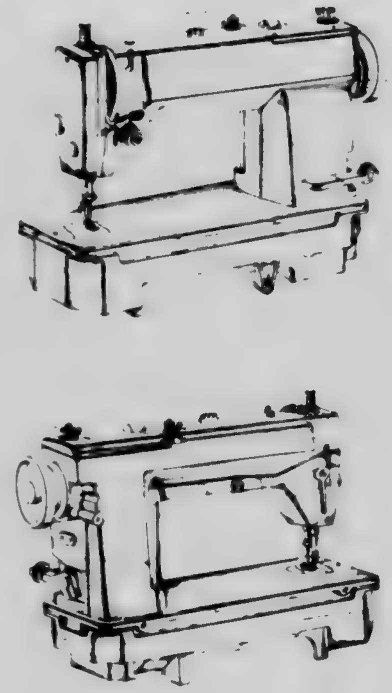


268,758
COMBINED TELEPHONE AND CLOCK RADIO
Melvin H. Boldt, Glenview; David P. Chuboff, North Barrington; Wayne J. Franek, Palatine, and Marilyn M. Johnson, Northbrook, all of Ill., assignors to Zenith Radio Corporation, Glenview, Ill.
Filed May 28, 1981, Ser. No. 267,948
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53

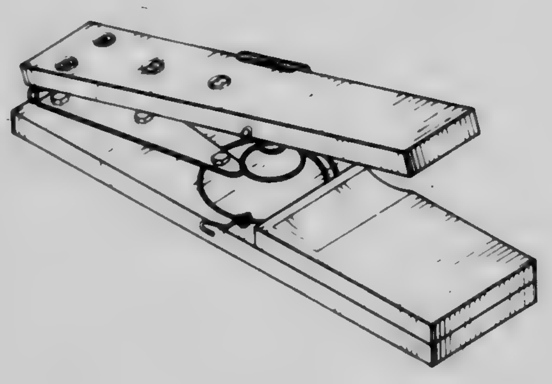
268,759
FLUID METERING VALVE
Willard J. Hoebeke, 366 Kantor Blvd., Casselberry, Seminole County, Fla. 32707
Filed Aug. 25, 1980, Ser. No. 180,676
Term of patent 14 years
Int. Cl. D15—*01*
U.S. Cl. D15—5



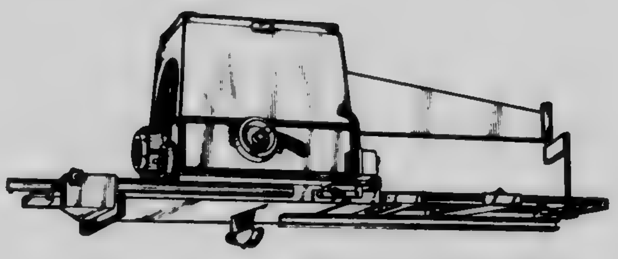
268,760
SEWING MACHINE FRAME OR SIMILAR ARTICLE
Wayne A. Current, Holmdel, N.J., assignor to The Singer Company, Stamford, Conn.
Filed Apr. 20, 1981, Ser. No. 255,628
Term of patent 14 years
Int. Cl. D15—*06*
U.S. Cl. D15—76



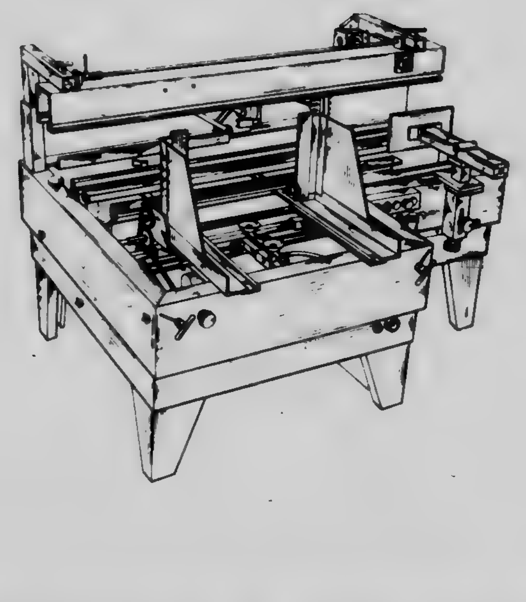
268,761
CAN CRUSHER
Edwin J. Brown, Rte. 5, Box 612, Rogers, Ark. 72756
Filed Oct. 20, 1980, Ser. No. 198,871
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—123



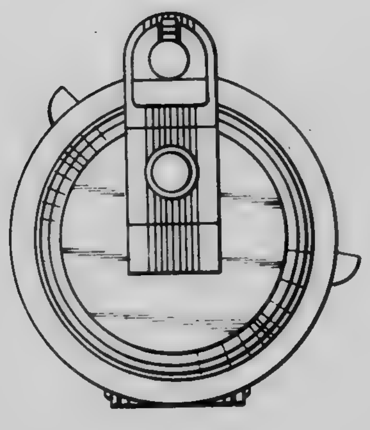
268,762
SAW
Peter Lawson, Sao Paulo, Brazil, assignor to Rockwell do Brasil, Rio de Janeiro, Brazil
Filed Nov. 19, 1979, Ser. No. 95,719
Claims priority, application Brazil, May 21, 1979, MI 3900360
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D15—134



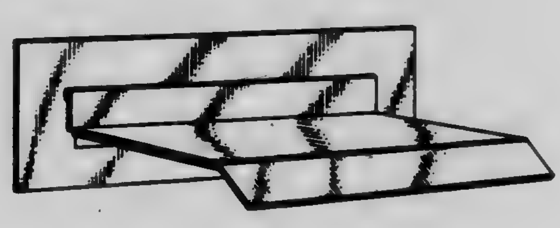
268,763
CARTON-ERECTING MACHINE
Minor E. Gee, Sanger, Calif., assignor to Maxco Supply, Inc., Reedley, Calif.
Filed Nov. 10, 1980, Ser. No. 205,733
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—145



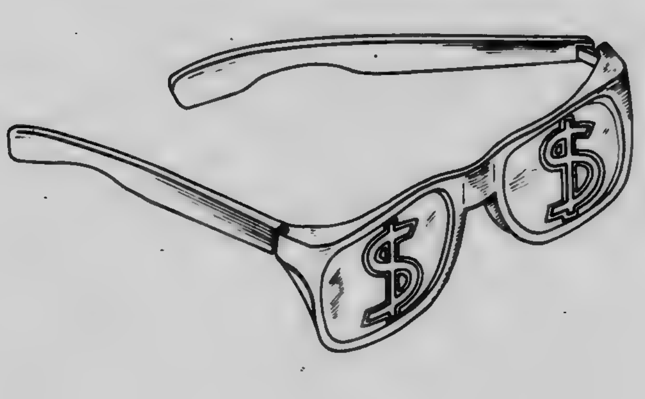
268,764
WRIST-WORN DISK CAMERA
Bernard A. Seckendorf, Flushing, and John Sanchez, Ossining, both of N.Y., assignors to Wrist-A-Matic, Ltd., Elmhurst, N.Y.
Filed Nov. 7, 1980, Ser. No. 205,215
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D16—1



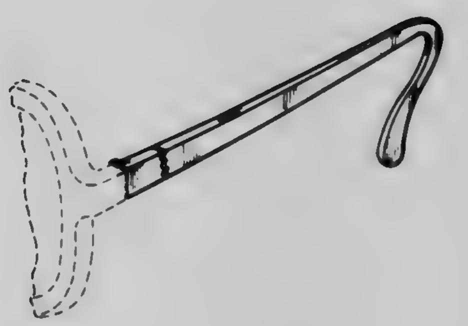
268,765
INFEED COVER FOR X-RAY FILM PROCESSOR
Jeffrey A. Campbell, Kalamazoo, Mich., assignor to William J. Antos, Niles, Mich., a part interest
Filed Feb. 13, 1981, Ser. No. 234,127
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—37



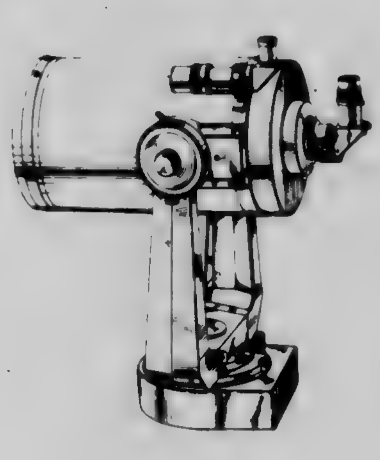
268,766
EYEGLASSES
Larry W. Lewis, 2012 Grove Ave., Richmond, Va. 23220
Filed Aug. 29, 1980, Ser. No. 182,556
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D16—119



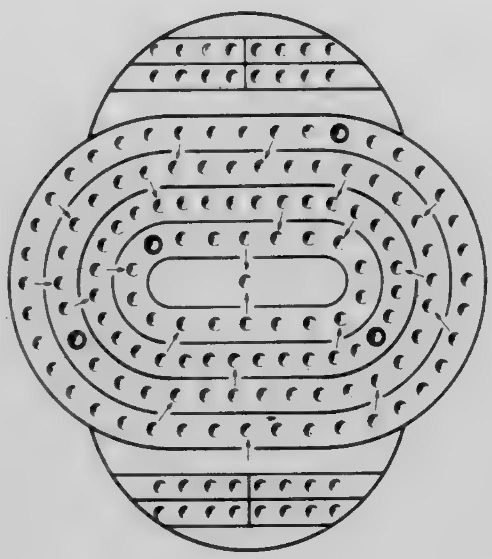
268,767
BOW FOR EYEGLASS FRAME
Giuseppe Zomer, Via Cerrone 4, VillarDora (Turin), Italy
Filed Jul. 24, 1980, Ser. No. 172,037
Claims priority, application Italy, Feb. 18, 1980, 52952-B/80
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D16—127



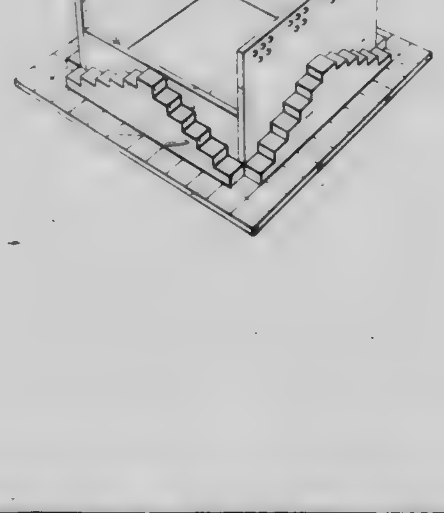
268,768
TELESCOPE
Frank M. Melsheimer, Boulder; Thomas T. Melsheimer, Layfayette; Scott C. Johnson, Boulder, all of Colo., and John C. Diebel, Newport Beach, Calif., assignors to Meade Instruments Corporation, Costa Mesa, Calif.
Filed Sep. 9, 1980, Ser. No. 185,617
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D16—132



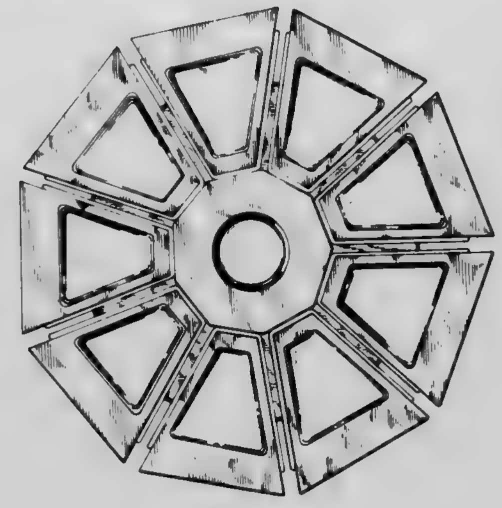
268,769
GAME BOARD
Wayne D. Woolwine, P.O. Box 178, Seminary, Miss. 39479
Filed Mar. 20, 1981, Ser. No. 246,048
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—20



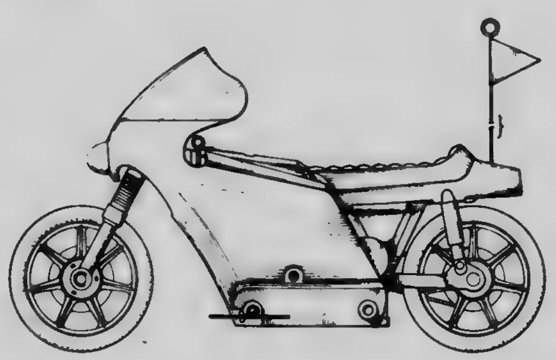
268,770
GAME BOARD
Daniel E. Fiveash, 108 Lincoln, Big Spring, Tex. 79720
Filed Jan. 27, 1981, Ser. No. 229,010
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—23



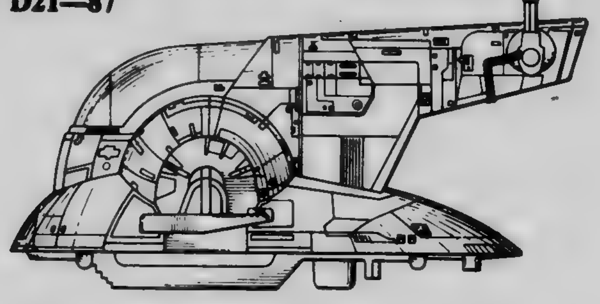
268,771
ROTATABLE GAME BOARD
John Daugherty, 3611 Bangor St., SE., Washington, D.C. 20020
Filed Jul. 15, 1980, Ser. No. 169,006
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—33



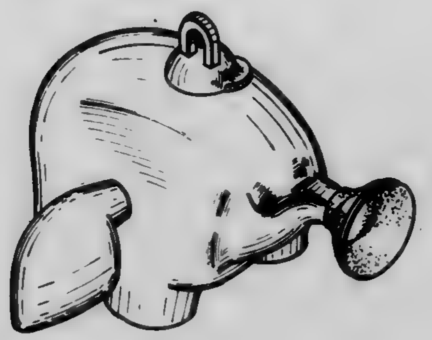
268,772
TOY MOTORCYCLE
Tsuneo Hanzawa, Tokyo, Japan, assignor to Entex Industries, Inc., Compton, Calif.
Filed Oct. 6, 1980, Ser. No. 194,362
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—81



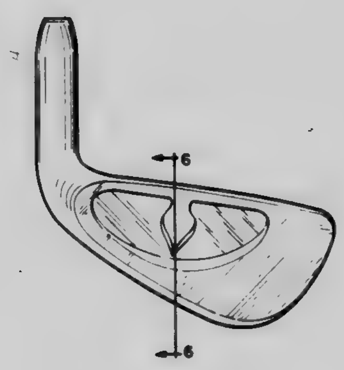
268,773
TOY SPACE VEHICLE
Nilo Rodis-Jamero, San Jose, Calif., assignor to Lucasfilm, Ltd., San Rafael, Calif.
Filed Sep. 29, 1980, Ser. No. 191,669
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—87



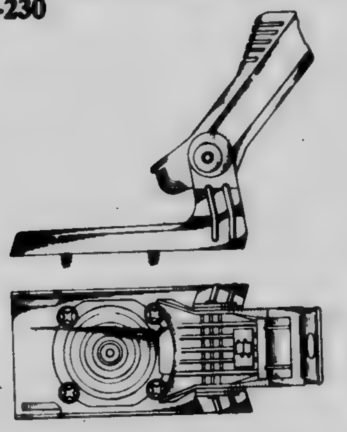
268,774
TOY ANIMAL FIGURE
Kazue Kudo, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan
Filed Oct. 1, 1979, Ser. No. 80,478
Claims priority, application Japan, Mar. 30, 1979, 54-12722
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—162



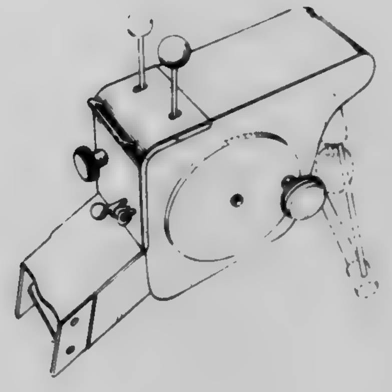
268,775
GOLF CLUB HEAD
Jerry L. Pace, 415 Enterprise Dr., Charlotte, N.C. 28206
Filed Jan. 29, 1981, Ser. No. 229,774
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—220



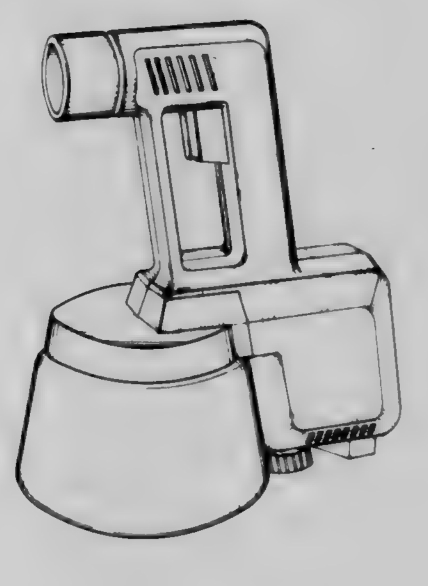
268,776
HEEL UNIT OF A SKI SAFETY BINDING
Jean J. A. Beyl, Nevers, France, assignor to LOOK, Nevers, France
Filed Feb. 1, 1980, Ser. No. 117,446
Claims priority, application France, Aug. 7, 1979, 124
Term of patent 14 years
Int. Cl. D21—*02, 022*
U.S. Cl. D21—230



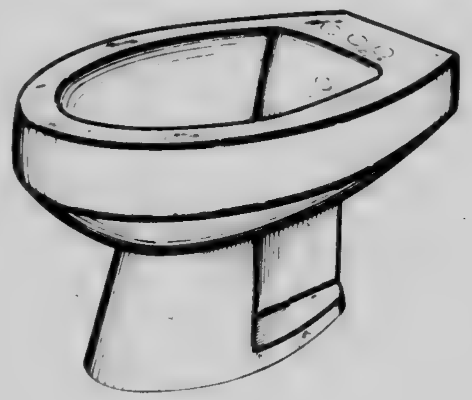
268,777
BOAT ROPE CONTROLLER
Richard W. Donalies, 1545 Newcastle La., Hoffman Estates, Ill. 60194
Filed Sep. 15, 1980, Ser. No. 187,204
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D21—236



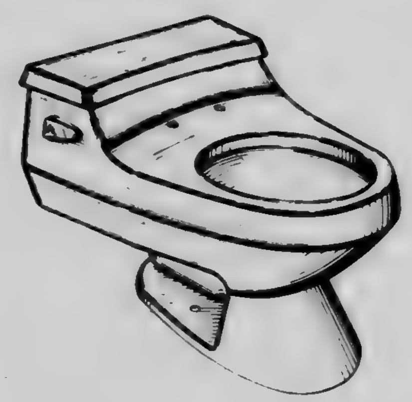
268,778
PAINT SPRAYER
Howard R. Moon, Ft. Atkinson, Wis., assignor to Acme Burgess, Inc., Grayslake, Ill.
Filed Dec. 5, 1980, Ser. No. 213,480
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—18



268,779
BIDET
Donald W. Doman, Janesville, Wis., assignor to Kohler Co., Kohler, Wis.
Filed Oct. 20, 1980, Ser. No. 199,061
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—51

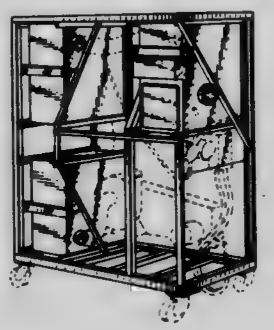


268,780
WATER CLOSET
Donald W. Doman, Janesville, and Norman J. Jaekels, Sheboygan, both of Wis., assignors to Kohler Co., Kohler, Wis.
Filed Aug. 29, 1980, Ser. No. 182,453
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—65

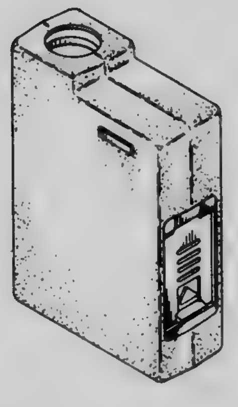


268,781
SUPERIMPOSED TOILET SEAT FOR INVALIDS OR THE LIKE
Joseph Battiston, Jr., 47 E. Eighth St., Clifton, N.J. 07011
Filed Apr. 27, 1981, Ser. No. 257,806
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—71

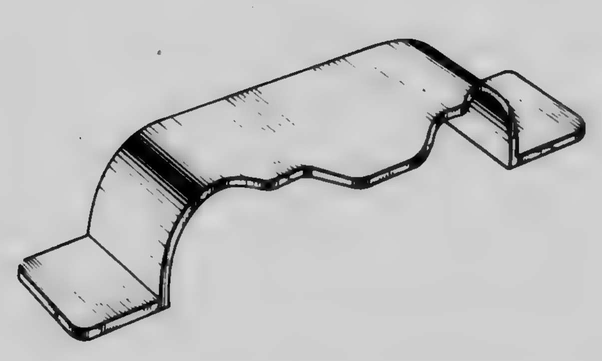
268,782
COMBINED SUPPORTING FRAMEWORK AND FILTER HOUSINGS OF A MULTIPLE STAGE AIR FILTERING SYSTEM
Donald F. Minnick, Jr., Hamburg, N.Y., assignor to Engineered Air Division of Thermal Components, Inc., Buffalo, N.Y.
Filed Apr. 7, 1980, Ser. No. 137,793
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—149



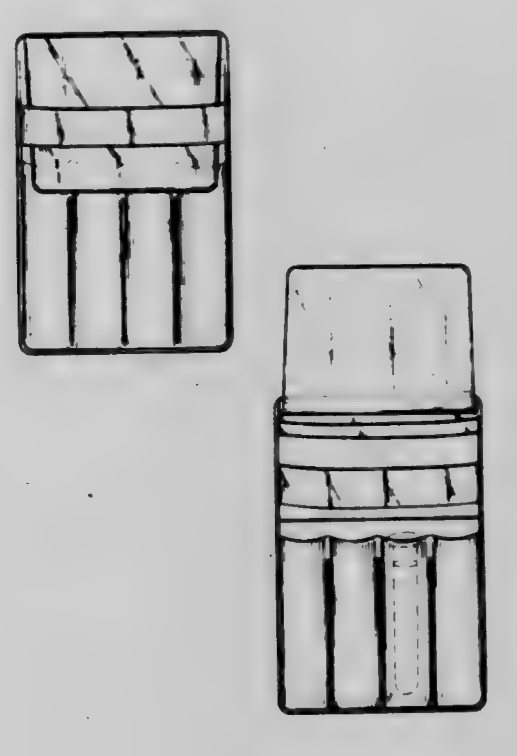
268,783
CARDIAC TELEMONITOR TRANSMITTER HOUSING
John F. Henshaw, Mill Valley, Calif., assignor to Keuffel & Esser Company, Morristown, N.J.
Filed Nov. 10, 1980, Ser. No. 205,497
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—17



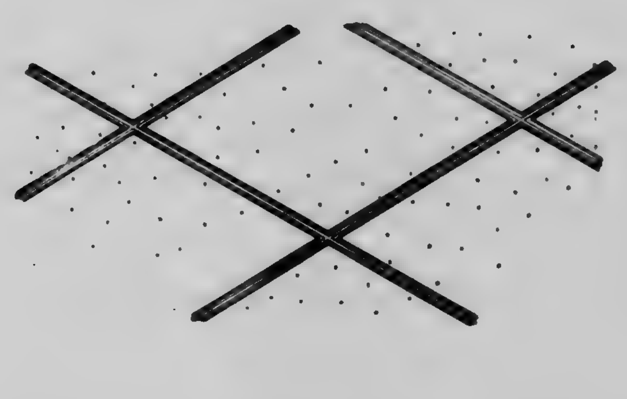
268,784
BODY SUPPORT FOR CONSUMMATING AN ACT OF MARITAL UNION
Arthur E. Forseth, Halstad, Minn. 56548, assignor to Arthur Everett Forseth, Halstad, Minn.
Filed Dec. 26, 1979, Ser. No. 106,666
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D24—99



268,785
COMBINED SPECIMEN TUBE AND PAPERWORK POUCH
Philip B. Sommers, 923 Garden Rd., Orange, Conn. 06477
Filed Jun. 25, 1980, Ser. No. 162,727
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D24—99



268,786
SUSPENDED CEILING GRID
Rudolph D. Galindo, 6561 E. Carnegie Ave., Anaheim, Calif. 92807
Filed May 7, 1979, Ser. No. 36,330
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D25—58



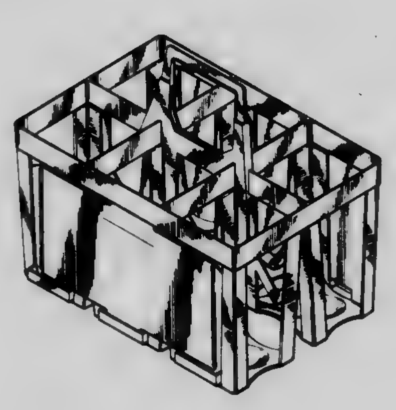
268,787
BUILDING FACADE
Andrew J. Franklin, Jr., and Jean H. Franklin, both of Castles Unlimited, Inc., Humpty's Storybook Castle, Rte. 8, Box 86, Fredericksburg, Va. 22401
Filed Nov. 19, 1980, Ser. No. 208,295
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—59

268,788
LAMP
Kathy L. Sweetman, 936 W. Isabella, Mesa, Ariz. 85202
Filed Nov. 21, 1980, Ser. No. 208,882
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D26—8

268,789
CANDLE GLASS
Barry D. Harper, Palos Verdes Estates, and Robert M. Courtney, Encino, both of Calif., assignors to Continental Candle Company, Compton, Calif.
Filed Dec. 29, 1980, Ser. No. 220,735
Term of patent 14 years
Int. Cl. D26—*01*; D7—*01*
U.S. Cl. D26—11

268,790
DUST MOP COVER
Virginia Hicks, 3943 W. Bell Plaine, Chicago, Ill. 60618
Filed Jun. 5, 1981, Ser. No. 270,734
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D32—50

268,791
CARRIER FOR CONTAINERS OR THE LIKE
Prentice J. Wood, 3244 N. Fulton Ave., Apt. G-10, Hapeville, Ga. 30354
Filed May 19, 1980, Ser. No. 151,114
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D34—44



268,792

TEXTILE FABRIC WALL COVERING OR THE LIKE

Florence J. Marganne, Paris, France, assignor to Peintures Corona S.A., Velenciennes, France

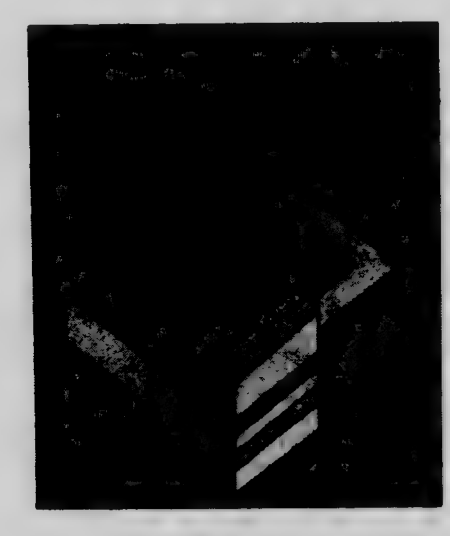
Filed Nov. 10, 1980, Ser. No. 205,764

Claims priority, application France, May 9, 1980, 801516

Term of patent 14 years

Int. Cl. D5—*05*

U.S. Cl. D92—29



268,793

ROLL OF FLOOR COVERING OR SIMILAR ARTICLE

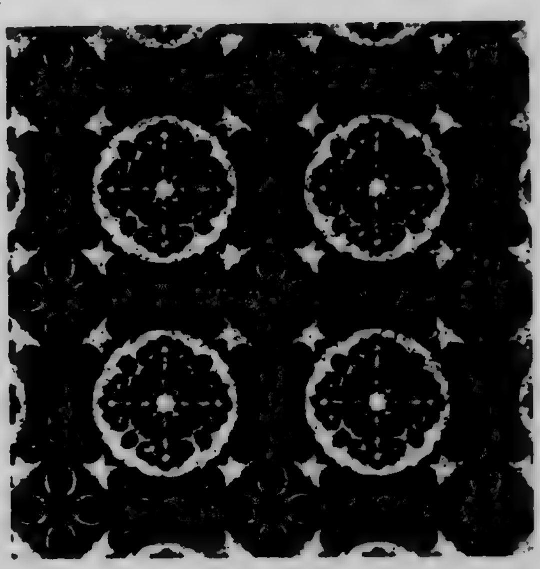
Oscar Tejeda, New York, N.Y., and Leonard A. Ludovico, Park Ridge, N.J., assignors to Congoleum Corporation, Kearny, N.J.

Filed Jul. 30, 1979, Ser. No. 61,965

Term of patent 14 years

Int. Cl. D5—*06*

U.S. Cl. D92—31



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TO WHOM

PATENTS WERE ISSUED ON THE 26TH DAY OF APRIL, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A/S Raufoss Ammunisjonsfabrikker: *See*—
Gudbrandsen, Hans, 4,380,858, Cl. 29-418.000.
Aaltonen, Olli; Alkio, Martti; Avela, Eero; and Housh, Riitta-Maija, to Technical Research Centre of Finland, The. Method for producing fire-retarded cellulosic fibers and fire-retarded cellulosic fibers. 4,381,370, Cl. 525-54.210.
AB Fortia: *See*—
Ekins, Roger P., 4,381,291, Cl. 424-1.000.
Abbott Laboratories: *See*—
Bujan, Albert F., 4,381,005, Cl. 604-152.000.
Genese, Joseph N., 4,381,006, Cl. 128-218.00A.
Abe, Katsuo; Nishio, Masahiro; and Matsubara, Akira, to Toyo Seikan Kaisha, Ltd. Holding spindle for printing and coating cylindrical containers. 4,380,964, Cl. 118-50.000.
Abegg, Jean-Louis: *See*—
Bouillon, Claude; Abegg, Jean-Louis; Koulbanis, Constantin; and Darmenton, Patrick, 4,381,294, Cl. 424-61.000.
Abex Corporation: *See*—
Kouns, Herbert H.; and Clark, Richard A., 4,381,176, Cl. 417-222.000.
Abo, Toshimi; and Iwatsu, Hideo, to Nissan Motor Company, Limited. Fuel supply control system for a turbine engine. 4,380,894, Cl. 60-39.161.
Acampora, Anthony, to Bell Telephone Laboratories, Incorporated. Broadcast type satellite communication systems. 4,381,562, Cl. 370-97.000.
Adachi, Hiromi; Inoue, Kazunari; and Ohshita, Hiroshi, to Mitsubishi Denki Kabushiki Kaisha. Fluorescent lamp instantaneous starting device. 4,381,476, Cl. 315-101.000.
Adachi, Toshio; and Arakawa, Tatsumi, to Asahi Kasei Kogyo Kabushiki Kaisha. Photoelectrolyzer. 4,381,233, Cl. 204-242.000.
Adam, Peter; and Wehner, Ewald, to Siemens Aktiengesellschaft. Commutator motor brush mounting arrangement. 4,381,468, Cl. 310-239.000.
Adamovic, Janko: *See*—
Maricevic, Milenko; Adamovic, Janko; and Maricevic, Zdravko, 4,381,425, Cl. 174-93.000.
Adams, George W.: *See*—
Smock, Steven W.; and Adams, George W., 4,381,430, Cl. 200-35.00R.
Adams, Milton R.: *See*—
Stokes, Richard F.; Timm, James D.; LaCroix, Stephen R.; and Adams, Milton R., 4,380,893, Cl. 60-39.070.
Adams-Russell Co., Inc.: *See*—
Lambert, Trevor, 4,381,522, Cl. 358-86.000.
Adkins, Richard C., to Rolls-Royce Limited. Combustion chamber for a gas turbine engine having a variable rate diffuser upstream of air inlet means. 4,380,895, Cl. 60-39.230.
Adkison, Frank L.; and Kress, Jack L., to Oscar Mayer Foods Corporation. Apparatus for removing meat from poultry drumsticks. 4,380,849, Cl. 17-11.000.
Adleman, Larry G., to Ex-Cell-O Corporation. Mechanical punch driver. 4,380,871, Cl. 30-360.000.
Adolph, Dietrich: *See*—
Linn, Karl-Otto; Jansche, Walter; Adolph, Dietrich; and Dannemann, Artur, 4,381,506, Cl. 340-870.320.
Aerojet-General Corporation: *See*—
Olsen, Robert E.; and Backlund, Stephen J., 4,381,399, Cl. 549-390.000.
Agence Nationale de Valorisation de la Recherche: *See*—
Raisin, Jean-Pierre; and Pion, Jacques, 4,381,068, Cl. 223-2.000.
Agency of Industrial Science & Technology: *See*—
Sakuragi, Shiro; and Kotani, Haruo, 4,381,141, Cl. 350-96.340.
Agfa-Gevaert Aktiengesellschaft: *See*—
Renner, Gunter; and Wolff, Erich, 4,381,339, Cl. 430-223.000.
Aggarwal, Avnish K.: *See*—
Cheal, William E.; Gupta, Gokal C.; Sepahmansour, Faramarz; and Aggarwal, Avnish K., 4,381,427, Cl. 179-2.0DP.
Ahlman, Esko A. O.: *See*—
Rautimo, Pertti V.; Pelto-Huikko, Raimo; and Ahlman, Esko A. O., 4,380,901, Cl. 60-418.000.
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Gibson, Charles A.; Ahmed, Moinuddin; and Habenschuss, Michael, 4,381,223, Cl. 203-91.000.
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Matsui, Makoto, 4,380,921, Cl. 72-165.000.
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Iwasaki, Shinichiro, 4,380,928, Cl. 73-518.000.
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Danz, Rudi; Stark, Wolfgang; Elling, Burkhard; Ruscher, Christian; and Schwarz, Wolfgang, 4,381,534, Cl. 361-233.000.
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Bjorn, Lars-Erik; Olsson, Mats; and Oman, Olof, 4,381,270, Cl. 264-3.00B.
Akzona Incorporated: *See*—
Kessler, Erich; and Birken, Peter, 4,381,274, Cl. 264-147.000.
Alaimo, Robert J., to Norwich Eaton Pharmaceuticals, Inc. 6,7-Dichloro-2-[(methyl-2-pyrrolidylidene)amino]-4-thiocyanatobenzothiazole. 4,381,394, Cl. 548-161.000.
Albee, Paul J., Jr.; Burdick, Patricia E.; and Wrozina, Joseph I., to Allied Corporation. Preparation of low molecular weight copolymer salts. 4,381,376, Cl. 525-366.000.
Albers, Friedemann: *See*—
Tholen, Paul; Lichtblau, Leo; Albers, Friedemann; and Esche, Dieter, 4,380,971, Cl. 123-41.310.
Albrecht, Harald: *See*—
von der Wettern, Walter; and Albrecht, Harald, 4,381,357, Cl. 524-68.000.
Alferness, Rodney C., to Bell Telephone Laboratories, Incorporated. Velocity mismatched modulator. 4,381,139, Cl. 350-96.140.
Alkio, Martti: *See*—
Aaltonen, Olli; Alkio, Martti; Avela, Eero; and Housh, Riitta-Maija, 4,381,370, Cl. 525-54.210.
Allen, Harold T., to Ransburg Corporation. Atomizing device motor. 4,381,079, Cl. 239-214.130.
Allied Corporation: *See*—
Albee, Paul J., Jr.; Burdick, Patricia E.; and Wrozina, Joseph I., 4,381,376, Cl. 525-366.000.
Cronkite, Michael O.; and Paquin, Patrick J., 4,381,426, Cl. 174-117.00F.
Pfeiffer, Robert C., 4,381,086, Cl. 242-107.40R.
Rittenhouse, John F., 4,381,250, Cl. 252-182.100.
Stephenson, Robert L.; and Frankila, John W., 4,381,085, Cl. 242-107.300.
Allis-Chalmers Corporation: *See*—
James, Mark C.; and Borushaski, Ronald G., 4,381,165, Cl. 414-526.000.
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Poux, Jacques, 4,380,877, Cl. 34-225.000.
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Gregoire, Gabriel; Robles, Vincent; and Alvarez, Pedro, 4,381,047, Cl. 188-71.800.
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Suzuki, Masamichi, 4,381,511, Cl. 346-20.000.
Amchem Products, Inc.: *See*—
Reinhold, Earl R., 4,381,203, Cl. 148-6.14R.
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Loffelman, Frank F., 4,381,372, Cl. 525-181.000.
American Hoechst Corporation: *See*—
Gillich, Thomas N.; and Walls, John E., 4,381,226, Cl. 204-14.00N.
Walls, John E., 4,381,340, Cl. 430-302.000.
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Seibert, Lloyd, 4,380,879, Cl. 40-447.000.
American Standard Inc.: *See*—
Olson, Paul E., 4,380,938, Cl. 74-473.00R.
Anderson, Byron D. Pickup truck bed sidewall adaptor for a stake-frame assembly. 4,381,123, Cl. 296-43.000.
Anderson-Cook Inc.: *See*—
Killop, James T., 4,380,918, Cl. 72-88.000.
Anderson, David M.; and Erb, John C., to Filper Corporation. Transfer mechanism in a peach pitter. 4,380,953, Cl. 99-549.000.
Anderson, Michael C.: *See*—
Morrow, James G., Sr.; and Anderson, Michael C., 4,381,060, Cl. 212-195.000.
Anderson, Ralph L., to Scott Paper Company. Non-fogging premoistened wiper. 4,381,246, Cl. 252-91.000.
Anic S.p.A.: *See*—
Ferraris, Giuseppe; and Cesca, Sebastiano, 4,381,381, Cl. 526-75.000.
Anselmo, Donald R.; and Grau, Thomas G., to Bell Telephone Laboratories, Incorporated. Electrical connector for plated-through holes. 4,381,134, Cl. 339-220.00R.
Anstey, Michael J.; and Brown, David F., to Racal Microelectronic Systems Limited. Back-up electrical power supplies. 4,381,458, Cl. 307-66.000.
Anthonis, Henry E., III: *See*—
Henry, Francis W., Jr.; Anthonis, Henry E., III; and Banerjee, Subrata, 4,381,355, Cl. 523-140.000.
Antos, George J., to UOP Inc. Nonacidic multimetallic catalytic composite for hydrocarbon dehydrogenation. 4,381,257, Cl. 252-466.00B.
Antson, Jorma O., to Oy LohJa AB. Method for making electrically conductive penetrations into thin films. 4,380,867, Cl. 29-590.000.

Arakawa, Tatsumi: *See—*
Adachi, Toshio; and Arakawa, Tatsumi, 4,381,233, Cl. 204-242.000.
Araki, Nobuyuki: *See—*
Nakayama, Shozo; Kato, Kimio; Araki, Nobuyuki; and Takenaka, Kenji, 4,381,178, Cl. 417-269.000.
Aramatsu, Shoichiro: *See—*
Nakagawa, Yunosuke; and Aramatsu, Shoichiro, 4,381,247, Cl. 252-95.000.
Arbuthnot, Gerald R.: *See—*
Walling, Jorg-Hein; Dumoulin, Andre; and Arbuthnot, Gerald R., 4,380,965, Cl. 118-621.000.
Armiger, John W., to Armiger, John W. Cutting and collating method and apparatus for tickets. 4,381,107, Cl. 270-58.000.
Armstrong, Thomas R., to Paradyne Corporation. System for the quantitative measurement of impairments in the communication channel of a quadrature amplitude modulation data communication system. 4,381,546, Cl. 364-514.000.
Arnold, Robert W., to International Business Machines Corporation. Constant energy drive circuit for electromagnetic print hammers. 4,381,532, Cl. 361-154.000.
Arora, Mulk R., to Sprague Electric Company. DC Etching of aluminum electrolytic capacitor foil. 4,381,231, Cl. 204-129.750
Arthur G. Russell Company, Incorporated, The: *See—*
Dion, Warren E., 4,381,505, Cl. 340-756.000.
Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Adachi, Toshio; and Arakawa, Tatsumi, 4,381,233, Cl. 204-242.000.
Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Furusato, Masayasu, 4,381,252, Cl. 252-429.00B.
Yoshida, Koichi; Iwaisako, Toshiyuki; Masamoto, Junzo; Hamanaka, Katsuhiko; and Komaki, Hajime, 4,381,397, Cl. 549-368.000.
Asahi Yukizai Kogyo Co., Ltd.: *See—*
Kai, Isao; Hosokawa, Hirotami; and Oda, Takayuki, 4,381,354, Cl. 523-139.000.
Asayama, Yoshiaki: *See—*
Okuda, Kuniteru; Fukami, Teruki; Asayama, Yoshiaki; Wada, Shunichi; and Kabuto, Masami, 4,380,934, Cl. 73-861.230.
Assmus, Friedrich: *See—*
Kuppers, Frieder; Scherzinger, Bernhard; Assmus, Friedrich; and Flaig, Hans, 4,381,481, Cl. 318-696.000.
Atlantic Richfield Company: *See—*
Falcone, Samuel J.; and McCoy, John J., 4,381,403, Cl. 560-24.000.
Atlas Copco Aktiebolag: *See—*
Emmerich, Wolfgang, 4,380,923, Cl. 72-482.000.
Atto Corporation: *See—*
Matsumoto, Tetsuo; and Okumura, Akira, 4,381,072, Cl. 494-10.000.
Auburn Manufacturing Co., Inc.: *See—*
Kite, James M., 4,381,122, Cl. 293-125.000.
Audeh, Costandi A.; Heilweil, Israel J.; White, James R.; and Yan, Tsoung Y., to Mobil Oil Corporation. Solvent extraction production of lube oil fractions. 4,381,234, Cl. 208-327.000.
Audi NSU Auto Union Aktiengesellschaft: *See—*
Heinle, Karl-W., 4,381,555, Cl. 365-78.000.
Avela, Eero: *See—*
Aaltonen, Olli; Alkio, Martti; Avela, Eero; and Housh, Riitta-Maija, 4,381,370, Cl. 525-54.210.
Ayerst, McKenna & Harrison. Inc.: *See—*
Palameta, Bozidar; Bogri, Tibor; and Bagli, Jehan, 4,381,304, Cl. 424-256.000.
Ayres, John W.; and James, Harold S., to Babcock & Wilcox Company, The. Reset circuit for zero force touch probe. 4,380,873, Cl. 33-174.00P.
Aztech International, Ltd.: *See—*
Hood, Larry M.; and West, Doy M., 4,380,910, Cl. 62-91.000.
Azzola, Roberto, to Saiag S.p.A. Industria Articoli Gomma. Method of co-extruding a reinforced composite foamed resin channel-shaped sealing strip having an abraded surface portion. 4,381,273, Cl. 264-45.900.
B.S.L. (Bignier Schmid-Laurent): *See—*
Taquoi, Jean-Pierre, 4,381,062, Cl. 220-71.000.
Babb, Albert L., to Biomedics, Inc. Extracorporeal system for treatment of infectious and parasitic diseases. 4,381,004, Cl. 128-214.00R.
Babcock & Wilcox Company, The: *See—*
Ayres, John W.; and James, Harold S., 4,380,873, Cl. 33-174.00P.
Bohl, Thomas L.; Hall, George R., Jr.; and Zimmerlin, Sharon L., 4,381,153, Cl. 356-437.000.
Walton, Lewis A., 4,381,283, Cl. 376-327.000.
Babitzka, Rudolf: *See—*
Linder, Ernst; Babitzka, Rudolf; Brettschneider, Johannes; Polach, Wilhelm; Wessel, Wolf; and Stumpp, Gerhard, 4,380,900, Cl. 60-275.000.
Backlund, Stephen J.: *See—*
Olsen, Robert E.; and Backlund, Stephen J., 4,381,399, Cl. 549-390.000.
Bagli, Jehan: *See—*
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Bahlinger, Walter, to Siemens Aktiengesellschaft. Semiconductor component with several semiconductor elements. 4,381,518, Cl. 357-79.000.
Bahr, Dietrich J.; and Briska, Marian, to International Business Machines Corporation. Process for producing a sliding layer on the surface of an aluminum-coated record carrier. 4,381,322, Cl. 427-179.000.
Bain, Lee L., to Xerox Corporation. Reduction of pulsed droplet array crosstalk. 4,381,515, Cl. 346-140.00R.
Baker, Dan C., to Sperry Corporation. High speed dividing circuit. 4,381,550, Cl. 364-766.000.
Baker Perkins Inc.: *See—*
Cox, Bradley G., 4,381,236, Cl. 210-112.000.
Balaz, Anton, to Plaspack Kunststoff GmbH & Co., KG. Golf trainer device. 4,381,110, Cl. 273-182.00R.
Balk, Leizer, deceased (by Balk, Lois, executrix); and Sojkowski, James S., to Pratt & Lambert, Inc. Zinc-rich powders. 4,381,334, Cl. 428-332.000.
Balk, Lois, executrix: *See—*
Balk, Leizer, deceased; and Sojkowski, James S., 4,381,334, Cl. 428-332.000.
Ball Corporation: *See—*
Cerny, Daryl D.; and Diebolt, Edwin J., 4,381,061, Cl. 215-1.00C.
Banerjee, Subrata: *See—*
Henry, Francis W., Jr.; Anthonis, Henry E., III; and Banerjee; Subrata, 4,381,355, Cl. 523-140.000.
Barkan, Philip, to General Electric Company. Vacuum circuit breaker with means for selectively latching a wipe cage. 4,381,435, Cl. 200-144.00B.
Barker, Walter F., to Martin Marietta Corporation. Magnetic docking probe for soft docking of space vehicles. 4,381,092, Cl. 244-161.000.
Barnes, Robert S.; and Harper, Raymond, to Cryoplants, Ltd. Method of boiling liquefied gas. 4,380,907, Cl. 62-52.000.
Barozzi, Gian P.; and Horeschi, Giancarlo, to Tokyo Juki Industrial Co., Ltd. Tab setting device of typewriter. 4,381,156, Cl. 400-296.100.
BASF Wyandotte Corporation: *See—*
McBrayer, Robert L., 4,381,352, Cl. 521-115.000.
Batchelder, J. Samuel: *See—*
Koslow, Evan E.; and Batchelder, J. Samuel, 4,380,886, Cl. 47-58.000.
Battenfeld Maschinenfabrik GmbH: *See—*
Ehritt, Jurgen, 4,381,272, Cl. 264-40.300.
Baty, Mark A., to Deere & Company. Excavator bucket linkage. 4,381,167, Cl. 414-697.000.
Bauer, Walter A.: *See—*
DelliColli, Humbert T.; McPartland, Thomas F.; and Bauer, Walter A., 4,381,194, Cl. 71-65.000.
Bauman, William C.: *See—*
Lee, John M.; and Bauman, William C., 4,381,349, Cl. 521-28.000.
Baumann, Charles G., Jr.; and Danilenko, Michael, to Sperry Corporation. Buffer memory referencing system for two data words. 4,381,541, Cl. 364-200.000.
Baumgen, Heinz: *See—*
von Bonin, Wulf; Mummenhoff, Peter; and Baumgen, Heinz, 4,381,367, Cl. 524-549.000.
Bausch & Lomb Incorporated: *See—*
Mandt, Lawrence D.; Riedhammer, Thomas M.; and Smith, Francis X., 4,381,314, Cl. 424-333.000.
Baverstock, John R., to Lucas Industries Limited. Method of making a ribbon cable. 4,381,208, Cl. 156-52.000.
Baxter, Ivor R.: *See—*
Hair, Thomas; and Baxter, Ivor R., 4,381,149, Cl. 356-4.000.
Bayer Aktiengesellschaft: *See—*
Buysch, Hans-Josef; Krimm, Heinrich; and Richter, Wolfgang, 4,381,404, Cl. 560-24.000.
Fuchs, Rainer; Maurer, Fritz; Priesnitz, Uwe; Riebel, Hans-Jochem; and Klauke, Erich, 4,381,412, Cl. 568-637.000.
Hardt, Dietrich K. A., deceased; Mietzsch, Fritz; and Billinger, Otto, 4,381,361, Cl. 524-265.000.
Idel, Karsten; Buysch, Hans-Josef; Margotte, Dieter; and Peters, Horst, 4,381,359, Cl. 524-117.000.
Nielinger, Werner; Brassat, Bert; Binsack, Rudolf; and Neuray, Dieter, 4,381,371, Cl. 525-66.000.
Regel, Erik; Buchel, Karl H.; Haller, Ingo; and Plempel, Manfred, 4,381,306, Cl. 424-269.000.
Reiser, Wolf; Elbe, Ludwig; Buchel, Karl H.; and Plempel, Manfred, 4,381,310, Cl. 424-273.00R.
Sanderson, John R.; Binsack, Rudolf; Michael, Dietrich; and Bonten, Heinrich, 4,381,366, Cl. 524-504.000.
Schmidt, Manfred; and Bottenbruch, Ludwig, 4,381,390, Cl. 528-167.000.
von Bonin, Wulf; Mummenhoff, Peter; and Baumgen, Heinz, 4,381,367, Cl. 524-549.000.
BBC Brown, Boveri & Company Limited: *See—*
Zaba, Tadeusz, 4,380,897, Cl. 60-39.330.
Beach, David L.; and Selwitz, Charles M., to Gulf Research & Development Company. Fuel having reduced tendency to particulate dissemination under shock. 4,381,414, Cl. 585-10.000.
Bearden, Robert. Talking greeting card. 4,381,558, Cl. 369-68.000.
Becker, Andrew R., to Koppers Company, Inc. Filter bag weighted holder. 4,381,039, Cl. 177-160.000.
Beckman Instruments, Inc.: *See—*
Johnson, Wayne S.; and Tangherlini, Vincent C., 4,381,168, Cl. 414-737.000.
Beier, Hanns W., to Magic Novelty Co., Inc. Twist key holder. 4,380,914, Cl. 70-456.00R.
Bell Telephone Laboratories, Incorporated: *See—*
Acampora, Anthony, 4,381,562, Cl. 370-97.000.
Alferness, Rodney C., 4,381,139, Cl. 350-96.140.
Anselmo, Donald R.; and Grau, Thomas G., 4,381,134, Cl. 339-220.00R.
Buhl, Lawrence L., 4,381,138, Cl. 350-96.140.
Farrow, Cecil W., 4,381,560, Cl. 370-11.000.

Frye, Robert C.; and Leamy, Harry J., 4,380,865, Cl. 29-576.00W.
Beloit Corporation: *See—*
Guild, Gerald A.; and Frye, Kenneth G., 4,380,945, Cl. 83-482.000.
Ben-Gurion University of the Negev Research and Development Authority: *See—*
Branover, Herman, 4,381,463, Cl. 310-11.000.
Bendix Corporation, The: *See—*
Hemmer, Valentine J.; and Piscitelli, R. Amelia, 4,381,135, Cl. 339-258.00R.
Bendrik, Valery G.: *See—*
Leschinsky, Leonid K.; Gulakov, Sergei V.; Stepnov, Xenofont X.; Nosovsky, Boris I.; Bendrik, Valery G.; Dubinsky, Boris E.; Isirov, Dmitry I.; and Zelensky, Viktor E., 4,380,852, Cl. 29-121.200.
Bentley, Arthur P. Sonic pressure wave surface operated pump. 4,381,177, Cl. 417-240.000.
Berg, David M.; and Teegarden, Kenneth J., to Hydroacoustics Inc. Optical fiber mode separation systems. 4,381,137, Cl. 350-96.180.
Bergmans, Christianus H. J., to U.S. Philips Corporation. Circuit for a picture display device for converting an input d.c. voltage into an output d.c. voltage. 4,381,477, Cl. 315-408.000.
Berkowitz, Ami E.; and Walter, John L., to General Electric Company. Ferrofluid. 4,381,244, Cl. 252-62.520.
Bernard, Georges: *See—*
Nagaoka, Yoshifumi; Morishima, Kanji; Ishii, Hiromi; and Bernard, Georges, 4,381,436, Cl. 200-148.00A.
Berney, Jean, to Les Fabriques d'Assortiments Reunies. Movable limit markers for viewing glass of measuring instruments. 4,380,963, Cl. 116-324.000.
Betta, Walter, to Wabing S.r.l. Braided stranded rope forming machine. 4,380,949, Cl. 87-48.000.
Betts, Robert E., to United States of America, Army. Electrostatic safe electric match. 4,380,958, Cl. 102-202.200.
Bianchi, Valerio: *See—*
Latsch, Reinhard; Schober, Heinz; Muller, Gerhard; and Bianchi, Valerio, 4,380,986, Cl. 123-489.000.
Biddle, Nicholas, III; and Craig, Stephen R., to Du Pont de Nemours, E. I., and Company. Control means and method for powder bagging. 4,381,545, Cl. 364-479.000.
Bieber, Charles P.; and Howard, Frank D., to Leland Stanford Jr. University, The Board of Trustees of the. Anti-human T-lymphocyte monoclonal antibody. 4,381,292, Cl. 424-1.000.
Biggs, James W.; and Maringer, Melvin F., to National Distillers & Chemical Corp. Flame retardant polymeric compositions capable of passing the CSA varnish test. 4,381,362, Cl. 524-305.000.
Billinger, Otto: *See—*
Hardt, Dietrich K. A., deceased; Mietzsch, Fritz; and Billinger, Otto, 4,381,361, Cl. 524-265.000.
Binder, Paul; and Cane, David A., to Digital Equipment Corporation. System for interrupt arbitration. 4,381,542, Cl. 364-200.000.
Binsack, Rudolf: *See—*
Nielinger, Werner; Brassat, Bert; Binsack, Rudolf; and Neuray, Dieter, 4,381,371, Cl. 525-66.000.
Sanderson, John R.; Binsack, Rudolf; Michael, Dietrich; and Bonten, Heinrich, 4,381,366, Cl. 524-504.000.
Biomedics, Inc.: *See—*
Babb, Albert L., 4,381,004, Cl. 128-214.00R.
Birken, Peter: *See—*
Kessler, Erich; and Birken, Peter, 4,381,274, Cl. 264-147.000.
Bissinger, Norbert, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung. Air inlet, especially a two-dimensional air inlet set at an angle on one side for gas turbine jet propulsion plants for driving airplanes. 4,381,017, Cl. 137-15.100.
Bitko, David, to Fifth Dimension Inc. Switch and alarm system responsive to sudden movement, angular tilt and vibration. 4,381,504, Cl. 340-689.000.
BJ-Hughes Inc.: *See—*
Novotny, Rudolf J.; and Gandy, Richard G., 4,381,034, Cl. 166-292.000.
Bjorn, Lars-Erik; Olsson, Mats; and Oman, Olof, to Aktiebolaget Bofors. Method of producing a flash suppressed pressed rocket propellant. 4,381,270, Cl. 264-3.00B.
Black & Decker Inc.: *See—*
Cuneo, Giuseppe, 4,381,037, Cl. 173-170.000.
Blais, Marcel H.: *See—*
Corna, John F.; and Blais, Marcel H., 4,380,837, Cl. 4-510.000.
Boden, Richard M., to International Flavors & Fragrances Inc. Organoleptic use of Prins reaction products of diisoamylene, derivatives thereof, organoleptic uses thereof and processes for preparing same. 4,381,242, Cl. 252-8.600.
Boden, Richard M., to International Flavors & Fragrances Inc. Aliphatic branched olefin dioxolanes, dithiolanes, and oxathiolanes and uses thereof in augmenting or enhancing the aroma and/or taste of consumable materials. 4,381,243, Cl. 252-8.900.
Boehringer Ingelheim GmbH: *See—*
Koppe, Herbert; Mentrup, Anton; Renth, Ernst-Otto; Schromm, Kurt; Hoefke, Wolfgang; and Muacevic, Gojko, 4,381,309, Cl. 424-273.00B.
Boeing Company, The: *See—*
Nelsen, Arnold, 4,381,104, Cl. 269-43.000.
Rudolph, Peter K. C., 4,381,093, Cl. 244-216.000.
Wren, Lloyd W., 4,381,510, Cl. 343-909.000.
Bogri, Tibor: *See—*
Palameta, Bozidar; Bogri, Tibor; and Bagli, Jehan, 4,381,304, Cl. 424-256.000.
Bohl, Thomas L.; Hall, George R., Jr.; and Zimmerlin, Sharon L., to Babcock & Wilcox Company, The. Opacity monitor. 4,381,153, Cl. 356-437.000.
Boileau, Sylvie L.; Meunier, Gilles F.; and Journeau, Sabine M., to Societe Nationale des Poudres et Explosifs. Process for the preparation of polymers and copolymers based on vinyl chloroformate. 4,381,385, Cl. 526-230.500.
Bolen, Charles E.; Harrington, Edward R.; Marzocchi, Alfred; and Roberts, Michael G., to Owens-Corning Fiberglas Corporation. Glass insulation with an insolubilized asphalt binder. 4,381,200, Cl. 106-282.000.
Bom, Cornelis J. G.: *See—*
van der Lely, Ary; and Bom, Cornelis J. G., 4,381,080, Cl. 239-666.000.
Bommarito, Paul F. Ophthalmic test lens holder. 4,381,143, Cl. 351-22.000.
Bonnet, Evelyne J. M., to PCUK Produits Chimiques Ugine Kuhlmann. Structurally colored cross-linkable compounds, their preparation and their utilization in coating compositions. 4,381,261, Cl. 260-162.000.
Bonten, Heinrich: *See—*
Sanderson, John R.; Binsack, Rudolf; Michael, Dietrich; and Bonten, Heinrich, 4,381,366, Cl. 524-504.000.
Borushaski, Ronald G.: *See—*
James, Mark C.; and Borushaski, Ronald G., 4,381,165, Cl. 414-526.000.
Bottelson, Thomas J.: *See—*
Ritzenthaler, Donald R.; and Bottelson, Thomas J., 4,381,431, Cl. 200-38.00R.
Bottenbruch, Ludwig: *See—*
Schmidt, Manfred; and Bottenbruch, Ludwig, 4,381,390, Cl. 528-167.000.
Bottiglieri, Peter. Fuel flow arrestor. 4,380,976, Cl. 123-198.0DB.
Bottoms, Clifford C. Mud pump piston assembly. 4,380,951, Cl. 92-244.000.
Bouffard, Joseph O. Rust removing and metal surface protecting composition. 4,381,249, Cl. 252-136.000.
Bouillon, Claude; Abegg, Jean-Louis; Koulbanis, Constantin; and Darmenton, Patrick, to Societe Anonyme dite: L'OREAL. Process for reinforcing fragile or brittle nails and a composition containing a cationic polymer for use in said process. 4,381,294, Cl. 424-61.000.
Bourdon, Guy; and Lehureau, Jean-Claude, to Thomson-CSF. Videodisc reader with longitudinally displaced turntable. 4,381,556, Cl. 369-44.000.
Bouwma, Jan; and Kerssen, Johannes, to U.S. Philips Corporation. Magnetic head construction. 4,381,529, Cl. 360-123.000.
Bowers, Kenneth E.; and Markley, Charles E., to Ethyl Development Corporation. Apparatus for removing waste material from a plastic article. 4,381,183, Cl. 425-182.000.
Braden, Denver, to Palomar Systems & Machines, Inc. Method of processing miniature electronic components such as capacitors or resistors. 4,381,321, Cl. 427-79.000.
Brand, LaVoice B.; and Brand, Robert L. Drilling mud degasser. 4,381,191, Cl. 55-193.000.
Brand, Robert L.: *See—*
Brand, LaVoice B.; and Brand, Robert L., 4,381,191, Cl. 55-193.000.
Brandt, Inc.: *See—*
Horvath, Stephen J.; and Wilcox, Steven R., 4,381,447, Cl. 250-223.00R.
Branover, Herman, to Ben-Gurion University of the Negev Research and Development Authority. Method and apparatus for producing electrical power and for the simultaneous heating of fluid, utilizing a magnetohydrodynamic generator. 4,381,463, Cl. 310-11.000.
Brassat, Bert: *See—*
Nielinger, Werner; Brassat, Bert; Binsack, Rudolf; and Neuray, Dieter, 4,381,371, Cl. 525-66.000.
Braxton, Earl J. Collapsible toilet shelter. 4,380,836, Cl. 4-460.000.
Brems, John H.; and Graham, James T., to F. Jos. Lamb Company, a part interest. Speed control for gravity operated trolleys. 4,380,959, Cl. 104-93.000.
Bremus, Norbert; Dieckelmann, Gerhard; Jeromin, Lutz; Rupilius, Wolfgang; and Schutt, Hartwig, to Henkel Kommanditgesellschaft auf Aktien. Process for the continuous production of triacetin. 4,381,407, Cl. 560-263.000.
Breslau, Lloyd. Underwater camera enclosure including sonar range finding device. 4,381,144, Cl. 354-64.000.
Brettschneider, Johannes: *See—*
Linder, Ernst; Babitzka, Rudolf; Brettschneider, Johannes; Polach, Wilhelm; Wessel, Wolf; and Stumpp, Gerhard, 4,380,900, Cl. 60-275.000.
Briere, Richard L., to Dennison Manufacturing Company. Mica-foil laminations. 4,381,327, Cl. 428-137.000.
Briska, Marian: *See—*
Bahr, Dietrich J.; and Briska, Marian, 4,381,322, Cl. 427-179.000.
British Aerospace Public Limited Company: *See—*
Pegram, Barry V., 4,381,091, Cl. 244-87.000.
British Gas Corporation: *See—*
Morgan, Ronald E.; and Pearce, Thomas, 4,380,940, Cl. 81-57.160.
Broadwith, Brian E., to Lucas Industries Limited. Fuel injection pump. 4,381,182, Cl. 417-435.000.
Brossmann, Gottfried; and Diem, Fritz, to Peroxide-Chemie GmbH. Process for the distillative separation of tertiary alkyl hydroperoxides and ditertiary alkyl peroxides. 4,381,222, Cl. 203-33.000.
Brotsky, Eugene; Everson, Charles W.; and Swartz, William E., to Nutrisearch Company. Whey protein fortified cured meat and process for preparation. 4,381,316, Cl. 426-265.000.

Brouwer, Frans, to Pelouze Scale Co. Weighing scale with capacitor transducer. 4,381,040, Cl. 177-210.00C.
Brown, David F.: *See—*
Anstey, Michael J.; and Brown, David F., 4,381,458, Cl. 307-66.000.
Brown, Douglas R., to Ionics, Incorporated. Multi-stage electrodialysis stack electrode reversal system and method of operation. 4,381,232, Cl. 204-180.00P.
Brown, Robert S., to Milliken Research Corporation. Rug cleaner. 4,381,157, Cl. 401-21.000.
Bryant, Randy E., to Dayco Corporation. Bobbin core. 4,381,088, Cl. 242-118.700.
Bubik, Alfred; Seider, Werner; and Hefter, Josef, to Escher Wyss GmbH. Headbox arrangement for a papermaking machine. 4,381,219, Cl. 162-299.000.
Buchel, Karl H.: *See—*
Regel, Erik; Buchel, Karl H.; Haller, Ingo; and Plempel, Manfred, 4,381,306, Cl. 424-269.000.
Reiser, Wolf; Elbe, Ludwig; Buchel, Karl H.; and Plempel, Manfred, 4,381,310, Cl. 424-273.00R.
Buchwalder, Jean-Pierre, to Cycles Peugeot. Exhaust gas silencer for a heat engine. 4,381,045, Cl. 181-265.000.
Buhl, Lawrence L., to Bell Telephone Laboratories, Incorporated. Electrooptic devices. 4,381,138, Cl. 350-96.140.
Buhler, Ulrich; Cornelius, Dieter; Lowenfeld, Rudolf; Kosubek, Uwe; Hahnle, Reinhard; and Schickfluss, Rudolf, to Cassella Aktiengesellschaft. Water-insoluble azo dyestuffs, their manufacture and their use. 4,381,262, Cl. 260-207.100.
Bujan, Albert F., to Abbott Laboratories. Intravenous pump chamber. 4,381,005, Cl. 604-152.000.
Bunner, Matthew R.; and Heinhuis, William H., to Industrial Wood Products, Inc. Paving and floor block composition and method of production. 4,381,328, Cl. 428-171.000.
Bunten, Roland J., III; and Hickman, John E., to International Business Machines Corporation. Controller port switch arrangement for sharing stored data among different systems. 4,381,543, Cl. 364-200.000.
Bunten, Theodore M.: *See—*
Cargill, N. Allen; and Bunten, Theodore M., 4,381,075, Cl. 237-8.00R.
Buoncristiani, Vincenzo. Method and apparatus for the automatic semicontinuous peritoneal dialysis. 4,381,003, Cl. 128-213.00A.
Burchette, Joe T.: *See—*
Kluger, Edward W.; and Burchette, Joe T., 4,381,265, Cl. 260-465.00E.
Burdick, Patricia E.: *See—*
Albee, Paul J., Jr.; Burdick, Patricia E.; and Wrozina, Joseph I., 4,381,376, Cl. 525-366.000.
Burney, Harry S., Jr.; and Gantt, Gary R., to Dow Chemical Company, The. Operation and regeneration of permselective ion-exchange membranes in brine electrolysis cells. 4,381,230, Cl. 204-98.000.
Burr-Brown Research Corporation: *See—*
Lillis, William J.; Naylor, Jimmy R.; Wang, Anthony D.; and White, Robert L., 4,381,497, Cl. 340-347.0DA.
Burroughs Corporation: *See—*
Demnianiuk, Eugene F., 4,381,131, Cl. 339-75.00M.
Reynolds, Paul D.; and Jones, Norman W., 4,381,215, Cl. 156-643.000.
Sprenkle, George J., 4,381,130, Cl. 339-74.00R.
Vosh, Lawrence J.; and D'Angelo, Kenneth R., 4,381,119, Cl. 282-11.50A.
Wisner, Daniel A., 4,381,494, Cl. 340-146.30C.
Burroughs Wellcome Co.: *See—*
Rideout, Janet L.; and Krenitsky, Thomas A., 4,381,344, Cl. 435-87.000.
Butler, Keith C., to Hewlett-Packard Company. Controller for pen, paper and chart of a recorder. 4,381,512, Cl. 346-33.00R.
Butoi, Aristotel. Electric power generating system. 4,381,041, Cl. 180-65.00D.
Buysch, Hans-Josef; Krimm, Heinrich; and Richter, Wolfgang, to Bayer Aktiengesellschaft. Process for the production of N,O-disubstituted urethanes and use thereof as starting materials for the production of organic isocyanates. 4,381,404, Cl. 560-24.000.
Buysch, Hans-Josef: *See—*
Idel, Karsten; Buysch, Hans-Josef; Margotte, Dieter; and Peters, Horst, 4,381,359, Cl. 524-117.000.
BYK Gulden Lomberg Chemische Fabrik GmbH: *See—*
Rainer, Georg, 4,381,301, Cl. 424-250.000.
C. Itoh Electronics, Inc.: *See—*
Kondur, Nicholas, Jr., 4,381,155, Cl. 400-220.100.
C. Van der Lely N.V.: *See—*
van der Lely, Ary; and Bom, Cornelis J. G., 4,381,080, Cl. 239-666.000.
Caffaro S.p.A.: *See—*
Pontoglio, Enrico, 4,381,392, Cl. 528-493.000.
Calandrino, Peter M. Transverse mode converter for use with a longitudinal mode oscillographic recorder. 4,381,514, Cl. 346-110.00R.
Camardella, Giuseppe, to Tekma Kinomat S.p.A. Coil winding machine. 4,380,919, Cl. 72-132.000.
Cameron Iron Works, Inc.: *See—*
Gardner, Richard E., 4,380,939, Cl. 74-813.00L.
Vanderford, Delbert E., Jr., 4,381,114, Cl. 277-34.600.
Cane, David A.: *See—*
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Senuma, Michio; and Shibuya, Jun, 4,380,857, Cl. 29-417.000.
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Isaka, Kazuo; Nakahata, Kimio; Sakurai, Masaaki; Watanabe, Tsuyoshi; Kan, Fumitaka; and Takeda, Kenji, 4,380,966, Cl. 118-651.000.
Momiyama, Kikuo; and Kumazawa, Kenichi, 4,381,145, Cl. 354-155.000.
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Suzuki, Kiyoshi, 4,381,338, Cl. 430-135.000.
Cantwell, Hugh F., to Rolls-Royce Limited. Fuel control system for a gas turbine engine. 4,380,898, Cl. 60-243.000.
Cappelli, John R., to United States of America, Air Force. Pulsed radiation dosimetry apparatus. 4,381,450, Cl. 250-370.000.
Caradonna, Charles. Golf iron washer. 4,380,839, Cl. 15-104.920.
Carbol, Vlastimil, to Oy Partek AB. Fibre glass composition. 4,381,347, Cl. 501-36.000.
Cargill, N. Allen; and Bunten, Theodore M., to Thermonic Corp. Microprocessor based controller for heating system. 4,381,075, Cl. 237-8.00R.
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Eisenhauer, Virgil E., 4,381,531, Cl. 361-87.000.
Carron, Mark S.; and McCarthy, Desmond C., to Stauffer Chemical Company. Process for drying and compressing chlorine gas. 4,381,190, Cl. 55-30.000.
Carter, Ernest A., to Motorola, Inc. Analog to digital converter. 4,381,496, Cl. 340-347.0AD.
Carver, Robert G., to Don Coburn, Inc. Display carriers for articles. 4,381,057, Cl. 206-434.000.
Casagrande, Cesare; and Ferrari, Giorgio, to Simes S.p.A. Ethylenediamine derivatives and pharmaceutical compositions containing same. 4,381,305, Cl. 424-263.000.
Cassella Aktiengesellschaft: *See—*
Buhler, Ulrich; Cornelius, Dieter; Lowenfeld, Rudolf; Kosubek, Uwe; Hahnle, Reinhard; and Schickfluss, Rudolf, 4,381,262, Cl. 260-207.100.
Catelli, Camillo, to Ing, Rossi & Catelli di Catelli & C. S.n.C. Feeding device for pre-sterilized objects contained in internally sterile receptacles, for sterile packing plants. 4,381,067, Cl. 222-450.000.
Cecil, John, Jr.: *See—*
Kieffer, Joseph D., III; Cecil, John, Jr.; and Conroe, Barden A., 4,380,998, Cl. 128-9.000.
Cerny, Daryl D.; and Diebolt, Edwin J., to Ball Corporation. Non-paneling container. 4,381,061, Cl. 215-1.00C.
Cesca, Sebastiano: *See—*
Ferraris, Giuseppe; and Cesca, Sebastiano, 4,381,381, Cl. 526-75.000.
Champion International Corporation: *See—*
Golden, Ronald, 4,381,120, Cl. 282-27.500.
Chang, Mike S. H., to Pitney Bowes Inc. Polyester adhesive layer for photosensitive elements. 4,381,337, Cl. 430-58.000.
Chapple, Paul M., to Cummins Engine Company, Inc. Casting for a turbine wheel. 4,381,171, Cl. 415-204.000.
Chaussadas, Jean; Coudoin, Gisele; Martin, Claude; and Milliens, Andre, to Mead Corporation, The. Materials for forming composite packages and method of producing such packages. 4,381,058, Cl. 206-497.000.
Cheal, William E.; Gupta, Gokal C.; Sepahmansour, Faramarz; and Aggarwal, Avnish K., to Northern Telecom Limited. Subscriber loop system for voice and data. 4,381,427, Cl. 179-2.0DP.
Chemische Werke Huels, AG: *See—*
Kampf, Wolfgang; Streck, Roland; and Haag, Horst-guenter, 4,381,377, Cl. 525-375.000.
Chen, Cheng L.; Goldstein, Norman P.; and Todt, William H., to Westinghouse Electric Corp. Core self-powered radiation detector for determining thermal and epithermal flux. 4,381,451, Cl. 250-390.000.
Chen, Paul Y.; and Marvel, Carl S., to United States of America, Air Force. Interfacial process for preparing polyaromatic esters. 4,381,391, Cl. 528-173.000.
Chevron Research Company: *See—*
Sung, Harry M., 4,380,909, Cl. 62-79.000.
Chi, Chang W.: *See—*
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Chibata, Ichiro; Tosa, Tetsuya; Sato, Tadashi; Watanabe, Taizo; and Minobe, Satoshi, to Tanabe Seiyaku Co., Ltd. Method for reducing the pyrogen content of or removing pyrogens from substances contaminated therewith. 4,381,239, Cl. 210-679.000.
Chicopee: *See—*
Kelly, William G. F., 4,381,326, Cl. 428-134.000.
Chrisp, David: *See—*
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Christie, Ian R. A.; Croxall, Derek F.; and Isherwood, Brian J., to General Electric Company Limited, The. Process for growing crystals. 4,381,214, Cl. 456-623.00Q.
Chrysler Corporation: *See—*
Perry, John J., 4,381,042, Cl. 180-272.000.

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Ciba-Geigy Corporation: *See*—
Garner, Robert; and Whitehead, Michael J., 4,381,266, Cl. 260-546.000.
Citri, Nathan, to Teva Pharmaceutical Industries Ltd.; and Yissum Research Development Co. Determination of antibacterial agents. 4,381,343, Cl. 435-24.000.
Clark, Richard A.: *See*—
Kouns, Herbert H.; and Clark, Richard A., 4,381,176, Cl. 417-222.000.
Clegg, Warren P. Solenoid-actuated centrifugal pump and method. 4,381,181, Cl. 417-423.00R.
Clough, Douglas O.: *See*—
Parker, Alan; Dickinson, Peter J.; Clough, Douglas O.; and Farnhill, William M., 4,380,892, Cl. 57-401.000.
Coatings for Industry, Inc.: *See*—
Lowe, Jean C.; Klotz, James M.; and Collins, Glenn A., Jr., deceased, 4,381,323, Cl. 427-383.700.
Coats, Warren D.; and Kamerling, Marc A., to Tektronix, Inc. Electromagnetic shield for electronic equipment. 4,381,421, Cl. 174-35.00R.
Coburn, Edwin H. Hand operated steak tenderizer and cuber. 4,380,850, Cl. 17-29.000.
Coffee, Ronald A., to Imperial Chemical Industries PLC. Atomization of liquids. 4,381,533, Cl. 361-228.000.
Collins, Glenn A., Jr., deceased: *See*—
Lowe, Jean C.; Klotz, James M.; and Collins, Glenn A., Jr., deceased, 4,381,323, Cl. 427-383.700.
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Wilkinson, James H.; and Collins, Mark C., 4,381,519, Cl. 358-21.00R.
Collins, William J. Sampler for a hot liquid. 4,380,937, Cl. 73-864.560.
Combustion Engineering, Inc.: *See*—
Madewell, George R., 4,381,440, Cl. 219-62.000.
Sullivan, Robert P.; and Jacobs, Clyde L., 4,380,843, Cl. 15-316.00R.
Commons, Thomas J.: *See*—
Sheehan, John C.; and Commons, Thomas J., 4,381,300, Cl. 424-246.000.
Compagnie Europeenne pour l'Equipement Menager "CEPEM": *See*—
Gernez, Alain, 4,381,018, Cl. 137-592.000.
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Knell, Bernhard, 4,381,030, Cl. 164-446.000.
Conoco Inc.: *See*—
Dodd, John R., 4,381,413, Cl. 568-716.000.
Doerr, Richard E.; Dahl, Hilbert D.; and Umphrey, Ronald W., 4,381,161, Cl. 406-109.000.
Conrad, Earl: *See*—
Jones, W. Richard; and Conrad, Earl, 4,380,952, Cl. 98-59.000.
Conroe, Barden A.: *See*—
Kieffer, Joseph D., III; Cecil, John, Jr.; and Conroe, Barden A., 4,380,998, Cl. 128-9.000.
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Coop, Jeffrey W., Sr.; and Coop, Jeffrey W., Jr., 4,380,920, Cl. 72-158.000.
Coop, Jeffrey W., Sr.; and Coop, Jeffrey W., Jr. Adjustable wiper die for bending tubular members. 4,380,920, Cl. 72-158.000.
Cooper Industries, Inc.: *See*—
Ford, James A.; and Haarer, Steven R., 4,381,029, Cl. 160-172.000.
Lovrenich, Rodger T., 4,381,133, Cl. 339-198.00R.
Corna, John F.; and Blais, Marcel H., to Statewide Pools, Inc. Method and apparatus for controlling the flow in swimming pool gutters. 4,380,837, Cl. 4-510.000.
Corneil, Dennis J.: *See*—
Waldhauser, Steven A.; and Corneil, Dennis J., 4,380,844, Cl. 15-320.000.
Cornelius, Dieter: *See*—
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Cotton, Curran D., to Maytag Company, The. Power-up circuit for microprocessor based appliance control. 4,381,459, Cl. 307-139.000.
Coudoin, Gisele: *See*—
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Coulson, Patricia B. Oral male contraceptive composition. 4,381,298, Cl. 424-240.000.
Countryman, Roger S., Jr.; and Lin, Paul T., to Motorola, Inc. Method of programming ROM by offset masking of selected gates. 4,380,866, Cl. 29-577.00C.
Courty, Philippe; Rabinovich, Georgy L.; Mojaiko, Victor N.; and LePage, Jean-Francois, to Institut Francais du Petrole. Process for dealkylating aromatic hydrocarbons in the presence of steam. 4,381,415, Cl. 585-487.000.
Cox, Bradley G., to Baker Perkins Inc. High pressure rotary centrifugal separator having apparatus for automatically cyclically reciprocating a corotating separator basket scraper. 4,381,236, Cl. 210-112.000.
Crabb, Richard V., Jr., to Growers Ice Company. Method and apparatus for chilling produce. 4,380,908, Cl. 62-64.000.
Craig, Stephen R.: *See*—
Biddle, Nicholas, III; and Craig, Stephen R., 4,381,545, Cl. 364-479.000.
Crain, Theron H. Circulating fuel heating system for internal combustion engines. 4,380,987, Cl. 123-558.000.
Cronkite, Michael O.; and Paquin, Patrick J., to Allied Corporation. Low crosstalk ribbon cable. 4,381,426, Cl. 174-117.00F.
Crossman, Richard L., to Goodyear Aerospace Corporation. Electrically actuated aircraft brakes. 4,381,049, Cl. 188-72.700.
Croxall, Derek F.: *See*—
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Cryoplants, Ltd.: *See*—
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Cuadra, Emilio J.: *See*—
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Cummins Engine Company, Inc.: *See*—
Chapple, Paul M., 4,381,171, Cl. 415-204.000.
Cuneo, Giuseppe, to Black & Decker Inc. Portable electric tool. 4,381,037, Cl. 173-170.000.
Cuomo, Jerome J.; and Harper, James M. E., to International Business Machines Corporation. System and method for deflecting and focusing a broad ion beam. 4,381,453, Cl. 250-398.000.
Curtis, Richard A., to United States of America, Army. Laser beam pointing aid. 4,381,150, Cl. 356-247.000.
Cusano, Dominic A., to General Electric Company. Solid state storage devices and systems. 4,381,474, Cl. 315-13.0ST.
Cushing, Donald S., to General Electric Company. Electromechanical timer with improved short interval accuracy. 4,381,432, Cl. 200-38.00B.
Cutchaw, John M. Apparatus for cooling high-density integrated circuit packages. 4,381,032, Cl. 165-46.000.
Cutler, Timothy D.: *See*—
Titus, Theodore, IV; and Cutler, Timothy D., 4,381,527, Cl. 360-92.000.
Cycles Peugeot: *See*—
Buchwalder, Jean-Pierre, 4,381,045, Cl. 181-265.000.
Dage, Richard C.: *See*—
Grisar, J. Martin; Schnettler, Richard A.; and Dage, Richard C., 4,381,393, Cl. 544-370.000.
Daghe, Joseph L.; Hauffe, William L.; and Terrill, Garrett D., to Mueller Co. Single and multiple section pipe repair or service clamps. 4,381,020, Cl. 138-99.000.
Dahl, Hilbert D.: *See*—
Doerr, Richard E.; Dahl, Hilbert D.; and Umphrey, Ronald W., 4,381,161, Cl. 406-109.000.
Daicel Chemical Industries, Ltd.: *See*—
Toga, Yuzo; Shimada, Toshio; and Komada, Hajime, 4,381,379, Cl. 525-444.000.
Daidotokushuko Kabushikikaisha: *See*—
Tanaka, Teruaki, 4,380,916, Cl. 72-7.000.
Daiichi Dentsu Kabushiki Kaisha: *See*—
Doniwa, Tabito, 4,381,482, Cl. 318-816.000.
Dallmann, Hermann; and Palmen, Hans J., to Hoechst Aktiengesellschaft. Thermoplastic film for use in the manufacture of forgery-resistant identification documents. 4,381,329, Cl. 428-204.000.
DAMP, S.p.A.: *See*—
Traini, Oscar, 4,381,422, Cl. 174-42.000.
D'Angelo, Kenneth R.: *See*—
Vosh, Lawrence J.; and D'Angelo, Kenneth R., 4,381,119, Cl. 282-11.50A.
Danilenko, Michael: *See*—
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Dannemann, Artur: *See*—
Linn, Karl-Otto; Jansche, Walter; Adolph, Dietrich; and Dannemann, Artur, 4,381,506, Cl. 340-870.320.
Danz, Rudi; Stark, Wolfgang; Elling, Burkhard; Ruscher, Christian; and Schwarz, Wolfgang, to Akademie der Wissenschaften der DDR. Process and arrangement for the polarization of shaped objects made from polymers. 4,381,534, Cl. 361-233.000.
Darmenton, Patrick: *See*—
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Das, Narayan; and Misra, Surya K., to National Can Corporation. Coated sheet material and container therefrom. 4,381,064, Cl. 220-458.000.
Das, Pankaj K., to United States of America, Air Force. Method for providing in-situ non-destructive monitoring of semiconductors during laser annealing process. 4,380,864, Cl. 29-574.000.
Davidson, Donald R.: *See*—
Reinert, Gerhard; and Davidson, Donald R., 4,380,961, Cl. 112-231.000.
Davies, David O.; and Sherwood, Michael, to Rolls-Royce Limited. Reheat systems for gas turbine engines. 4,380,899, Cl. 60-261.000.
Davis, Roy A. Combustion engines. 4,380,970, Cl. 123-3.000.
Dawson, Daniel J.: *See*—
Swanson, Sally A.; Weinshenker, Ned M.; Wingard, Robert E., Jr.; and Dawson, Daniel J., 4,381,185, Cl. 8-506.000.
Dayco Corporation: *See*—
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Daystrom Limited: *See*—
Riech, Volker; and Sorgenicht, Dietrich, 4,381,152, Cl. 356-385.000.
De La Rue Systems Limited: *See*—
Jenkins, Stuart M.; Wood, John; and Martin, David, 4,381,445, Cl. 235-379.000.
Deckman, Harry W.; Halpern, Gerald M.; and Dunsmuir, John G., to University of Rochester. Method for filling hollow shells with gas for use as laser fusion targets. 4,380,855, Cl. 29-407.000.

Deere & Company: *See*—
Baty, Mark A., 4,381,167, Cl. 414-697.000.
Hamm, Nicholas, 4,380,853, Cl. 29-148.300.
DeLaurentis, Angelo A., to Westinghouse Electric Corp. Method of curing a non-metallic band. 4,381,209, Cl. 156-162.000.
Del Bon, Franco. Hand-held device for the local heat-treatment of the skin. 4,381,009, Cl. 128-399.000.
Delfino, Nicholas A. Ceramic belt buckle and the method of making. 4,381,098, Cl. 249-94.000.
DelliColli, Humbert T.; McPartland, Thomas F.; and Bauer, Walter A., to Westvaco Corporation. Alkali lignin based pesticide phytotoxicity reducing composition. 4,381,194, Cl. 71-65.000.
DeLong, Ronald B.; and Schettl, Alvin J., to White Consolidated Industries, Inc. Range surface unit receptacle. 4,381,444, Cl. 219-451.000.
Demnianiuk, Eugene F., to Burroughs Corporation. Levered system connector for an integrated circuit package. 4,381,131, Cl. 339-75.00M.
Dennison Manufacturing Company: *See*—
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Nechay, Jacek A., 4,381,211, Cl. 156-361.000.
Desmarais, Patrizia R.; and DiTroia, Anthony J., to Western Electric Company, Inc. Methods of and apparatus for trimming film resistors. 4,381,441, Cl. 219-121.0LJ.
Dextec Metallurgical Pty. Ltd.: *See*—
Everett, Peter K., 4,381,225, Cl. 204-117.000.
Diamond Shamrock Corporation: *See*—
Hardee, Kenneth L.; Gordon, Arnold Z.; Pyle, Charles B.; and Sen, Rajat K., 4,381,290, Cl. 423-478.000.
Dickinson, Lawrence C. Roller burnishing tool. 4,380,851, Cl. 29-90.00R.
Dickinson, Norman L. Pollution-free low temperature slurry combustion process utilizing the super-critical state. 4,380,960, Cl. 110-347.000.
Dickinson, Peter J.: *See*—
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Diebolt, Edwin J.: *See*—
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Diem, Fritz: *See*—
Brossmann, Gottfried; and Diem, Fritz, 4,381,222, Cl. 203-33.000.
Dierberger, James A., to United Technologies Corporation. Combustion liner cooling scheme. 4,380,906, Cl. 60-757.000.
Diesel Kiki Co., Ltd.: *See*—
Hara, Toshizo; Sutoh, Shinji; and Kojima, Toshio, 4,381,480, Cl. 318-471.000.
Digital Equipment Corporation: *See*—
Binder, Paul; and Cane, David A., 4,381,542, Cl. 364-200.000.
Dion, Warren E., to Arthur G. Russell Company, Incorporated, The. System for displaying alphanumerical messages having stored and real time components. 4,381,505, Cl. 340-756.000.
DiTroia, Anthony J.: *See*—
Desmarais, Patrizia R.; and DiTroia, Anthony J., 4,381,441, Cl. 219-121.0LJ.
Dr. Karl Thomae GmbH: *See*—
Schmidt, Gunther; Engel, Wolfhard; Eberlein, Wolfgang; Trummlitz, Gunter; and Engelhardt, Gunther, 4,381,303, Cl. 424-252.000.
Dodd, John R., to Conoco Inc. Process for converting anisoles to ortho-methylated phenolic products. 4,381,413, Cl. 568-716.000.
Doerr, Richard E.; Dahl, Hilbert D.; and Umphrey, Ronald W., to Conoco Inc. Slurry recovery from a circular sump. 4,381,161, Cl. 406-109.000.
Don Coburn, Inc.: *See*—
Carver, Robert G., 4,381,057, Cl. 206-434.000.
Doniwa, Tabito, to Daiichi Dentsu Kabushiki Kaisha. Single-phase, reversible induction motor. 4,381,482, Cl. 318-816.000.
Donohue, John A., to Standard Oil Company (Indiana). Process for electrochemical reduction of terephthalic acid. 4,381,229, Cl. 204-75.000.
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Nakamoto, Koichiro; Ishii, Kiyokazu; and Ohyama, Nobumi, 4,380,924, Cl. 73-19.000.
Doss, James D., to United States of America, Energy. Multipolar corneal-shaping electrode with flexible removable skirt. 4,381,007, Cl. 128-303.100.
Douglas, Robin S.; and Sweeney, John M. Cleaning fluid distribution head. 4,381,016, Cl. 134-170.000.
Dow Chemical Company, The: *See*—
Burney, Harry S., Jr.; and Gantt, Gary R., 4,381,230, Cl. 204-98.000.
Lee, John M.; and Bauman, William C., 4,381,349, Cl. 521-28.000.
Poindexter, Graham S., 4,381,401, Cl. 556-410.000.
Shipley, Randall S., 4,381,253, Cl. 252-431.00C.
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Dow Corning Corporation: *See*—
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Dreier, Raymond C. Hack saw. 4,381,024, Cl. 145-33.00R.
Dreikorn, Barry A.; and Kramer, Kenneth E., to Eli Lilly and Company. 2,4,6-Trinitrodiphenylamines for control of foliar phytopathogens. 4,381,312, Cl. 424-304.000.
Drevet, Michel P.; and Trouillet, Jean, to Jeumont Schneider Corporation. Hydrostatic bearing with rotating sleeve. 4,381,126, Cl. 384-114.000.
Driver, Michael C.: *See*—
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DuBois, Grant E., to Dynapol. Steviol compounds. 4,381,402, Cl. 560-6.000.
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Duncan, Lee G. Device for use in human copulation. 4,381,000, Cl. 128-79.000.
Dunsmuir, John G.: *See*—
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Du Pont de Nemours, E. I., and Company: *See*—
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Haber, Stephen B., 4,381,311, Cl. 424-275.000.
Harrell, Leon L., Jr., 4,381,375, Cl. 525-359.200.
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Irwin, Robert S., 4,381,389, Cl. 528-128.000.
Khan, Ausat A., 4,381,384, Cl. 526-206.000.
Loving, Frank A., Jr.; and Simmons, Walter J., 4,380,948, Cl. 86-20.00C.
Dupuy, Stanley T. Game apparatus. 4,381,112, Cl. 273-239.000.
Durant, Graham J.: *See*—
Teraji, Tsutomu; Nakai, Yoshiharu; and Durant, Graham J., 4,381,395, Cl. 548-342.000.
Durboraw, Isaac N., III, to Motorola Inc. Clutter compensated sidelobe cancelling communications system. 4,381,508, Cl. 343-100.0LE.
Dutcher, Robert G., to Medtronic, Inc. "J" Stylet wire. 4,381,013, Cl. 128-785.000.
Dutcher, Robert G.: *See*—
Sandstrom, Richard D.; Dutcher, Robert G.; and Ufford, Keith A., 4,381,014, Cl. 128-786.000.
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Swanson, Sally A.; Weinshenker, Ned M.; Wingard, Robert E., Jr.; and Dawson, Daniel J., 4,381,185, Cl. 8-506.000.
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Gillich, Thomas N.; and Walls, John E., to American Hoechst Corporation. Electrochemical treatment of aluminum in non-aqueous polymeric polybasic organic acid containing electrolytes. 4,381,226, Cl. 204-14.00N.
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Crabb, Richard V., Jr., 4,380,908, Cl. 62-64.000.
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Goodale, Thomas C., 4,381,498, Cl. 340-347.0AD.
GTE Products Corporation: *See*—
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Beach, David L.; and Selwitz, Charles M., 4,381,414, Cl. 585-10.000.
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Hussin, Syed S.; Lipinski, Boguslaw; and Gurewich, Victor, 4,381,346, Cl. 435-215.000.
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Haarer, Steven R.: *See*—
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Gibson, Charles A.; Ahmed, Moinuddin; and Habenschuss, Michael, 4,381,223, Cl. 203-91.000.
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Bohl, Thomas L.; Hall, George R., Jr.; and Zimmerlin, Sharon L., 4,381,153, Cl. 356-437.000.
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Leistner, William E.; Minagawa, Motonobu; Tsuruga, Kouji; and Harada, Masashi, 4,381,360, Cl. 524-178.000.
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Cuomo, Jerome J.; and Harper, James M. E., 4,381,453, Cl. 250-398.000.
Harper, Raymond: *See*—
Barnes, Robert S.; and Harper, Raymond, 4,380,907, Cl. 62-52.000.
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Bolen, Charles E.; Harrington, Edward R.; Marzocchi, Alfred; and Roberts, Michael G., 4,381,200, Cl. 106-282.000.
Harsco Corporation: *See*—
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Hartkopf, Hans-Otto: *See*—
Gnest, Horst-Guenter; Granzow, Wolfgang-Dieter; Hartkopf, Hans-Otto; and Zillmer, Adalbert, 4,381,094, Cl. 246-182.00R.
Harvath, Rickie. Hair cutting guide. 4,381,015, Cl. 132-45.00R.
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Hasuo, Masayoshi; Suga, Yoshinori; Suzuki, Masatoshi; Goko, Nobuaki; and Nishihara, Yasuhiro, to Mitsubishi Chemical Industries Limited. Process for producing polyolefins. 4,381,383, Cl. 526-142.000.

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Daghe, Joseph L.; Hauffe, William L.; and Terrill, Garrett D., 4,381,020, Cl. 138-99.000.
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Hayes, Thomas, to Precision Valve Corporation. Continuous discharge aerosol actuator. 4,381,065, Cl. 222-153.000.
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Audeh, Costandi A.; Heilweil, Israel J.; White, James R.; and Yan, Tsoung Y., 4,381,234, Cl. 208-327.000.
Heinhuis, William H.: *See—*
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Heinrich Wunder GmbH & Co. KG: *See—*
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Bremus, Norbert; Dieckelmann, Gerhard; Jeromin, Lutz; Rupilius, Wolfgang; and Schutt, Hartwig, 4,381,407, Cl. 560-263.000.
Ritter, Wolfgang; and Gruber, Werner, 4,381,386, Cl. 526-239.000.
Struve, Alfred, 4,381,264, Cl. 260-405.600.
Henry, Francis W., Jr.; Anthonis, Henry E., III; and Banerjee, Subrata, to General Refractories Company. Resorcinol polymer bonded taphole mix and specialty materials. 4,381,355, Cl. 523-140.000.
Henry, Helen G.: *See—*
MacDonald, David J.; and Henry, Helen G., 4,381,287, Cl. 423-70.000.
Henwebcor, Incorporated: *See—*
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Herrin, Sam W., to Halliburton Company. Draft gear removal apparatus. 4,381,101, Cl. 254-9.00R.
Herriott, Donald M.: *See—*
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Hammond, Ogden H., III, 4,381,154, Cl. 374-43.000.
Hetrick, Robert E.: *See—*
Fate, William A.; and Hetrick, Robert E., 4,381,224, Cl. 204-1.00T.
Heusser, Jean; and Glasbrenner, Max, to Hommel AG. Phenylalkanoic compounds and therapeutic use thereof. 4,381,313, Cl. 424-308.000.
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Butler, Keith C., 4,381,512, Cl. 346-33.00R.
Leach, Jerry G.; and Fearnside, James T., 4,381,470, Cl. 310-327.000.
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Hi-Shear Corporation: *See—*
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Hickman, John E.: *See—*
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Hikiba, Masayuki: *See—*
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Hildebrandt, Darrell E., to W. R. Grace & Co. Method of producing binderless zeolite extrudates. 4,381,256, Cl. 252-455.00Z.
Hillman, Patrick E., to PPG Industries, Inc. Halogenation of butadiene polymers in mixed solvents. 4,381,374, Cl. 525-356.000.
Hilti Aktiengesellschaft: *See—*
Richter, Martin; and Erdt, Wolfgang, 4,380,991, Cl. 125-20.000.
Hinrichs, David K. Illusionary wheel cover structure. 4,381,537, Cl. 362-78.000.
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Hitachi Denshi Kabushiki Kaisha: *See—*
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Endoh, Satoru; Ikeda, Mamoru; Yabe, Minoru; Igarashi, Mitsuru; and Yamauchi, Masaaki, 4,381,473, Cl. 313-414.000.
Hotta, Masao; Maio, Kenji; Yokozawa, Norio; and Nagaishi, Hiromi, 4,381,495, Cl. 340-347.0DA.
Saijo, Takashige; Ikeda, Haruo; Nakamura, Kiyoshi; and Koike, Shigeyoshi, 4,381,478, Cl. 318-135.000.
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Elter, Claus; Kolodzey, Hans-Juergen; Schoening, Josef; Schwiers, Hans-Georg; and Stracke, Wilfried, 4,381,282, Cl. 376-292.000.
Hoechst Aktiengesellschaft: *See—*
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Holmquist, Howard W., to Georgia-Pacific Corporation. Drilling fluid containing a fluid loss control agent of a sulfonated phenol-formaldehyde-phenol resin. 4,381,369, Cl. 524-841.000.
Holstein, Edward. Device for selectively controlling the number of operative cylinders in multi-cylinder engines. 4,380,977, Cl. 123-198.00F.
Homma, Itomi; and Okada, Noriko, to Kao Soap Co., Ltd. Shampoo composition employing anionic phosphoric acid ester surfactant and cationic polymer. 4,381,259, Cl. 252-542.000.
Hommel AG: *See—*
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Honda Giken Kogyo Kabushiki Kaisha: *See—*
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Honeywell Inc.: *See—*
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Mott, Richard C.; and Stamm, Thomas A., 4,380,932, Cl. 73-749.000.
Hood, Larry M.; and West, Doy M., to Aztech International, Ltd. Multi-stage indirect-direct evaporative cooling process and apparatus. 4,380,910, Cl. 62-91.000.
Hoover Company, The: *See—*
Maurer, Edgar A., 4,380,846, Cl. 15-391.000.
Hopkins Manufacturing Corporation: *See—*
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Horeschi, Giancarlo: *See—*
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Horvath, Stephen J.; and Wilcox, Steven R., to Brandt, Inc. Method and apparatus for evaluating and sorting sheets in a high speed manner. 4,381,447, Cl. 250-223.00R.
Hosch, Ludwig; and Ittmann, Guenther, to Rohm GmbH. Method for covering ultraviolet sources. 4,381,136, Cl. 350-1.100.
Hosoi, Ryosuke. Drill having cutting edges with the greatest curvature at the central portion thereof. 4,381,162, Cl. 408-1.00R.
Hosokawa, Hirotami: *See—*
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Hotta, Masao; Maio, Kenji; Yokozawa, Norio; and Nagaishi, Hiromi, to Hitachi, Ltd. Digital-to-analog converter with error compensation. 4,381,495, Cl. 340-347.0DA.
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Howard, Frank D.: *See—*
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Hradel, Joseph R. Simultaneous recovery of thermal values and organic materials from solid carbonaceous fuels and waste disposal process. 4,381,035, Cl. 166-307.000.
Husain, Syed S.; Lipinski, Boguslaw; and Gurewich, Victor. Isolation of plasminogen activators useful as therapeutic and diagnostic agents. 4,381,346, Cl. 435-215.000.

Hueschen, Gordon W.: *See—*
Goff, Otis W.; and Goff, Melvin J., 4,381,105, Cl. 269-210.000.
Huff, Joel R.; King, Stella W.; and Saari, Walfred S., to Merck & Co., Inc. (6aα,10aα,11aα)-2-(2-Pyridinyl)-1,3,4,6,6a,7,8,9,10,10a,11,11a-dodecahydro-2H-pyrazino]1,2-b]isoquinoline and derivatives. 4,381,302, Cl. 424-250.000.
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Hurni, Samuel; and Weber, Hans R. Extruder apparatus. 4,381,184, Cl. 425-202.000.
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Hyodo, Youichi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Cable-type clutch release device for usually contacting-type clutch. 4,381,053, Cl. 192-111.00A.
Hyzak, Daniel L., to Stauffer Chemical Company. N-Methylcarbamoyloxy anilides as herbicide extenders. 4,381,195, Cl. 71-100.000.
Hyzak, Daniel L., to Stauffer Chemical Company. O-(Substituted phenyl) N-methylcarbamates as herbicide extenders. 4,381,196, Cl. 71-100.000.
I. W. Industries, Inc.: *See—*
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ICI Americas Inc.: *See—*
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Iida, Yozo; and Nakamura, Soichi, to Nippon Kogaku K.K. Optical finder system for a video camera. 4,381,521, Cl. 358-55.000.
Iijima, Tetsuya; and Takahashi, Seiichi, to Nissan Motor Company, Limited. Air-conditioning method and system for an automotive vehicle. 4,381,074, Cl. 236-13.000.
Ikeda, Haruo: *See—*
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Ikuma, Sadao, to Mitsubishi Monsanto Chemical Company. Heat resistant resin composition. 4,381,373, Cl. 525-194.000.
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Imperial Clevite Inc.: *See—*
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Industrial Wood Products, Inc.: *See—*
Bunner, Matthew R.; and Heinhuis, William H., 4,381,328, Cl. 428-171.000.
Ing, Rossi & Catelli di Catelli & C. S.n.C: *See—*
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Ingraffea, Dominic D., to James River-Dixie/Northern, Inc. Method for forming a coated paperboard container. 4,381,278, Cl. 264-512.000.
Inoue, Kazunari: *See—*
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Institut Textile de France: *See—*
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International Business Machines Corporation: *See—*
Arnold, Robert W., 4,381,532, Cl. 361-154.000.
Bahr, Dietrich J.; and Briska, Marian, 4,381,322, Cl. 427-179.000.
Bunten, Roland J., III; and Hickman, John E., 4,381,543, Cl. 364-200.000.
Cuomo, Jerome J.; and Harper, James M. E., 4,381,453, Cl. 250-398.000.
Groom, Jay L., Jr.; Perine, John D.; Snyder, John W.; and Vair, Gary G., 4,381,563, Cl. 371-29.000.
Lewis, David O.; and Reed, John W., 4,381,540, Cl. 364-200.000.
Prame, Eric S., 4,381,502, Cl. 340-365.00R.
Shay, Robert J. E.; and Smith, Wendell L., 4,381,524, Cl. 360-2.000.
International Flavors & Fragrances Inc.: *See—*
Boden, Richard M., 4,381,242, Cl. 252-8.600.
Boden, Richard M., 4,381,243, Cl. 252-8.900.
International Harvester Co.: *See—*
Fardal, Randolph G.; Robinson, Edward L., Jr.; and Swanson, William C., 4,381,036, Cl. 172-2.000.
International Telephone and Telegraph Corporation: *See—*
Steensma, Peter D., 4,381,461, Cl. 307-529.000.
Treiber, Robert, 4,381,561, Cl. 370-24.000.
Ionics, Incorporated: *See—*
Brown, Douglas R., 4,381,232, Cl. 204-180.00P.
Irvin, William A. Electrical control mercury monometer. 4,380,933, Cl. 73-749.000.
Irwin, Robert S., to Du Pont de Nemours, E. I., and Company. Optically anisotropic melt forming copolyesters. 4,381,389, Cl. 528-128.000.
Isaka, Kazuo; Nakahata, Kimio; Sakurai, Masaaki; Watanabe, Tsuyoshi; Kan, Fumitaka; and Takeda, Kenji, to Canon Kabushiki Kaisha. Development apparatus. 4,380,966, Cl. 118-651.000.
Isbell, Benny. Cutter bar for rice combines. 4,380,889, Cl. 56-296.000.
Isherwood, Brian J.: *See—*
Christie, Ian R. A.; Croxall, Derek F.; and Isherwood, Brian J., 4,381,214, Cl. 456-623.00Q.
Ishiguro, Hirohisa: *See—*
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Ishihara, Shoichi: *See—*
Wada, Takahiro; Ishihara, Shoichi; and Yamamoto, Ryoichi, 4,381,245, Cl. 252-70.000.
Ishii, Hiromi: *See—*
Nagaoka, Yoshifumi; Morishima, Kanji; Ishii, Hiromi; and Bernard, Georges, 4,381,436, Cl. 200-148.00A.
Ishii, Kiyokazu: *See—*
Nakamoto, Koichiro; Ishii, Kiyokazu; and Ohyama, Nobumi, 4,380,924, Cl. 73-19.000.
Ishizuka, Takashi; Moriyama, Yasuhiro; and Nakamura, Masao, to Nitto Electric Industrial Co., Ltd. Process for producing polyimide tubes. 4,381,210, Cl. 156-195.000.
Isirov, Dmitry I.: *See—*
Leschinsky, Leonid K.; Gulakov, Sergei V.; Stepnov, Xenofont X.; Nosovsky, Boris I.; Bendrik, Valery G.; Dubinsky, Boris E.; Isirov, Dmitry I.; and Zelensky, Viktor E., 4,380,852, Cl. 29-121.200.
Isshiki, Tomiya; Yoshino, Hisashi; and Tsuyuki, Kaoru, to Mitsubishi Gas Chemical Company, Inc. Process for recovering a reaction product while preventing decomposition of the catalyst. 4,381,221, Cl. 203-6.000.
Itakura, Kensei: *See—*
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Itoh, Kunio: *See—*
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Tournier, Gilles F. A., 4,381,132, Cl. 339-99.00R.
ITT Industries, Inc.: *See—*
Ostwald, Fritz, 4,381,336, Cl. 428-614.000.
Struthoff, Holger, 4,381,499, Cl. 340-347.0DA.
Ittmann, Guenther: *See—*
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Iuchi, Munenori: *See—*
Oda, Ryoichi; and Iuchi, Munenori, 4,380,927, Cl. 73-146.000.
Iwaisako, Toshiyuki: *See—*
Yoshida, Koichi; Iwaisako, Toshiyuki; Masamoto, Junzo; Hamanaka, Katsuhiko; and Komaki, Hajime, 4,381,397, Cl. 549-368.000.
Iwasaki, Shinichiro, to Aisin Seiki Company, Limited. Rotational angle sensor. 4,380,928, Cl. 73-518.000.
Iwata, Hiroshi: *See—*
Yoshino, Tsunemi; and Iwata, Hiroshi, 4,381,146, Cl. 354-271.000.
Iwata, Masatoshi: *See—*
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Iwatsu, Hideo: *See—*
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Jackson, Richard R. Airway humidifier for the respiratory tract. 4,381,267, Cl. 261-104.000.
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Jakobsen, Kjell M.; and Nilsson, Claes T., to PLM Aktiebolag. Manufacture of articles by drawing and blow-moulding. 4,381,279, Cl. 264-522.000.
James, Harold S.: *See—*
Ayres, John W.; and James, Harold S., 4,380,873, Cl. 33-174.00P.
James, Mark C.; and Borushaski, Ronald G., to Allis-Chalmers Corporation. Clutch for belt drive with means for limiting start-up torque. 4,381,165, Cl. 414-526.000.
James River-Dixie/Northern, Inc.: *See—*
Ingraffea, Dominic D., 4,381,278, Cl. 264-512.000.
Jansche, Walter: *See—*
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January, Daniel B.: *See—*
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Japanese National Railways: *See—*
Saijo, Takashige; Ikeda, Haruo; Nakamura, Kiyoshi; and Koike, Shigeyoshi, 4,381,478, Cl. 318-135.000.
Jarrett, Robert B., to Motorola, Inc. Transistor current source. 4,381,484, Cl. 323-316.000.
Jasys, Vytautas J., to Pfizer Inc. Process for the preparation of penicillanic acid esters. 4,381,263, Cl. 260-239.100.
Javeri, Rupin J., to Motorola Inc. Ignition spark timing circuit. 4,380,980, Cl. 123-414.000.
Jebens, Robert W., to RCA Corporation. Optical focus sensor. 4,381,557, Cl. 369-45.000.
Jenkins, Stuart M.; Wood, John; and Martin, David, to De La Rue Systems Limited. Cash dispenser with reject dump means. 4,381,445, Cl. 235-379.000.
Jensen, Susan H.: *See—*
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Jeromin, Lutz: *See—*
Bremus, Norbert; Dieckelmann, Gerhard; Jeromin, Lutz; Rupilius, Wolfgang; and Schutt, Hartwig, 4,381,407, Cl. 560-263.000.
Jeumont Schneider Corporation: *See—*
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Jeunehomme, Michel L., to GCA Corporation. System for measuring trace moisture in a gaseous stream. 4,381,452, Cl. 250-392.000.
Johnson, James L., to McCreary Tire & Rubber Company. Non-sticking ply end turn-over bladder and method of manufacture thereof. 4,381,331, Cl. 428-224.000.
Johnson & Johnson: *See—*
Nguyen, Hien V., 4,381,320, Cl. 427-44.000.
Thomas, Joseph J.; and Sobel, Martin, 4,381,008, Cl. 604-265.000.
Johnson, Wayne S.; and Tangherlini, Vincent C., to Beckman Instruments, Inc. Method and apparatus for separating a layer of flexible material from a surface. 4,381,168, Cl. 414-737.000.
Jonason, Karl G., to Granges Metallverken Aktiebolag. Assembly apparatus. 4,380,854, Cl. 29-157.30A.
Jones, Norman W.: *See—*
Reynolds, Paul D.; and Jones, Norman W., 4,381,215, Cl. 156-643.000.
Jones, W. Richard; and Conrad, Earl, to Mercury Metal Products. Cover assembly for vertical exhaust pipes. 4,380,952, Cl. 98-59.000.
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Kabushiki Kaisha Komatsu Seisakusho: *See—*
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Kabushiki Kaisha Orii Jidoki Seisakusho: *See—*
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Kabuto, Masami: *See—*
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Kadota, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Charge-coupled device having a channel and an electrode for changing a transfer direction of charge signals. 4,381,516, Cl. 357-24.000.
Kahn, William M.: *See—*
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Kai, Isao; Hosokawa, Hirotami; and Oda, Takayuki, to Asahi Yukizai Kogyo Co., Ltd. Resin coated sand and casting molds prepared therefrom. 4,381,354, Cl. 523-139.000.
Kaino, Toshikuni; Fujiki, Michiya; Nara, Shigeo; and Oikawa, Shigeru, to Nippon Telegraph & Telephone Public Corporation. Fabrication of a low-loss plastic optical fiber. 4,381,269, Cl. 264-1.500.
Kamatani, Toshio; Ishiguro, Hirohisa; Itakura, Kensei; and Yamagishi, Kazuo, to Nippon Kokan Kabushiki Kaisha. Blue colored artificial stone stocks and method of manufacturing the same. 4,381,348, Cl. 501-153.000.
Kamerling, Marc A.: *See—*
Coats, Warren D.; and Kamerling, Marc A., 4,381,421, Cl. 174-35.00R.
Kampf, Wolfgang; Streck, Roland; and Haag, Horst-guenter, to Chemische Werke Huels, AG. Homo- or copolymers of 1,3-dienes carrying reactive silyl groups, their preparation and use. 4,381,377, Cl. 525-375.000.
Kan, Fumitaka: *See—*
Isaka, Kazuo; Nakahata, Kimio; Sakurai, Masaaki; Watanabe, Tsuyoshi; Kan, Fumitaka; and Takeda, Kenji, 4,380,966, Cl. 118-651.000.
Kane, Johji, to Matsushita Electric Industrial Co., Ltd. Electronic tuning antenna system. 4,381,566, Cl. 455-193.000.
Kanou, Ikuo; Yanagiuchi, Shigenobu; and Omori, Takuro, to Sharp Kabushiki Kaisha. Electronic translator. 4,381,551, Cl. 364-900.000.
Kao Soap Co., Ltd.: *See—*
Homma, Itomi; and Okada, Noriko, 4,381,259, Cl. 252-542.000.
Nakagawa, Yunosuke; and Aramatsu, Shoichiro, 4,381,247, Cl. 252-95.000.
Karanewsky, Donald S.; and Petrillo, Edward W., Jr., to E. R. Squibb & Sons, Inc. Substituted carbonyl phosphinyl-alkanoyl compounds. 4,381,297, Cl. 424-200.000.
Karl Mayer Testilmaschinenfabrik GmbH: *See—*
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Woodhull, Ivan D., Jr.; and Liedel, Thomas H., 4,381,033, Cl. 165-175.000.
Kasamura, Toshirou. Apparatus for forming plural images from a latent image. 4,381,147, Cl. 355-14.00R.
Katayama, Yoshihiko: *See—*
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Kato, Yoshifumi: *See—*
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Kehr, Dieter: *See—*
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Kelly, William G. F., to Chicopee. Reticulated themoplastic rubber products. 4,381,326, Cl. 428-134.000.
Kern, Nicholas T., to Westvaco Corporation. Apparatus for testing combustibility of wood pulp blow gases. 4,381,218, Cl. 162-252.000.
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Kessler, Erich; and Birken, Peter, to Akzona Incorporated. Process for the production of a multicomponent yarn composed of at least two synthetic polymer components. 4,381,274, Cl. 264-147.000.
Khan, Ausat A., to Du Pont de Nemours, E. I., and Company. Continuous polymerization process. 4,381,384, Cl. 526-206.000.
Khvoschinsky, Boris B.: *See—*
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Kieffer, Joseph D., III; Cecil, John, Jr.; and Conroe, Barden A., to Welch Allyn, Inc. Soft tip speculum. 4,380,998, Cl. 128-9.000.
Kikuchi, Yasubee, to Usui Kokusai Sangyo Kabushiki Kaisha. Temperature-sensitive fluid coupler. 4,381,051, Cl. 192-82.00T.
Kikuchi, Yoshimi: *See—*
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Killop, James T., to Anderson-Cook Inc. Thin-wall spline forming machine. 4,380,918, Cl. 72-88.000.
Kincaid, Herbert; and Wray, Michael L., to Eastern Company, The. Latch having a removable lock. 4,380,915, Cl. 70-224.000.
King, Patrick D., to Flo-Con Systems, Inc. Shroud support and method for shroud engagement with teeming valve. 4,381,102, Cl. 266-44.000.
King, Stella W.: *See—*
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Kirby, Robert A., to Exxon Production Research Co. Multiple chambered gas powered seismic source. 4,381,044, Cl. 181-118.000.
Kitayama, Minoru; and Odashima, Hisao, to Nippon Steel Corporation. Oxidation inhibitor. 4,381,251, Cl. 252-400.00R.
Kite, James M., to Auburn Manufacturing Co., Inc. Safety attachment for a front vehicle bumper. 4,381,122, Cl. 293-125.000.
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Klavestad, Osborne, to Olde Savannah Arms Company, The. High speed firing mechanism for single-trigger double-barreled firearm. 4,380,881, Cl. 42-42.00R.
Kleinewefers GmbH: *See—*
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Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*
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Klotz, James M.: *See—*
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Kluger, Edward W.; and Burchette, Joe T., to Milliken Research Corporation. Aromatic nitrile-containing compounds useful as dyestuff intermediates. 4,381,265, Cl. 260-465.00E.
Knedlik, Omar S., to Penmont Company, The. Faucet for frozen carbonated beverage machine. 4,381,099, Cl. 251-14.000.
Knell, Bernhard, to Concast AG. Dummy bar head for a steel continuous casting installation containing an open-ended mold. 4,381,030, Cl. 164-446.000.
Ko, Yoshimasa, to Nishikawa Rubber Co., Ltd. Door weather-strip. 4,381,115, Cl. 277-207.00R.
Kobashi, Mamoru, to Toyota Jidosha Kabushiki Kaisha. Ignition timing control method. 4,380,982, Cl. 123-416.000.

Kobashi, Mamoru; and Miyagi, Hideo, to Toyota Jidosha Kabushiki Kaisha. Ignition timing control apparatus. 4,380,983, Cl. 123-424.000.
Kobayashi, Shigeru, to Nittan Company, Limited. Combination type fire detector. 4,381,503, Cl. 340-584.000.
Kobe, Inc.: *See*—
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Kodama, Yutaka: *See*—
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Koike, Shigeyoshi: *See*—
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Kolesar, Robert R.; Rickard, John T.; and Zeidler, James R., to United States of America, Navy. Adaptive quantizer for acoustic binary information transmission. 4,381,428, Cl. 179-15.55R.
Kolodzey, Hans-Juergen: *See*—
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Komori, Toshiyuki, to Tokyo Shibaura Denki Kabushiki Kaisha. Flame detector including detector testing apparatus. 4,381,455, Cl. 250-554.000.
Kondo, Masaru; Shiromizu, Hisaharu; and Ieda, Yoshio, to NGK Spark Plug Co., Ltd. Ceramic metallizing ink. 4,381,198, Cl. 106-1.120.
Kondo, Shigeyuki, to Nippon Electric Industries, Co., Ltd. Wound-tape radius detection system for a tape recorder. 4,381,089, Cl. 242-191.000.
Kondur, Nicholas, Jr., to C. Itoh Electronics, Inc. Inked ribbon advance and reverse mechanism. 4,381,155, Cl. 400-220.100.
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Rautimo, Pertti V.; Pelto-Huikko, Raimo; and Ahlman, Esko A. O., 4,380,901, Cl. 60-418.000.
Koppe, Herbert; Mentrup, Anton; Renth, Ernst-Otto; Schromm, Kurt; Hoefke, Wolfgang; and Muacevic, Gojko, to Boehringer Ingelheim GmbH. 1-Aryloxy-2-hydroxy-3-((heterocyclic-substituted alkyl)-amino)-propanes and salts thereof. 4,381,309, Cl. 424-273.00B.
Koppers Company, Inc.: *See*—
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Koslow, Evan E.; and Batchelder, J. Samuel, to Koslow Technologies, Inc. Method of promoting water transport through soil. 4,380,886, Cl. 47-58.000.
Koslow Technologies, Inc.: *See*—
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Koster, Richard A.; and Hoffman, James S., to Harsco Corporation. Ammunition transfer sling and method of using. 4,381,164, Cl. 414-416.000.
Kosubek, Uwe: *See*—
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Kouns, Herbert H.; and Clark, Richard A., to Abex Corporation. Destroking start valve for variable displacement pump. 4,381,176, Cl. 417-222.000.
Kowal, Leonard J., to Imperial Clevite Inc. Tube bender construction. 4,380,922, Cl. 72-388.000.
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Kreck, Steven C. Outboard motor carrier for motor vehicle. 4,381,069, Cl. 224-42.440.
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Krenz, Horst M., to Zenith Radio Corporation. Grounded, multi-pin connector for shielded flat cable. 4,381,129, Cl. 339-14.00R.
Kress, Jack L.: *See*—
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Kubo, Hideyuki: *See*—
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Kubo, Kazuhiro: *See*—
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Kumazawa, Kenichi: *See*—
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Kung, Patrick C.; and Goldstein, Gideon, to Ortho Pharmaceutical Corporation. Monoclonal antibody to human helper T cells and methods of preparing same. 4,381,295, Cl. 424-85.000.
Kuppers, Frieder; Scherzinger, Bernhard; Assmus, Friedrich; and Flaig, Hans, to Gebruder Junghans GmbH. Control circuit for a stepping motor in battery-operated instruments. 4,381,481, Cl. 318-696.000.
Kuraray Co., Ltd.: *See*—
Kyo, Sunao; Renge, Tumoru; and Omura, Katsumi, 4,381,416, Cl. 585-606.000.
Kyo, Sunao; Renge, Tumoru; and Omura, Katsumi, to Kuraray Co., Ltd. Process for producing isoprene. 4,381,416, Cl. 585-606.000.
Kyowa Hakko Kogyo Co., Ltd.: *See*—
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Ladco Development Co., Inc.: *See*—
Wiles, James P., 4,381,457, Cl. 307-64.000.
Laenens, Werner, to Siemens Aktiengesellschaft. Magnetic central rotary coupling. 4,381,466, Cl. 310-103.000.
Lambert, Trevor, to Adams-Russell Co., Inc. Selective viewing. 4,381,522, Cl. 358-86.000.
Landem, Roy H., to Ridge Products, Inc. Fire escape ladder storage and deployment device. 4,381,046, Cl. 182-70.000.
Lang, Linton W.; and Stetson, Robert L., to Pacific Nuclear Fuels, Inc. Reactor and process for production of novel nuclear fuel. 4,381,281, Cl. 376-172.000.
Langbauer, Josef, to Heinrich Wunder GmbH & Co. KG. Device for securing surfboards or the like on the roof carriers of automotive vehicles. 4,381,070, Cl. 224-321.000.
Lanham, Dennie C., to Williams, Raymond M. Mouthplate for horses or the like. 4,380,888, Cl. 54-8.000.
Lanier Business Products, Inc.: *See*—
Titus, Theodore, IV; and Cutler, Timothy D., 4,381,527, Cl. 360-92.000.
Latsch, Reinhard; Schober, Heinz; Muller, Gerhard; and Bianchi, Valerio, to Robert Bosch GmbH. Method and apparatus for closed-loop control of the air number in a self-igniting internal combustion engine. 4,380,986, Cl. 123-489.000.
Lazar, Warren G. Composition for removing cyanoacrylate adhesives from surfaces. 4,381,248, Cl. 252-118.000.
Leach, Jerry G.; and Fearnside, James T., to Hewlett-Packard Company. Stratified particle absorber. 4,381,470, Cl. 310-327.000.
Leamy, Harry J.: *See*—
Frye, Robert C.; and Leamy, Harry J., 4,380,865, Cl. 29-576.00W.
Lear Siegler, Inc.: *See*—
Pareja, Ramon, 4,381,179, Cl. 417-273.000.
Le Blanc-Soreau, Annie: *See*—
Le Mehaute, Alain; Rouxel, Jean; and Le Blanc-Soreau, Annie, 4,381,258, Cl. 252-519.000.
Lechuga, Andrew R.: *See*—
Weiss, Samuel; and Lechuga, Andrew R., 4,381,288, Cl. 423-101.000.
Lee, John M.; and Bauman, William C., to Dow Chemical Company, The. Alumina compounds in ion exchange resins. 4,381,349, Cl. 521-28.000.
Lee, Kenneth S. Insulated structural block. 4,380,887, Cl. 52-405.000.
Lefebvre, Paul J.: *See*—
Sgourakes, George E.; and Lefebvre, Paul J., 4,380,935, Cl. 73-861.240.
Lehureau, Jean-Claude: *See*—
Bourdon, Guy; and Lehureau, Jean-Claude, 4,381,556, Cl. 369-44.000.
Leibo, Stanley P., to Rio Vista International, Inc. Embryo transfer method and apparatus. 4,380,997, Cl. 128-1.00R.
Leiser, Daniel B.: *See*—
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Leistner, William E.; Minagawa, Motonobu; Tsuruga, Kouji; and Harada, Masashi, to Phoenix Chemical Corporation. 1,3-Dicarbonyl compounds and polyvinyl halide resin compositions containing the same. 4,381,360, Cl. 524-178.000.
Leland Stanford Jr. University, The Board of Trustees of the: *See*—
Bieber, Charles P.; and Howard, Frank D., 4,381,292, Cl. 424-1.000.

Le Mehaute, Alain; Rouxel, Jean; and Le Blanc-Soreau, Annie, to Societe Anonyme dite Compagnie Generale d'Electricite. Electronic cell with a non-aqueous electrolyte. 4,381,258, Cl. 252-519.000.
Leonard, John F.: *See*—
Fritts, David H.; and Leonard, John F., 4,380,926, Cl. 73-83.000.
Leong, Henry, to GTE Products Corporation. Weatherproof cover assembly for electrical wiring devices. 4,381,063, Cl. 220-242.000.
LePage, Jean-Francois: *See*—
Courty, Philippe; Rabinovich, Georgy L.; Mojaiko, Victor N.; and LePage, Jean-Francois, 4,381,415, Cl. 585-487.000.
Les Fabriques d'Assortiments Reunies: *See*—
Berney, Jean, 4,380,963, Cl. 116-324.000.
Leschinsky, Leonid K.; Gulakov, Sergei V.; Stepnov, Xenofont X.; Nosovsky, Boris I.; Bendrik, Valery G.; Dubinsky, Boris E.; Isirov, Dmitry I.; and Zelensky, Viktor E. Mill roll. 4,380,852, Cl. 29-121.200.
Leslie, Daniel H.: *See*—
Ulrich, Peter B.; Trusty, Gary L.; and Leslie, Daniel H., 4,381,148, Cl. 356-213.000.
LeVeen, Eric G.: *See*—
LeVeen, Harry H.; Rubricius, Jeanette L.; LeVeen, Eric G.; and LeVeen, Robert F., 4,381,380, Cl. 525-452.000.
LeVeen, Harry H.; Rubricius, Jeanette L.; LeVeen, Eric G.; and LeVeen, Robert F. Thermoplastic polyurethane article treated with iodine for antibacterial use. 4,381,380, Cl. 525-452.000.
LeVeen, Robert F.: *See*—
LeVeen, Harry H.; Rubricius, Jeanette L.; LeVeen, Eric G.; and LeVeen, Robert F., 4,381,380, Cl. 525-452.000.
Lewis, David O.; and Reed, John W., to International Business Machines Corporation. Asynchronous channel error mechanism. 4,381,540, Cl. 364-200.000.
Lichtblau, Leo: *See*—
Tholen, Paul; Lichtblau, Leo; Albers, Friedemann; and Esche, Dieter, 4,380,971, Cl. 123-41.310.
Liebermann, Howard H., to General Electric Company. Warm consolidation of glassy metallic alloy filaments. 4,381,197, Cl. 419-24.000.
Liedel, Thomas H.: *See*—
Woodhull, Ivan D., Jr.; and Liedel, Thomas H., 4,381,033, Cl. 165-175.000.
Lillis, William J.; Naylor, Jimmy R.; Wang, Anthony D.; and White, Robert L., to Burr-Brown Research Corporation. Digital-to-analog converter having open-loop voltage reference for regulating bit switch currents. 4,381,497, Cl. 340-347.0DA.
Lin, Paul T.: *See*—
Countryman, Roger S., Jr.; and Lin, Paul T., 4,380,866, Cl. 29-577.00C.
Linder, Ernst; Babitzka, Rudolf; Brettschneider, Johannes; Polach, Wilhelm; Wessel, Wolf; and Stumpp, Gerhard, to Robert Bosch GmbH. Apparatus for removing solid components from the exhaust gas of internal combustion engines, in particular soot components. 4,380,900, Cl. 60-275.000.
Lindtveit, Herbert E., to Sid Harvey, Inc. Pressure responsive valve. 4,381,019, Cl. 137-843.000.
Linn, Karl-Otto; Jansche, Walter; Adolph, Dietrich; and Dannemann, Artur, to Robert Bosch GmbH. Position-electrical signal transducer. 4,381,506, Cl. 340-870.320.
Lipinski, Boguslaw: *See*—
Huasin, Syed S.; Lipinski, Boguslaw; and Gurewich, Victor, 4,381,346, Cl. 435-215.000.
Loebach, Michael H., to Motter Printing Press Co. Collect cylinder for a rotary folder. 4,381,106, Cl. 270-47.000.
Loffelman, Frank F., to American Cyanamid Company. Polymers derived from 4-bis(carbalkoxyethyl)-phosphinoxy-2,2,6,6-tetramethylpiperidine. 4,381,372, Cl. 525-181.000.
Loving, Frank A., Jr.; and Simmons, Walter J., to Du Pont de Nemours, E. I., and Company. Loading of wellbores with explosives. 4,380,948, Cl. 86-20.00C.
Lovrenich, Rodger T., to Cooper Industries, Inc. Variable center distance terminal strip and method of making same. 4,381,133, Cl. 339-198.00R.
Lowe, Jean C.; Klotz, James M.; and Collins, Glenn A., Jr., deceased (by Lowe, Jean C., executrix), to Coatings for Industry, Inc. Low-temperature curing coating composition. 4,381,323, Cl. 427-383.700.
Lowe, Jean C., executrix: *See*—
Lowe, Jean C.; Klotz, James M.; and Collins, Glenn A., Jr., deceased, 4,381,323, Cl. 427-383.700.
Lowenfeld, Rudolf: *See*—
Buhler, Ulrich; Cornelius, Dieter; Lowenfeld, Rudolf; Kosubek, Uwe; Hahnle, Reinhard; and Schickfluss, Rudolf, 4,381,262, Cl. 260-207.100.
Lucas Industries Limited: *See*—
Baverstock, John R., 4,381,208, Cl. 156-52.000.
Broadwith, Brian E., 4,381,182, Cl. 417-435.000.
Wilson, Alexander J., 4,381,125, Cl. 303-116.000.
LuK Lamellen und Kupplungsbau GmbH: *See*—
Maucher, Paul, 4,381,052, Cl. 192-106.200.
Lutchansky, Milton. Conformable support system for furniture. 4,380,838, Cl. 5-66.000.
Lynch, Matthew J., to ICI Americas Inc. Maltitol containing gel base systems. 4,381,318, Cl. 426-658.000.
MacDonald, David J.; and Henry, Helen G., to United States of America, Interior. Separation of zirconium and uranium. 4,381,287, Cl. 423-70.000.
Machida, Toyotaka; Noda, Teruaki; and Ikemura, Yuichi, to Victor Company of Japan, Limited. Automatic white adjusting circuit for a television camera. 4,381,520, Cl. 358-29.000.
Madewell, George R., to Combustion Engineering, Inc. Control circuitry for producing variably rifled tubes. 4,381,440, Cl. 219-62.000.
Magic Novelty Co., Inc.: *See*—
Beier, Hanns W., 4,380,914, Cl. 70-456.00R.
Magni, Eugenio; and Pernetti, Claudio, to Snia Viscosa Societa' Nazionale Industria Applicazioni Viscosa SpA. Process for dyeing polyamidic textile materials, in particular high dyeing speed polyamides with acid dyes and alkaline reactants. 4,381,186, Cl. 8-620.000.
Maio, Kenji: *See*—
Hotta, Masao; Maio, Kenji; Yokozawa, Norio; and Nagaishi, Hiromi, 4,381,495, Cl. 340-347.0DA.
Makainai, Jesse K., Jr. Flare with improved starter cap. 4,380,957, Cl. 102-202.100.
Maliarik, Mary J.: *See*—
Rohrbach, Ronald P.; and Maliarik, Mary J., 4,381,345, Cl. 435-94.000.
Mallaghan, Lee, to Powerscreen Limited. Screening apparatus. 4,381,235, Cl. 209-400.000.
Mamiya Koki Kabushiki Kaisha: *See*—
Eguchi, Mitsuo; Yoshida, Masahito; Kato, Yoshifumi; Ichino, Nobuyuki; and Kikuchi, Yoshimi, 4,381,523, Cl. 358-227.000.
Mandt, Lawrence D.; Riedhammer, Thomas M.; and Smith, Francis X., to Bausch & Lomb Incorporated. Contact lens disinfecting and preserving solution. 4,381,314, Cl. 424-333.000.
Manitowoc Company, Inc., The: *See*—
Morrow, James G., Sr.; and Anderson, Michael C., 4,381,060, Cl. 212-195.000.
Marconi Co. Ltd., The: *See*—
Hair, Thomas; and Baxter, Ivor R., 4,381,149, Cl. 356-4.000.
Margotte, Dieter: *See*—
Idel, Karsten; Buysch, Hans-Josef; Margotte, Dieter; and Peters, Horst, 4,381,359, Cl. 524-117.000.
Maricevic, Milenko; Adamovic, Janko; and Maricevic, Zdravko. Universal joint box for telecommunication or power cables. 4,381,425, Cl. 174-93.000.
Maricevic, Zdravko: *See*—
Maricevic, Milenko; Adamovic, Janko; and Maricevic, Zdravko, 4,381,425, Cl. 174-93.000.
Maringer, Melvin F.: *See*—
Biggs, James W.; and Maringer, Melvin F., 4,381,362, Cl. 524-305.000.
Markley, Charles E.: *See*—
Bowers, Kenneth E.; and Markley, Charles E., 4,381,183, Cl. 425-182.000.
Marlin, Lawrence: *See*—
Chu, Nan S.; and Marlin, Lawrence, 4,381,260, Cl. 260-144.000.
Marsh, Harold P., to Eastman Kodak Company. Stabilized polypropylene compositions. 4,381,356, Cl. 523-521.000.
Martin, Claude: *See*—
Chaussadas, Jean; Coudoin, Gisele; Martin, Claude; and Milliens, Andre, 4,381,058, Cl. 206-497.000.
Martin, David: *See*—
Jenkins, Stuart M.; Wood, John; and Martin, David, 4,381,445, Cl. 235-379.000.
Martin Marietta Corporation: *See*—
Barker, Walter F., 4,381,092, Cl. 244-161.000.
Martino, Michael S., to United Technologies Corporation. Device for balancing disks. 4,380,925, Cl. 73-66.000.
Marvel, Carl S.: *See*—
Chen, Paul Y.; and Marvel, Carl S., 4,381,391, Cl. 528-173.000.
Marzocchi, Alfred: *See*—
Bolen, Charles E.; Harrington, Edward R.; Marzocchi, Alfred; and Roberts, Michael G., 4,381,200, Cl. 106-282.000.
Masamoto, Junzo: *See*—
Yoshida, Koichi; Iwaisako, Toshiyuki; Masamoto, Junzo; Hamanaka, Katsuhiko; and Komaki, Hajime, 4,381,397, Cl. 549-368.000.
Mason, Robert S. Visual display system. 4,381,493, Cl. 340-27.00R.
Massachusetts Institute of Technology: *See*—
Sheehan, John C.; and Commons, Thomas J., 4,381,300, Cl. 424-246.000.
Masuda, Yutaka; Kiyomura, Yoshiteru; and Nishizakura, Koichi, to Toray Industries, Inc. Liquid retaining synthetic fiber, process for producing the same, and products. 4,381,325, Cl. 428-91.000.
Matsubara, Akira: *See*—
Abe, Katsuo; Nishio, Masahiro; and Matsubara, Akira, 4,380,964, Cl. 118-50.000.
Matsui, Makoto, to Aida Engineering Ltd. Roll leveller. 4,380,921, Cl. 72-165.000.
Matsumoto, Masao: *See*—
Shirakawa, Kenzo; Matsumoto, Masao; and Yasunaka, Shinsaku, 4,380,869, Cl. 30-34.100.
Matsumoto, Takashi: *See*—
Mori, Haruhisa; Ogawa, Tsutomu; and Matsumoto, Takashi, 4,381,202, Cl. 148-1.500.
Matsumoto, Tetsuo; and Okumura, Akira, to Atto Corporation. Method and device for separately collecting components of a liquid by means of a centrifugal rotor. 4,381,072, Cl. 494-10.000.
Matsushita Electric Industrial Co., Ltd.: *See*—
Kadota, Hiroshi, 4,381,516, Cl. 357-24.000.
Kane, Johji, 4,381,566, Cl. 455-193.000.
Senoo, Takanori; Takeguchi, Nobuyasu; and Nomura, Kazuo, 4,381,525, Cl. 360-32.000.
Sugino, Takashi; and Itoh, Kunio, 4,380,861, Cl. 29-569.00L.
Urata, Yoshihito; Kubo, Hideyuki; and Sasaki, Toshiharu, 4,381,500, Cl. 340-365.0VL.

Wada, Takahiro; Ishihara, Shoichi; and Yamamoto, Ryoichi, 4,381,245, Cl. 252-70.000.
Matsushita Electric Works, Ltd.: *See*—
Sakurai, Shoji, 4,381,539, Cl. 362-285.000.
Shirakawa, Kenzo; Matsumoto, Masao; and Yasunaka, Shinsaku, 4,380,869, Cl. 30-34.100.
Matt, Timothy S., to Nordson Corporation. System for automatically coating objects with a plurality of quantities of a coating material using a single discharge apparatus. 4,380,967, Cl. 118-669.000.
Matthews, Hugh B., to Sperry Corporation. Enthalpy restoration in geothermal energy processing system. 4,380,903, Cl. 60-641.400.
Maucher, Paul, to LuK Lamellen und Kupplungsbau GmbH. Clutch disk assembly. 4,381,052, Cl. 192-106.200.
Maurer, Edgar A., to Hoover Company, The. Idler pulley belt drive arrangement for suction cleaner. 4,380,846, Cl. 15-391.000.
Maurer, Fritz: *See*—
Fuchs, Rainer; Maurer, Fritz; Priesnitz, Uwe; Riebel, Hans-Jochem; and Klauke, Erich, 4,381,412, Cl. 568-637.000.
Maxant, William T. Clamping device. 4,381,238, Cl. 210-231.000.
Mayer, Linda J.: *See*—
Teichmann, Robert J.; and Mayer, Linda J., 4,381,228, Cl. 204-44.000.
Mayline Co., Inc.: *See*—
Kritske, Victor J., 4,381,095, Cl. 248-161.000.
Maynard, Bruce W., Jr.; and Webber, William T., to Rockwell International Corporation. Electrostatic diesel fuel injector. 4,380,978, Cl. 123-275.000.
Mayston, Donald, to Protocol Engineering Limited. Film punch registration. 4,380,946, Cl. 83-521.000.
Maytag Company, The: *See*—
Cotton, Curran D., 4,381,459, Cl. 307-139.000.
McBrayer, Robert L., to BASF Wyandotte Corporation. Process for reinforced reaction injection molding of polyurethanes. 4,381,352, Cl. 521-115.000.
McCarthy, Desmond C.: *See*—
Carron, Mark S.; and McCarthy, Desmond C., 4,381,190, Cl. 55-30.000.
McColgan, Christopher. Rear view mirror attachment. 4,381,142, Cl. 350-304.000.
McCoy, John J.: *See*—
Falcone, Samuel J.; and McCoy, John J., 4,381,403, Cl. 560-24.000.
McCraw, D. E., Jr.: *See*—
Parmer, Carl L., 4,381,507, Cl. 340-870.380.
McCreary Tire & Rubber Company: *See*—
Johnson, James L., 4,381,331, Cl. 428-224.000.
McDaniel, Kenneth G., to Texaco Inc. Sprayed polyurethane foams employing reactive amines to improve the foam surface. 4,381,353, Cl. 521-131.000.
McLaughlin, David G.; and Rose, Andrew M., to Memorex Corporation. Velocity control system for a data storage apparatus. 4,381,526, Cl. 360-78.000.
McPartland, Thomas F.: *See*—
DelliColli, Humbert T.; McPartland, Thomas F.; and Bauer, Walter A., 4,381,194, Cl. 71-65.000.
Mead Corporation, The: *See*—
Chaussadas, Jean; Coudoin, Gisele; Martin, Claude; and Milliens, Andre, 4,381,058, Cl. 206-497.000.
Mechanical Technology Incorporated: *See*—
Vitale, Nicholas G., 4,380,902, Cl. 60-520.000.
Medtronic, Inc.: *See*—
Dutcher, Robert G., 4,381,013, Cl. 128-785.000.
Sandstrom, Richard D.; Dutcher, Robert G.; and Ufford, Keith A., 4,381,014, Cl. 128-786.000.
Thompson, David L.; and Zobel, Donald W., 4,381,010, Cl. 128-419.0PG.
Medynski, Joseph M. Holy water font. 4,381,022, Cl. 141-86.000.
Memorex Corporation: *See*—
McLaughlin, David G.; and Rose, Andrew M., 4,381,526, Cl. 360-78.000.
Menachem, Abraham, to National Semiconductor Corporation. Bootstrap driver circuit. 4,381,460, Cl. 307-449.000.
Mengeringhausen, Max, to MERO-Raumstruktur GmbH & Co. Roof construction for buildings. 4,380,996, Cl. 126-450.000.
Mentrup, Anton: *See*—
Koppe, Herbert; Mentrup, Anton; Renth, Ernst-Otto; Schromm, Kurt; Hoefke, Wolfgang; and Muacevic, Gojko, 4,381,309, Cl. 424-273.00B.
Merck & Co., Inc.: *See*—
Huff, Joel R.; King, Stella W.; and Saari, Walfred S., 4,381,302, Cl. 424-250.000.
Sloan, Kenneth B., 4,381,307, Cl. 424-271.000.
Mercury Metal Products: *See*—
Jones, W. Richard; and Conrad, Earl, 4,380,952, Cl. 98-59.000.
MERO-Raumstruktur GmbH & Co.: *See*—
Mengeringhausen, Max, 4,380,996, Cl. 126-450.000.
Merrell Dow Pharmaceuticals Inc.: *See*—
Grisar, J. Martin; Schnettler, Richard A.; and Dage, Richard C., 4,381,393, Cl. 544-370.000.
Merrill, Marcellus S.: *See*—
Erickson, Lowell H.; Merrill, Marcellus S.; and Chrisp, David, 4,380,875, Cl. 33-203.130.
Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung: *See*—
Bissinger, Norbert, 4,381,017, Cl. 137-15.100.
Meunier, Gilles F.: *See*—
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Michael, Dietrich: *See*—
Sanderson, John R.; Binsack, Rudolf; Michael, Dietrich; and Bonten, Heinrich, 4,381,366, Cl. 524-504.000.
Michel, George H. Shaving composition. 4,381,293, Cl. 424-14.000.
Microdot Inc.: *See*—
Witte, Erwin C.; and Myers, William D., 4,381,163, Cl. 411-311.000.
Mietzsch, Fritz: *See*—
Hardt, Dietrich K. A., deceased; Mietzsch, Fritz; and Billinger, Otto, 4,381,361, Cl. 524-265.000.
Miller, Jonathan O.; Strouse, Kerry E.; and Fegan, Richard M., to Shop-Vac Corporation. Nozzle for hand-held vacuum. 4,380,845, Cl. 15-344.000.
Milliens, Andre: *See*—
Chaussadas, Jean; Coudoin, Gisele; Martin, Claude; and Milliens, Andre, 4,381,058, Cl. 206-497.000.
Milliken Research Corporation: *See*—
Brown, Robert S., 4,381,157, Cl. 401-21.000.
Kluger, Edward W.; and Burchette, Joe T., 4,381,265, Cl. 260-465.00E.
Stewart, William H., Jr., 4,380,890, Cl. 57-286.000.
Minagawa, Motonobu: *See*—
Leistner, William E.; Minagawa, Motonobu; Tsuruga, Kouji; and Harada, Masashi, 4,381,360, Cl. 524-178.000.
Ministry of International Trade & Industry: *See*—
Sakuragi, Shiro; and Kotani, Haruo, 4,381,141, Cl. 350-96.340.
Minnesota Mining and Manufacturing Company: *See*—
Hervig, Harold C.; Kehr, Dieter; and Krabs, Raymond, 4,381,424, Cl. 174-73.00R.
Vogelgesang, Peter J., 4,381,491, Cl. 335-257.000.
Minobe, Satoshi: *See*—
Chibata, Ichiro; Tosa, Tetsuya; Sato, Tadashi; Watanabe, Taizo; and Minobe, Satoshi, 4,381,239, Cl. 210-679.000.
Mishiba, Saburo; Hyoda, Junkoh; Uchida, Akira; Usami, Hisao; and Watanabe, Akira, to Sumitomo Naugatuck Co., Ltd. Copolymer latex and its production. 4,381,365, Cl. 524-460.000.
Misra, Surya K.: *See*—
Das, Narayan; and Misra, Surya K., 4,381,064, Cl. 220-458.000.
Mitsubishi Chemical Industries Limited: *See*—
Hasuo, Masayoshi; Suga, Yoshinori; Suzuki, Masatoshi; Goko, Nobuaki; and Nishihara, Yasuhiro, 4,381,383, Cl. 526-142.000.
Mitsubishi Denki Kabushiki Kaisha: *See*—
Adachi, Hiromi; Inoue, Kazunari; and Ohshita, Hiroshi, 4,381,476, Cl. 315-101.000.
Okuda, Kuniteru; Fukami, Teruki; Asayama, Yoshiaki; Wada, Shunichi; and Kabuto, Masami, 4,380,934, Cl. 73-861.230.
Mitsubishi Gas Chemical Company, Inc.: *See*—
Isshiki, Tomiya; Yoshino, Hisashi; and Tsuyuki, Kaoru, 4,381,221, Cl. 203-6.000.
Mitsubishi Monsanto Chemical Company: *See*—
Ikuma, Sadao, 4,381,373, Cl. 525-194.000.
Mitsui Toatsu Chemicals, Incorporated: *See*—
Takeuchi, Koichi; and Miyata, Katsuharu, 4,381,405, Cl. 560-25.000.
Miyagi, Hideo: *See*—
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Miyata, Katsuharu: *See*—
Takeuchi, Koichi; and Miyata, Katsuharu, 4,381,405, Cl. 560-25.000.
Miyazawa, Susumu; and Fukuda, Norisuke, to Tokyo Shibaura Denki Kabushiki Kaisha. Self-controlled microwave oven. 4,381,439, Cl. 219-10.55B.
Mobay Chemical Corporation: *See*—
Schmidt, Manfred; and Bottenbruch, Ludwig, 4,381,390, Cl. 528-167.000.
Szabat, John F., 4,381,351, Cl. 521-107.000.
Mobil Oil Corporation: *See*—
Audeh, Costandi A.; Heilweil, Israel J.; White, James R.; and Yan, Tsoung Y., 4,381,234, Cl. 208-327.000.
Podhrasky, Julius; and Sprunt, Eve S., 4,380,930, Cl. 73-594.000.
Mohawk Data Science Corp.: *See*—
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Mojaiko, Victor N.: *See*—
Courty, Philippe; Rabinovich, Georgy L.; Mojaiko, Victor N.; and LePage, Jean-Francois, 4,381,415, Cl. 585-487.000.
Molen, James O.; and Molen, Stephen C. Tire inflation safety cage. 4,381,027, Cl. 157-1.000.
Molen, Stephen C.: *See*—
Molen, James O.; and Molen, Stephen C., 4,381,027, Cl. 157-1.000.
Molins Machine Company, Inc.: *See*—
Evans, Donald J., 4,380,943, Cl. 83-38.000.
Roberts, Webster C., 4,381,212, Cl. 156-473.000.
Momiyama, Kikuo; and Kumazawa, Kenichi, to Canon Kabushiki Kaisha. Single lens reflex camera. 4,381,145, Cl. 354-155.000.
Mon, George, to United States of America, Army. Fluidic-controlled oxygen intermittent demand flow device. 4,381,002, Cl. 128-204.240.
Monsanto Company: *See*—
Wrobleski, James T., 4,381,254, Cl. 252-437.000.
Moraca, Daniel A. Apparatus for and method of suspending a load. 4,381,097, Cl. 248-546.000.
Moran, Claude D. Pipe fitter's combination instrument. 4,380,872, Cl. 33-174.00N.

Morgan, Ronald E.; and Pearce, Thomas, to British Gas Corporation. No torque tool. 4,380,940, Cl. 81-57.160.
Mori, Haruhisa; Ogawa, Tsutomu; and Matsumoto, Takashi, to Fujitsu Limited. Selective epitaxy by beam energy and devices thereon. 4,381,202, Cl. 148-1.500.
Morishima, Kanji: *See—*
Nagaoka, Yoshifumi; Morishima, Kanji; Ishii, Hiromi; and Bernard, Georges, 4,381,436, Cl. 200-148.00A.
Moriyama, Yasuhiro: *See—*
Ishizuka, Takashi; Moriyama, Yasuhiro; and Nakamura, Masao, 4,381,210, Cl. 156-195.000.
Morizot, Jean P.; and Gerber, Rene, to Thomson - CSF. Variable coupling resistance delay line for crossed field tube. 4,381,475, Cl. 315-39.300.
Morrow, James G., Sr.; and Anderson, Michael C., to Manitowoc Company, Inc., The. Ring supported mobile tower crane. 4,381,060, Cl. 212-195.000.
Motorola, Inc.: *See—*
Carter, Ernest A., 4,381,496, Cl. 340-347.0AD.
Countryman, Roger S., Jr.; and Lin, Paul T., 4,380,866, Cl. 29-577.00C.
Durboraw, Isaac N., III, 4,381,508, Cl. 343-100.0LE.
Flowers, Dervin L.; and Thompson, Sylvia B., 4,381,213, Cl. 156-606.000.
Jarrett, Robert B., 4,381,484, Cl. 323-316.000.
Javeri, Rupin J., 4,380,980, Cl. 123-414.000.
Nocilini, John D.; Sharp, Ronald E.; and Cuadra, Emilio J., 4,381,552, Cl. 364-900.000.
Mott, Richard C.; and Stamm, Thomas A., to Honeywell Inc. Capacitance manometer differential pressure sensor. 4,380,932, Cl. 73-749.000.
Motter Printing Press Co.: *See—*
Loebach, Michael H., 4,381,106, Cl. 270-47.000.
Moulding, Kenneth W.: *See—*
Canning, Jonathan R., deceased; Moulding, Kenneth W.; and Wilson, Gordon A., 4,381,489, Cl. 333-215.000.
Muacevic, Gojko: *See—*
Koppe, Herbert; Mentrup, Anton; Renth, Ernst-Otto; Schromm, Kurt; Hoefke, Wolfgang; and Muacevic, Gojko, 4,381,309, Cl. 424-273.00B.
Mueller Co.: *See—*
Daghe, Joseph L.; Hauffe, William L.; and Terrill, Garrett D., 4,381,020, Cl. 138-99.000.
Muhr, Richard; and Steinhoff, Karl, to Muhr und Bender. Manipulator. 4,381,169, Cl. 414-753.000.
Muhr und Bender: *See—*
Muhr, Richard; and Steinhoff, Karl, 4,381,169, Cl. 414-753.000.
Muller, Gerhard; and Sell, Gunther, to Hoechst Aktiengesellschaft. Device for gassing liquids or suspensions. 4,381,268, Cl. 261-109.000.
Muller, Gerhard: *See—*
Latsch, Reinhard; Schober, Heinz; Muller, Gerhard; and Bianchi, Valerio, 4,380,986, Cl. 123-489.000.
Muller, Ulrich R.: *See—*
Fricke, Jobst P.; and Muller, Ulrich R., 4,381,488, Cl. 333-14.000.
Mummenhoff, Peter: *See—*
von Bonin, Wulf; Mummenhoff, Peter; and Baumgen, Heinz, 4,381,367, Cl. 524-549.000.
Munier, Rene, to Regie Nationale des Usines Renault. Dropped railroad tie for railway without ballast. 4,381,076, Cl. 238-115.000.
Murata Manufacturing Company, Ltd.: *See—*
Ogawa, Toshio; and Wakino, Kikuo, 4,381,469, Cl. 310-313.00R.
Muto, Katsuya; Nakamoto, Takeshi; Nagase, Isamu; and Sawada, Shigeru, to Nippondenso Co., Ltd. Change system for vehicle battery with relay actuated charge indicator. 4,381,483, Cl. 322-99.000.
Myers, William D.: *See—*
Witte, Erwin C.; and Myers, William D., 4,381,163, Cl. 411-311.000.
Nagai, Masahiko: *See—*
Nakayama, Haruhiko; Nagai, Masahiko; and Yano, Minoru, 4,381,429, Cl. 200-19.00R.
Nagai, Tadashi; Nakamura, Ken; and Nakajima, Yasuo, to Nissan Motor Company, Ltd. Electronic controlled carburetor. 4,380,984, Cl. 123-440.000.
Nagaishi, Hiromi: *See—*
Hotta, Masao; Maio, Kenji; Yokozawa, Norio; and Nagaishi, Hiromi, 4,381,495, Cl. 340-347.0DA.
Nagaoka, Yoshifumi; Morishima, Kanji; Ishii, Hiromi; and Bernard, Georges. Rotary arc type circuit breaker. 4,381,436, Cl. 200-148.00A.
Nagase, Isamu: *See—*
Muto, Katsuya; Nakamoto, Takeshi; Nagase, Isamu; and Sawada, Shigeru, 4,381,483, Cl. 322-99.000.
Nakagawa Sangyo Co., Ltd.: *See—*
Gotomyo, Yasuo; and Nakagawa, Yukihiro, 4,381,330, Cl. 428-218.000.
Nakagawa, Yukihiro: *See—*
Gotomyo, Yasuo; and Nakagawa, Yukihiro, 4,381,330, Cl. 428-218.000.
Nakagawa, Yunosuke; and Aramatsu, Shoichiro, to Kao Soap Co., Ltd. Enzyme-containing bleaching composition. 4,381,247, Cl. 252-95.000.
Nakahata, Kimio: *See—*
Isaka, Kazuo; Nakahata, Kimio; Sakurai, Masaaki; Watanabe, Tsuyoshi; Kan, Fumitaka; and Takeda, Kenji, 4,380,966, Cl. 118-651.000.
Nakai, Yoshiharu: *See—*
Teraji, Tsutomu; Nakai, Yoshiharu; and Durant, Graham J., 4,381,395, Cl. 548-342.000.
Nakajima, Yasuo: *See—*
Nagai, Tadashi; Nakamura, Ken; and Nakajima, Yasuo, 4,380,984, Cl. 123-440.000.
Nakamoto, Koichiro; Ishii, Kiyokazu; and Ohyama, Nobumi, to Doryokuro Kakunenryo Kaihatsu Jigyodan. Method for monitoring flow condition of liquid metal. 4,380,924, Cl. 73-19.000.
Nakamoto, Takeshi: *See—*
Muto, Katsuya; Nakamoto, Takeshi; Nagase, Isamu; and Sawada, Shigeru, 4,381,483, Cl. 322-99.000.
Nakamura, Ken: *See—*
Nagai, Tadashi; Nakamura, Ken; and Nakajima, Yasuo, 4,380,984, Cl. 123-440.000.
Nakamura, Kiyoshi: *See—*
Saijo, Takashige; Ikeda, Haruo; Nakamura, Kiyoshi; and Koike, Shigeyoshi, 4,381,478, Cl. 318-135.000.
Nakamura, Masao: *See—*
Ishizuka, Takashi; Moriyama, Yasuhiro; and Nakamura, Masao, 4,381,210, Cl. 156-195.000.
Nakamura, Soichi: *See—*
Iida, Yozo; and Nakamura, Soichi, 4,381,521, Cl. 358-55.000.
Nakayama, Haruhiko; Nagai, Masahiko; and Yano, Minoru, to Toyota Jidosha Kogyo Kabushiki Kaisha. Distributor for an internal combustion engine containing an apparatus for suppressing noise. 4,381,429, Cl. 200-19.00R.
Nakayama, Shozo; Kato, Kimio; Araki, Nobuyuki; and Takenaka, Kenji, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Swash-plate type compressor. 4,381,178, Cl. 417-269.000.
Naples, Gerald, to Textron Inc. Storage stable one component urethanes and method for using same. 4,381,388, Cl. 528-59.000.
Nara, Shigeo: *See—*
Kaino, Toshikuni; Fujiki, Michiya; Nara, Shigeo; and Oikawa, Shigeru, 4,381,269, Cl. 264-1.500.
Narasaka, Shin: *See—*
Otsuka, Kazuo; Narasaka, Shin; and Hasegawa, Shumpei, 4,380,985, Cl. 123-440.000.
Otsuka, Kazuo; Narasaka, Shin; and Hasegawa, Shumpei, 4,380,988, Cl. 123-571.000.
Narcus, Harold, to Norton Company. Process for the manufacture of abrasive-coated tools. 4,381,227, Cl. 204-16.000.
Nathanson, Harvey C.: *See—*
Przybysz, John X.; Driver, Michael C.; and Nathanson, Harvey C., 4,381,341, Cl. 430-312.000.
National Can Corporation: *See—*
Das, Narayan; and Misra, Surya K., 4,381,064, Cl. 220-458.000.
National Distillers & Chemical Corp.: *See—*
Biggs, James W.; and Maringer, Melvin F., 4,381,362, Cl. 524-305.000.
National Research Development Corporation: *See—*
Nowell, Derek V.; and Rentala, Koteswararao, 4,381,289, Cl. 423-311.000.
National Semiconductor Corporation: *See—*
Menachem, Abraham, 4,381,460, Cl. 307-449.000.
Naylor, Jimmy R.: *See—*
Lillis, William J.; Naylor, Jimmy R.; Wang, Anthony D.; and White, Robert L., 4,381,497, Cl. 340-347.0DA.
Nechay, Jacek A., to Dennison Manufacturing Company. Web transport system with electro-optical label detection. 4,381,211, Cl. 156-361.000.
Nelsen, Arnold, to Boeing Company, The. Stringer clamp. 4,381,104, Cl. 269-43.000.
Nelson, Dorsey C.: *See—*
Elliott, Donald; Gahres, Charles A.; and Nelson, Dorsey C., 4,381,082, Cl. 241-186.00A.
Neuray, Dieter: *See—*
Nielinger, Werner; Brassat, Bert; Binsack, Rudolf; and Neuray, Dieter, 4,381,371, Cl. 525-66.000.
Newman, Leon A., to United Technologies Corporation. Waveguide laser having a capacitively coupled discharge. 4,381,564, Cl. 372-87.000.
Newsome, John R. Device for aligning signatures fed in shingled relation. 4,381,108, Cl. 271-198.000.
NGK Spark Plug Co., Ltd.: *See—*
Kondo, Masaru; Shiromizu, Hisaharu; and Ieda, Yoshio, 4,381,198, Cl. 106-1.120.
Nguyen, Hien V., to Johnson & Johnson. Non-ionic absorbent polymers. 4,381,320, Cl. 427-44.000.
Nicholas, Noel. Pressure operated electric switch and alarm system using such switch. 4,381,434, Cl. 200-85.00R.
Nielinger, Werner; Brassat, Bert; Binsack, Rudolf; and Neuray, Dieter, to Bayer Aktiengesellschaft. Polymer mixtures. 4,381,371, Cl. 525-66.000.
Nilsson, Claes T., to PLM AB. Method for producing containers. 4,381,277, Cl. 264-512.000.
Nilsson, Claes T.: *See—*
Jakobsen, Kjell M.; and Nilsson, Claes T., 4,381,279, Cl. 264-522.000.
Nippon Electric Industries, Co., Ltd.: *See—*
Kondo, Shigeyuki, 4,381,089, Cl. 242-191.000.
Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Nishimoto, Tetsuo, 4,380,947, Cl. 84-176.000.
Nippon Kogaku K.K.: *See—*
Iida, Yozo; and Nakamura, Soichi, 4,381,521, Cl. 358-55.000.
Nippon Kokan Kabushiki Kaisha: *See—*
Kamatani, Toshio; Ishiguro, Hirohisa; Itakura, Kensei; and Yamagishi, Kazuo, 4,381,348, Cl. 501-153.000.

Nippon Steel Corporation: *See—*
Kitayama, Minoru; and Odashima, Hisao, 4,381,251, Cl. 252-400.00R.
Nippon Telegraph & Telephone Public Corporation: *See—*
Kaino, Toshikuni; Fujiki, Michiya; Nara, Shigeo; and Oikawa, Shigeru, 4,381,269, Cl. 264-1.500.
Nippondenso Co., Ltd.: *See—*
Muto, Katsuya; Nakamoto, Takeshi; Nagase, Isamu; and Sawada, Shigeru, 4,381,483, Cl. 322-99.000.
Takaki, Iwao, 4,380,989, Cl. 123-644.000.
Nishihara, Yasuhiro: *See—*
Hasuo, Masayoshi; Suga, Yoshinori; Suzuki, Masatoshi; Goko, Nobuaki; and Nishihara, Yasuhiro, 4,381,383, Cl. 526-142.000.
Nishikawa Rubber Co., Ltd.: *See—*
Ko, Yoshimasa, 4,381,115, Cl. 277-207.00R.
Nishimoto, Tetsuo, to Nippon Gakki Seizo Kabushiki Kaisha. Portable electronic musical instrument having separable controlling panel and keyboard. 4,380,947, Cl. 84-176.000.
Nishio, Masahiro: *See—*
Abe, Katsuo; Nishio, Masahiro; and Matsubara, Akira, 4,380,964, Cl. 118-50.000.
Nishizakura, Koichi: *See—*
Masuda, Yutaka; Kiyomura, Yoshiteru; and Nishizakura, Koichi, 4,381,325, Cl. 428-91.000.
Nissan Motor Company, Limited: *See—*
Abo, Toshimi; and Iwatsu, Hideo, 4,380,894, Cl. 60-39.161.
Enoshima, Toshio; Furuhashi, Shoji; and Tamura, Hideyuki, 4,380,981, Cl. 123-415.000.
Fukushima, Masao, 4,381,043, Cl. 180-300.000.
Iijima, Tetsuya; and Takahashi, Seiichi, 4,381,074, Cl. 236-13.000.
Nagai, Tadashi; Nakamura, Ken; and Nakajima, Yasuo, 4,380,984, Cl. 123-440.000.
Sunohara, Yoshio; Ohtsuka, Kunio; and Sakamoto, Kenichi, 4,381,050, Cl. 192-1.000.
Takase, Sadao, 4,380,979, Cl. 123-339.000.
Nittan Company, Limited: *See—*
Kobayashi, Shigeru, 4,381,503, Cl. 340-584.000.
Nitto Electric Industrial Co., Ltd.: *See—*
Ishizuka, Takashi; Moriyama, Yasuhiro; and Nakamura, Masao, 4,381,210, Cl. 156-195.000.
Nocilini, John D.; Sharp, Ronald E.; and Cuadra, Emilio J., to Motorola Inc. Stanby mode controller utilizing microprocessor. 4,381,552, Cl. 364-900.000.
Noda, Teruaki: *See—*
Machida, Toyotaka; Noda, Teruaki; and Ikemura, Yuichi, 4,381,520, Cl. 358-29.000.
Nomura, Kazuo: *See—*
Senoo, Takanori; Takeguchi, Nobuyasu; and Nomura, Kazuo, 4,381,525, Cl. 360-32.000.
Nordson Corporation: *See—*
Hastings, Donald R., 4,381,081, Cl. 239-707.000.
Matt, Timothy S., 4,380,967, Cl. 118-669.000.
Northern Telecom Limited: *See—*
Cheal, William E.; Gupta, Gokal C.; Sepahmansour, Faramarz; and Aggarwal, Avnish K., 4,381,427, Cl. 179-2.0DP.
Walling, Jorg-Hein; Dumoulin, Andre; and Arbuthnot, Gerald R., 4,380,965, Cl. 118-621.000.
Northwest Energy Company: *See—*
Stamm, Michael E., 4,381,544, Cl. 364-420.000.
Norton Company: *See—*
Narcus, Harold, 4,381,227, Cl. 204-16.000.
Norwich Eaton Pharmaceuticals, Inc.: *See—*
Alaimo, Robert J., 4,381,394, Cl. 548-161.000.
Nosovsky, Boris I.: *See—*
Leschinsky, Leonid K.; Gulakov, Sergei V.; Stepnov, Xenofont X.; Nosovsky, Boris I.; Bendrik, Valery G.; Dubinsky, Boris E.; Isirov, Dmitry I.; and Zelensky, Viktor E., 4,380,852, Cl. 29-121.200.
Novotny, Rudolf J.; and Gandy, Richard G., to BJ-Hughes Inc. Zero free water cement composition and method. 4,381,034, Cl. 166-292.000.
Nowell, Derek V.; and Rentala, Koteswararao, to National Research Development Corporation. Process for preparing zirconium phosphate. 4,381,289, Cl. 423-311.000.
Nozemack, Richard J.; Chi, Chang W.; and Schwonke, John J., to W. R. Grace & Co. Binderless zeolite extrudates and method of producing. 4,381,255, Cl. 252-455.00Z.
Nutrisearch Company: *See—*
Brotsky, Eugene; Everson, Charles W.; and Swartz, William E., 4,381,316, Cl. 426-265.000.
Nyul, Paul, to RCA Corporation. Method for supplying a low resistivity electrical contact to a semiconductor laser device. 4,380,862, Cl. 29-569.00L.
Obler, Henry D., to United States of America, National Aeronautics and Space Administration. Variable speed drive. 4,381,174, Cl. 417-15.000.
Obrezkov, Alexandr I.: *See—*
Verty, Vladimir G.; Voronin, Pavel G.; Gurov, Evgeny I.; Zubkov, Vitaly S.; Obrezkov, Alexandr I.; Tabakov, Vladimir P.; Khvoschinsky, Boris B.; and Judin, Vladimir N., 4,381,124, Cl. 299-2.000.
O'Brien, Dennis E.: *See—*
Gewartowski, Steve A.; and O'Brien, Dennis E., 4,381,418, Cl. 585-655.000.
Vora, Bipin V.; O'Brien, Dennis E.; and Scott, Norman H., 4,381,417, Cl. 585-655.000.
Occidental Chemical Corporation: *See—*
Teichmann, Robert J.; and Mayer, Linda J., 4,381,228, Cl. 204-44.000.
Oda, Ryoichi; and Iuchi, Munenori, to Sumitomo Rubber Industries, Ltd. Rim mechanism for tire inspection arrangement. 4,380,927, Cl. 73-146.000.
Oda, Takayuki: *See—*
Kai, Isao; Hosokawa, Hirotami; and Oda, Takayuki, 4,381,354, Cl. 523-139.000.
Odashima, Hisao: *See—*
Kitayama, Minoru; and Odashima, Hisao, 4,381,251, Cl. 252-400.00R.
Ogawa, Toshio; and Wakino, Kikuo, to Murata Manufacturing Company, Ltd. Temperature stable piezoelectric device. 4,381,469, Cl. 310-313.00R.
Ogawa, Tsutomu: *See—*
Mori, Haruhisa; Ogawa, Tsutomu; and Matsumoto, Takashi, 4,381,202, Cl. 148-1.500.
Ohshita, Hiroshi: *See—*
Adachi, Hiromi; Inoue, Kazunari; and Ohshita, Hiroshi, 4,381,476, Cl. 315-101.000.
Ohtsuka, Kunio: *See—*
Sunohara, Yoshio; Ohtsuka, Kunio; and Sakamoto, Kenichi, 4,381,050, Cl. 192-1.000.
Ohyama, Nobumi: *See—*
Nakamoto, Koichiro; Ishii, Kiyokazu; and Ohyama, Nobumi, 4,380,924, Cl. 73-19.000.
Oiji, Yoshimasa: *See—*
Takizawa, Hiroshi; Oiji, Yoshimasa; and Kubo, Kazuhiro, 4,381,398, Cl. 549-366.000.
Oikawa, Shigeru: *See—*
Kaino, Toshikuni; Fujiki, Michiya; Nara, Shigeo; and Oikawa, Shigeru, 4,381,269, Cl. 264-1.500.
Okada, Noriko: *See—*
Homma, Itomi; and Okada, Noriko, 4,381,259, Cl. 252-542.000.
Okamoto, Miyoshi, to Toray Industries, Inc. Multi-component composite filament. 4,381,335, Cl. 428-373.000.
O'Keefe, Leslie S.: *See—*
Yong, Samuel H.; Edmonson, Douglas A.; Evans, Leah G.; Hohle, Deena G.; Jensen, Susan H.; O'Keefe, Leslie S.; and Laatsch, Debra S., 4,381,315, Cl. 426-94.000.
Okuda, Kuniteru; Fukami, Teruki; Asayama, Yoshiaki; Wada, Shunichi; and Kabuto, Masami, to Oval Engineering Co., Ltd.; and Mitsubishi Denki Kabushiki Kaisha. Gaseous fluid flow meter utilizing karman vortex street. 4,380,934, Cl. 73-861.230.
Okumura, Akira: *See—*
Matsumoto, Tetsuo; and Okumura, Akira, 4,381,072, Cl. 494-10.000.
Okura, Tsunehiko. Rotary type tapered part trichromatic printer. 4,380,955, Cl. 101-38.00A.
Olander, Donald E.; and Petersen, Donald W., to Hi-Shear Corporation. Pyrotechnic composition. 4,381,207, Cl. 149-40.000.
Olde Savannah Arms Company, The: *See—*
Klavestad, Osborne, 4,380,881, Cl. 42-42.00R.
Olsen, Robert E.; and Backlund, Stephen J., to Aerojet-General Corporation. Purification of tetrahydrodibenzo[b,d]pyrans from crude synthetic mixtures. 4,381,399, Cl. 549-390.000.
Olson, Paul E., to American Standard Inc. Combination transmission gear selector valve for automotive vehicles. 4,380,938, Cl. 74-473.00R.
Olsson, Mats: *See—*
Bjorn, Lars-Erik; Olsson, Mats; and Oman, Olof, 4,381,270, Cl. 264-3.00B.
Oman, Olof: *See—*
Bjorn, Lars-Erik; Olsson, Mats; and Oman, Olof, 4,381,270, Cl. 264-3.00B.
Omori, Takuro: *See—*
Kanou, Ikuo; Yanagiuchi, Shigenobu; and Omori, Takuro, 4,381,551, Cl. 364-900.000.
Omron Tateisi Electronics Co.: *See—*
Fukuyama, Toshifumi; and Onji, Norio, 4,381,446, Cl. 250-214.00R.
Saito, Yoshitane; Yamada, Akihiro; and Yano, Satoshi, 4,381,456, Cl. 307-40.000.
Omura, Katsumi: *See—*
Kyo, Sunao; Renge, Tumoru; and Omura, Katsumi, 4,381,416, Cl. 585-606.000.
Onji, Norio: *See—*
Fukuyama, Toshifumi; and Onji, Norio, 4,381,446, Cl. 250-214.00R.
Orii, Masaru, to Kabushiki Kaisha Orii Jidoki Seisakusho. Reversing device for press worked goods. 4,381,170, Cl. 414-758.000.
Ortho Pharmaceutical Corporation: *See—*
Kung, Patrick C.; and Goldstein, Gideon, 4,381,295, Cl. 424-85.000.
Oscar Mayer Foods Corporation: *See—*
Adkison, Frank L.; and Kress, Jack L., 4,380,849, Cl. 17-11.000.
Ostwald, Fritz, to ITT Industries, Inc. Cast piece. 4,381,336, Cl. 428-614.000.
Otsuka, Kazuo; Narasaka, Shin; and Hasegawa, Shumpei, to Honda Giken Kogyo Kabushiki Kaisha. Flow rate control system for fluid being supplied to an internal combustion engine, having initial position setting function for flow rate control valve actuator. 4,380,985, Cl. 123-440.000.
Otsuka, Kazuo; Narasaka, Shin; and Hasegawa, Shumpei, to Honda Giken Kogyo Kabushiki Kaisha. Air/fuel ratio control system for internal combustion engines, having exhaust gas recirculation control function. 4,380,988, Cl. 123-571.000.

Otto, Gary D., to Feather Quick Companies, Inc. Vacuum hair cutting device. 4,380,870, Cl. 30-133.000.
Oval Engineering Co., Ltd.: *See—*
Okuda, Kuniteru; Fukami, Teruki; Asayama, Yoshiaki; Wada, Shunichi; and Kabuto, Masami, 4,380,934, Cl. 73-861.230.
Owada, Nobuyoshi; and Tominaga, Tamotsu, to Hitachi Denshi Kabushiki Kaisha. Movable tape guide devices for use in helical-scan video tape recorders. 4,381,530, Cl. 360-130.230.
Owens-Corning Fiberglas Corporation: *See—*
Bolen, Charles E.; Harrington, Edward R.; Marzocchi, Alfred; and Roberts, Michael G., 4,381,200, Cl. 106-282.000.
Oy LohJa AB: *See—*
Antson, Jorma O., 4,380,867, Cl. 29-590.000.
Oy Partek AB: *See—*
Carbol, Vlastimil, 4,381,347, Cl. 501-36.000.
Oy. Tampella AB: *See—*
Turkia, Erkki, 4,381,217, Cl. 162-23.000.
Pacific Nuclear Fuels, Inc.: *See—*
Lang, Linton W.; and Stetson, Robert L., 4,381,281, Cl. 376-172.000.
Page, Edward H.; and Scotti, Frank. Polymeric foam caulking compositions. 4,381,066, Cl. 222-394.000.
Pajer, Raymond T.; and Guzman, Pedro T., to SCM Corporation. Encoding apparatus utilizing acoustic waves of controlled initial polarity. 4,381,501, Cl. 340-365.00R.
Palameta, Bozidar; Bogri, Tibor; and Bagli, Jehan, to Ayerst, McKenna & Harrison, Inc. 4,9-Dihydro-4,9-dioxo-1H-cyclohepta[b]pyridine derivatives. 4,381,304, Cl. 424-256.000.
Palmen, Hans J.: *See—*
Dallmann, Hermann; and Palmen, Hans J., 4,381,329, Cl. 428-204.000.
Palomar Systems & Machines, Inc.: *See—*
Braden, Denver, 4,381,321, Cl. 427-79.000.
Papadatos, Dionysios D.: *See—*
Riester, William C.; and Papadatos, Dionysios D., 4,380,860, Cl. 29-453.000.
Paquin, Patrick J.: *See—*
Cronkite, Michael O.; and Paquin, Patrick J., 4,381,426, Cl. 174-117.00F.
Paradyne Corporation: *See—*
Armstrong, Thomas R., 4,381,546, Cl. 364-514.000.
Pareja, Ramon, to Lear Siegler, Inc. Pumps with floating wrist pins. 4,381,179, Cl. 417-273.000.
Parker, Alan; Dickinson, Peter J.; Clough, Douglas O.; and Farnhill, William M. Friction spinning apparatus and method for cleaning. 4,380,892, Cl. 57-401.000.
Parker-Hannifin Corporation: *See—*
Wallace, Joseph E., 4,380,856, Cl. 29-412.000.
Parkins, Malcolm F. Internal combustion engines. 4,380,972, Cl. 123-78.00F.
Parmer, Carl L., to McCraw, D. E., Jr. Fluid cylinder positional indicator and method. 4,381,507, Cl. 340-870.380.
Patry, Louison. Apparatus for removing a tire from or fitting a tire to a wheel-rim. 4,381,028, Cl. 157-1.240.
Paumellerie Electrique: *See—*
Guionie, Paul; and Roudier, Rene, 4,380,848, Cl. 16-85.000.
Payne, John M., to Sirchie Fingerprint Laboratories, Inc. Magnetic fingerprint dusting brush. 4,381,159, Cl. 401-118.000.
PCUK Produits Chimiques Ugine Kuhlmann: *See—*
Bonnet, Evelyne J. M., 4,381,261, Cl. 260-162.000.
Pearce, Thomas: *See—*
Morgan, Ronald E.; and Pearce, Thomas, 4,380,940, Cl. 81-57.160.
Pedersen, S. Erik; and Wagner, Louis F., to Standard Oil Company, The. Production of methacrolein from isobutyraldehyde utilizing promoted iron phosphorus oxide catalysts. 4,381,411, Cl. 568-459.000.
Pegram, Barry V., to British Aerospace Public Limited Company. Control-effect enhancement of tiltable aircraft stabilizing member. 4,381,091, Cl. 244-87.000.
Pelouze Scale Co.: *See—*
Brouwer, Frans, 4,381,040, Cl. 177-210.00C.
Pelto-Huikko, Raimo: *See—*
Rautimo, Pertti V.; Pelto-Huikko, Raimo; and Ahlman, Esko A. O., 4,380,901, Cl. 60-418.000.
Penmont Company, The: *See—*
Knedlik, Omar S., 4,381,099, Cl. 251-14.000.
Perine, John D.: *See—*
Groom, Jay L., Jr.; Perine, John D.; Snyder, John W.; and Vair, Gary G., 4,381,563, Cl. 371-29.000.
Pernetti, Claudio: *See—*
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Peroxide-Chemie GmbH: *See—*
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Perry, John J., to Chrysler Corporation. Excessive idle termination system. 4,381,042, Cl. 180-272.000.
Peters, Harry E. Magnetic state selector. 4,381,490, Cl. 335-210.000.
Peters, Horst: *See—*
Idel, Karsten; Buysch, Hans-Josef; Margotte, Dieter; and Peters, Horst, 4,381,359, Cl. 524-117.000.
Peters, Sherry. Doll dress and crenelle. 4,380,833, Cl. 2-105.000.
Petersen, Donald W.: *See—*
Olander, Donald E.; and Petersen, Donald W., 4,381,207, Cl. 149-40.000.
Petersen, Hyrum D. Detachable jaw-locking device for an adjustable pipe wrench. 4,380,941, Cl. 81-180.00R.
Peterson, Michael: *See—*
Ferdinand, Irwin J.; Sylvan, Richard; and Peterson, Michael, 4,381,103, Cl. 269-1.000.
Petrillo, Edward W., Jr.: *See—*
Karanewsky, Donald S.; and Petrillo, Edward W., Jr., 4,381,297, Cl. 424-200.000.
Pfeiffer, Robert C., to Allied Corporation. Seat belt retractor structure. 4,381,086, Cl. 242-107.40R.
Pfizer Inc.: *See—*
Jasys, Vytautas J., 4,381,263, Cl. 260-239.100.
Schnur, Rodney C., 4,381,308, Cl. 424-272.000.
Phoenix Chemical Corporation: *See—*
Leistner, William E.; Minagawa, Motonobu; Tsuruga, Kouji; and Harada, Masashi, 4,381,360, Cl. 524-178.000.
Picaud, Emile, to Regie Nationale des Usines Renault. Polyvalent suspension balance for assembly lines for manufactured goods, especially motor vehicles. 4,381,055, Cl. 198-653.000.
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Yong, Samuel H.; Edmonson, Douglas A.; Evans, Leah G.; Hohle, Deena G.; Jensen, Susan H.; O'Keefe, Leslie S.; and Laatsch, Debra S., 4,381,315, Cl. 426-94.000.
Pinkenhagen, Wilhelm, to Firmenich SA. α,β-Unsaturated aldehydes and their use as flavor-modifying ingredients. 4,381,410, Cl. 568-448.000.
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Raisin, Jean-Pierre; and Pion, Jacques, 4,381,068, Cl. 223-2.000.
Piscitelli, R. Amelia: *See—*
Hemmer, Valentine J.; and Piscitelli, R. Amelia, 4,381,135, Cl. 339-258.00R.
Pitney Bowes Inc.: *See—*
Chang, Mike S. H., 4,381,337, Cl. 430-58.000.
Plaspack Kunststoff GmbH & Co., KG: *See—*
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Plempel, Manfred: *See—*
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Nilsson, Claes T., 4,381,277, Cl. 264-512.000.
PLM Aktiebolag: *See—*
Jakobsen, Kjell M.; and Nilsson, Claes T., 4,381,279, Cl. 264-522.000.
Podhrasky, Julius; and Sprunt, Eve S., to Mobil Oil Corporation. System for transmitting ultrasonic energy through core samples. 4,380,930, Cl. 73-594.000.
Poindexter, Graham S., to Dow Chemical Company, The. Aminoethylation process. 4,381,401, Cl. 556-410.000.
Polach, Wilhelm: *See—*
Linder, Ernst; Babitzka, Rudolf; Brettschneider, Johannes; Polach, Wilhelm; Wessel, Wolf; and Stumpp, Gerhard, 4,380,900, Cl. 60-275.000.
Pond, Robert B. Fishing lure. 4,380,884, Cl. 43-42.090.
Pontoglio, Enrico, to Caffaro S.p.A. Method for removing chlorinated solvents from chlorinated polymers. 4,381,392, Cl. 528-493.000.
Pott, Ronald W.: *See—*
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Poux, Jacques, to Alsthom-Atlantique. Fluid circulation apparatus using fluid flow deflection grating. 4,380,877, Cl. 34-225.000.
Powell, Thomas M., to General Motors Corporation. Cold starting system for alcohol fueled engine. 4,380,975, Cl. 123-179.00H.
Powerscreen Limited: *See—*
Mallaghan, Lee, 4,381,235, Cl. 209-400.000.
PPG Industries, Inc.: *See—*
Graham, Roy R., 4,381,199, Cl. 106-186.000.
Hillman, Patrick E., 4,381,374, Cl. 525-356.000.
Prame, Eric S., to International Business Machines Corporation. Method and apparatus for character generation. 4,381,502, Cl. 340-365.00R.
Pratt & Lambert, Inc.: *See—*
Balk, Leizer, deceased; and Sojkowski, James S., 4,381,334, Cl. 428-332.000.
Precision Valve Corporation: *See—*
Hayes, Thomas, 4,381,065, Cl. 222-153.000.
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Priesnitz, Uwe: *See—*
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Mayston, Donald, 4,380,946, Cl. 83-521.000.
Prout, James H.: *See—*
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Przybysz, John X.; Driver, Michael C.; and Nathanson, Harvey C., to Westinghouse Electric Corp. Two stage etching process for through the substrate contacts. 4,381,341, Cl. 430-312.000.
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Rabinovich, Georgy L.: *See—*
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Rubricius, Jeanette L.: *See—*
LeVeen, Harry H.; Rubricius, Jeanette L.; LeVeen, Eric G.; and LeVeen, Robert F., 4,381,380, Cl. 525-452.000.
Rudolph, Peter K. C., to Boeing Company, The. Flap assembly for aircraft wing. 4,381,093, Cl. 244-216.000.
Rumpel, Donald D., to Henwebcor, Incorporated. Multidirectional board support. 4,381,054, Cl. 193-35.0MD.
Rupilius, Wolfgang: *See—*
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Ruscher, Christian: *See—*
Danz, Rudi; Stark, Wolfgang; Elling, Burkhard; Ruscher, Christian; and Schwarz, Wolfgang, 4,381,534, Cl. 361-233.000.
Russek, Allen S., to Wallant International Trade, Inc. Electrode placement device. 4,381,012, Cl. 128-644.000.
Russell, Thomas V., to Weiss, Harry M. Swimming pool water conditioning system. 4,381,240, Cl. 210-746.000.
Ruti-Te Strake B.V.: *See—*
Gunneman, Paul, 4,381,021, Cl. 139-380.000.
Ryang, Hong-Son, to General Electric Company. Silynorbornane anhydrides and method for making. 4,381,396, Cl. 549-237.000.
Saari, Walfred S.: *See—*
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Saiag S.p.A. Industria Articoli Gomma: *See—*
Azzola, Roberto, 4,381,273, Cl. 264-45.900.
Saijo, Takashige; Ikeda, Haruo; Nakamura, Kiyoshi; and Koike, Shigeyoshi, to Hitachi, Ltd.; and Japanese National Railways. Control system for a linear synchronous motor. 4,381,478, Cl. 318-135.000.
Saito, Takashi, to Victor Company of Japan, Ltd. Disc-shaped recording medium reproducing apparatus. 4,381,559, Cl. 369-77.000.
Saito, Yoshitane; Yamada, Akihiro; and Yano, Satoshi, to Omron Tateisi Electronics Co. Input interface unit for programmable logic controller. 4,381,456, Cl. 307-40.000.
Sakamoto, Kenichi: *See—*
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Sakane, Kazuo: *See—*
Teraji, Tsutomu; Sakane, Kazuo; and Goto, Jiro, 4,381,299, Cl. 424-246.000.
Sakauchi, Yoshitada; and Hikiba, Masayuki, to Hitachi, Ltd. Electronic tubes. 4,381,472, Cl. 313-331.000.
Sakuragi, Shiro; and Kotani, Haruo, to Agency of Industrial Science & Technology; and Ministry of International Trade & Industry. Infrared optical fiber and method for manufacture thereof. 4,381,141, Cl. 350-96.340.
Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Furusato, Masayasu, to Asahi Kasei Kogyo Kabushiki Kaisha. Catalyst for producing polyolefins. 4,381,252, Cl. 252-429.00B.
Sakurai, Junji, to Fujitsu Limited. Method for production of semiconductor devices. 4,381,201, Cl. 148-1.500.
Sakurai, Masaaki: *See—*
Isaka, Kazuo; Nakahata, Kimio; Sakurai, Masaaki; Watanabe, Tsuyoshi; Kan, Fumitaka; and Takeda, Kenji, 4,380,966, Cl. 118-651.000.
Sakurai, Shoji, to Matsushita Electric Works, Ltd. Lighting equipment. 4,381,539, Cl. 362-285.000.
Sanderson, John R.; Binsack, Rudolf; Michael, Dietrich; and Bonten, Heinrich, to Bayer Aktiengesellschaft. Fibre reinforced polyamide moulding compounds. 4,381,366, Cl. 524-504.000.
Sandoz Ltd.: *See—*
Toth, Istvan, 4,381,409, Cl. 564-406.000.
Sandstrom, Richard D.; Dutcher, Robert G.; and Ufford, Keith A., to Medtronic, Inc. Ring electrode for pacing lead and method of making same. 4,381,014, Cl. 128-786.000.
Sasaki, Toshiharu: *See—*
Urata, Yoshihito; Kubo, Hideyuki; and Sasaki, Toshiharu, 4,381,500, Cl. 340-365.0VL.
Sato, Kazuo: *See—*
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Sato, Tadashi: *See—*
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Saurer-Allma GmbH: *See—*
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Sawada, Shigeru: *See—*
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Scherzinger, Bernhard: *See—*
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Schettl, Alvin J.: *See—*
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Schickfluss, Rudolf: *See—*
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Schiefer, Harry M.: *See—*
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Schmidt, Gunther; Engel, Wolfhard; Eberlein, Wolfgang; Trummlitz, Gunter; and Engelhardt, Gunther, to Dr. Karl Thomae GmbH. 1,4,9,10-Tetrahydro-pyrazolo [4,3-]pyrido[-3,2-b][1,4]diazepin-10-ones. 4,381,303, Cl. 424-252.000.
Schmidt, Helmut: *See—*
Renkl, Klaus; and Schmidt, Helmut, 4,381,465, Cl. 310-49.00R.
Schmidt, Manfred; and Bottenbruch, Ludwig, to Mobay Chemical Corporation; and Bayer Aktiengesellschaft. Thermoplastic polyphosphonatophenyl ester carbonate from aryloxycarbonyloxy-benzoic acid aryl ester and preparation thereof. 4,381,390, Cl. 528-167.000.
Schnettler, Richard A.: *See—*
Grisar, J. Martin; Schnettler, Richard A.; and Dage, Richard C., 4,381,393, Cl. 544-370.000.
Schnur, Rodney C., to Pfizer Inc. Hypoglycemic 5-substituted oxazolidine-2,4-diones. 4,381,308, Cl. 424-272.000.
Schnyder, William J., to Emerson Electric Co. Extended life, moisture resistant electric motor. 4,381,464, Cl. 310-45.000.
Schober, Heinz: *See—*
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Schoenberg, John, to Fairchild Industries, Inc. Valve and valving apparatus. 4,381,100, Cl. 251-368.000.
Schoening, Josef: *See—*
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Schooley, Constance E. Cover for instant hot or cold pack. 4,381,025, Cl. 150-2.400.
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Koppe, Herbert; Mentrup, Anton; Renth, Ernst-Otto; Schromm, Kurt; Hoefke, Wolfgang; and Muacevic, Gojko, 4,381,309, Cl. 424-273.00B.
Schurman, Charles E.: *See—*
Schurman, Edwin A., 4,381,059, Cl. 206-533.000.
Schurman, Edwin A., to Schurman, Charles E. Puzzle-locking container and method for storing and dispensing articles. 4,381,059, Cl. 206-533.000.
Schutt, Hartwig: *See—*
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Schwarz, Wolfgang: *See—*
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Schwiers, Hans-Georg: *See—*
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Schwonke, John J.: *See—*
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SCM Corporation: *See—*
Pajer, Raymond T.; and Guzman, Pedro T., 4,381,501, Cl. 340-365.00R.
Scott Machine Development Corporation: *See—*
Waldron, Gregory R., 4,380,874, Cl. 33-184.500.
Scott, Norman H.: *See—*
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Scott Paper Company: *See—*
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Scotti, Frank: *See—*
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Sederquist, Richard A., to United Technologies Corporation. Process for gasifying liquid hydrocarbon fuels. 4,381,187, Cl. 48-212.000.
Seemann, Robert A. All season window. 4,380,994, Cl. 126-431.000.
Seibert, Lloyd, to American Sign & Indicator Corporation. Matrix display. 4,380,879, Cl. 40-447.000.
Seider, Werner: *See—*
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Selgrad, Volker: *See—*
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Sell, Gunther: *See—*
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Sell, John R. Double diaphragm pump with controlling slide valve and adjustable stroke. 4,381,180, Cl. 417-393.000.
Selwitz, Charles M.: *See—*
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Sen, Rajat K.: *See—*
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Senoo, Takanori; Takeguchi, Nobuyasu; and Nomura, Kazuo, to Matsushita Electric Industrial Co., Ltd. Synchronously operatable PCM recording processor. 4,381,525, Cl. 360-32.000.
Senuma, Michio; and Shibuya, Jun, to Canon Kabushiki Kaisha; and Canon Denshi Kabushiki Kaisha. Process for manufacturing shutter screen blades. 4,380,857, Cl. 29-417.000.
Sepahmansour, Faramarz: *See—*
Cheal, William E.; Gupta, Gokal C.; Sepahmansour, Faramarz; and Aggarwal, Avnish K., 4,381,427, Cl. 179-2.0DP.
Sgourakes, George E.; and Lefebvre, Paul J., to Foxboro Company, The. External sensing vortex flowmeter. 4,380,935, Cl. 73-861.240.
Shapiro, David: *See—*
Reach, Roy W.; Kahn, William M.; and Shapiro, David, 4,381,554, Cl. 364-900.000.
Sharp Kabushiki Kaisha: *See—*
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Sharp, Ronald E.: *See—*
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Shaw, Seth T., Jr. IUD Arrangement. 4,381,001, Cl. 128-130.000.
Shay, Robert J. E.; and Smith, Wendell L., to International Business Machines Corporation. Self-clocking write head. 4,381,524, Cl. 360-2.000.
Shedigian, Vandos; and Voyles, Gerald A., to Emhart Industries, Inc. Dielectric fluid. 4,381,535, Cl. 361-318.000.
Sheehan, John C.; and Commons, Thomas J., to Massachusetts Institute of Technology. Sulphur analogs of cephalosporins having a nucleophile substituted in the 7 position. 4,381,300, Cl. 424-246.000.
Shenango Incorporated: *See—*
Thomas, John W., 4,380,842, Cl. 15-304.000.
Sherwood, Michael: *See—*
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Shibuya, Jun: *See—*
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Shimada, Toshio: *See—*
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Shipley, Randall S., to Dow Chemical Company, The. Ultra high efficiency catalyst for polymerizing olefins. 4,381,253, Cl. 252-431.00C.
Shipley, Randall S.; and Vance, Fred L., to Dow Chemical Company, The. Polymerization of olefins from catalysts prepared from organo zirconium-chromium compounds. 4,381,382, Cl. 526-97.000.
Shirakawa, Kenzo; Matsumoto, Masao; and Yasunaka, Shinsaku, to Matsushita Electric Works, Ltd. Electric shaver of reciprocating drive type having trimmer blade. 4,380,869, Cl. 30-34.100.
Shiromizu, Hisaharu: *See—*
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Shop-Vac Corporation: *See—*
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Showa Manufacturing Co., Ltd.: *See—*
Tajima, Yasuari, 4,380,847, Cl. 16-85.000.
Sid Harvey, Inc.: *See—*
Lindtveit, Herbert E., 4,381,019, Cl. 137-843.000.
Siemens Aktiengesellschaft: *See—*
Adam, Peter; and Wehner, Ewald, 4,381,468, Cl. 310-239.000.
Bahlinger, Walter, 4,381,518, Cl. 357-79.000.
Gnest, Horst-Guenter; Granzow, Wolfgang-Dieter; Hartkopf, Hans-Otto; and Zillmer, Adalbert, 4,381,094, Cl. 246-182.00R.
Laenens, Werner, 4,381,466, Cl. 310-103.000.
Renkl, Klaus; and Schmidt, Helmut, 4,381,465, Cl. 310-49.00R.
Signtech Inc.: *See—*
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Simes S.p.A.: *See—*
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Simmons, Walter J.: *See—*
Loving, Frank A., Jr.; and Simmons, Walter J., 4,380,948, Cl. 86-20.00C.
Simons, Charles R. Gameboard and carrying case. 4,381,113, Cl. 273-286.000.
Singer Company, The: *See—*
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Singh, Raj N., to General Electric Company. Method of etching to form cationically-conductive ceramic body. 4,381,216, Cl. 156-667.000.
Sirchie Fingerprint Laboratories, Inc.: *See—*
Payne, John M., 4,381,159, Cl. 401-118.000.
SK & F Lab Co.: *See—*
Teraji, Tsutomu; Nakai, Yoshiharu; and Durant, Graham J., 4,381,395, Cl. 548-342.000.
Skaja, Joseph J., to Keds Corporation. Outsole. 4,380,878, Cl. 36-67.00D.
Skidmore, Frank O. Tire cooling structure. 4,381,026, Cl. 152-153.000.
Slattery, Sidney E.: *See—*
Smart, Richard B.; and Slattery, Sidney E., 4,380,905, Cl. 60-756.000.
Sloan, Kenneth B., to Merck & Co., Inc. Soft tertiary amine esters of bio-affecting carboxylic acids. 4,381,307, Cl. 424-271.000.
Smart, Richard B.; and Slattery, Sidney E., to Rolls-Royce Limited. Gas turbine engine combustion chambers. 4,380,905, Cl. 60-756.000.
Smart, Robert L. Fork unit having adjustable forks. 4,381,166, Cl. 414-685.000.
Smith, Curtis P.: *See—*
Georgacopoulos, Costas N.; and Smith, Curtis P., 4,381,364, Cl. 524-373.000.
Smith, Francis X.: *See—*
Mandt, Lawrence D.; Riedhammer, Thomas M.; and Smith, Francis X., 4,381,314, Cl. 424-333.000.
Smith, Harry D., Jr., to Texaco Inc. Neutron-inelastic gamma radiation well logging method and apparatus with background radiation accounted for. 4,381,449, Cl. 250-270.000.
Smith, Tennyson, to United States of America, Air Force. Hand-holdable contamination tester. 4,381,151, Cl. 356-369.000.
Smith, Wendell L.: *See—*
Shay, Robert J. E.; and Smith, Wendell L., 4,381,524, Cl. 360-2.000.
Smock, Steven W.; and Adams, George W., to Emhart Industries, Inc. Coin operated timing mechanism. 4,381,430, Cl. 200-35.00R.
Snia Viscosa Societa' Nazionale Industria Applicazioni Viscosa SpA: *See—*
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Snyder, John W.: *See—*
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Sobel, Martin: *See—*
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Societe Anonyme dite Compagnie Generale d'Electricite: *See—*
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Societe Anonyme dite: L'OREAL: *See—*
Bouillon, Claude; Abegg, Jean-Louis; Koulbanis, Constantin; and Darmenton, Patrick, 4,381,294, Cl. 424-61.000.
Societe Nationale des Poudres et Explosifs: *See—*
Boileau, Sylvie L.; Meunier, Gilles F.; and Journeau, Sabine M., 4,381,385, Cl. 526-230.500.
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Sojkowski, James S.: *See—*
Balk, Leizer, deceased; and Sojkowski, James S., 4,381,334, Cl. 428-332.000.
Somers, Lewis S., 3rd. Enteral feeding apparatus and method. 4,381,011, Cl. 128-635.000.
Sony Corporation: *See—*
Wilkinson, James H.; and Collins, Mark C., 4,381,519, Cl. 358-21.00R.
Sorensen, Jens O., to Trade Finance International. Stabilized core injection molding of plastic. 4,381,275, Cl. 264-328.800.
Sorgenicht, Dietrich: *See—*
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Sperry Corporation: *See—*
Baker, Dan C., 4,381,550, Cl. 364-766.000.
Baumann, Charles G., Jr.; and Danilenko, Michael, 4,381,541, Cl. 364-200.000.
Matthews, Hugh B., 4,380,903, Cl. 60-641.400.
Spitzer, Hermann J. Combined solar collector and storage pond. 4,380,993, Cl. 126-415.000.
Sprague Electric Company: *See—*
Arora, Mulk R., 4,381,231, Cl. 204-129.750.
Ross, Sidney D.; and Finkelstein, Manuel, 4,381,536, Cl. 361-433.000.
Sprenkle, George J., to Burroughs Corporation. Zero insertion force connector for integrated circuit packages. 4,381,130, Cl. 339-74.00R.
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Spring, Markus, 4,380,992, Cl. 126-43.000.
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Corna, John F.; and Blais, Marcel H., 4,380,837, Cl. 4-510.000.
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Carron, Mark S.; and McCarthy, Desmond C., 4,381,190, Cl. 55-30.000.
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Struthoff, Holger, to ITT Industries, Inc. Monolithic integrable R-2R network. 4,381,499, Cl. 340-347.0DA.
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Szabat, John F., to Mobay Chemical Corporation. Combustion modified flexible polyurethane foam. 4,381,351, Cl. 521-107.000.
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Vergiels, Vern O., 4,381,071, Cl. 229-16.00R.
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Berg, David M.; and Teegarden, Kenneth J., 4,381,137, Cl. 350-96.180.
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Citri, Nathan, 4,381,343, Cl. 435-24.000.
Texaco Inc.: *See*—
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Thermo Electron Corporation: *See—*
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Cargill, N. Allen; and Bunten, Theodore M., 4,381,075, Cl. 237-8.00R.
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Thomas, John W., to Shenango Incorporated. Tool support apparatus. 4,380,842, Cl. 15-304.000.
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Thompson, David L.; and Zobel, Donald W., to Medtronic, Inc. Heart pacemaker with integrated injection logic energy saving circuitry. 4,381,010, Cl. 128-419.0PG.
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Morizot, Jean P.; and Gerber, Rene, 4,381,475, Cl. 315-39.300.
Timm, James D.: *See—*
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Tinnell, James E. Treatment for herpes virus. 4,381,296, Cl. 424-148.000.
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Todt, William H.: *See—*
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Toga, Yuzo; Shimada, Toshio; and Komada, Hajime, to Daicel Chemical Industries, Ltd. Polyester containing 2-methyl-1,3-propylene terephthalate units. 4,381,379, Cl. 525-444.000.
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Barozzi, Gian P.; and Horeschi, Giancarlo, 4,381,156, Cl. 400-296.100.
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Harada, Nozomu, 4,381,517, Cl. 357-30.000.
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Riester, William C.; and Papadatos, Dionysios D., 4,380,860, Cl. 29-453.000.
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Agriculture: *See—*
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Chen, Paul Y.; and Marvel, Carl S., 4,381,391, Cl. 528-173.000.
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Freling, Melvin, 4,381,173, Cl. 416-96.00A.
Martino, Michael S., 4,380,925, Cl. 73-66.000.
Newman, Leon A., 4,381,564, Cl. 372-87.000.
Sederquist, Richard A., 4,381,187, Cl. 48-212.000.
University of Rochester: *See—*
Deckman, Harry W.; Halpern, Gerald M.; and Dunsmuir, John G., 4,380,855, Cl. 29-407.000.
UOP Inc.: *See—*
Antos, George J., 4,381,257, Cl. 252-466.00B.
Gewartowski, Steve A.; and O'Brien, Dennis E., 4,381,418, Cl. 585-655.000.
Rohrbach, Ronald P.; and Maliarik, Mary J., 4,381,345, Cl. 435-94.000.
Vora, Bipin V.; O'Brien, Dennis E.; and Scott, Norman H., 4,381,417, Cl. 585-655.000.
Upjohn Company, The: *See—*
Georgacopoulos, Costas N.; and Smith, Curtis P., 4,381,364, Cl. 524-373.000.
Uranium Pechiney Ugine Kuhlmann: *See—*
Floreancig, Antoine, 4,381,286, Cl. 423-9.000.
Grimaud, Edouard; and Troussier, Maurice, 4,381,350, Cl. 521-31.000.
Urata, Yoshihito; Kubo, Hideyuki; and Sasaki, Toshiharu, to Matsushita Electric Industrial Co., Ltd. Keyboard apparatus. 4,381,500, Cl. 340-365.0VL.
Usami, Hisao: *See—*
Mishiba, Saburo; Hyoda, Junkoh; Uchida, Akira; Usami, Hisao; and Watanabe, Akira, 4,381,365, Cl. 524-460.000.
Usui Kokusai Sangyo Kabushiki Kaisha: *See—*
Kikuchi, Yasubee, 4,381,051, Cl. 192-82.00T.
Vair, Gary G.: *See—*
Groom, Jay L., Jr.; Perine, John D.; Snyder, John W.; and Vair, Gary G., 4,381,563, Cl. 371-29.000.
Vance, Fred L.: *See—*
Shipley, Randall S.; and Vance, Fred L., 4,381,382, Cl. 526-97.000.
Vanderford, Delbert E., Jr., to Cameron Iron Works, Inc. Packoff and seal ring assembly with injected plastic packing. 4,381,114, Cl. 277-34.600.
van der Hoek, Willem; and Tuin, Hermanus N., to U.S. Philips Corporation. Optical fiber cable. 4,381,140, Cl. 350-96.230.
van der Lely, Ary; and Bom, Cornelis J. G., to C. Van der Lely N.V. Spreading device for effecting a uniform distribution of material such as fertilizer. 4,381,080, Cl. 239-666.000.
Van Heyningen, Roger S., to Eastman Kodak Company. Liquid jet method for coating photographic recording media. 4,381,342, Cl. 430-496.000.
Van Scoy, Davis A., to Grove Valve and Regulator Company. Tube mounting for orifice meter. 4,380,936, Cl. 73-861.620.
Vergiels, Vern O., to Tecumseh Corrugated Box Company. Foldable blank box. 4,381,071, Cl. 229-16.00R.
Verty, Vladimir G.; Voronin, Pavel G.; Gurov, Evgeny I.; Zubkov, Vitaly S.; Obrezkov, Alexandr I.; Tabakov, Vladimir P.; Khvoschinsky, Boris B.; and Judin, Vladimir N. Method of mining and oil deposit. 4,381,124, Cl. 299-2.000.
Vessels, John B. Agricultural spray nozzle with fluid operated orifice cleaning member. 4,381,078, Cl. 239-118.000.
Victor Company of Japan, Limited: *See—*
Machida, Toyotaka; Noda, Teruaki; and Ikemura, Yuichi, 4,381,520, Cl. 358-29.000.
Saito, Takashi, 4,381,559, Cl. 369-77.000.
Vig, John R.: *See—*
Filler, Raymond L.; and Vig, John R., 4,381,471, Cl. 310-353.000.
Visser, Teunis, to IHC Holland N.V. Sealed bearing. 4,381,127, Cl. 384-151.000.
Vitale, Nicholas G., to Mechanical Technology Incorporated. Sealed oil-backed displacer suspension diaphragm. 4,380,902, Cl. 60-520.000.
Vogelgesang, Peter J., to Minnesota Mining and Manufacturing Company. Device to slow solenoid actuation motion. 4,381,491, Cl. 335-257.000.
Vohr, John H., to General Electric Company. Vibration damping tilting pad journal bearing. 4,381,128, Cl. 384-154.000.
von Bonin, Wulf; Mummenhoff, Peter; and Baumgen, Heinz, to Bayer Aktiengesellschaft. Sizing agents for paper and a process for the production thereof. 4,381,367, Cl. 524-549.000.
von der Wettern, Walter; and Albrecht, Harald, to Gebr. von der Wettern GmbH. Covering, a process of producing it and the use thereof. 4,381,357, Cl. 524-68.000.
Von Kohorn, Henry. Conductive ball. 4,381,109, Cl. 273-61.00R.
von Musil, Rudolf: *See—*
Grunewald, Peter; Jung, Peter; and von Musil, Rudolf, 4,381,467, Cl. 310-213.000.
Vora, Bipin V.; O'Brien, Dennis E.; and Scott, Norman H., to UOP Inc. Catalytic dehydrogenation process. 4,381,417, Cl. 585-655.000.
Voronin, Pavel G.: *See—*
Verty, Vladimir G.; Voronin, Pavel G.; Gurov, Evgeny I.; Zubkov, Vitaly S.; Obrezkov, Alexandr I.; Tabakov, Vladimir P.; Khvoschinsky, Boris B.; and Judin, Vladimir N., 4,381,124, Cl. 299-2.000.
Vosh, Lawrence J.; and D'Angelo, Kenneth R., to Burroughs Corporation. Multipart continuous form. 4,381,119, Cl. 282-11.50A.
Voyles, Gerald A.: *See—*
Shedigian, Vandos; and Voyles, Gerald A., 4,381,535, Cl. 361-318.000.
W. R. Grace & Co.: *See—*
Fulmer, Glenn E.; and Wood, Louis L., 4,381,332, Cl. 428-288.000.
Hildebrandt, Darrell E., 4,381,256, Cl. 252-455.00Z.
Nozemack, Richard J.; Chi, Chang W.; and Schwonke, John J., 4,381,255, Cl. 252-455.00Z.
W. R. Weaver Co.: *See—*
Strassburg, Ronald A., 4,380,876, Cl. 33-297.000.
Wabing S.r.l.: *See—*
Betta, Walter, 4,380,949, Cl. 87-48.000.
Wada, Shunichi: *See—*
Okuda, Kuniteru; Fukami, Teruki; Asayama, Yoshiaki; Wada, Shunichi; and Kabuto, Masami, 4,380,934, Cl. 73-861.230.
Wada, Takahiro; Ishihara, Shoichi; and Yamamoto, Ryoichi, to Matsushita Electric Industrial Co., Ltd. Supercooling inhibitor and process for preparing the same. 4,381,245, Cl. 252-70.000.
Wagle, William E., to Emhart Industries, Inc. Drive means for a timing mechanism. 4,381,433, Cl. 200-38.00R.
Wagner, Louis F.: *See—*
Pedersen, S. Erik; and Wagner, Louis F., 4,381,411, Cl. 568-459.000.
Waizer, Walter; Helletsberger, Harald; Kriegshaber, Christof; and Selgrad, Volker, to Tyrolit-Schleifmittelwerke Swarovski KG. Grinding disk. 4,381,188, Cl. 51-298.000.
Wakino, Kikuo: *See—*
Ogawa, Toshio; and Wakino, Kikuo, 4,381,469, Cl. 310-313.00R.
Waldhauser, Steven A.; and Corneil, Dennis J., to Wetrok, Inc. Automatic floor cleaning machine. 4,380,844, Cl. 15-320.000.
Waldron, Gregory R., to Scott Machine Development Corporation. Sign-making method. 4,380,874, Cl. 33-184.500.
Wallace, Joseph E., to Parker-Hannifin Corporation. Segmented seal. 4,380,856, Cl. 29-412.000.
Wallant International Trade, Inc.: *See—*
Russek, Allen S., 4,381,012, Cl. 128-644.000.
Wallding, Wayne A.; and Sills, Leland, to Thatcher Glass Corporation. Internal treatment system for glassware. 4,381,193, Cl. 65-158.000.
Walling, Jorg-Hein; Dumoulin, Andre; and Arbuthnot, Gerald R., to Northern Telecom Limited. Electrode for a fluidizable bed coating apparatus. 4,380,965, Cl. 118-621.000.
Walls, John E., to American Hoechst Corporation. Method of treating lithographic printing plates with 2-propoxyethanol. 4,381,340, Cl. 430-302.000.
Walls, John E.: *See—*
Gillich, Thomas N.; and Walls, John E., 4,381,226, Cl. 204-14.00N.
Walter, John L.: *See—*
Berkowitz, Ami E.; and Walter, John L., 4,381,244, Cl. 252-62.520.
Walton, Lewis A., to Babcock & Wilcox Company, The. Control component structure. 4,381,283, Cl. 376-327.000.
Wang, Anthony D.: *See—*
Lillis, William J.; Naylor, Jimmy R.; Wang, Anthony D.; and White, Robert L., 4,381,497, Cl. 340-347.0DA.
Warchol, Joseph F., to E. F. Houghton & Company. Metal quenching process. 4,381,205, Cl. 148-18.000.
Warshawsky, Jerome, to I. W. Industries, Inc. Lamp swivel. 4,381,538, Cl. 362-269.000.
Watanabe, Akira: *See—*
Mishiba, Saburo; Hyoda, Junkoh; Uchida, Akira; Usami, Hisao; and Watanabe, Akira, 4,381,365, Cl. 524-460.000.
Watanabe, Taizo: *See—*
Chibata, Ichiro; Tosa, Tetsuya; Sato, Tadashi; Watanabe, Taizo; and Minobe, Satoshi, 4,381,239, Cl. 210-679.000.
Watanabe, Tsuyoshi: *See—*
Isaka, Kazuo; Nakahata, Kimio; Sakurai, Masaaki; Watanabe, Tsuyoshi; Kan, Fumitaka; and Takeda, Kenji, 4,380,966, Cl. 118-651.000.
Webber, William T.: *See—*
Maynard, Bruce W., Jr.; and Webber, William T., 4,380,978, Cl. 123-275.000.
Weber, Hans R.: *See—*
Hurni, Samuel; and Weber, Hans R., 4,381,184, Cl. 425-202.000.
Weeks, Harry D. Multi-hitch apparatus for tandem towing of farm implements. 4,381,118, Cl. 280-412.000.
Wehner, Ewald: *See—*
Adam, Peter; and Wehner, Ewald, 4,381,468, Cl. 310-239.000.
Wehrmeister, Gerhard, to Saurer-Allma GmbH. Device for feeding a liquid thread-treating medium to the thread in a double thread twisting machine. 4,380,891, Cl. 57-296.000.
Weinshenker, Ned M.: *See—*
Swanson, Sally A.; Weinshenker, Ned M.; Wingard, Robert E., Jr.; and Dawson, Daniel J., 4,381,185, Cl. 8-506.000.
Weiss, Harry M.: *See—*
Russell, Thomas V., 4,381,240, Cl. 210-746.000.

Weiss, Samuel; and Lechuga, Andrew R., to Stauffer Chemical Company. Mercury brine sludge treatment. 4,381,288, Cl. 423-101.000.
Welch Allyn, Inc.: *See—*
Kieffer, Joseph D., III; Cecil, John, Jr.; and Conroe, Barden A., 4,380,998, Cl. 128-9.000.
Wentz, Frederick E. Pop-up plunger. 4,380,834, Cl. 4-287.000.
Wesling, Henry J.; and Franz, James H., Jr., to Westinghouse Electric Corp. Electric motor chopper control apparatus and method. 4,381,479, Cl. 318-317.000.
Wessel, Wolf: *See—*
Linder, Ernst; Babitzka, Rudolf; Brettschneider, Johannes; Polach, Wilhelm; Wessel, Wolf; and Stumpp, Gerhard, 4,380,900, Cl. 60-275.000.
West, Doy M.: *See—*
Hood, Larry M.; and West, Doy M., 4,380,910, Cl. 62-91.000.
West Electric Co., Ltd.: *See—*
Yoshino, Tsunemi; and Iwata, Hiroshi, 4,381,146, Cl. 354-271.000.
Western Electric Company, Inc.: *See—*
Desmarais, Patrizia R.; and DiTroia, Anthony J., 4,381,441, Cl. 219-121.0LJ.
Elliott, William A.; and Taylor, Thomas J., 4,381,420, Cl. 174-34.000.
Westinghouse Electric Corp.: *See—*
Chen, Cheng L.; Goldstein, Norman P.; and Todt, William H., 4,381,451, Cl. 250-390.000.
DeLaurentis, Angelo A., 4,381,209, Cl. 156-162.000.
Gjertsen, Robert K., 4,381,284, Cl. 376-364.000.
Przybysz, John X.; Driver, Michael C.; and Nathanson, Harvey C., 4,381,341, Cl. 430-312.000.
Taszarek, Bruce J.; and Junker, Warren R., 4,380,929, Cl. 73-579.000.
Taylor, Lyle H., 4,381,565, Cl. 372-91.000.
Wesling, Henry J.; and Franz, James H., Jr., 4,381,479, Cl. 318-317.000.
Westvaco Corporation: *See—*
DelliColli, Humbert T.; McPartland, Thomas F.; and Bauer, Walter A., 4,381,194, Cl. 71-65.000.
Kern, Nicholas T., 4,381,218, Cl. 162-252.000.
Wetrok, Inc.: *See—*
Waldhauser, Steven A.; and Corneil, Dennis J., 4,380,844, Cl. 15-320.000.
Whitaker, Larry D.; and Herriott, Donald M. Spa-domestic hot water heat exchanger. 4,381,031, Cl. 165-39.000.
White Consolidated Industries, Inc.: *See—*
DeLong, Ronald B.; and Schettl, Alvin J., 4,381,444, Cl. 219-451.000.
White, James R.: *See—*
Audeh, Costandi A.; Heilweil, Israel J.; White, James R.; and Yan, Tsoung Y., 4,381,234, Cl. 208-327.000.
White, Robert L.: *See—*
Lillis, William J.; Naylor, Jimmy R.; Wang, Anthony D.; and White, Robert L., 4,381,497, Cl. 340-347.0DA.
Whitehead, Michael J.: *See—*
Garner, Robert; and Whitehead, Michael J., 4,381,266, Cl. 260-546.000.
Wiebe, David J., to United States of America, Army. Annular combustor having ceramic liner. 4,380,896, Cl. 60-39.320.
Wilcox, Steven R.: *See—*
Horvath, Stephen J.; and Wilcox, Steven R., 4,381,447, Cl. 250-223.00R.
Wiles, James P., to Ladco Development Co., Inc. Method and apparatus for preventing loss of data from volatile memory. 4,381,457, Cl. 307-64.000.
Wilkens, Christian, to Karl Mayer Testilmaschinenfabrik GmbH. Weft thread laying apparatus with combing element. 4,380,913, Cl. 66-84.00A.
Wilkinson, James H.; and Collins, Mark C., to Sony Corporation. Error concealment in digital television signals. 4,381,519, Cl. 358-21.00R.
Williams, Loren J. Adjustable wire reel. 4,381,087, Cl. 242-110.000.
Williams, Raymond M.: *See—*
Lanham, Dennie C., 4,380,888, Cl. 54-8.000.
Wilson, Alexander J., to Lucas Industries Limited. Hydraulically-operated anti-skid vehicle braking system with pump. 4,381,125, Cl. 303-116.000.
Wilson, Gordon A.: *See—*
Canning, Jonathan R., deceased; Moulding, Kenneth W.; and Wilson, Gordon A., 4,381,489, Cl. 333-215.000.
Wimmer, Eric: *See—*
Emeury, Jean-Marie; and Wimmer, Eric, 4,381,400, Cl. 549-464.000.
Wingard, Robert E., Jr.: *See—*
Swanson, Sally A.; Weinshenker, Ned M.; Wingard, Robert E., Jr.; and Dawson, Daniel J., 4,381,185, Cl. 8-506.000.
Wisner, Daniel A., to Burroughs Corporation. Intercharacter gap detector for MICRS. 4,381,494, Cl. 340-146.30C.
Wistinghausen, Walter: *See—*
Haverkamp, Hans; and Wistinghausen, Walter, 4,381,048, Cl. 188-171.000.
Witte, Erwin C.; and Myers, William D., to Microdot Inc. Self-locking nut. 4,381,163, Cl. 411-311.000.
Wittenberg, Sidney. Contact lens sterilizing device. 4,381,285, Cl. 422-116.000.
Wolff, Erich: *See—*
Renner, Gunter; and Wolff, Erich, 4,381,339, Cl. 430-223.000.
Wood, John: *See—*
Jenkins, Stuart M.; Wood, John; and Martin, David, 4,381,445, Cl. 235-379.000.
Wood, Louis L.: *See—*
Fulmer, Glenn E.; and Wood, Louis L., 4,381,332, Cl. 428-288.000.
Woodhull, Ivan D., Jr.; and Liedel, Thomas H., to Karmazin Products Corporation. Header construction. 4,381,033, Cl. 165-175.000.
Wray, Michael L.: *See—*
Kincaid, Herbert; and Wray, Michael L., 4,380,915, Cl. 70-224.000.
Wren, Lloyd W., to Boeing Co., The. Microwave absorber. 4,381,510, Cl. 343-909.000.
Wrobleski, James T., to Monsanto Company. Method for preparing catalysts for production maleic anhydride. 4,381,254, Cl. 252-437.000.
Wrozina, Joseph I.: *See—*
Albee, Paul J., Jr.; Burdick, Patricia E.; and Wrozina, Joseph I., 4,381,376, Cl. 525-366.000.
Wylie, Roger, to Exxon Research & Engineering Co. Adsorption-desorption separation process with integrated light and heavy desorbents. 4,381,419, Cl. 585-828.000.
Xerox Corporation: *See—*
Bain, Lee L., 4,381,515, Cl. 346-140.00R.
Yabe, Minoru: *See—*
Endoh, Satoru; Ikeda, Mamoru; Yabe, Minoru; Igarashi, Mitsuru; and Yamauchi, Masaaki, 4,381,473, Cl. 313-414.000.
Yamada, Akihiro: *See—*
Saito, Yoshitane; Yamada, Akihiro; and Yano, Satoshi, 4,381,456, Cl. 307-40.000.
Yamagishi, Kazuo: *See—*
Kamatani, Toshio; Ishiguro, Hirohisa; Itakura, Kensei; and Yamagishi, Kazuo, 4,381,348, Cl. 501-153.000.
Yamamoto, Ryoichi: *See—*
Wada, Takahiro; Ishihara, Shoichi; and Yamamoto, Ryoichi, 4,381,245, Cl. 252-70.000.
Yamauchi, Masaaki: *See—*
Endoh, Satoru; Ikeda, Mamoru; Yabe, Minoru; Igarashi, Mitsuru; and Yamauchi, Masaaki, 4,381,473, Cl. 313-414.000.
Yamazaki, Akira, to Sumitomo Metal Industries, Ltd. Method for tightening fastener on axially connected rod-like members. 4,380,859, Cl. 29-428.000.
Yan, Tsoung Y.: *See—*
Audeh, Costandi A.; Heilweil, Israel J.; White, James R.; and Yan, Tsoung Y., 4,381,234, Cl. 208-327.000.
Yanagiuchi, Shigenobu: *See—*
Kanou, Ikuo; Yanagiuchi, Shigenobu; and Omori, Takuro, 4,381,551, Cl. 364-900.000.
Yano, Minoru: *See—*
Nakayama, Haruhiko; Nagai, Masahiko; and Yano, Minoru, 4,381,429, Cl. 200-19.00R.
Yano, Satoshi: *See—*
Saito, Yoshitane; Yamada, Akihiro; and Yano, Satoshi, 4,381,456, Cl. 307-40.000.
Yao, Li-Ho. Electric flush tank. 4,380,835, Cl. 4-406.000.
Yasunaka, Shinsaku: *See—*
Shirakawa, Kenzo; Matsumoto, Masao; and Yasunaka, Shinsaku, 4,380,869, Cl. 30-34.100.
Yissum Research Development Co.: *See—*
Citri, Nathan, 4,381,343, Cl. 435-24.000.
Yokozawa, Norio: *See—*
Hotta, Masao; Maio, Kenji; Yokozawa, Norio; and Nagaishi, Hiromi, 4,381,495, Cl. 340-347.0DA.
Yong, Samuel H.; Edmonson, Douglas A.; Evans, Leah G.; Hohle, Deena G.; Jensen, Susan H.; O'Keefe, Leslie S.; and Laatsch, Debra S., to Pillsbury Company, The. Refrigerated dough and method of manufacture. 4,381,315, Cl. 426-94.000.
Yoshida, Koichi; Iwaisako, Toshiyuki; Masamoto, Junzo; Hamanaka, Katsuhiko; and Komaki, Hajime, to Asahi Kasei Kogyo Kabushiki Kaisha. Method for synthesizing trioxane. 4,381,397, Cl. 549-368.000.
Yoshida, Masahito: *See—*
Eguchi, Mitsuo; Yoshida, Masahito; Kato, Yoshifumi; Ichino, Nobuyuki; and Kikuchi, Yoshimi, 4,381,523, Cl. 358-227.000.
Yoshino, Hisashi: *See—*
Isshiki, Tomiya; Yoshino, Hisashi; and Tsuyuki, Kaoru, 4,381,221, Cl. 203-6.000.
Yoshino, Tsunemi; and Iwata, Hiroshi, to West Electric Co., Ltd. Piezoelectric aperture size control device. 4,381,146, Cl. 354-271.000.
Yu, Mason K., to General Motors Corporation. Centripetal flow gas turbine. 4,381,172, Cl. 415-205.000.
Zaba, Tadeusz, to BBC Brown, Boveri & Company Limited. Gas turbine containing an additional combustion gas compressor. 4,380,897, Cl. 60-39.330.
Zappia, Anthony T. Air fuel engine. 4,380,904, Cl. 60-712.000.
Zeidler, James R.: *See—*
Kolesar, Robert R.; Rickard, John T.; and Zeidler, James R., 4,381,428, Cl. 179-15.55R.
Zelensky, Viktor E.: *See—*
Leschinsky, Leonid K.; Gulakov, Sergei V.; Stepnov, Xenofont X.; Nosovsky, Boris I.; Bendrik, Valery G.; Dubinsky, Boris E.; Isirov, Dmitry I.; and Zelensky, Viktor E., 4,380,852, Cl. 29-121.200.
Zenith Radio Corporation: *See—*
Krenz, Horst M., 4,381,129, Cl. 339-14.00R.
Zillmer, Adalbert: *See—*
Gnest, Horst-Guenter; Granzow, Wolfgang-Dieter; Hartkopf, Hans-Otto; and Zillmer, Adalbert, 4,381,094, Cl. 246-182.00R.
Zimmerlin, Sharon L.: *See—*
Bohl, Thomas L.; Hall, George R., Jr.; and Zimmerlin, Sharon L., 4,381,153, Cl. 356-437.000.
Zobel, Donald W.: *See—*
Thompson, David L.; and Zobel, Donald W., 4,381,010, Cl. 128-419.0PG.
Zubkov, Vitaly S.: *See—*
Verty, Vladimir G.; Voronin, Pavel G.; Gurov, Evgeny I.; Zubkov, Vitaly S.; Obrezkov, Alexandr I.; Tabakov, Vladimir P.; Khvoschinsky, Boris B.; and Judin, Vladimir N., 4,381,124, Cl. 299-2.000.
Zumbiel, William A. Refrigeration control apparatus. 4,380,911, Cl. 62-228.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 26TH DAY OF APRIL, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Armco Inc.: *See*—
Elias, James A., deceased; Newby, John R.; and Pierson, Marvin B., Re. 31,221, Cl. 148-31.000.
Bleazey, John C., to RCA Corporation. Track skipper for video disc player. Re. 31,223, Cl. 369-221.000.
Caterpillar Tractor Co.: *See*—
Hicks, George E.; Litherland, John W.; Martin, Arlan G.; and Williams, Lawrence, Re. 31,218, Cl. 123-1.00A.
Elias, James A., deceased (by Elias, June G., executrix); Newby, John R.; and Pierson, Marvin B., to Armco Inc. Cold rolled, ductile, high strength steel strip and sheet and method therefor. Re. 31,221, Cl. 148-31.000.
Elias, June G., executrix: *See*—
Elias, James A., deceased; Newby, John R.; and Pierson, Marvin B., Re. 31,221, Cl. 148-31.000.
Ernsberger, Fred M., to PPG Industries, Inc. Electromigration method for making stained glass photomasks. Re. 31,220, Cl. 65-30.130.
Hicks, George E.; Litherland, John W.; Martin, Arlan G.; and Williams, Lawrence, to Caterpillar Tractor Co. Fuel additive injection system for diesel engines. Re. 31,218, Cl. 123-1.00A.
Litherland, John W.: *See*—
Hicks, George E.; Litherland, John W.; Martin, Arlan G.; and Williams, Lawrence, Re. 31,218, Cl. 123-1.00A.
Martin, Arlan G.: *See*—
Hicks, George E.; Litherland, John W.; Martin, Arlan G.; and Williams, Lawrence, Re. 31,218, Cl. 123-1.00A.
McCracken, Oliver W., to Otis Engineering Corporation. Microprocessor computerized pressure/temperature/time [down-hole] recorder. Re. 31,222, Cl. 364-571.000.
Neptune Eastech, Inc.: *See*—
Rodely, Alan E., Re. 31,217, Cl. 73-861.220.
Newby, John R.: *See*—
Elias, James A., deceased; Newby, John R.; and Pierson, Marvin B., Re. 31,221, Cl. 148-31.000.
Otis Engineering Corporation: *See*—
McCracken, Oliver W., Re. 31,222, Cl. 364-571.000.
Pierson, Marvin B.: *See*—
Elias, James A., deceased; Newby, John R.; and Pierson, Marvin B., Re. 31,221, Cl. 148-31.000.
Polaroid Corporation: *See*—
Shenk, Edwin K., Re. 31,219, Cl. 354-195.000.
PPG Industries, Inc.: *See*—
Ernsberger, Fred M., Re. 31,220, Cl. 65-30.130.
RCA Corporation: *See*—
Bleazey, John C., Re. 31,223, Cl. 369-221.000.
Rodely, Alan E., to Neptune Eastech, Inc. Bluff body flowmeter. Re. 31,217, Cl. 73-861.220.
Shenk, Edwin K., to Polaroid Corporation. Automatic focusing camera. Re. 31,219, Cl. 354-195.000.
Williams, Lawrence: *See*—
Hicks, George E.; Litherland, John W.; Martin, Arlan G.; and Williams, Lawrence, Re. 31,218, Cl. 123-1.00A.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Schramm, Peter; Schuhmann, Siegfried; Schöneberger, Edgar F.; Dorn, Alfred; and Cappel, Bert, to Roland Offsetmaschinenfabrik Faber & Schleicher AG. Means for the control and regulation of the printing process on printing presses. B1 4,200,932, Cl. 364—519.

Roland Offsetmaschinenfabrik Faber & Schleicher AG.: *See*—
Schramm, Peter; Schuhmann, Siegfried; Schöneberger, Edgar F.; Dorn, Alfred; and Cappel, Bert. B1 4,200,932, Cl. 364—519.
Shringarpurey, Sudhir K.; and Maurer, Gerald L., to National Research Laboratories. Metalworking fluid compositions and methods of stabilizing same. B1 4,129,509, Cl. 252—49.5.
National Research Laboratories: *See*—
Shringarpurey, Sudhir K.; and Maurer, Gerald L. B1 4,129,509, Cl. 252—49.5.
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Rent-A-Vac International Ltd.: *See*—
Mekelburg, Clayton G., B1 4,162,149, Cl. 55—315.

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Acme Burgess, Inc.: *See*—
Moon, Howard R., 268,778, Cl. D23-18.000.
ADIDAS Fabrique de Chaussures de Sport: *See*—
Anderie, Wolf, 268,710, Cl. D2-290.000.
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Antos, William J.: *See*—
Campbell, Jeffrey A., 268,765, Cl. D16-37.000.
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Beyl, Jean J. A., to LOOK. Heel unit of a ski safety binding. 268,776, 4-26-83, Cl. D21-230.000.
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Potetz, William J.; and Bopp, Edward T., 268,720, Cl. D6-181.000.
Bova, Anthony J. Pull cap for waterbed filler neck. 268,722, 4-26-83, Cl. D6-201.000.
Brown, Charles A. Hand tool for permitting removal of swing arms from a centrifugal clutch. 268,729, 4-26-83, Cl. D8-14.000.
Brown, Edwin J. Can crusher. 268,761, 4-26-83, Cl. D15-123.000.
Brown, Michael: *See*—
Gibsone, Julian; Brown, Michael; Steiner, Eduard; and Maley, Nicholas, 268,744, Cl. D11-158.000.
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CLASSIFICATION OF PATENTS

ISSUED APRIL 26, 1983

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2	
105	4,380,833
CLASS 4	
287	4,380,834
406	4,380,835
460	4,380,836
510	4,380,837
CLASS 5	
66	4,380,838
CLASS 8	
506	4,381,185
620	4,381,186
CLASS 15	
104.92	4,380,839
105	4,380,840
210 B	4,380,841
304	4,380,842
316 R	4,380,843
320	4,380,844
344	4,380,845
391	4,380,846
CLASS 16	
85	4,380,847
	4,380,848
CLASS 17	
11	4,380,849
29	4,380,850
CLASS 29	
90 R	4,380,851
121.2	4,380,852
148.3	4,380,853
157.3 A	4,380,854
407	4,380,855
412	4,380,856
417	4,380,857
418	4,380,858
428	4,380,859
453	4,380,860
569 L	4,380,861
	4,380,862
571	4,380,863
574	4,380,864
576 W	4,380,865
577 C	4,380,866
590	4,380,867
726	4,380,868
CLASS 30	
34.1	4,380,869
133	4,380,870
360	4,380,871
CLASS 33	
174 N	4,380,872
174 P	4,380,873
184.5	4,380,874
203.13	4,380,875
297	4,380,876
CLASS 34	
225	4,380,877
CLASS 36	
67 D	4,380,878
CLASS 40	
447	4,380,879
564	4,380,880
CLASS 42	
42 R	4,380,881
CLASS 43	
14	4,380,882
17	4,380,883
42.09	4,380,884
CLASS 46	
220	4,380,885
CLASS 47	
58	4,380,886
CLASS 48	
212	4,381,187
CLASS 51	
298	4,381,188
CLASS 52	
405	4,380,887
CLASS 54	
8	4,380,888
CLASS 55	
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26	4,381,189
30	4,381,190
193	4,381,191
376	4,381,192
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296	4,380,889
CLASS 57	
286	4,380,890
296	4,380,891
401	4,380,892
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39.161	4,380,894
39.23	4,380,895
39.32	4,380,896
39.33	4,380,897
243	4,380,898
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520	4,380,902
641.4	4,380,903
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756	4,380,905
757	4,380,906
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64	4,380,908
79	4,380,909
91	4,380,910
228	4,380,911
506	4,380,912
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158	4,381,193
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456 R	4,380,914
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65	4,381,194
100	4,381,195
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8	4,380,917
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132	4,380,919
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66	4,380,925
83	4,380,926
146	4,380,927
518	4,380,928
579	4,380,929
594	4,380,930
643	4,380,931
749	4,380,932
	4,380,933
861.22	Re.31,217
861.23	4,380,934
861.24	4,380,935
861.62	4,380,936
864.56	4,380,937
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813 L	4,380,939
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57.16	4,380,940
180 R	4,380,941
436	4,380,942
CLASS 83	
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49	4,380,944
482	4,380,945
521	4,380,946
CLASS 84	
176	4,380,947
CLASS 86	
20 C	4,380,948
CLASS 87	
48	4,380,949
CLASS 89	
33 BA	4,380,950
CLASS 92	
244	4,380,951
CLASS 98	
59	4,380,952
CLASS 99	
549	4,380,953
CLASS 100	
35	4,380,954
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202.1	4,380,957
202.2	4,380,958
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93	4,380,959
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1.12	4,381,198
186	4,381,199
282	4,381,200
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347	4,380,960
CLASS 112	
231	4,380,961
274	4,380,962
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324	4,380,963
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50	4,380,964
621	4,380,965
651	4,380,966
669	4,380,967
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198 DB	4,380,976
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571	4,380,988
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415	4,380,993
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20	4,380,999
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130	4,381,001
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214 R	4,381,004
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653	4,381,055
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450	4,381,067
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D2—	273	268,709		77	268,727		70	268,738			268,752		119	268,766		65	268,780
	290	268,710		98	268,728		73	268,739		32	268,753		127	268,767		71	268,781
D3—	33	268,711		317	268,725			268,740		40	268,754		132	268,768		149	268,782
	36	268,712			268,726	D11—	107	268,741	D14—	5	268,755	D21—	20	268,769	D24—	17	268,783
	48	268,713		319	268,724			268,742			268,756		23	268,770		99	268,784
	74	268,714	D8—	14	268,729		131	268,743		6	268,757		33	268,771			268,785
D6—	29	268,715		30	268,730		158	268,744		53	268,758		81	268,772	D25—	58	268,786
	56	268,716		38	268,731		166	268,745	D15—	5	268,759		87	268,773		59	268,787
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	73	268,718		323	268,733		110	268,747		123	268,761		220	268,775		11	268,789
	116	268,719		358	268,734		146	268,748		134	268,762		230	268,776	D32—	50	268,790
	181	268,720		396	268,735		196	268,749		145	268,763		236	268,777	D34—	44	268,791
	191	268,721	D9—	349	268,736		209	268,750	D16—	1	268,764	D23—	18	268,778	D92—	29	268,792
	201	268,722	D10—	39	268,737	D13—	24	268,751		37	268,765		51	268,779		31	268,793
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